7.3 INSTITUTIONAL DISTINCTIVENESS
SUPPORTING DOCUMENTS FOR 7.3.1

S.No	Title
1.	Research Laboratories
2.	Proofs of CIFs
3.	Ph.D. Supervisors
4.	Ph.D. Students
5.	Awarded Ph.D.
6.	Virtual Laboratories
7.	DBT STAR Status
8.	Undergraduate Research
9.	Postgraduate Research
10.	Anusandhan Kosh
11.	Post-doctoral Research
12.	Research Contingency Grant
13.	School Dissertations
14.	Workshops
15.	Research Publications

Dr. Sada Nand Prasad
Convenor, NAAC
Acharya Narendra Dev College

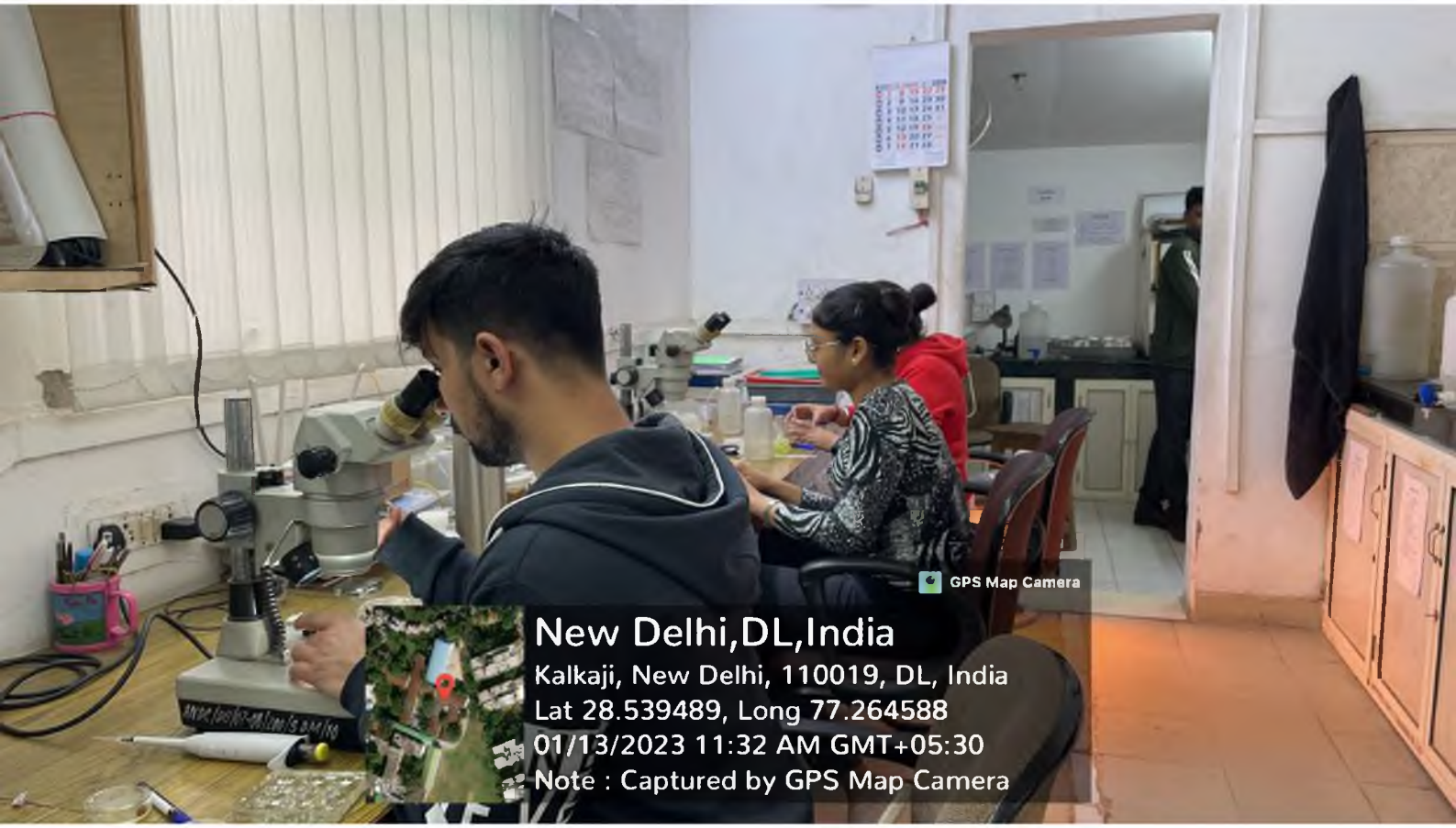
Prof. Ravi Toteja
Officiating Principal
Acharya Narendra Dev College

7.3: Institutional Distinctiveness

The College has a total of **17 research laboratories** which are as follows:

1. Anti-mycobacterial Drug Discovery Laboratory
2. Chemical Biology Laboratory
3. Environmental Monitoring and Assessment Laboratory
4. Polymer Research Laboratory
5. Research Laboratory of Inorganic Chemistry
6. Material Science Laboratory
7. Mathematics Research Centre Laboratory
8. Sensing Materials and Devices Laboratory
9. Chandra Computational Physics Lab
10. Insect Vector and Pests Laboratory
11. Microbial Technology Laboratory
12. Ciliate Biology Laboratory
13. Embedded System and Robotics laboratory
14. Synthesis & In-Silico Drug Design Laboratory
15. Th!nk Laboratory: CUBE Laboratory in collaboration with HBCSE, Tata Institute of Fundamental Research, Mumbai
16. Mushroom Research and Skill Development Centre (MRSDC)
17. Zebrafish Culture Facility

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539466, Long 77.264503
01/13/2023 11:32 AM GMT+05:30
Note : Captured by GPS Map Camera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New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539489, Long 77.264588
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Note : Captured by GPS Map Camera

CILIATE BIOLOGY
LABORATORY
UGC & DST PROJECTS
SEMINAR
HALL
R.No.51
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539545, Long 77.264484
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Note : Captured by GPS Map Camera

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539240, Long 77.263705
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Note : Captured by GPS Map Camera

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539275, Long 77.263762
01/13/2023 11:46 AM GMT+05:30
Note : Captured by GPS Map Camera

ON
MAINS
FORWARD
REVERSE
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539300, Long 77.263697
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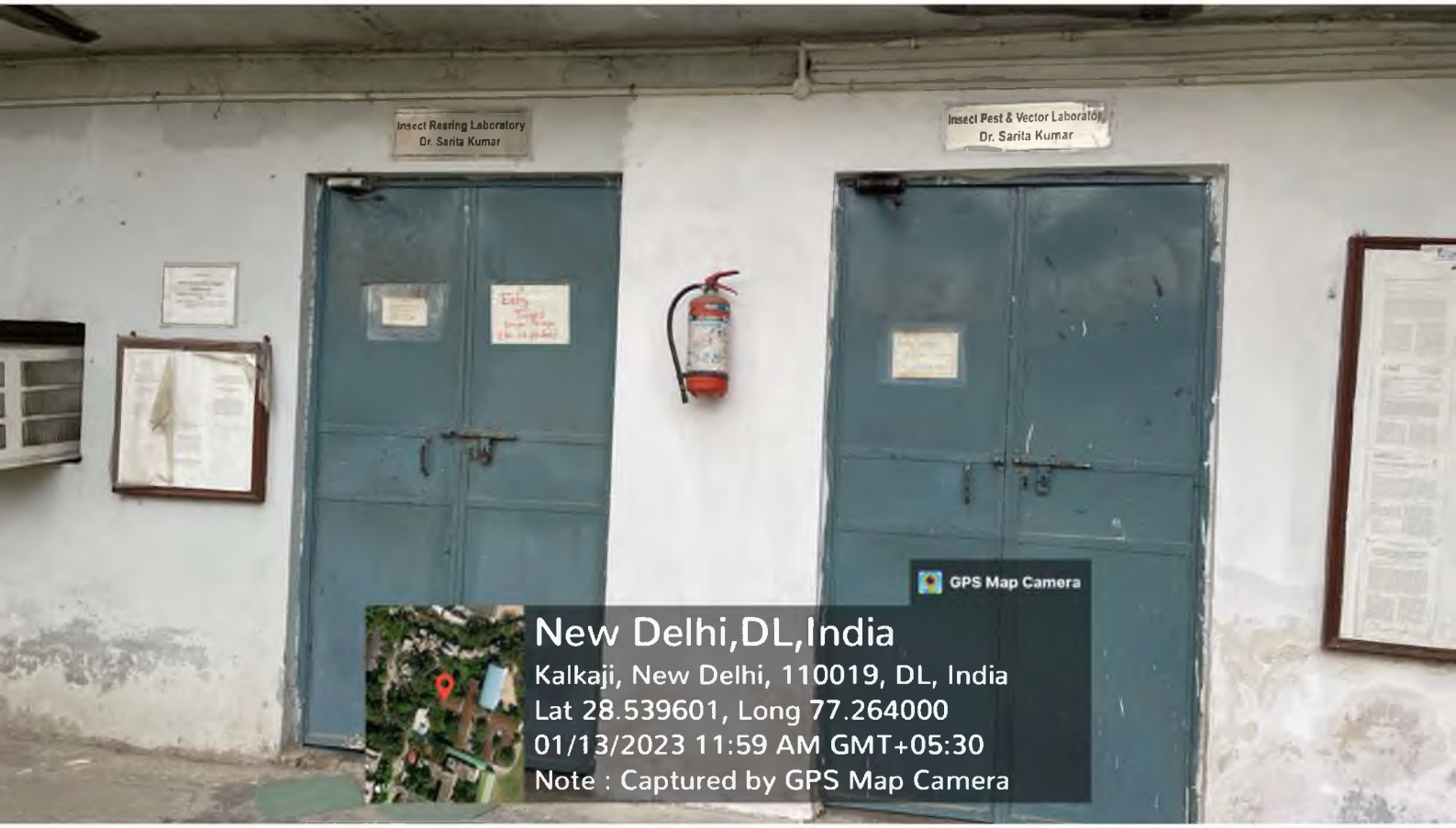
Insect Rearing Laboratory
Dr. Sarita Kumar
Insect Pest & Vector Laboratory
Dr. Sarita Kumar
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539601, Long 77.264000
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Note : Captured by GPS Map Camera

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Kalkaji, New Delhi, 110019, DL, India
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Note : Captured by GPS Map Camera

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539590, Long 77.263967
01/13/2023 11:58 AM GMT+05:30
Note : Captured by GPS Map Camera

Microbial Culture Facility
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539726, Long 77.264210
01/13/2023 12:06 PM GMT+05:30
Note : Captured by GPS Map Camera

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539677, Long 77.264294
01/13/2023 12:07 PM GMT+05:30
Note : Captured by GPS Map Camera

No
Entry
Without
Mask!
बिना मास्क
प्रवेश
वर्जित है
ANTI-MYCOBACTERIAL DRUG
DISCOVERY LABORATORY
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539114, Long 77.264275
01/13/2023 12:13 PM GMT+05:30
Note : Captured by GPS Map Camera

Celfrost
A Middleby Company
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539176, Long 77.264261
01/13/2023 12:10 PM GMT+05:30
Note : Captured by GPS Map Camera

Without Mask!
ANTI-MICROBACTERIAL DRUG DISCOVERY LABORATORY
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
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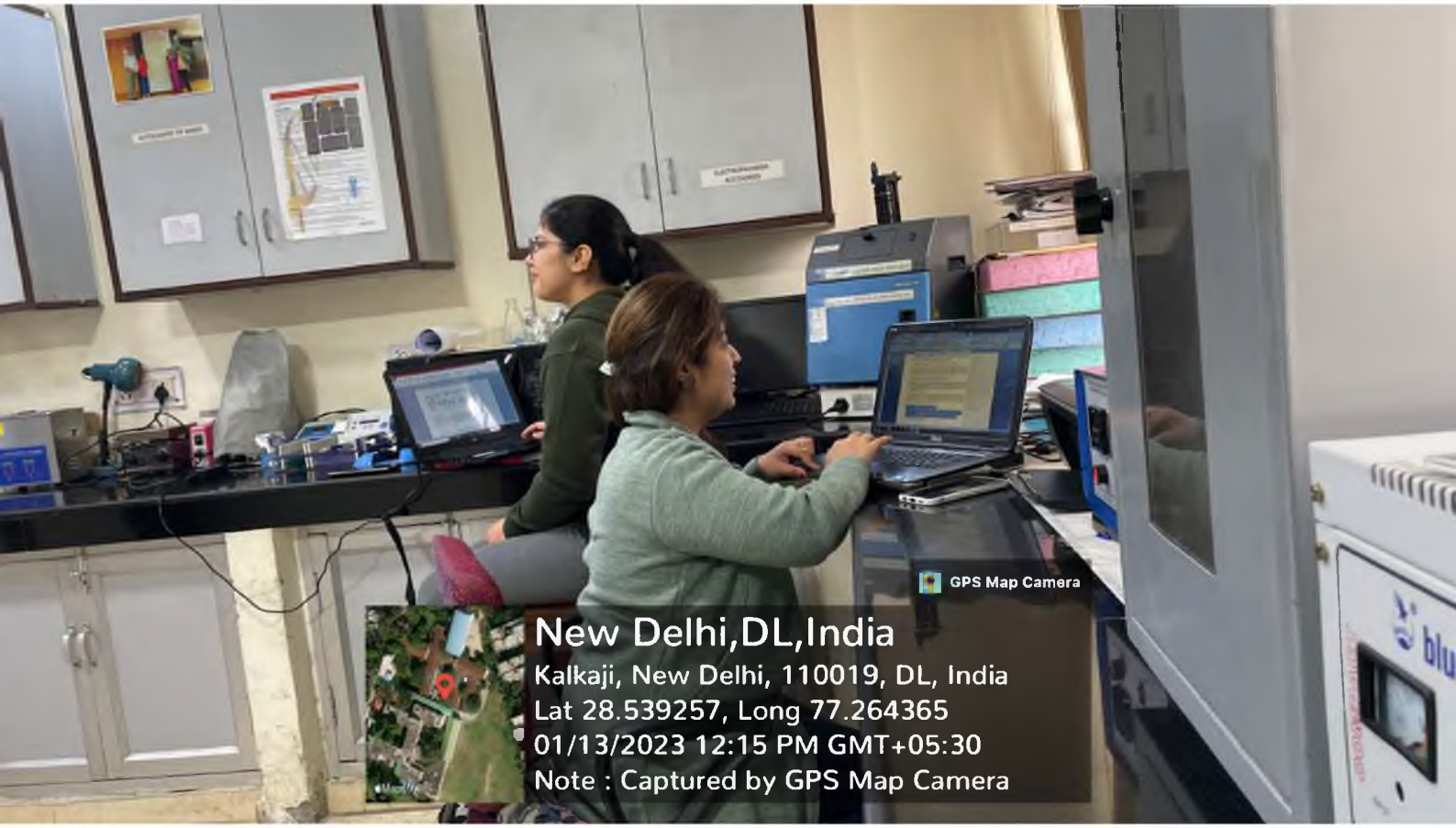
Note : Captured by GPS Map Camera


GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539257, Long 77.264365
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Note : Captured by GPS Map Camera

G-STORM
GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539234, Long 77.264345
01/13/2023 12:16 PM GMT+05:30
Note : Captured by GPS Map Camera

GPS Map Camera
New Delhi,DL,India
Kalkaji, New Delhi, 110019, DL, India
Lat 28.539166, Long 77.264360
01/13/2023 12:14 PM GMT+05:30
Note : Captured by GPS Map Camera

Pictures of CIFs

अनुसंधान केंद्र
Research Centre

सेंट्रल इंस्ट्रूमेंटेशन सुविधा
Central Instrumentation Facility
फिजिकल साइंस सेंट्रल इंस्ट्रूमेंटेशन फैसिलिटी
Physical Science Central Instrumentation Facility
जीव विज्ञान सेंट्रल इंस्ट्रूमेंटेशन फैसिलिटी
Life Science Central Instrumentation Facility

NIP-01-2019-10Pads

BOARD OF RESEARCH STUDIES (SCIENCE)
(FACULTY OF SCIENCE)
UNIVERSITY OF DELHI

Ref. No. Ref. : FOS-I/114/Ph.D/ 8 20-

Dated : 26/04/19

With reference to his/her application for admission to Ph.D./Proramme in ACBR

Mr./Mrs./Miss Mr. Harekrushna Jena is hereby informed that the Board of Research Studies for Science in its meeting held on 06.04.2019 has provisionally selected him/her for registration to Ph.D. Programme and has assigned him/her to ACBR Department under the supervision of Prof./Dr. Dr. Gagan Dhawan on the following proposed area of research "Design and Development of Synthetic Vectors for Delivery of Biomolecules"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to be laid down by the Departmental Research Committee in each case.
2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requirement is fulfilled.
3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a comprehensive written and oral examination/presentation.
4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.
5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory the Advisory Committee may recommend either a further change to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees in this University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees on online portal in the concerned deptt, university of delhi within 15 days from the date of issue of this letter i.e. 13/05/19 failing which his/her selection to the course shall be deemed as cancelled.

His/her registratsion is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University,.

In case the candidate has passed the M.Sc. Examination from a University other than Delhi University, he/she is required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Academic Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificate may also be produced.

sd/-

Section Officer (Science)

BOARD OF RESEARCH STUDIES (MATHEMATICAL SCIENCES)
University of Delhi
Delhi-110007

Email: dean_mathsci@du.ac.in Ph.27666041

Prof. C.S. Lalitha
Chairperson

No.BRS(MS)/248/2021/
Dated: February 22, 2021

MEMORANDUM

With reference to his application dated 22.01.2021 **Mr. Gurudatt Rao Ambedkar** is hereby informed that the Board of Research Studies (Mathematical Sciences) at its meeting held on February 19, 2021 has approved his case for provisional admission to the Ph.D. Course under **Category-1(4) of Ordinance VI** in the **Department of Mathematics** University of Delhi, w.e.f. the date of his joining under the supervision of **Dr. Chaman Singh AND College, University of Delhi** with the following research topic:

"Optimization Problems for Sustainable Development"

He should note that his provisional admission is subject to:

I. His successful completion of Course Work to be assigned by the Departmental Research Committee within initial one or two semesters.
II. Completion of other formalities like defence of the thesis topic in a departmental seminar and

He is advised to contact his supervisor(s) for further instructions and guidance in this regard.

He is required to complete the following formalities of provisional admission within four weeks from the date of dispatch of this letter failing which his admission shall be treated as cancelled without any further notice:

(a) To submit the following certificates in original:

(i) Undergraduate and postgraduate (qualifying) Degrees/ Certificates.
(ii) Mark-sheets of undergraduate and postgraduate (qualifying) examinations.
(iii) Matriculation/Higher Secondary/Secondary School Certificate for verification of date of birth.
(iv) Certificate, in the case of SC/ST/OBC/PH category
(v) Fellowship/Scholarship/UGC-NET award letter.

(b) After the submission/verification of the above documents/ certificates, to obtain a slip from the BRS (MS) office for depositing the required fees with the University through online and submit a copy of the fee receipt paid along with the joining report..

He may further note that,

(i) Teachers from a Department/Constituent College of the University of Delhi are exempted from payment of tuition fees on production of employment certificate.

(ii) The Ph.D. students have to pay fees annually in advance and if they fail to do so their names will be struck off from the rolls.

C. S. Lalitha

CHAIRPERSON

Encl: Joining Report Proforma

Mr. Gurudatt Rao Ambedkar
L -24, Sector -12
Pratap Vihar, Ghaziabad
gurudattraoambedkar@andc.du.ac.in

Copy forwarded for information and necessary action to:

1. The Head, Department of Mathematics, University of Delhi, Delhi-110007.
2. Dr. Chaman Singh (Supervisor) Acharya Narendra Dev College Govindpuri kalka ji New Delhi-19, New Delhi, 110019
3. Prof. C.S. Lalitha, Member Advisory Committee Department of Mathematics, University of Delhi, Delhi-110007.
4. Dr. Anupama Panigrahi, Member Advisory Committee Department of Mathematics, Benito Juarez Road, Dhaula Kuan (University of Delhi) South Campus, New Delhi – 110021
5. The Dean (Examination), University of Delhi, Delhi-110007.

24/2/21

Section Officer

UNIVERSITY OF DELHI

FACULTY OF SCIENCE

PROFESSOR I. USHA RAO
Dean

For selection of candidates in Projects (6), following is the composition of the Committee:

1. An eminent scholar to be nominated by the Vice-Chancellor.(DRC member as an outside experts)
2. Head of the Department.
3. One professor and one Reader from the parent Department to be nominated by the Vice-Chancellor.
4. PI and Co-PI of the Project or any other member as per the requirement of the funding agency.

(The Selection Committee should clearly mention that the selected candidates be considered for registration by the DRC).

The candidates considered for registration have to do the course work available at the University Department.

Your recognition as a supervisor is also subject to fulfilling the following conditions:

1. Having a project from the funding agency for the duration of at least 2 years.
2. Undertaking from the Principal of the college that sufficient laboratory space will be provided to the students/supervisor to carry out the research work.
3. Any student appointed in the project will not be automatically considered for registration unless or otherwise recommended by the duly constituted committee (6).

The registration of the student and other research activities will be as per the guidelines prescribed under the revised ordinance VI-B.

Yours faithfully,

I. Usha Rao

(Prof. I. Usha Rao)

Self Attested
5/3/20

Scanned with CamScanner

UNIVERSITY OF DELHI

FACULTY OF SCIENCE

PROFESSOR I. USHA RAO
Dean

Ref. No. A.R.(Sc.)/2011/ 30536 Dated: 21.3.2011

Dr. Sunita Hooda,
Associate Professor,
Department of Chemistry,
Acharya Narendra Dev College,
Govindpuri, Kalkaji,
New Delhi.

Dear Dr. Hooda,

The Chairperson of BRS (Science) has approved the recommendations of the Inspection Committee for your recognition as a Supervisor to guide Ph.D. students of the University in your subject. This is only one time recognition for taking maximum of two Ph.D. students. Any further recognition will be granted only after review by the duly constituted Inspection Committee of the BRS. The students may be provided guidance in your College as well as in the concerned Department of the University.

It may be mentioned here that the registration of the candidate for Ph.D. Programme will be done strictly in accordance with the guidelines prescribed under Ordinance VI-B duly notified by the Registrar vide letter no. SPA/R/2008/2655 dated 28/4/2008, (copy enclosed). Additional guidelines for the selection of candidates in the Projects for consideration for registration are also enclosed (Dean, Research letter no. R/194 dated 31/7/2008).

Students who are in receipt of any of the following types of fellowships/stipends will only be considered for registration by the BRS.

1. University Teaching Assistantships.
2. JRF through UGC/NET and CSIR/NET.
3. Fellowships of CSIR/ICAR/ICSSR/ICHR/ICMR/DBT/DST or from any other recognized Government institutions/organizations.
4. Rajiv Gandhi Fellowships for SC/ST from UGC.
5. SAP Fellowships from UGC.
6. Project JRF/Project Assistant.
7. Candidates with UGC (Non -NET) fellowships Rs. 5,000 fellowship under the new scheme.

Self-Attested
5/3/20

Contd...P/2

Scanned with CamScanner

BOARD OF RESEARCH STUDIES (MATHEMATICAL SCIENCES)
University of Delhi
Delhi-110007

Email: dean_mathsci@du.ac.in Ph.27666041

Prof. Ruchi Das
Chairperson

No.BRS(MS)/248/2022/ 903
Dated: January 27, 2022

MEMORANDUM

With reference to her application dated 30.12.2021 **Ms. Sonia Aneja** is hereby informed that the Board of Research Studies (Mathematical Sciences) at its meeting held on 24.01.2022 has approved her case for provisional admission to the Ph.D. Course under **Category-1(5) of Ordinance VI** in the **Department of Mathematics** University of Delhi, w.e.f. the date of her joining under the supervision of Dr. Sadanand Prasad, Acharya Narendra Dev College, University of Delhi with the following research topic:

"Dynamical Systems and Chaos Theory"

She should note that her provisional admission is subject to:

I. Her successful completion of Research Methodology and Research Publication Ethics paper to be assigned by the Departmental Research Committee within initial one or two semesters.

II . Completion of other formalities like defence of the thesis topic in a departmental seminar.

She is advised to contact her supervisor(s) for further instructions and guidance in this regard.

She is required to complete the following formalities of provisional admission within four weeks from the date of dispatch of this letter failing which her admission shall be treated as cancelled without any further notice:

(a) To submit the following certificates in original:

(i) Undergraduate and postgraduate (qualifying) Degrees/ Certificates.
(ii) Mark-sheets of undergraduate and postgraduate (qualifying) examinations.
(iii) Matriculation/Higher Secondary/Secondary School Certificate for verification of date of birth.
(iv) Certificate, in the case of SC/ST/OBC/PH category
(v) Fellowship/Scholarship/UGC-NET award letter.

(b) After the submission/verification of the above documents/ certificates, to obtain a slip from the BRS (MS) office for depositing the required fees with the University through online and submit a copy of the fee receipt paid along with the joining report.

She may further note that,

(i) Teachers from a Department/Constituent College of the University of Delhi are exempted from payment of tuition fees on production of employment certificate.

(ii) The Ph.D. students have to pay fees annually in advance and if they fail to do so their names will be struck off from the rolls.

Ruchi Das

CHAIRPERSON

Encl: Joining Report Proforma

Ms. Sonia Aneja
S- 334, Third Floor, S Block.
Greater Kailash, Part- I
New Delhi- 110048
Email- soniaanand@hotmail.com

Copy forwarded for information and necessary action to:

1 The Head, Department of Mathematics, University of Delhi, Delhi-110007.
2 Dr. Sadanand Prasad (Supervisor) Acharya Narendra Dev College, Govindpuri, Kalkaji New Delhi- 110019.
3. Prof. Tarun Kumar Das, Department of Mathematics, University of Delhi, Delhi- 110007, Member Advisory Committee.
4. Dr. Sachin Kumar, Department of Mathematics, University of Delhi, Delhi- 110007, Member Advisory Committee.
5. The Dean (Examination), University of Delhi, Delhi-110007.

31/01/22

Section Officer

31/01/2022

विज्ञान संकाय
दिल्ली विश्वविद्यालय
FACULTY OF SCIENCE
UNIVERSITY OF DELHI
Unit - I, Porta Cabin, Near Department of Zoology, University of Delhi, Delhi - 110007, Ph.: 27666601, 27662825, email: sciencefacultyof@gmail.com

CHEM/2021/1034 16-02-2021
Diary No. 2768-(3)
Date 15-02-2021
Department of Chemistry
University of Delhi, Delhi-7

Ref.: FOS-I/114/2021/9125

Dated: 08.02.2021
13/2/21

The Head
Department of Chemistry
University of Delhi
Delhi-110007.

Sir,

This is with reference to your DRC Minutes dated 09.11.2020 in connection with to recognize following teachers as supervisors to guide Ph.D. scholar.

In this connection, this is to inform you that the Board of Research Studies (Science) in its meeting held on **04.12.2020** considered & approved the following teachers as supervisor to guide Ph.D. scholar.

Sr. No.	Name	Recommended
1.	Dr. Seema Gupta, Associate Professor, Department of Chemistry, Acharya Narendra Dev College, Univeristy of Delhi, Govindpuri, Kalkaji, New Delhi-110019	Supervisor
2.	Dr. Mallika Pathak, Assistant Professor, Department of Chemistry, Miranda House, University of Delhi, Delhi-110007.	Supervisor
3.	Dr. Pankaj Khanna, Assistant Professor, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019.	Supervisor
4.	Dr. Sunil K. Singh, Assistant Professor, Kirori Mal College, Delhi University, Delhi-110007	Supervisor

Yours faithfully

Section Officer

Copy to:

1. Dr. Seema Gupta, Associate Profoessor, Department of Chemistry, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019.
2. Dr. Mallika Pathak, Assistant Professor, Department of Chemistry, Miranda House, University of Delhi, Delhi-110007.
3. Dr. Pankaj Khanna, Assistant Professor, Acharya Narendra Dev Collge, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019.
4. Dr. Sunil K. Singh, Assistant Professor.

Section Officer

Pg J-1

Pg I-8

D.U.P.-295-12-16-10 Pads X 100

BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Ref. No. Ref. : FOS-I/114/Ph.D./ 7396

Dated : 10/04/18

With reference to his/her application for admission to Ph.D./ Programme in Zoology

Mr./Mrs./Miss. Ms. Kungreiliu Panmei is hereby informed that the Board of Research Studies for Scienc

its meeting held on 31.03.2018 has provisionally selected him/her for registration to Ph.D. Programme and

assigned him/her to Zoology Department under the supervisio

Prof./Dr. Dr. Sarita Kumar on the following proposed are

research "Studies on the Effects of Lufenuron on the Growth and Development of Insects"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/she qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to be down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requireme fulfilled.

3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a compreher written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previ granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be requir repeat the same within the next six months when his/her performance would be re-examined. If the performar again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve hi performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees ir University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled i signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and fees with the Cashier, Delhi University, within 15 days from the date of issue of this letter i.e. 25/04/18 failing v his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.I this University.

In case the candidate has passed the M.Sc. Examination form a University other than Delhi University, he/ required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Aca Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The o certificate may also be produced.

Encl.: As above.

Ms. Kungreiliu Panmei
O-50, third Floor,
Malka Ganj, New Delhi-110007.

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Letter Received No. : 77-0
Date : 12-4-18 Time : 4:25
Initial :

Assistant Registrar(Sc

Copy forwarded for information to :-

DEPARTMENT OF ZOOLOGY
UNIVERSITY OF DELHI
DELHI-110 007 INDIA

Dated: 01/12/2017

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Despatch No. : 1526
Date : 4/12/17 Time : 10:31
Initial :

Dr. Ravi Toteja
Associate Professor
AND College
Kalkaji Delhi

Dear Sir,

With reference to your application for recognition as Ph. D supervisor, I am to convey approval of the Chairman, BRS to guide Ph. D Scholars. The copy of the letter is enclosed.

Yours Sincerely,

(Prof. M.M. Chaturvedi)
Head of the Department

Scanned by CamScanner

Mrs Shubha
22/11/2017

विज्ञान संकाय
दिल्ली विश्वविद्यालय
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Unit – I, Porta Cabin, Near Department of Zoology, University of Delhi, Delhi - 110007, Ph. : 27666601, 27662825, email- sciencefacultyof@gmail.com

Ref.: FOS-I/114/2017/ 7194

Dated: 16.11.2017
17

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Letter Received No. : 1582
Date : 17/11/17 Time : 3:45
Initial :

The Head,
Department of Zoology
University of Delhi
Delhi-110007.

Sir,

This is with reference to the recommendations of the Departmental Research Committee regarding recognition of following Assistant/Associate professor as sole supervisor to guide Ph.D. students in the Department of Zoology.

S.No.	Name of Supervisor	Name of the College
1.	Dr. Amar Jyoti, Assistant Professor	Daulat Ram College
2.	Dr. Ravi Toteja, Associate Professor	Acharya Narendra Dev Collge

In this connection, this is to inform you that the recommendations of the DRC for recognition of above said Assistant/Associate Professor as supervisor to guide Ph.D. scholars have been accepted and approved in the BRS meeting held on 28.10.2017.

The concerned supervisor may please be informed accordingly.

Yours faithfully

Section Officer

Scanned by CamScanner

☏ 27667591, 27667059, 27667725
Extn. 1336 Fax: 27662553
संगणक विज्ञान विभाग
DEPARTMENT OF COMPUTER SCIENCE
दिल्ली विश्वविद्यालय, दिल्ली - 110 007 (भारत)
UNIVERSITY OF DELHI, DELHI – 110 007 (INDIA)
http://cs.du.ac.in/

संदर्भ संख्या: सी·एस
Ref. No.: CS/20/

तिथि: अक्टूबर 12, 2020
Dated: October 12, 2020

जिससे भी संबंधित हो

TO WHOM IT MAY CONCERN

This is to certify that Dr. Sharanjit Kaur, Associate Professor at Acharya Narendra Dev College, University of Delhi, Delhi has been a Ph. D. Supervisor at the Department of Computer Science, University of Delhi, Delhi-110 007 since March 2014. One scholar has completed and one is pursuing doctorate degree under her able guidance.

I wish her best of luck and success in all her future endeavors.

(Neelima Gupta)
Head

D.U.P.-733-03-16-10 Pads X 100 D/1322 2.9.16

BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Ref. No. Ref. : FOS-I/114/Ph.D./ 6179 Dated : 31.08.2016 219

With reference to his/her application for admission to Ph.D./ Programme in Zoology Mr./Mrs./Miss Ms. S. Sripoorna is hereby informed that the Board of Research Studies for Science in its meeting held on 09.08.2016 has provisionally selected him/her for registration to Ph.D. Programme and has assigned him/her to Zoology Department under the supervision of Prof./Dr. Dr. Seema Makhija & Dr. Ravi Toteja on the following proposed area of research

"Ciliates as a Cellular Tool to assess Heavy Metal Toxicity"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to be laid down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requirement is fulfilled.

3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a comprehensive written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees in this University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within 15 days from the date of issue of this letter i.e. 16.09.16 failing which his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University.

In case the candidate has passed the M.Sc. Examination form a University other than Delhi University, he/she is required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Academic Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificate may also be produced.

Encl.: As above.

(Assistant Registrar(Science))

Ms. S. Sripoorna
16/411, Lodhi Colony,
New Delhi-110003.

A-41a

D.U.P.-235-12-16-10 Pads X 100

BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Ref. No. Ref. : FOS-I/114/Ph.D./ 7127

Dated : 07/11/17

With reference to his/her application for admission to Ph.D./ Programme in Zoology

Mr./Mrs./Miss Ms. Jeeva Susan Abraham is hereby informed that the Board of Research Studies for Sci

its meeting held on 28.10.2017 has provisionally selected him/her for registration to Ph.D. Programme i

assigned him/her to Zoology Department under the supervi

Prof./Dr. Dr. Seema Makhija on the following proposed

research "Taxonomy, Phylogeny and Molecular Systematics of Ciliates from Delhi, India"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/ qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave require fulfilled.

3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a compre written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission pre granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be requ repeat the same within the next six months when his/her performance would be re-examined. If the perform again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees University. A blank form for joining Report is enclosed herewith which should be returned to this office duly fille signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision an fees with the Cashier, Delhi University, within 15 days from the date of issue of this letter i.e. 22/11/17 failing his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph this University.

In case the candidate has passed the M.Sc. Examination form a University other than Delhi University, he required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Ac Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The c certificate may also be produced.

Encl.: As above.

Ms. Jeeva Susan Abraham
D-56, 2nd Floor,
Near MCD School, Khanpur Village,
Khanpur, New Delhi-110062.

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Letter Received No. : 1519-D
Date : 15-11-17 Time : 12:55
Initial :

Assistant Registrar(Sc

A-41b

Mrs. Shubha
26/4/2018

BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Ref. No. Ref. FOS-F114/Ph.D./ 7397 Dated 10/04/18

With reference to his/her application for admission to Ph.D./ Programme in Zoology

Mr./Mrs./Miss Ms. Swati Maurya is hereby informed that the Board of Research Studies for Science in its meeting held on 31.03.2018 has provisionally selected him/her for registration to Ph.D. Programme and has assigned him/her to Zoology Department under the supervision of Prof./Dr. Dr. Ravi Toteja and Dr. Seema Makhija on the following proposed area of research

"Ciliates as Bioindicators to Monitor the Pollution of Sewage Treatment Plant"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when qualified in the course work and has completed any other requirements, such as passing in the oral test etc. down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requirements fulfilled.

3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a comprehensive written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees in this University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within 15 days from the date of issue of this letter i.e. 25/4/18 failing which his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University.

In case the candidate has passed the M.Sc. Examination form a University other than Delhi University, he/she is required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Academic Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificate may also be produced.

Assistant Registrar(Science)

Encl. As above

Ms. Swati Maurya
RZ-1 15-D Street 5
Tughlakabad Extn.
New Delhi 110019

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Letter Received No. : 78-(9)
Date : 12-4-18 Time : 4:30
Initial :

DEPARTMENT OF ZOOLOGY
University of Delhi, Delhi-110007
Letter Received No. 929
Date 23-4-18 Time 4:30
Initial :

A-41c

D.U.P.-295-12-16-10 Pads X 100

BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Ref. No. Ref. : FOS-I/114/Ph.D./ 7048 Dated : 08-11-2017

With reference to his/her application for admission to Ph.D./ Programme in ACBR 10

Mr./Mrs./Miss Ms. Ritu Arora is hereby informed that the Board of Research Studies for Science in its meeting held on 28.10.2017 has provisionally selected him/her for registration to Ph.D. Programme and has assigned him/her to ACBR Department under the supervision of Prof./Dr. Dr. Urmi S. Bajpai on the following proposed area of research "Biomedical Science"

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to be laid down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requirement is fulfilled.

3. At the end of six months, the Advisory Committee shall access the progress of the candidate through a comprehensive written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees in this University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within 15 days from the date of issue of this letter i.e. 23-11-2017 failing which his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University.

In case the candidate has passed the M.Sc. Examination form a University other than Delhi University, he/she is required to be enrolled as student of this University. An enrolment form is enclosed which must be sent to Academic Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificate may also be produced.

Assistant Registrar(Science)

Encl.: As above.

Ms. Ritu Arora
H.No-680, Sector-23,
Fridabad, Haryana-121005

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FACULTY OF SCIENCE
UNIVERSITY OF DELHI
DELHI - 110007

S.f. I/9588

Dated: 27.10.2009
29

Dr. Monisha Khanna
Department of Zoology
A.N.D College
Govind Puri, Kalkaji
New Delhi-110019.

Dear Dr. Monisha Khanna,

The Vice–Chancellor has been pleased to approve the recommendations of the BRS (Science) for your recognition as a Supervisor to guide Ph.D students of the University in your subject. This is only one time recognition for taking maximum of two Ph.D students. Any further recognition will be granted only after review by the duly constituted Inspection Committee of the BRS. The students may be provided guidance in your College as well as in the concerned Department of the University.

It may be mentioned here that the registration of the candidate for Ph.D Programme will be done strictly in accordance with the guidelines prescribed under Ordinance VI-B duly notified by the Registrar vide letter no. SPA/R/2008/2655 dated 28/4/2008, (copy enclosed). Additional guidelines for the selection of candidates in the Projects for consideration for registration are also enclosed (Dean, Research letter no. R/194 dated 30/6/2008).

Students who are in receipt of any of the following types of fellowships/stipends will only be considered for registration by the BRS.

1. University Teaching Assistantships.
2. JRF through UGC/NET and CSIR/NET.
3. Fellowships of CSIR/ICAR/ICSSR/ICHR/ICMR/DBT/DST or from any other recognized Government institutions/organizations.
4. Rajiv Gandhi Fellowships for SC/ST from UGC .
5. SAP Fellowships from UGC.
6. Project JRF/Project Assistant.
7. Candidates with UGC (Non -NET) fellowships Rs. 5,000 fellowship under the new scheme.

For selection of candidates in Projects (6), following is the composition of the Committee:

1. An eminent scholar to be nominated by the Vice-Chancellor.(DRC member as an outside experts)
2. Head of the Department.
3. One professor and one Reader from the parent Department to be nominated by the Vice-Chancellor.
4. PI and Co-PI of the Project or any other member as per the requirement of the funding agency.

Contd...P/2

(The Selection Committee should clearly mention that the selected candidates be considered for registration by the DRC).

The candidates considered for registration have to do the course work available at the University Department.

Your recognition as a supervisor is also subject to fulfilling the following conditions:

1. Having a project from the funding agency for the duration of at least 2 years.
2. Undertaking from the Principal of the college that sufficient laboratory space will be provided to the students/supervisor to carry out the research work.
3. Any student appointed in the project will not be automatically considered for registration unless or otherwise recommended by the duly constituted committee (6).

The registration of the student and other research activities will be as per the guidelines prescribed under the revised ordinance VI-B.

Yours Faithfully

Dean (Faculty of Science)

Copy to:-

The Principal_____.

UNIVERSITY OF DELHI SOUTH CAMPUS
(FACULTY OF INTER-DISCIPLINARY AND APPLIED SCIENCE)

Ref.no. SF-I/Ph.D./2022/ 1407 Dated: 10th January, 2022

With reference to his/her application for admission to the Ph.D. Course in Electronic Science **Mr. Sandeep Singhania** is hereby informed that the Board of Research Studies at its meeting held on 04th January, 2022 has provisionally selected his/her for registration to the Ph.D. Course and has assigned his/her to **Electronic Science** Department under supervision of **Prof. Amit Garg** on the following title of thesis:

"ROLE OF FUNCTIONAL GROUP IN GAS SENSING OF 2D MATERIALS."

1. His/her admission to Ph.D. Course shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed other requirements such as passing in the oral test etc. to be laid down by the Departmental Research Committee in each case.

2. At the end of the six months, the Advisory Committee shall assess the progress after comprehensive written and/or oral examination.

3. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

4. If the overall performance in respect of the above is found not to be satisfactory, he/she shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory, the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/She is further informed that the date of his/her joining and starting research in the Department will be his/her date of registration. He/She is, therefore, requested to intimate this office the date from which he/she started his/her research in the Department. A blank form for Joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within one week from the date of issue of this letter till 20th January 2022 failing which his/her selection to the course shall be deemed as cancelled.

His/Her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University (a copy is enclosed).

In case he/she passed the M.Sc. Examination from a University other than Delhi University, he/she is required to be enrolled as a student of this University. An enrollment form is enclosed, which must be sent to this office duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificates may also be produced.

Chairperson
Board of Research Studies

Encl. As above
Sandeep Singhania
House No. 123, Basant Gaon,
New Delhi-110057

Copy forwarded for information to:
1. The Head of the Department, University of Delhi, South Campus
2. Professor/Dr. (Supervisor), University of Delhi, South Campus
3. Professor/Dr. (Co-Supervisor), University of Delhi, South Campus
4. The Finance Officer, University of Delhi, South Campus
5. The Librarian, University of Delhi, South Campus

14(10)

विज्ञान संकाय
दिल्ली विश्वविद्यालय
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

Unit – I, Porta Cabin, Near Department of Zoology, University of Delhi, Delhi - 110007, Ph. : 27666601, 27662825, email- sciencefacultyof@gmail.com

Ref.: FOS-I/114/2019/8583 Dated: 19.11.2019

The Head
Department of Botany,
University of Delhi
New Delhi-110007.

Sir,

This is with reference to your letter no. Bot/19/493 dated 16/17.09.2019 in connection with to recognise following teacher as supervisor to guide Ph.D. scholars.

In this connection, this is to inform you that the Board of Research Studies (Science) in its meeting held on **23.10.2019** considered & approved the following teacher as supervisors to guide Ph.D. scholars.

Sr. No.	Name	Recommended
1.	Dr. Charu Khosla Gupta, Associate Professor, Acharya Narendra Dev College, University of Delhi	Supervisor

Yours faithfully

Sd/-

Section Officer

Copy to:

1. Dr. Charu Khosla Gupta, Associate Professor, Department of Botany, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019.

Section Officer

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BOARD OF RESEARCH STUDIES (SCIENCE)
FACULTY OF SCIENCE
UNIVERSITY OF DELHI

AR-343(1)
9/4/21

Ref. No. Ref.: FOS-I/114/Ph.D./9328 Dated: **08.04.2021**

With reference to his/her application for admission to Ph.D. Programme in **Physics & Astrophysics** **Mr. Jatinder Pal Singh** is hereby informed that the Board of Research Studies for Science in its meeting held on **19.03.2021** has provisionally selected him/her for registration to Ph.D. Programme and has assigned him/her to **Physics & Astrophysics** Department under the supervision of **Dr. Arijit Chowdhuri** on the following proposed area of research **Growth and characterization of some 2D materials for sensing applications.**

1. His/her admission to Ph.D. Programme shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed any other requirements, such as passing in the oral test etc., to be laid down by the Departmental Research Committee in each case.

2. In case the candidate is employed, provisional admission to Ph.D. would be allowed only if leave requirement is fulfilled.

3. At the end of the six months, the Advisory Committee shall access the progress of the candidate through a comprehensive written and oral examination/presentation.

4. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

5. If the overall performance in respect of the above is not found to be satisfactory, the candidate shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/she is further informed that the date of his/her joining will be treated from the date of submission of fees in this University. A blank form for joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees on online portal in the concerned deptt. university of delhi within 15 days from the date of issue of this letter i.e. 24.04.21. failing which his/her selection to the course shall be deemed as cancelled.

His/her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University.

In case the candidate has passed the M.Sc. Examination from a University other than Delhi University, he/she is required to be enrolled as a student of this University. An enrolment form is enclosed which must be sent to Academic Branch duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificates may also be produced.

9/4/21

Section Officer (Science)

Encl.: As above.

Mr. Jatinder Pal Singh
C-12, Ground Floor,
South Extension I,
New Delhi-110049

UNIVERSITY OF DELHI SOUTH CAMPUS
(FACULTY OF INTER-DISCIPLINARY AND APPLIED SCIENCE)

Ref.no. SF-1/Ph.D./2015/1041 Dated: 15th June 2015

With reference to his/her application for admission to the Ph.D. Course in Electronic Science **Manju Rani** is hereby informed that the Board of Research Studies at its meeting held on 22nd May 2015 has provisionally selected his/her for registration to the Ph.D. Course and has assigned his/her to Electronic Science Department under supervision of **Dr. Udaibir Singh** on the following title of thesis:

"THEORETICAL INVESTIGATION OF PLASMONIC SOLAR CELLS"

1. His/her admission to Ph.D. Course shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed other requirements such as passing in the oral test etc. to be laid down by the Departmental Research Committee in each case.

2. At the end of the six months, the Advisory Committee shall assess the progress after comprehensive written and/or oral examination.

3. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

4. If the overall performance in respect of the above is found not to be satisfactory, he/she shall be required to repeat the same within the next six months when his/her performance would be re- examined. If the performance is again found not to be satisfactory, the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/She is further informed that the date of his/her joining and starting research in the Department will be his/her date of registration. He/She is, therefore, requested to intimate this office the date from which he/she started his/her research in the Department. A blank form for Joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within one week from the date of issue of this letter till..... failing which his/her selection to the course shall be deemed as cancelled.

His/Her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University (a copy is enclosed).

In case he/she passed the M.Sc. Examination from a University other than Delhi University, he/she is required to be enrolled as a student of this University. An enrollment form is enclosed, which must be sent to this office duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificates may also be produced.

Jitendra Khurana 16.6.15

Chairman
Board of Research Studies

Encl. As above
Ms. Manju Rani
26GF, Shyam Nagar, Chandiwala Estate,
Okhla Ph-3, New Delhi-110020

Copy forwarded for information to:
1. The Head of the Department, University of Delhi, South Campus
2. Professor/Dr (Supervisor), University of Delhi, South Campus
3. Professor/Dr (Co-Supervisor), University of Delhi, South Campus
4. The Finance Officer, University of Delhi, South Campus
5. The Librarian, University of Delhi, South Campus

UNIVERSITY OF DELHI SOUTH CAMPUS
(FACULTY OF INTER-DISCIPLINARY AND APPLIED SCIENCE)

Ref.no. SF-1/Ph.D./2014/1026 Dated: 29th December 2014

With reference to her application for admission to the Ph.D. Course in Electronic Science **Ms. Jyoti Kashyap** is hereby informed that the Board of Research Studies at its meeting held on **17th December 2014** has provisionally selected her for registration to the Ph.D. Course and has assigned her to **Electronic Science** Department under supervision of **Dr. Udaibir Singh** on the following title of thesis:

"Study and Analysis of structures of Plasmonic Solar Cells"

1. His/her admission to Ph.D. Course shall be provisional and the same shall be confirmed only when he/she has qualified in the course work and has completed other requirements such as passing in the oral test etc. to be laid down by the Departmental Research Committee in each case.

2. At the end of the six months, the Advisory Committee shall assess the progress after comprehensive written and/or oral examination.

3. If the Advisory Committee is satisfied, it would recommend confirmation of the provisional admission previously granted and the Board, if satisfied, would confirm the provisional admission.

4. If the overall performance in respect of the above is found not to be satisfactory, he/she shall be required to repeat the same within the next six months when his/her performance would be re-examined. If the performance is again found not to be satisfactory, the Advisory Committee may recommend either a further chance to improve his/her performance or cancellation of the provisional admission granted to him/her.

He/She is further informed that the date of his/her joining and starting research in the Department will be his/her date of registration. He/She is, therefore, requested to intimate this office the date from which he/she started his/her research in the Department. A blank form for Joining Report is enclosed herewith which should be returned to this office duly filled in and signed by his/her supervisor and Head of the Department to enable him/her to deposit the prescribed supervision and other fees with the Cashier, Delhi University, within one week from the date of issue of this letter till..... failing which his/her selection to the course shall be deemed as cancelled.

His/Her registration is governed by the provisions of Ordinance VI-B relating to Doctorate of Philosophy (Ph.D.) of this University (a copy is enclosed).

In case he/she passed the M.Sc. Examination from a University other than Delhi University, he/she is required to be enrolled as a student of this University. An enrollment form is enclosed, which must be sent to this office duly filled and signed by the Head of the Department immediately after joining the Ph.D. Course. The original certificates may also be produced.

Jitendra Khare

Chairman
Board of Research Studies

Encl. As above
Ms. Jyoti Kashyap
Flat No. 689, D-Pocket, Dilshad Garden,
Delhi-110095.

Copy forwarded for information to:
1. The Head of the Department, University of Delhi, South Campus
2. Professor/Dr (Supervisor), University of Delhi, South Campus
3. Professor/Dr (Co-Supervisor), University of Delhi, South Campus
4. The Finance Officer, University of Delhi, South Campus
5. The Librarian, University of Delhi, South Campus

Ph.D. Students Enrolled under the Supervision of College Faculty

S. No.	Supervisor (Department)	Ph.D. student	Area of work	Registration (month, year)
1	Prof. Urmi Bajpai (Biomedical Science)	Ritu Arora	Phage lysins	November, 2017
2		Kanika Nadar	Mycobacteriophages	April, 2021
3	Prof. GaganDhawan (BiomedicalScience)	NishthaAgrawal	Modulating host signaling cascade: Potential antiviral tool against Chikungunya virus	September, 2016
4		Harekrushna Jena	Design and development of synthetic vectors for the delivery of biomolecules	March, 2019
5		Akanksha Negi	Polymeric nanoparticles: Design, synthesis and their applications in drug delivery	February, 2022
6		VadantSoni	Role of microbiota-derived metabolites in immune checkpoint blockade immunotherapy of colorectal cancer	February, 2022
7	Prof. Charu Khosla Gupta (Botany)	Nitin Joshi	Assessing Impact of Climate Change on some medicinally important plants	March, 2022
8	Prof. SharanjitKaur (Computer Science) Co-Supervisor	Kirti Jain	Network analysis	November, 2018
9	Prof. Amit Garg (Electronics)	Rupali Pandey	Synthesis and Characterization of 2D Materials and their Applications	March, 2021
10		Sandeep	Role of Functional	January, 2022

		Singhania	Group in Gas Sensing of 2D Materials	
11		Preeti Bharati	Growth and Characterization of GaN based High Electron Mobility Transistors	January, 2022
12		Anju	Engineered 2D Materials for Smart Biosensing	January, 2022
13	Dr Sada Nand Prasad (Mathematics)	Sonia Aneja	Dynamical Systems & Chaos Theory	January, 2022
14		Preeti Yadav	Non Linear Dynamics	January, 2022
15	Dr Chaman Singh (Mathematics)	Gurudatt Rao Ambedkar	Optimization	February, 2021
16		Jyoti Kohli	Optimization	February, 2022
17		Garima Sethi	Inventory Control and Management	July, 2021
18	Prof. ArijitChowdhuri (Physics)	Shiva Lamichane	Multicomponent Oxide Thin Films for Functional Device Applications	April, 2018
19		Rohit Miglani	Functional materials for Microwave Resonator	January, 2019
20		Ajay Kumar Sao	Development of sensing layers for detection of chemical warfare (CW) agents/stimulants	January, 2019
21		Jatinder Pal Singh	Growth and characterization of some 2D materials for sensing application	March, 2021
22	Prof.SaritaKumar (Zoology)	Vinay Singh Dagar	Emamectin Benzoate as a potential control agent of cotton bollworm *Helicoverpaarmigera*	September, 2016
23		KungreiliuPa	Effect of Lufenuron on	March, 2018

		nmei	the growth and development of *Aedes aegypti*	
24		P. Lanbilu	Effects of synergistic combinations of an IGR and beta-cyfluthrin on the growth and development of red cotton bug, *Dysdercuskoenigii* (Fabr.) (Hemiptera: Pyrrhocoridae)	November, 2018
25		Manu Sankar	Characterization of Diflubenzuron Resistance in Dengue Vector, *Aedes aegypti* L. (Diptera: Culicidae)	November, 2019
26		Jyoti Falswal	Taxonomic studies of non-*Apis* bees Pollinators from North India	November, 2019
27		Divya Yadav	Identification of novel insecticide targets in mosquitoes	March, 2022
28	Prof. Monisha Khanna Kapur (Zoology)	Harsha	Bioactive potential of *Streptomyces* spp. against diverse pathogenic fungi	March, 2022
29	Prof. Ravi Toteja Prof. Seema Makhija (Zoology)	Swati Maurya	Microorganisms as Bioindicators in Diverse Environments	April, 2018
30		Sandeep	Ecotoxicological studies on ciliates	January, 2021
31	Dr Monica Misra (Zoology) Co-supervisor	Bhumika	Morphological and Molecular studies on Intestina parasites of freshwater fish, Channa striata (Snakehead Murrel) fom Meerut	March, 2022

			region	

Ph.D. thesis Submitted/Awarded by the Research Scholars

S.No	Name of the Research scholar	Mentor	Title of the thesis	Year of Award/ Submission
1	Dr Renu Solanki	Dr Monisha Khanna	Isolation and characterization of actinomycetes and analysis of their antimicrobial potential	Ph.D. awarded in 2014
2	Dr Anuja	Dr Vibha Gaur	Requirement Engineering Process for Multi-Agent Systems	Ph.D. awarded in 2014
3	Dr Neeraj Kumar Sharma	Dr Vibha Gaur	Agent-Mediated Attack-Resilient Reputation System For e-Commerce	Ph.D. awarded in 2014
4	Dr Radhika Warikoo	Dr Sarita Kumar	Studies on the Efficacy of Mexican Prickly Poppy, Argemone mexicana (Papaveraceae) as the Potential Control Agent of an Indian Strain of Dengue vector, Aedes aegypti L. (Diptera: Culicidae)	Ph.D. awarded in 2015
5	Dr Monica Mishra	Dr Sarita Kumar	Behavioural Implications of Host-Parasite Interactions in *Helicoverpa armigera*	Ph.D. awarded in 2016
6	Dr Payal Das	Dr Monisha Khanna	Microbial extracellular enzymes: Purification, Molecular characterization and Applications	Ph.D. awarded in 2017
7	Dr Eniyan Kandasamy	Dr Urmi Bajpai	Development of one-pot assay for screening multi-target inhibitors of *Mur* enzymes of *Mycobacterium tuberculosis*	Ph.D. awarded in 2018
8	Dr Rama Kanta Choudhury	Dr Chandra Kanta Samal	Implementation of reliable path planning technique for mobile robots in presence of obstacles	Ph.D. awarded in 2018
9	Dr Aarti Sharma	Dr Sarita Kumar	Synthesis, Evaluation and Characterization of Phyto-mediated Silver Nano composites against Indian Strain of Dengue Vector, *Aedes aegypti* L. (Diptera: Culicidae	Ph.D. awarded in 2019
10	Dr Rajiv Kumar Shukla	Dr Sarita Kumar	Isolation, Identification and Biochemical	Ph.D. awarded in 2019

			Characterization of Bacteria as Potential Biological Control	
11	Dr Shyam Lal	Dr Sunita Hooda	Synthesis, characterization, kinetics and biological application of some metal complexes, June 2018.	Ph.D. awarded in 2019
12	Dr Rakhi Saxena	Dr Sharanjit Kaur	Hierarchical Graph Decomposition for Scalable Network Analysis	Ph.D. awarded in 2019
13	Ms S. Sripoorna	Prof. Seema Makhija Prof.Ravi Toteja	Ciliates as cellular tool to assess heavy metal toxicity	Ph.D. Thesis Submitted in February, 2020
14	Mr Shani Kumar	Dr Amit Garg	Fabrication of Graphene Oxide Membranes for their Potential use in water Purification Applications Date of submission:	Ph.D. Thesis Submitted in December, 2020
15	Mr Prateek Kumar	Prof. Monisha Khanna Kapur	Structural analyses of bioactive compounds from *Streptomyces* spp. and identification of their biosynthetic gene clusters Date of submission: December 16, 2020	Ph.D. Thesis Submitted in December, 2020.
16	Ms Roopa Rani Samal	Prof. Sarita Kumar	Characterization of Mechanisms Involved in the Development of Acetamiprid and Deltamethrin Resistance in an Indian Strain of *Aedes aegypti* L. Date of Submission: March 16, 2021	Ph.D. Thesis Submitted in March, 2021
17	Ms Jeeva S. Abhraham	Prof. Seema Makhija	Taxonomy, Phylogeny and Molecular Systematics of Ciliates from Delhi, India Date of Submission:	Ph.D. Thesis Submitted in March, 2021

ACHARYA NARENDRA DEV COLLEGE

Preparing for the future…

आचार्य नरेंद्र देव कॉलेज

तैयारी भविष्य की…

University of Delhi | NAAC accredited: A Grade

दिल्ली विश्वविद्यालय | नैक मान्यता प्राप्त 'ए' ग्रेड

Virtual lab at ANDC (V-Lab@ANDC)

Patron: Prof. Ravi Toteja (Officiating Principal)
Coordinator: Prof. Seema Makhija (Zoology), Dr SumitSahni and Dr Vineet K Singh (Botany)
Conveners: Dr Sanjeeta Rani (Physics), Prof. SharanjitKaur (Computer Science), Dr Anita Narang (Botany), Dr Neeti Mishra (Chemistry)
Project Leads: Mr Ayush Mishra, andMr Vaibhav Thapliyal, B.Sc (H) Physics II Year

Unnatural circumstances need innovative solutions and COVID-19 brings such situations for academics where normal offline education came to a halt. Theoretical concepts were being delivered to students online but for understanding practical concepts a hands–on approach was missing. Acharya Narendra Dev College under the able vision of its principal, Prof. Ravi Toteja conceptualized the idea of Virtual lab (V-Lab) to provide remote access of various labs to the undergraduate science students through the internet, and thus became the first college in the University of Delhi to start V-Lab at its campus.

Virtual lab allows the student to understand, learn and perform the practical on their own remotely with a click of the mouse. It provides a complete Learning Management System (LMS) where students can avail the various learning, including additional web-resources, video-lectures, animated demonstrations and self-evaluation. Web enabled experiments have been designed for remote operation and viewing so as to enthuse the curiosity and innovation into students. This would help them in learning basic and advanced concepts through remote experimentation.

The course structure of various labs and experiments available on V-Lab@ANDC is futuristic, following a four quadrant model for e-content, and is developed considering the National Education Policy (NEP)-2020. V-Lab@ANDC website is created and maintained by our own students for four domains i.e. Biological Science, Chemical Science, Electronics and Physical Science which include seven departments i.e. Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology.

Although the V-Lab@ANDC was initiated to tackle the COVID related problems in teaching and learning process but is not confined to it. Students now can perform their experiments 24 X 7, on even sophisticated and expensive instruments, multiple times and at their ease without wasting the resources and can even generate the measured data for at least a few experiments.

Through V-Lab@ANDC we are proving the ideology of our college 'Preparing for the future' by exploring and innovating 'Beyond the classroom' or rather 'Beyond the Practical Lab'.

The lab is developed under four domains:

Govindpuri, Kalkaji, New Delhi, 110019 +91-9811675982, principal@andc.du.ac.in
गोविंदपुरी, कालकाजी, नई दिल्ली, 110019 011-26294542, 11-26293224 http://andcollege.du.ac.in

ACHARYA NARENDRA DEV COLLEGE

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1) Biological Science: Developed by the Department of Biomedical Science, Botany and Zoology
2) Chemistry: Developed by the Department of Chemistry
3) Computer Science: Developed by the Department of Computer Science
4) Physical Science: Developed by the Department of Electronics and Physics

Names of students involved in Virtual Lab

S.No	Name	Course	Project	Mentors	Link
1	Aliya Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame -1	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/crud_df/addupdatedelete.html
2	Sakshi Garg Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame-2	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/harsh_df/dataFrame.html
3	Vivek Sharma Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame-1	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/crud_df/addupdatedelete.html
4	Pankaj Sahu Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame-3, Data Frame-2	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/harsh_df/dataFrame.html

Govindpuri, Kalkaji, New Delhi, 110019 +91-9811675982, principal@andc.du.ac.in
गोविंदपुरी, कालकाजी, नई दिल्ली, 110019 011-26294542, 11-26293224 http://andcollege.du.ac.in

					https://www.vlab.andcollege.du.ac.in/csSc/crud_df/addupdatedelete.html
5	Palak Sharma Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame-3	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/crud_df/addupdatedelete.html
6	Amitesh Kumar Singh Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Computer Science II Year	Bubble Sorting	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/bubble_sort/bubble_sorting.html
7	Nilesh Pandey Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Computer Science II Year	Bubble Sorting	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/bubble_sort/bubble_sorting.html
8	Shahnwaz Khan Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Computer Science II Year	Prime Number, Bubble Sorting	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/p_num/dataFrame.html

9	Ananya Shukla Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Computer Science II Year	Bubble Sorting	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/bubble_sort/bubble_sorting.html
10	Harsh Bamotra Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Computer Science II Year	Prime Number	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/p_num/dataFrame.html
11	Sushant Sharma Ayush Mishra Vaibhav Thapliyal	B.Sc. (P) Physical Science with Computer Science II Year	Data Frame-1	Dr Sharanjit Kaur	https://www.vlab.andcollege.du.ac.in/csSc/bubble_sort/bubble_sorting.html
12	Ayush Mishra Vaibhav Thapliyal Kalyani Kumari	B.Sc. (H) Physics, II Year B.Sc. (H) Biomedical Science, III Year	Plastic Impressions of Footprint	Dr Archna Pandey Dr Ritu Khosla	https://www.vlab.andcollege.du.ac.in/bioSc/bms/plastic_impression.html
13	Ramganesh Pandey Vridhi Singh Mohd. Afham Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Botany, II Year B.Sc. (H) Physics, II Year	Quantification of Unknown DNA	Dr Sumit Sahni Dr Vineet K Singh	https://www.vlab.andcollege.du.ac.in/bioSc/botany/unknown-DNA/quantification.html

14	Avnija Tyagi Ritika Chandel Sejal Arora Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Zoology, III Year B.Sc. (H) Physics, II Year	Isolation of genomic DNA from *E.coli*	Prof. Ravi Toteja Prof. Seema Makhija Dr Rahul Dev	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/eColi/dna-extract.html
15	Avnija Tyagi Ritika Chandel Sejal Arora Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Zoology, II Year B.Sc. (H) Physics, II Year	Isolation of plasmid DNA from *E.coli*	Prof. Ravi Toteja Prof. Seema Makhija	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/isolation/plasmid-DNA.html
16	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Height-Weight Experiment	Prof. Ravi Toteja Prof. Seema Makhija	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/hnw/height.html
17	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Redox Titrations	Dr Manisha Jain Dr NeetiMisra (Chemistry)	
18	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Monte-Carlo Estimation of Pi	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/monteCarlo/monte-main.html
19	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Bisection Method for finding roots	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mp

			of polynomials		Phy/bisection/bisection-main.html
20	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Newton-Raphson Method for finding roots of equations	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/newtonRaphson/newton-main.html
21	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Secant Method for finding roots of polynomials	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/secant/secant-main.html
22	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Iterative Method for finding roots of polynomials	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/iterative/iterative-main.html
23	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Trapezoidal Rule for definite integral	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/trapezoidal/trapezoidal-main.html
24	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Simpson's 1/3 Rule for definite integral	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/simpson1by3/simpson13-main.html

25	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Eulers Method for Ordinary Differential Equation	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/euler%20method/euler-main.html
26	Ayush Mishra Vaibhav Thapliyal	B.Sc. (H) Physics, II Year	Modified Eulers Method for Ordinary Differential Equation	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/mpPhy/modified%20euler%20method/eulerM-main.html
27	Vaibhav Thapliyal	B.Sc. (H) Physics, III Year	Verification of Palindrome	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/compPhysics/palindrome/palindome.html
28	Vaibhav Thapliyal	B.Sc. (H) Physics, III Year	Find the LCM of two given numbers	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/compPhysics/lcm/lcm.html
29	Vaibhav Thapliyal	B.Sc. (H) Physics, III Year	Generate Fabonacci series	Dr Sanjeeta Rani	https://www.vlab.andcollege.du.ac.in/phySc/compPhysics/fibonacci/fibonacci.html
30	Rajkumar Jain Basab	B.Sc. (H) Zoology, III Year	Enzymatic Activity of Trypsin	Dr Aparna Sharma Dr Ravi Toteja	https://www.vlab.andcollege.du.ac.in/bioSc/zool

	Vaibhav Thapliyal	B.Sc. (H) Physics, III Year		Dr Seema Makhija	ogy/tripsin/tripsin.html
31	Harshita Khushwaha Khushboo Sheelam Saroj Basab Vaibhav Thapliyal	B.Sc. (H) Zoology II Year B.Sc. (H) Physics, III Year	Cytochemical demonstration for the presence of DNA in ciliates	Dr Ravi Toteja Dr Seema Makhija	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/dna/dna.html
32	Harshita Khushwaha Khushboo Sheelam Saroj Basab Vaibhav Thapliyal	B.Sc. (H) Zoology, II Year B.Sc. (H) Physics, III Year	Cytochemical demonstration for the presence of Proteins by Mercurobromophenol Blue	Dr Ravi Toteja Dr Seema Makhija	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/mbb/mbb.html
33	Harshita Khushwaha Khushboo Sheelam Saroj	B.Sc. (H) Zoology, II Year	Cytochemical demonstration for the presence of Mucopolysaccharides by PAS	Dr Ravi Toteja Dr Seema Makhija	https://www.vlab.andcollege.du.ac.in/bioSc/zoology/pas/pas.html

	Vaibhav Thapliyal	B.Sc. (H) Physics, III Year			
34	Swati Shukla Sneha Vaibhav Thapliyal	B.Sc.(H) Electronics II Year B.Sc. (H) Electronics I Year B.Sc. (H) Physics, III Year	To verify Malus Law	Dr Ravneet Kaur Ms. Gauri Ghai	https://www.vlab.andcollege.du.ac.in/phySc/electronics/malus/malusLaw.html
35	Naman Prasad Vaibhav Thapliyal	B.Sc. (H) Electronics II Year B.Sc. (H) Physics, III Year	To determine the value of Boltzmann Constant by studying forward-bias characteristics of a diode	Dr Ravneet Kaur Ms. Gauri Ghai	https://www.vlab.andcollege.du.ac.in/phySc/electronics/boltzmanC/boltzmanF.html
36	Ankush Rana Vishal Gupta Vaibhav Thapliyal	B.Sc. (H) Electronics II Year B.Sc. (H) Electronics I Year B.Sc. (H) Physics III Year	Designing of a First Order Low-pass and High-pass filter using op-amp	Dr Ravneet Kaur Ms. Gauri Ghai	https://www.vlab.andcollege.du.ac.in/phySc/electronics/low_pass_filter/low_pass_filter.html
37	Anubhav Singh and Alok Singh Vaibhav Thapliyal	B.Sc. (H) Electronics II Year B.Sc. (H) Physics III Year	I-V-characteristics of Zener Diode	Dr Ravneet Kaur Ms. Gauri Ghai	https://www.vlab.andcollege.du.ac.in/phySc/electronics/zener_diode/zener.html

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Dr. Sada Nand Prasad
Convenor, NAAC
Acharya Narendra Dev College

Prof. Ravi Toteja
Officiating Principal
Acharya Narendra Dev College

Govindpuri, Kalkaji, New Delhi, 110019 +91-9811675982, principal@andc.du.ac.in
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STAR

College Scheme
Science and Innovation

V-Lab @ ANDC

Physical Sciences

The systamatic study of the inorganic world.

Physics

Electronics

Biological Sciences

The study of life, life cycles, adaptations and environment.

Computer Science

Computational Simulations

Chemical Sciences

Chemical Phenomena

Zoology

List of experiments:-

Isolation of Genomic DNA from *E. coli* DH5α cells

DNA is found both in prokaryotes and eukaryotes. In prokaryotes. DNA is double stranded and circular and is found throughout the cytoplasm called nucleoid. In eukaryotes. DNA is located in nucleus and in mitochondria or chloroplasts.

Analysis of Height and Weight of 100 individuals

O/C

No. BT/HRD/11/020/2017 (Phase- II)
Government of India
Ministry of Science & Technology
Department of Biotechnology

Block 2, 6-8th Floor
CGO Complex, Lodi Road
New Delhi - 110003
Dated: 27/08/2021

ORDER

Sanction of the President is hereby accorded under Rule 18 of the Delegation of Financial Power Rules, 1978 for the financial support for strengthening of Life Science and Biotechnology Education and Training at undergraduate level under **Star Status Award** to **Acharya Narendra Dev College, University of Delhi, Delhi - 110019** at a total project cost of **Rs. 219.00 lakhs (Rupees two crore and nineteen lakhs only)** for **three years** as per budget details are given below:-

Amount (Rs. In lakhs)

Head	**1st Year rel**	**2nd Year rel**	**3rd Year rel**	**Total**
Non-Recurring Equipment @ Rs. 15.00 lakhs per dept. (Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology)	105.00	0.00	0.00	**105.00**
Recurring to all seven depts. @ Rs. 5.00 lakhs per year (Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology)	35.00	35.00	35.00	**105.00**
Travel Grant (Mentoring, Monitoring and Site Visit) @ Rs. 2.00 lakhs per year	2.00	2.00	2.00	**6.00**
Contingency @ Rs. 1.00 lakh per year	1.00	1.00	1.00	**3.00**
Total:	**143.00**	**38.00**	**38.00**	**219.0**

2. **Dr. Ravi Toteja, Principal, Acharya Narendra Dev College, University of Delhi, Delhi - 110019** will be the coordinator for this programme and will submit utilization certificate and statement of expenditure duly signed by him, finance/accounts officer of college and head of college in duplicate at the end of financial year.

3. The college is required to implement the programme as per the terms and conditions given in **Annexure-I**.

4. As per "Rule 236 (1) of GFR 2017", the Account of all Grantee Institution or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the institute or Organisation is called upon to do so.

5. Non-recurring grant shall be utilized within 18 months of their release.

6. The institute/agency will keep the whole of the grant in a bank account earning interest, and the interest so earned should be reported to DBT in the utilization certificate and statement of expenditure. **The interest so earned should be refunded to the consolidated funds of India through Bharat Kosh (NTRP) Portal.**

7. The tenure of on-going "Strengthening Component" will be terminated one day prior to the date of sanction order of Star Status. The college will not book any expenditure from budget under "Strengthening Component" after the date of completion.

Continue...2/-

8. To maintain continuity of the scheme and avoid gap between the two sanctions i.e the sanction order of the Star Status and the on-going strengthening component, the final settlement of accounts for strengthening component scheme must be initiated, and college should submit completion report and audited financial documents within 6 months, otherwise the second year grant of Star Status will not be released.

9. Continuation of the project beyond 30.09.2021 will be subject to the appraisal and approval of the relevant scheme for the continuation beyond 30.9.2021

10. After completion of the project period, the retention of equipment(s) purchased out of the project grant by the private agencies /NGOs is not allowed as per the prevailing Govt. of India instructions. Hence, the Pvt. Institutes/ NGOs involved in the instant project shall abide by the instructions issued/ to be issued by the Department in this regard from time to time.

11. The expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research (Major Head)
60	Others (Sub Major Head)
60.200	Assistance to Other Scientific Bodies (Minor Head)
29	Biotechnology Research and Development, Human Resource Development, Research Resources and facilities
29.17	Assistance for Research and Development
29.17.31	Grants-in-Aid General for the year 2021-22

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research (Major Head)
60	Others (Sub Major Head)
60.200	Assistance to Other Scientific Bodies (Minor Head)
29	Biotechnology Research and Development, Human Resource Development, Research Resources and facilities
29.17	Assistance for Research and Development
29.17.35	Grants-in-Creation of Capital Assets for the FY 2021-22

12. This issues under the powers delegated to this Department and with the concurrence of IFD, DBT vide their **San No. 102/IFD/SAN/953/2021-22 dated:26.08.2021**

13. This sanction order has been noted at serial No…7…In the register of grants.

(Dr. Garima Gupta)
Scientist-F
डॉ. गरीमा गुप्ता / Dr. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,

The Pay & Accounts Officer
Department of Biotechnology
New Delhi-110003

Copy to:

1. The Principal, Director of Audit (Scientific Departments), AGCR Building, New Delhi-110002
2. Cash Section, DBT, (2 Copies)
3. The Principal, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
4. Dr. Archana Pandey, Associate Professor, Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
5. Sanction Folder

(Dr. Garima Gupta)
Scientist-F

No. BT/HRD/11/020/2017 (Phase-II)
Government of India
Ministry of Science & Technology
Department of Biotechnology

Block No. 2, 6-8th Floor
CGO Complex, Lodi Road
New Delhi-110003
Dated: 27/08/2021

ORDER

In continuation of this department's sanction order of even no. dated.27.08.2021 sanction of the President is hereby accorded under Rule 18, of the delegation of Financial Power Rules, 1978 to the release of an amount of **Rs. 105.00 lakhs (Rupees one hundred and five lakhs only)** to **Acharya Narendra Dev College, University of Delhi, Delhi - 110019** being **first year release under non-recurring head** for the implementation of the project for strengthening of Life Science and Biotechnology Education and Training at undergraduate level under **Star Status Award** for financial year 2021-22, as per details given below:-

(Rs. in lakhs)

Head	**Amount**
Non-Recurring Equipment @ Rs. 15.00 lakhs per depts. (Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology)	**105.00**

2. The amount of **Rs. 105.00 lakhs (Rupees one hundred and five lakhs only)** will be directly credited by the Pay and Accounts Officer, DBT and disbursed to **The Principal, Acharya Narendra Dev College, University of Delhi, Delhi - 110019** through electronic transfer/RTGS as per the details are given below:-

Name of the Bank	Punjab National Bank
Branch Name & Address	Krishna Market, Kalkaji, New Delhi
Account No.	0156000100546062
Nature of Account	Savings
IFSC Code	PUNB0015600
MICR Code	110024052

3. As per "Rule 236 (1) of GFR 2017", the Account of all Grantee Institution or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the institute or Organisation is called upon to do so.

4. The terms and conditions of the grant remain unchanged.

5. Non-recurring grant shall be utilized within 18 months of their release.

6. The institute/agency will keep the whole of the grant in a bank account earning interest, and the interest so earned should be reported to DBT in the utilization certificate and statement of expenditure. **The interest so earned should be refunded to the consolidated funds of India through Bharat Kosh (NTRP) Portal.**

7. The tenure of on-going "Strengthening Component" will be terminated one day prior to the date of sanction order of Star Status.

8. To maintain continuity of the scheme and avoid gap between the two sanctions i.e the sanction order of the Star Status and the on-going strengthening component, the settlement of strengthening component scheme part will be initiated within 6 months, otherwise the second year grant of Star Status will not be released.

Continue...2/-

GARIMA GUPTA
Sr. Asst. F
Deptt. of Biotechnology
M/o Science & Tech.
Govt. of India

9. Interest earned amount i.e. **Rs 52,922/-** has been submitted in C.F.I, receipt is also attached.

10. After completion of the project period, the retention of equipment(s) purchased out of the project grant by the private agencies /NGOs is not allowed as per the prevailing Govt. of India instructions. Hence, the Pvt. Institutes/ NGOs involved in the instant project shall abide by the instructions issued/ to be issued by the Department in this regard from time to time.

11. Continuation of the project beyond 30.09.2021 will be subject to the appraisal and approval of the relevant scheme for the continuation beyond 30.9.2021.

12. **The Principal, Acharya Narendra Dev College, University of Delhi, Delhi - 110019** will submit the Statement of Expenditure (SE) and audited Utilization Certificate (UC) of expenditure in respect of above mentioned amount.

13. No UC pertaining to this programme is pending with the college; UC for the grant released during last financial year is enclosed herewith.

14. The expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research (Major Head)
60	Others (Sub Major Head)
60.200	Assistance to Other Scientific Bodies (Minor Head)
29	Biotechnology Research and Development, Human Resource Development, Research Resources and facilities
29.17	Assistance for Research and Development
29.17.35	Grants-in-Creation of Capital Assets FY-2021-22

15. This issues under powers delegated to this Dept. and with the concurrence of IFD vide their **San No. 102/IFD/SAN/955/2021-22 dated:26.08.2021**

16. This sanction order has been noted at serial No...**8**....in the register of grants.

(Dr. Garima Gupta)
Scientist-F

डॉ. गरीमा गुप्ता / DR. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,

The Pay & Accounts Officer
Department of Biotechnology
New Delhi-110003

Copy to:

1. The Principal, Director of Audit (Scientific Departments), AGCR Building, New Delhi-110002
2. Cash Section, DBT, (2 Copies)
3. The Principal, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
4. Dr. Archana Pandey, Associate Professor, Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
5. Sanction Folder

(Dr. Garima Gupta)
Scientist-F

डॉ. गरीमा गुप्ता / DR. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

No. BT/HRD/11/020/2017 (Phase- II)
Government of India
Ministry of Science & Technology
Department of Biotechnology

Block No. 2, 6-8th Floor
CGO Complex, Lodi Road
New Delhi-110003
Dated: 27/08/2021

ORDER

In continuation of this Department's sanction order of even no. dated.27.08.2021 sanction of the President is hereby accorded under Rule 18, of the delegation of Financial Power Rules, 1978 to the release of an amount of **Rs. 38.00 lakhs (Rupees thirty eight lakhs only)** to **Acharya Narendra Dev College, University of Delhi, Delhi - 110019** being 1st year release under recurring head for the implementation of the project for strengthening of Life Science and Biotechnology Education and Training at undergraduate level under **Star Status Award** for the financial year 2021-22 as per details given below:-

(Rs. In lakhs)

Head	**Amount**
Recurring to all seven depts. @ Rs. 5.00 lakhs per year / per dept. (Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology)	35.00
Travel Grant (Mentoring, Monitoring and Site Visit) @ Rs. 2.00 lakhs per year	2.00
Contingency @ Rs. 1.00 lakh per year	1.00
Total:	**38.00**

2. The amount of **Rs. 38.00 lakhs (Rupees thirty eight lakhs only)** will be directly credited by the Pay and Accounts Officer, DBT and disbursed to **The Principal, Acharya Narendra Dev College, University of Delhi, Delhi - 110019** through electronic transfer/RTGS as per the details are given below:-

Name of the Bank	Punjab National Bank
Branch Name & Address	Krishna Market, Kalkaji, New Delhi
Account No.	0156000100546062
Nature of Account	Savings
IFSC Code	PUNB0015600
MICR Code	110024052

3. The institute/agency will keep the whole of the grant in a bank account earning interest, and the interest so earned should be reported to DBT in the utilization certificate and statement of expenditure. **The interest so earned should be refunded to the consolidated funds of India through Bharat Kosh (NTRP) Portal.**

4. As per "Rule 236 (1) of GFR 2017", the Account of all Grantee Institution or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the institute or Organisation is called upon to do so.

5. In case the whole or a part of the amount of the grant in aid is being refunded, an interest at the rate of 10% per annum thereon shall be recovered.

6. The terms and conditions of the grant remain unchanged.

7. The tenure of on-going "Strengthening Component" will be terminated one day prior to the date of sanction order of Star Status.

डॉ. गरिमा गुप्ता / Dr. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Dep. of Biotechnology
विज्ञान और प्रौद्योगिकी मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

Continue...2/-

8. To maintain continuity of the scheme and avoid gap between the two sanctions i.e the sanction order of the Star Status and the on-going strengthening component, the settlement of strengthening component scheme part will be initiated within 6 months, otherwise the second year grant of Star Status will not be released.

9. Continuation of the project beyond 30.09.2021 will be subject to the appraisal and approval of the relevant scheme for the continuation beyond 30.9.2021.

10. **The Principal, Acharya Narendra Dev College, University of Delhi, Delhi - 110019** will submit the Statement of Expenditure (SE) and audited Utilization Certificate (UC) of expenditure in respect of above mentioned amount.

11. Interest earned amount i.e. **Rs 52,922/-** has been submitted in C.F.I, receipt is also attached.

12. No UC pertaining to this programme is pending with the college; UC for the grant released during last financial year is enclosed herewith.

13. The expenditure involved is debitable to:

Demand No. 89	Department of Biotechnology
3425	Other Scientific Research (Major Head)
60	Others (Sub Major Head)
60.200	Assistance to Other Scientific Bodies (Minor Head)
29	Biotechnology Research and Development, Human Resource Development, Research Resources and facilities
29.17	Assistance for Research and Development
29.17.31	Grants-in-Aid General for the year 2021-22

14. This issues under powers delegated to this Dept. and with the concurrence of IFD vide their **San No. 102/IFD/SAN/954/2021-22 dated:26.08.2021**

15. This sanction order has been noted at serial No.....**9**.....in the register of grants.

(Dr. Garima Gupta)
Scientist-F

डॉ. गरीमा गुप्ता / Dr. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tech.
भारत सरकार, नई दिल्ली / Govt. of India, N. Delhi

To,

The Pay & Accounts Officer
Department of Biotechnology
New Delhi-110003

Copy to:

1. The Principal, Director of Audit (Scientific Departments), AGCR Building, New Delhi-110002
2. Cash Section, DBT, (2 Copies)
3. The Principal, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
4. Dr. Archana Pandey, Associate Professor, Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, Delhi – 110019
5. Sanction Folder

(Dr. Garima Gupta)
Scientist-F

डॉ. गरीमा गुप्ता / Dr. GARIMA GUPTA
वैज्ञानिक 'एफ' / Scientist 'F'
बायोटेक्नोलॉजी विभाग / Deptt. of Biotechnology
विज्ञान और प्रौद्यो. मंत्रालय / M/o Science & Tec
भारत सरकार, नई दिल्ली / Govt. of India, N. D

Annexure- I (List of approved equipment)

S. No.	Department	Equipment details
1.	**Biomedical Science**	pH meter
2.		Weighing Balance
3.		**Fume hood [Qty – (01), Rs. 1,94,700/-]**
4.		**4-Gel Vertical electrophoresis system with powerpac for basic power supply [Qty – (01), Rs. 1,45,000/-]**
5.		**PCR Machine with 1KVa UPS [Qty – (01), Rs. 2,86,500/-]**
6.		UV transilluminator with UV tube for UV source of 320nm, and accuracy of < 5% CV across the viewing area.
7.		Microscope
8.		Magnetic Stirrer
9.		**Ice flaking machine [Qty – (01), Rs. 1,13,280/-]**
10.		Fridge: Single door upright showcase 400 L cooler with minimum 4 shelves, glass door and temperature range of 0-8 degree Celsius
11.		UV/Vis trans- illuminator- UV-Vis transilluminat or with UV tube for UV source of 365nm and compact fluorescent lamps as white source.
12.	**Botany**	**Compound microscope with CMOS camera and Imaging Software [Qty – (01), Rs. 2,99,250/-]**
13.		**UV –VIS (Double beam) Spectrophotometer [Qty – (01), Rs. 3,00,000/-]**
14.		**BSL -2 Cabinet [Qty – (01), Rs. 1,77,000/-]**
15.		**Thermal Cycler with 1KVa UPS [Qty – (01), Rs. 2,86,500/-]**
16.		Electronic Balance
17.		**Humidity Chamber/Stability Chamber [Qty – (01), Rs. 1,59,300/-]**
18.		Industrial Humidifier (Centrifugal)
19.		Digital CO_2 probe - with wired or Bluetooth® including temperature and humidity sensor

Dr. Garima Gupta
Scientist – 'F'

20.		Rotary Evaporator
21.		Magnetic Stirrer with a magnetic bar and beads
22.		Mushroom Growing Racks
23.		Stainless Steel Water Tank with heater
24.		HDPE Drums
25.		Pump Sprayer
26.		Plastic Crate Rectangular Mesh Type
27.	**Chemistry**	Rotary Evaporator
28.		Micro Centrifuge Brushless (without carbons) 20000 rpm
29.		Gauss View Version 6, Single User Academic License on windows platform (for 20 years)
30.		Microprocess or based pH- Meter with Combination Glass pH Electrode, Standard Buffer Tablets, Electrode Stand with Clamp, Dust Cover, Power Cord. PAC: EUTECH pH 2700
31.		Potentiometer with O.R.P Electrodes, Electrode Stand & Dust cover
32.		Conductivity meter with Conductivity Cell K = 1.0, Temperature Probe, Electrode Stand with Clamp, Dust Cover, DC Adaptor
33.		Fume Hood
34.		**Black Jack Coded Hollow Cathode Lamps for Copper, Iron, Zinc, Cadmium [Qty – (01), Rs. 2,00,000/-]**
35.		**Atomic Absorption Spectrophotometer [Qty – (01), Rs. 2,98,000/-]**
36.		Digital Hot Air Oven:
37.		Oil less compressor for atomic absorption spectrophotometer AAS 701
38.		**Burners head for nitrous oxide and C2H2 [Qty – (01), Rs. 1,80,000/-]**
39.		**Gaussian Version 16, Single User Academic desktop license 64Bit Multiprocesso r on Windows Platform.(For 20 years) [Qty – (01), Rs. 2,78,000/-]**
40.	**Computer Science**	CPU Intel Core i5 9500 16/32 GB/ 1000 GB HDD/(i5 9500 DOS 32256SSD1HDD3 P204v)

Dr. Garima Gupta
Scientist – 'F'

41.		Interactive Board Ceramic steel surface interactive board Size: 82.8 inch Mode: Projector and white board both Aspect ratio: 16:9 Touch: Touch-sensitive and pen- driven both O.S.: Windows, Linux, Ubuntu
42.		Printer MFP (Photocopier, Scan, Print) HP M126NW Multi-Function Machines (GMP) (126NW)
43.	**Electronics**	Young 's modulus Set- up consisting of vertical stand with bracket, optical lever, weights, diode laser
44.		e/m of electron by Bar Magnet Set- up consisting of power supply+ CRT+ ba magnet + compass box + woo den stand set + patch chords + weight
45.		Resistance transducer – Strain Gauge setup: Strain gauge, built in power supply, onboard gain and offset adjustment, Digital display, cantilever arrangement
46.		LVDT setup: Digital display, excitation generator, on board LVDT displacement measurement
47.		LDR, Photo diode, and Photo transistor setup consisting four different Optical Transducers with onboard power supply, signal condition in circuits
48.		Fiber opticsens or setup/kit : Diode Laser, optical mounts FO sensor. Optical detector
49.		Faraday rotation setup: He-Ne Laser, optical mounts, polarizer, analyser, Faraday Rod, Multimeter and detector
50.		Electro- optic Effect setup: He-Ne Laser, optical mounts, polarizer, analyzer, Electro-optic modulator, Multimeter and detector
51.		Universal Dev Board with FPGA and CPLD: FPGAs, CPLDs from Xilinx, on board input- output, ADC, DAC Memory, Displays, keyboard & peripheral
52.		Mini micro centrifuges,8x1.5/2.0 mL rotor and 4- placestriptube rotors included,230V
53.		Digital Balance 0-200g/0.001g

Dr. Garima Gupta
Scientist – 'F'

54.		Power Supply/Battery kit for Digital Mass Flow Meter
55.		Digital Mass Flow Meter Flowrate0- 500ml/minor higher
56.		Nano particles Generation setup: Max Speed 15000rpm, MaxRCF21000 gMax Capacity>400ml, Digitaltimer range 0-99min, programmable
57.		Setup for study of architecture of Mobile phone: Dual SIM GSM mobile equipment, Keypad of mobile handset, SIM sockets and User Interface Vibrator, Buzzer, Microphone, Speaker, Hands free port and display LEDs with switched faults creation facility and58 testpoints for signal observation
58.		**Set- up for Satellite Communication System [Qty – (01), Rs. 1,15,000/-]**
59.		Control Lab setup with software and data acquisition* Temperature sensor, light sensor, DC motor, servo Motor, LED lamps,IR sensor, relay SPST, relay DPDT, debounce switch, LED bar, buzzer etc., which can be used for the study of control system using P,PI & PID alongwith Data Acquisition System
60.		**AI Builder [Qty – (01), Rs. 2,35,250/-]**
61.		**IoT Builder [Qty – (01), Rs. 1,31,250/-]**
62.		**3 D Printer [Qty – (01), Rs. 2,17,750/-]**
63.	**Physics**	Programmable Portable Data Logger with touch screen interface
64.		Complete set- up for study of piezoelectric crystals
65.		Complete set- up to measure susceptibility of paramagnetic solution by Quincke's tube Method.
66.		Complete set- up to plot B-H curve of iron using a solenoid
67.		Type A - Multi Output (three) Regulated DC Power Supply
68.		Complete Analog Communication Trainer Kit
69.		Complete trainer Kit for studying Pulse Amplitude / Position / Width Modulation & Demodulation
70.		Complete trainer kit for studying Amplitude/ Frequency/ Phase Shift Keying Modulation & Demodulation
71.		Complete set- up to study characteristics of MOSFET, FET & UJT
72.		Complete Hartley and Colpitt Oscillators Trainer set-up

Dr. Garima Gupta
Scientist – 'F'

73.		Training Platform to study Flipflops, Shift Registers & Counters
74.		10 MHz Single Channel Function Generator
75.		Digital Storage Oscilloscope (DSO)
76.		Theta – two theta rotation stage
77.		Type A – Optical breadboard
78.		Complete set- up to measure characteristics of DIAC, TRIAC & SCR
79.	**Zoology**	Soil and water analysis kit (multiparameter)
80.		Weighing Balance 0.1mg
81.		pH meter 3 point Calibration bench top
82.		**Gel documentation system with computer system [Qty – (01), Rs. 2,50,000/-]**
83.		Horizontal gel apparatus
84.		Power pack 300V
85.		**Fully Automatic Autoclave with digital controller 50 Liters [Qty – (01), Rs. 1,10,000/-]**
86.		Double distillation unit – 2.5 ltrs/hrs
87.		BOD incubator
88.		UV hand held lamp
89.		Refrigerator
90.		**-20 ^{0}C Deep Freezer 450 Ltrs, Epoxy Coated Metallic Body [Qty – (01), Rs. 1,57,000/-]**
91.		Micro Centrifuge
92.		Magnetic Stirrer with hot plate
93.		**Microscope with camera (Botany) [Qty – (01), Rs. 2,99,250/-]**

Dr. Garima Gupta
Scientist – 'F'

A PROJECT REPORT ON

Isolation and characterization of novel mycobacteriophages and in vitro analysis of phage-derived recombinant lysinB

Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Science

In

Applied Microbiology and Biotechnology

of

Banasthali Vidyapith

Submitted By

Kanika Nadar

Under the Guidance of

Dr. Urmi Bajpai

Associate professor,

Department of Biomedical Science,

Acharya Narendra Dev College,

University of Delhi

Govindpuri, Kalkaji, New Delhi-110019

2019

Ph. No. 011-26412547

Email: urmibajpai@andc.du.ac.in
https://www.andcollege.du.ac.in

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
Govindpuri, New Delhi – 110 019

Dr. Urmi Bajpai
Associate Professor,
Deptt. of Biomedical Science

10.12.2020

CERTIFICATE

It is certified that the Dissertation Report entitled "Development of Bacteriophages and Derived Enzymes as Commercial Products" which is being submitted by Ms. Anchal Gupta in partial fulfilment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY IN BIOTECHNOLOGY of Banasthali Vidyapith (Deemed University) (National University for Women's Education) is a record of candidate's own work carried out by her under my supervision and guidance. The matter embodied in this report has not been submitted for award of any other degree.

Signature of Supervisor

Dr. Urmi Bajpai
Associate Professor
Department of Biomedical Science
Acharya Narendra Dev College
Govindpuri, Kalkaji
New Delhi-110 019

Scanned with CamScanner

Ph. No. 011-26412547

Email: urmibajpai@andc.du.ac.in
https://www.andcollege.du.ac.in

ACHARYA NARENDRA DEV COLLEGE

(UNIVERSITY OF DELHI)
Govindpuri, New Delhi – 110 019

Dr. Urmi Bajpai
Associate Professor,
Deptt. of Biomedical Science

10.12.2020

CERTIFICATE

It is certified that the Dissertation Report entitled "Investigating receptor binding proteins in mycobacteriophages" which is being submitted by Megha Baghel in partial fulfilment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY IN BIOTECHNOLOGY of Banasthali Vidyapith (Deemed University) (National University for Women's Education) is a record of candidate's own work carried out by her under my supervision and guidance. The matter embodied in this report has not been submitted for award of any other degree.

Signature of Supervisor

Dr. Urmi Bajpai
Associate Professor
Department of Biomedical Science
Acharya Narendra Dev College
Govindpuri, Kalkaji
New Delhi-110 019

Scanned with CamScanner

2020-21

CERTIFICATE

It is certified that the Dissertation Report entitled "Emerging Role of Mycobacteriophages in Tuberculosis" which is being submitted by Kriti Gupta in partial fulfilment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY IN BIOTECHNOLOGY of Banasthali Vidyapith (Deemed University) (National University for Women's Education) is a record of candidate's own work carried out by her under my supervision and guidance. The matter embodied in this report has not been submitted for award of any other degree.

Supervisor

Dr. Urmi Bajpai

Associate Professor

Department of Biomedical Science

Acharya Narendra Dev College

Dr. Urmi Bajpai
Associate Professor
Department of Biomedical Science
Acharya Narendra Dev College
Govindpuri, Kalkaji
New Delhi-110 019

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Purification and Identification of Novel Mycobacteriophages

A thesis submitted to Jamia Millia Islamia University for the partial fulfillment of Master's degree

(MSc. Microbiology)

SYED UMAR KHALIL

Department of Biosciences

Jamia Millia Islamia

New Delhi-110025

18MBR035

18-05395

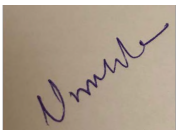
Under the supervision of

Dr. Urmi Bajpai

Associate Professor

Acharya Narendra Dev College,

University of Delhi, New Delhi - 110019



"Isolation and characterization of Novel Mycobacteriophages and in vitro analysis of a phage derived recombinant LysinB"

DISSERTATION THESIS SUBMITTED FOR FOR THE DEGREE OF MASTER OF SCIENCE (BIOSCIENCES)(2017-2019)

SUBMITTED BY

Ruqaiyah Khan

Roll No: 17MBS021

Under the supervision of

Dr. Urmi Bajpai

Associate Professor

Department of Biomedical Science

Acharya Narendra Dev College

University of Delhi

Dr. Nadeem Ahmad

Assistant Professor

(Co- Supervisor)

Department of Bioscience

Jamia Millia Islamia, New Delhi-110025

ISOLATION AND CHARACTERIZATION OF NOVEL MYCOBACTERIOPHAGES AND PURIFICATION OF CROTEIN LYSIN B

Proposal for the dissertation to be submitted

In part of 6.00 hours of the dissertation for the Degree of

MASTER OF SCIENCE IN BIOCHEMISTRY

2017-2019

DEPARTMENT OF BIOSCIENCES

FACULTY OF NATURAL SCIENCE

JAMIA MILLIA ISLAMIA, NEW DELHI

(A CENTRAL UNIVERSITY)

SUBMITTED BY

FAIZYA KHAN (17-MBCH-01)

M.SC BIOCHEMISTRY (IV SEM)

UNDER THE SUPERVISION OF

OF

[illegible]

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

UNDER THE CIVIL PERVISION

Dr. [illegible]

DEPT. OF BIOSCIENCES

JAMIA MILLIA ISLAMIA

Dr. [illegible]

ISOLATION AND CHARACTERIZATION OF NOVEL MYCOBACTERIOPHAGES AND PURIFICATION OF PROTEIN MUR A

[illegible]

[illegible]

MASTER OF SCIENCE IN BIOCHEMISTRY

[illegible]

DEPARTMENT OF BIOSCIENCES

FACULTY OF NATURAL SCIENCES

JAMIA MILLIA ISLAMIA, NEW DELHI

(A CENTRAL UNIVERSITY)

SUBMITTED BY

[illegible]

[illegible]

[illegible]

[illegible]

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

[illegible]

[illegible]

DEPT. OF BIOSCIENCES

JAMIA MILLIA ISLAMIA

Dr. Luqman Ahmad Khan
Professor
Department of Biosciences
[illegible]

EXPRESSION, PURIFICATION AND BIOCHEMICAL CHARACTERIZATION OF ENDOLYSINS FROM *MYCOBACTERIOPHAGE Z1*

Proposal for the dissertation to be submitted

In Partial Fulfillment of the Requirement for the Degree of

MASTER OF SCIENCE IN BIOCHEMISTRY

DEPARTMENT OF BIOSCIENCES

FACULTY OF NATURAL SCIENCE

JAMIA MILLIA ISLAMIA

NEW DELHI

Submitted by

FAISAL AHMAD

2017

UNDER THE SUPERVISION OF

DR. URMI BAJPAI

ACHARYA NARENDRA DEV COLLEGE UNIVERSITY OF DELHI

Ph. No. 011-26293224

Fax: 011-26294540

Email: principal@andc.du.ac.in

URL: http://andcollege.du.ac.in

ACHARYA NARENDRA DEV COLLEGE

(UNIVERSITY OF DELHI)

Govindpuri, Kalkaji, New Delhi – 110019

CERTIFICATE

This is to certify that **Ms. Fouziah Haroon**, pursuing M.Sc. Microbiology, Department of Biosciences, Jamia Millia Islamia, batch 2018-2020 has successfully completed her dissertation program entitled **"Isolation and Characterization of Novel Mycobacteriophages in New Delhi locality"**.

I wish her success in life.

Dr. Urmi Bajpai
Associate Professor
Department of Biomedical Sciences
Acharya Narendra Dev College

Dr. Moshahid Alam Rizvi
Associate Professor
Department of Biosciences
Jamia Millia Islamia

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)

GOVERNING BODY MEETING

Date: Monday, September 28, 2015 at 2.00 pm

Venue: Acharya Narendra Dev College, Govindpuri, Kalkaji, New Delhi 110019.

MINUTES

Minutes of the Governing Body Meeting held on Monday, September 28, 2015 at 2.00 p.m. in the Committee Room of the college.

The following members were present:

1.	Shri Rajiv Chaudhary	(in the Chair)
2.	Shri. Guneesh Agrawal	Treasurer
3.	Shri Mehmood Khan	
4.	Dr. T.C. Sharma	
5.	Professor Kiran Devendra	
6.	Dr. Saumya Saxena	Teacher Representative
7.	Dr. Sandeep Kumar Goel	Teacher Representative
8.	Dr. Savithri Singh	Principal (Member Secretary)
9.	Dr. Amit Garg	Bursar (Special Invitee)
10.	Mr. Chetanya Sharma	Non-teaching Representative (Special Invitee)

The following members of the Governing Body conveyed their inability to attend the meeting due to pre-occupation /medical grounds.

1. Shri Vishal Nagar
2. Shri Firoz Ahmed
3. Shri Anil Gupta
4. Shri Yogesh Shukla
5. Professor Ravinder Gargesh
6. Professor Renu Deswal University Representative

Professor C.K. Jaggi completed his term as University Representative on 05th September 2015. Name of the University Representative against this tenure completion has not been received by the College.

I. Action Report:

The Governing Body noted the actions taken by the college on the following matters approved in the Governing Body meetings held on September 23, 2015 and August 20, 2015.

All other guidelines for the above schemes shall remain unchanged.

8. **Appointment of Transformational Manager for upkeep of College data and assistance to the staff for College Automation Software (ERP) of TCS.**

The Governing Body approved the appointment of Transformational Manager with a salary of Rs. 20,000/- per month for upkeep of College data entry, adoption of modules and assistance to the staff for College Automation Software (ERP) of TCS.

9. **Institution of Best Student Award.**

The Governing Body approved the proposal of the college in principle and asked the college to formulate the guidelines for best student award. Shri Mehmood Khan, Member Governing Body volunteered to help the college in deciding the parameters for the award.

10. **Allocation of Rs. 2 Crore from the College Development Grant and use of the interest earned to promote Research and Innovation.**

The Governing Body approved the proposal of the college for allocation of Rs. 2 Crore from the College Development Fund and use the interest earned to promote Research and Innovation in the college. Appropriate guidelines shall be framed by the College for implementation of this scheme. The Governing Body also recommended that the amount may also be used to fund Innovation Projects. The Governing Body further resolved to grant discretionary powers to the Principal of the college for permitting to use this fund on case-to-case basis.

11. **Permission for using funds for Theatre Production.**

The Governing Body of the college granted permission to use a sum of Rs. 6,70,000/- from the Development Fund for staging of the play in the Silver Jubilee year of the college.

12. **Permission for allocations of funds to celebrate Silver Jubilee of the College.**

The Governing Body of the college approved in principle the use of a sum of Rs. 12,00,000/- from the Development Fund for a year-long Silver Jubilee Celebrations of the college. It was further resolved that College shall constitute a committee to administer the successful holding of various events by incorporating innovative ideas. College shall make a detailed budget for the same and look at the possibility of showcasing it digitally to the stakeholders.

13. **Essential deduction for Medical reimbursement from teaching and non-teaching employees.**

The Governing Body of the college approved the essential deduction at the notified rates for availing Medical facilities including medical reimbursement from teaching and non-teaching employees from the month of October 2015 onwards by opting for membership

BAHADURSHAH ZAFAR MARG,
NEW DELHI – 110002

SA-II SECTION

JOINING REPORT

Post Doctoral Fellowship for Women

Name of Fellow Dr. Shrankhla

Award letter number and date or UGC Circular number and date
No. F. 15-1/2015-17/PDFWM-2015-17-UTT-38270 (SA-II)
Date :- 12th Oct, 2015

This is to certify that Dr. Shrankhla has joined the Department of Zoology under the above scheme of the **Post Doctoral Fellowship for Women** with effect from 12th Nov, 2015 A.N. (F.N./A.N.) She will be provided with all necessary facilities during her award She belongs to S.C.
(Mention the category) The terms and conditions of the offer are acceptable to Awardee

Also certified that fellow shall not accept hold any emoluments paid or otherwise or receive emoluments, salary, stipend etc from any other source during the tenure of the award

Signature	Signature	Signature	Signature
Name SHRANKHLA	Name SARITA KUMAR	Name	Name
Date 12th Nov, 15	Date Nov 12, 2015	Date	Date
Awardee	Guide/Supervisor	Head of Deptt.	Registrar/ Director /Principal
Ph. No.	(Seal)	(Seal)	(Seal of University/Institution/ College) Acharya Narendra Dev College
Mobile : 9997926822			
E.mail : shrankhladei@gmail.com		Bank A/c No. of	University/Institution) Delhi
Bank A/c No.			IFSC Code : PUNB0015600
IFSC Code :			A/c No. :- 0156000100539822
Aadhar No., if any:			

12/11/2015
Vice Principal
Acharya Narendra Dev College
Govindpuri, Delhi

Dr. SARITA KUMAR
Associate Professor
Department of Zoology
Acharya Narendra Dev College
Govindpuri, Kalkaji, New Delhi-19

FORM – 2

HUMAN RESOURCE DEVELOPMENT GROUP, CSIR
CSIR Complex, Library Avenue, Pusa, New Delhi-110 012

SENIOR RESEARCH ASSOCIATESHIP (SCIENTISTS' POOL SCHEME)

JOINING REPORT

After making the four Xerox copies of Form-2, Senior Research Associate shall fill in the following certificate of joining and get it countersigned by his/her Head of the Department, all the four copies of joining report in original and send three copies to the address given above. One additional copy may be forwarded by the Head of the Department/Organization duly countersigned and stamped with official seal.

CERTIFICATE

I, Dr./~~Miss~~/~~Mrs~~/~~Shri~~ MONIKA MISHRA

have joined duty as a Senior Research Associate at IPAV lab, Dept. of Zoology, Acharya Narendra Dev College (Univ. of Delhi), Govindpuri, N.D.-19

with effect from 1/1/2021 (forenoon/~~afternoon~~)

Candidate Signature Monika

Date January 1, 2021

Officiating Principal
Acharya Narendra Dev College
(University of Delhi)
Govindpuri, Kalkaji
New Delhi-110019

(Counter signature of the Head of the Department with official seal)

Three specimen Signatures of the Senior Research Associate are given below

1. Monika
2. Monika
3. Monika

(Counter signature of the Head of the Department with official seal)

Officiating Principal
Acharya Narendra Dev College
(University of Delhi)
Govindpuri, Kalkaji
New Delhi-110019

Scanned with CamScanner

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)

The College is running following research and innovation laboratories.

(i) Material Science
(ii) Polymer Research
(iii) Environmental Monitoring and Assessment
(iv) Sensing Materials & Devices
(v) Think Lab
(vi) CUBE Lab
(vii) OPEN Lab
(viii) Ciliate Biology
(ix) Anti-mycobacterial Drug Discovery
(x) Chemical Biology
(xi) Insect Vector & Pests
(xii) Microbial Technology
(xiii) Chandra Computational
(xiv) Mathematics Research Centre
(xv) Inorganic Chemistry

College has 14 Ph.D. students pursuing their research work under the supervision of 09 University recognized supervisors. Many UG students also work on various projects in these research laboratories.

Small requirements from these laboratories keep coming from time to time.The Finance Committee of the college while deliberating on the requirements of two such research laboratories at its meeting held on Friday, November 25, 2016 has recommended setting of a Research Contingency Grant. This grant will facilitate smooth running of these research and innovation laboratories. Hence, the Finance Committee has recommended that a research contingency grant amounting to a maximum of Rs. 15,000/- (per annum) per laboratory may be sanctioned to each of these research and innovation laboratories.

In the light of the recommendation of the Finance Committee, it is requested to grant permission to establish the research contingency grant from Student Welfare Fund (Society Account).

Submitted to the Chairperson, Governing Body for approval.

Principal
30/11/11

Chairperson
Governing Body

Finance Committee

A meeting of the Finance Committee was held on 25/11/2016 (Friday) in the Committee Room at 1230 hours. The following members were present –

1) Dr. Amit Garg. 25/11/16
2) Dr. ARIJIT CHOWDHURI 25/11/16.
3) DR. SEEMA MAKHIJA 25/11/16
4) Dr Roopesh Tehri 25/11/16
5) Dr. Sandeep Goel
6) Dr Udaibir Singh 25/11/16
7) Dr Seema Gupta 25/11/16

a) The FC discussed the online UPS requirement of the library and recommends purchase of 2KVA capacity with 30 minute backup through DGS&D rate contract.

b) Since 1st Grant of Rs 20 Lakhs for Non-recurring purchase is received from DHE keeping in record committed expenditure of furniture & fixture items, the FC decided to allocate the ~~the~~ available funds as under [Rs20,00,000/+ revalidated amount of last year].

(i) Electronics – Rs 2,50,000/–
(ii) Computer Science – NIL [as items require IT approval from DHE].
(iii) Chemistry – Rs 2,50,000/–
(iv) Zoology – Rs. 2,11,500/–
(v) Botany – Rs 2,50,000/–

Instrumentation Lab (PS + LS) - 4,00,000/-
(viii) Biomedical Science - Rs 2,50,000/-
(IX) Library - Rs 5,00,000/-

c) The FC also approved floating of rate-contract-te for the purchase of LASER printer cartridges that are required across various departments in the college.

d). Budget proposal floated by the sports committee for 2016-17 for Rs 9,44,150/- was approved by the FC.

e) The FC is in receipt of two requirements from Ciliate Biology Lab and Antimycobacterial Drug Discovery Lab. for furniture and other items. The FC recommends establishment of a Research Contingency grant since the College has a number of research laboratories as listed below:-

(i) Material Science
(ii) Polymer Research.
(iii) Environmental Monitoring and Assessment
(iv) Sensing Materials & Devices
(v). Think Lab.
(vi) CUBE - Lab.
(vii) OPEN - Lab.
(viii) Ciliate Biology
(IX). Anti-mycobacterial Drug Discovery
(X). Chemical Biology
(XI) Insect Vector & Pests
(XII) Microbial Technology
(XIII) Chandra Computational.
(XIV) Mathematics Research Centre.
(XV) Inorganic Chemistry

...nce requirements from the aforementioned laboratories keeps coming from time to time

hence FC recommends a research contin... grant amounting to Rs 15000/- (per annum) each of the research laboratories. Other essen... items required in these research laboratories wo... separately assessed and processed.

Udaibir 25/11/16 25/11/16 25/11/16 25/11/16 25/11/16 25/11/16

Submitted to the Principal for approval

(e) upto a maximum of Rs 15,000/- per.
We may seek GB's permission for item (e). Rest approved.

25/11/16.

3/3

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sarita.sanjay90@gmail.com

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Associate Professor
Department of Zoology

Ref: AND/IPAV/SP-02/20
Dated: 1st June, 2020

Ms. Aadhya Sivakumar
Sanskriti School
Chanakyapuri
New Delhi – 110 021

Ref: Your request for Summer Project
Sub.: Joining letter

Dear Aadhya,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, June 1, 2020.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Associate Professor
Department of Zoology

Ref: AND/IPAV/SP-03/20
Dated: 1st June, 2020

Ms. Addea Gupta
Sanskriti School
Chanakyapuri
New Delhi – 110 021

Ref: Your request for Summer Project
Sub.: Joining letter

Dear Addea,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, June 1, 2020.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

91-11- 2629-4542
Fax: 91-11- 2629-4540
saritakumar@andc.du.ac.in

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that the Dissertation work entitled "**Variations in physiological parameters in dengue vector *Aedes aegypti* L. induced by chemical insecticides (Imidacloprid and Cypermethrin)**" has been carried out by **Ms. Anushree Gupta,** Enrollment no. A12137520020**,** Amity Institute of Virology and immunology, as a part of NTCC Dissertation (BTDS600) work.

The work has been done under my supervision and guidance at **Acharya Narendra Dev College (University of Delhi)** for a period of **Jan 3, 2022** to **June 6, 2022**. During the project work, the candidate has learnt techniques like insect culture, insecticide dilutions, insecticide susceptibility bioassays, scrutinization of morphological and physiological parameters in mosquito larvae, sex discrimination between adult mosquitoes and statistical analysis.

(Sarita Kumar)

Professor

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saritakumar@andc.du.ac.in

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that the Dissertation work entitled "**Reversion of resistance in *Aedes aegypti* using microsomal monooxygenase inhibitor**" has been carried out by **Ms. Apoorva Rajput,** Enrollment no. M17921139, Institute of Management Studies, affiliated to CCSU, Ghaziabad, Uttar Pradesh.

The work has been done under my supervision and guidance at **Acharya Narendra Dev College (University of Delhi)** for a period of **Jan 15, 2022** to **June 6, 2022**. During the project work, the candidate has learnt techniques like insect culture, insecticide dilutions, making molar solutions, insecticide susceptibility bioassays, centrifugations, ELISA, spectrophotometry and statistical analysis of data.

(Sarita Kumar)

Professor

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Ref: AND/IPAV/SP-04/21
Dated: April 1, 2021

Mr. Atharv Gupta
The Shri Ram School Moulsari
Gurugram
Haryana – 122 002

Sub.: Joining letter

Dear Atharv,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, April 1, 2021.

Wish you all the best.

(Sarita Kumar)

Insect Pest and Vector Laboratory

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ACHARYA NARENDRA DEV COLLEGE
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Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that Miss Kajal, D/o Karambir, VPO Ahar District Panipat, Haryana, did her Internship on the topic entitled **"Evaluation of botanicals as potential ecofriendly toxicants and growth regulatory agents against *Aedes aegypti***" under my guidance during March - August 2022.

(Sarita Kumar)

Mentor

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ACHARYA NARENDRA DEV COLLEGE
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Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that Ms. Nayan Katyal, pursuing M.Sc. Biotechnology at Amity Institute of Biotechnology, Amity University, Noida, has successfully completed 1-month extensive training on the topic entitled "**Toxicity, irritancy and alteration in biochemical parameters induced by deltamethrin and α-cypermethrin in the dengue vector *Aedes aegypti* L.**" under my guidance during July 6 – August 7, 2021.

During the training, she meticulously maintained the culture of *Aedes aegypti*, and conducted larvicidal and irritant assays to study the efficacy of pyrethroid insecticides on the *Aedes* mosquito. She also investigated the impact of these insecticides on different detoxification enzymes in the larvae, learnt all the techniques and handled various equipment efficiently.

(Sarita Kumar)

Mentor

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that Ms. Nayan Katyal, pursuing M.Sc. Biotechnology at Amity Institute of Biotechnology, Amity University, Noida, has successfully completed extensive training on the topic entitled "**Formulation, Characterization and Evaluation of Dinotefuran Nanometric Emulsion Bioefficacy against *Dysdercus koenigii***" under my guidance during Jan 3 – May 15, 2022.

During the training, she meticulously maintained the culture of *Dysdercus koenigii*. She formulated nanoemulsions of dinotefuran, learnt all the techniques involved and handled various equipment efficiently. She characterized these nanoemulsions, analysed them, investigated their impact on *Dysdercus koenigii* and studies various parameters.

(Sarita Kumar)

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that Ms. Priyanka Verma, pursuing M.Sc. Biotechnology at Amity Institute of Biotechnology, Amity University, Noida, has successfully completed extensive training on the topic entitled "**Assessment and Characterization of Imidacloprid's Nanometric Emulsion Effectiveness against *Dysdercus koenigii***" under my guidance during Jan 3 – May 15, 2022.

During the training, she meticulously maintained the culture of *Dysdercus koenigii*, formulated nanoemulsions of imidacloprid, learnt all the techniques involved and handled various equipment efficiently. She investigated impact of these nanoemulsions on *Dysdercus koenigii* and assessed various life parameters. The nanoemulsions were characterized and analysed for their properties.

(Sarita Kumar)
Mentor

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Associate Professor
Department of Zoology

Ref: AND/IPAV/SP-05/20
Dated: 1st June, 2020

Ms. Deepanshi
Delhi Public School
R.K. Puram
New Delhi – 110 022

Ref: Your request for Summer Project
Sub.: Joining letter

Dear Deepanshi,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, June 1, 2020.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

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sarita.sanjay90@gmail.com

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Ref: AND/IPAV/SP-02/21
Dated: April 1, 2021

Mr. Devaj Gupta
Delhi Public School International
Pushp Vihar
New Delhi – 110 057

Sub.: Joining letter

Dear Devaj,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, April 1, 2021.

Wish you all the best.

(Sarita Kumar)

Insect Pest and Vector Laboratory

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that Ms. Priyanka Verma, pursuing M.Sc. Biotechnology at Amity Institute of Biotechnology, Amity University, Noida, has successfully completed 1-month extensive training on the topic entitled "**Lethality, irritancy and variation in biochemical parameters of *Aedes aegypti* L. imparted by β-cyfluthrin synergized with piperonyl butoxide**" under my guidance during July 6 – August 7, 2021.

During the training, she meticulously maintained the culture of *Aedes aegypti*, conducted larval toxicity assays and irritancy effects of the synergized pyrethroid on the *Aedes* mosquito. She also investigated the impact of these insecticides on different larval enzymes, learnt all the techniques and handled various equipment efficiently.

(Sarita Kumar)

Mentor

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Ref: AND/IPAV/SP-01/21
Dated: April 1, 2021

Mr. Karmanyaraj
Doon School
Dehradun
Uttarakhand – 248 001

Sub.: Joining letter

Dear Karmanyaraj,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, April 1, 2021.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

91-11- 2629-4542
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saritakumar@andc.du.ac.in

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that the Dissertation work entitled " **Biochemical alterations in *Aedes aegypti* L. as a defence mechanism to xenobiotics (Cyhalothrin and malathion)**" has been carried out by **Ms. Manya Jaiswal,** Enrollment no. A12137520019, Amity Institute of Virology and immunology, as a part of NTCC Dissertation (BTDS600) work.

The work has been done under my supervision and guidance at **Acharya Narendra Dev College (University of Delhi)** for a period of **Jan 3, 2022** to **June 6, 2022**. During the project work, the candidate has learnt techniques like insect culture, insecticide dilutions, making molar solutions, insecticide susceptibility bioassays, ELISA, spectrophotometry and statistical analysis of data.

(Sarita Kumar)

Professor

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ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Associate Professor
Department of Zoology

Ref: AND/IPAV/SP-04/20
Dated: 1st June, 2020

Ms. Riddhi Jhunjhunwala
The British School
Chanakyapuri
New Delhi – 110 021

Ref: Your request for Summer Project
Sub.: Joining letter

Dear Riddhi,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, June 1, 2020.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

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sarita.sanjay90@gmail.com

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Associate Professor
Department of Zoology

Ref: AND/IPAV/SP-01/20
Dated: 1st June, 2020

Ms. Saiesha Gupta
50, Golf Links
New Delhi – 110 003

Ref: Your request for Summer Project
Sub.: Joining letter

Dear Saiesha,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, June 1, 2020.

Wish you all the best.

(Dr. Sarita Kumar)

Insect Pest and Vector Laboratory

91-11- 2629-4542
Fax: 91-11- 2629-4540
saritakumar@andc.du.ac.in

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Certificate

This is to certify that the Dissertation work entitled "**Reversion of resistance in *Aedes aegypti* using microsomal monooxygenase inhibitor**" has been carried out by **Ms. Shailja Mathur,** Enrollment no. A12137520021, Amity Institute of Virology and immunology, as a part of NTCC Dissertation (BTDS600) work.

The work has been done under my supervision and guidance at **Acharya Narendra Dev College (University of Delhi)** for a period of **Jan 3, 2022** to **June 6, 2022**. During the project work, the candidate has learnt techniques like insect culture, insecticide dilutions, making molar solutions, insecticide susceptibility bioassays, centrifugations, ELISA, spectrophotometry and statistical analysis of data.

(Sarita Kumar)

Professor

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sarita.sanjay90@gmail.com

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
GOVINDPURI, KALKAJI, NEW DELHI 110 019

Dr. Sarita Kumar
Professor
Department of Zoology

Ref: AND/IPAV/SP-03/21
Dated: April 1, 2021

Mr. Yanav Lall
Modern School
Barakhamba Road
New Delhi – 110 001

Sub.: Joining letter

Dear Yanav,

I am pleased to inform you that your request for the Summer Project in 'Insect Pest and Vector Laboratory' of Acharya Narendra Dev College, University of Delhi; has been accepted and you have been officially registered.

The Project work starts with effect from today, *i.e.*, April 1, 2021.

Wish you all the best.

(Sarita Kumar)

Insect Pest and Vector Laboratory

3.2.2 Number of workshops/seminars/conferences including on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship conducted during the last five years

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

DBT STAR STATUS COLLEGE

All India NIRF 2022 Ranking-18, NAAC Score-3.31

Govindpuri, Kalkaji, New Delhi 110019

3.2.2.1. Total number of workshops/seminars/conferences including programs conducted on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship year wise during last five years

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

DBT STAR STATUS COLLEGE

All India NIRF 2022 Ranking-18, NAAC Score-3.31

Govindpuri, Kalkaji, New Delhi 110019

ACHARYA NARENDRA DEV COLLEGE

Preparing for the future…

आचार्य नरेंद्र देव कॉलेज

तैयारी भविष्य की…

University of Delhi | NAAC accredited: A Grade
दिल्ली विश्वविद्यालय | नैक मान्यता प्राप्त 'ए' ग्रेड

Supporting document for 3.2.2

Number of workshops/seminars/conferences including on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship conducted during the last five years

3.2.2.1. **Total number of workshops/seminars/conferences including programs conducted on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship year wise during last five years**

Input : Total No. of workshop – 194

2021-22	2020-21	2019-20	2018-19	2017-18
61	50	37	31	15

The attached documents are:

1. The authenticated consolidated list of programs and Brief review of Workshops Department wise from 2022-2017.

2. **Report of Each Program**
   Detailed report for each program containing Brochure/Photograph with date and captions; title of the workshops / seminars conducted and Details of resource persons with their contact details.

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Brief review of Workshops department wise from 2022-2017.

3.2.2 Number of Workshops/Seminars/Conference including programs conducted on Research Methodology, Intellectual Property Rights (IPR) and entrepreneurship during the last five years				
S.No.	**Year**	**Name of the Workshops/ Seminars/Conference**	**Number of Participants**	**Date From – To**
		Zoology		
1	2021-2022	International Conference on Mitigating Contemporary Environmental Issues by Sustainable Approaches [ICMCESA-2022] (Zoology)	373	February 22-28,2022
2	2021-2022	6th Annual International E-Conference on International Network for Soil Contamination Research-INSCR 2021 on "Microbes in Sustainable Development" (Zoology,Botany)	250	November 15-18, 2021
3	2021-2022	Workshop on "Computational Biology for metagenomics" (Zoology)	35	November 14, 2021
4	2021-2022	Workshop on "Art of Scientific Writing and Communication" (Zoology)	35	November 15, 2021
5	2021-2022	Workshop on V-Lab Development Bootcamp 1.0 (Zoology,Chemistry,Physics,Botany,EVS)	125	January 17-22, 2022
6	2021-2022	Workshop on V-Lab Development Bootcamp 2.0 (Zoology,Botany,EVS)	35	June 27-July 01, 2022
7	2021-2022	Workshop on "Initiating Virtual labs @ ANDC (Zoology, Botany)	74	August 24, 2021
8	2021-2022	Hands-on workshop on "Biological Techniques"	32	September 27-October

		(Zoology)		04, 2021
9	2021-2022	Hands-on workshop on "Tools and Techniques of Biotechnology" (Zoology)	65	April 07-08, 2022
10	2021-2022	Hands-on Training for Support Staff on "Tools in Modern Biology" (Zoology)	12	April 21, 2022
11	2021-2022	Webinar on Environmental Hazards of e-waste and Plastic waste (Botany, Biomedical Science, Zoology)	79	July 31, 2021
12	2021-2022	IP Awareness/Training Program under the National Intellectual Property Awareness Mission by the Intellectual Property Office, India (Zoology)	76	December 29, 2021
13	2020-2021	Two Week Online National Workshop on "Tools and Techniques in Statistical Analysis" (Biomedical Sciences,Botany,Mathematics,Zoology)	210	April 06-19, 2021
14	2020-2021	Three days online hands-on workshop on "Advanced Bioinformatics", on topic "A step-by step guide to Data mining from literature to pathways" by Dr. Srinivasan Ramachandran Senior Principal Scientist CSIR-IGIB (Biomedical Sciences,Botany&Zoology)	28	March 1-3, 2021
15	2020-2021	Five day RBPT based workshop on "Bioinformatics for Undergraduate students" (Biomedical Sciences,Botany,Zoology)	86	January 9–13, 2021
16	2020-2021	Webinar on "Evolution as Darwin knew as a child" (Zoology)	54	May 22, 2021
17	2020-2021	'Career in Indian Forest Service: A session with IFS officers' (Biomedical Sciences,Botany & Zoology)	67	April 18, 2021

18	2020-2021	Career counselling series: Career in Forensic Science: An Interaction with Seniors (Biomedical Sciences,Botany & Zoology)	49	March 20, 2021
19	2020-2021	Career counselling series: Studying in Europe: Interaction with seniors (Biomedical Sciences,Botany & Zoology)	97	March 14, 2021
20	2020-2021	Career counselling series (Career after MBA: Exploring the unexplored) (Biomedical Sciences,Botany & Zoology)	90	March 7, 2021
21	2020-2021	Webinar on "Open Licensing and Online Content" (Zoology)	76	September 25, 2020
22	2019-2020	Workshop on "Techniques in Molecular Microbiology" (Biomedical Sciences and Zoology)	35	February 25, 2020
23	2019-2020	Workshop on "Molecular Biology Techniques" (Biomedical Sciences and Zoology)	56	November 22, 2019
24	2019-2020	One Day Interdisciplinary Exhibit Presentation New Frontiers in Science (Biomedical Sciences, Chemistry, Computer Science, Electronics, Physics, Zoology)	112	October 22, 2019
25	2019-2020	Workshop "Learning Molecular Biology Techniques" (Biomedical Sciences and Zoology)	88	September 24, 2019
26	2019-2020	Workshop on "Unravel the Microbial World by Foldscope" (Botany and Zoology)	44	September 9, 2019
27	2019-2020	Workshop on Learning Science" The Do it Yourself Way" (Botany and Zoology)	38	July 17, 2019
28	2019-2020	Protecting wildscapes in Contemporary India (Zoology)	76	August 30, 2019
29	2019-2020	Webinar: "The Growth of Linnean thought: Impact of common descent and current understanding"	48	May 11, 2020

		(Zoology)		
30	2018-2019	Interdisciplinary workshop 'Learning Science by Doing Science'. (Botany, Chemistry, Physics, Zoology)	30	June 18-24, 2019
31	2018-2019	Two-day workshop on "Hands-on to computational biology for (meta)genomic analysis". (Botany, Zoology)	37	April 04-05, 2019
32	2018-2019	Mini symposium on International Women's day, 2018 (Zoology)	150	March 8, 2019
33	2018-2019	Workshop: Hands – on Training of ELISA Technique (Zoology)	90	February 13, 2019
34	2018-2019	Workshop: Education Conclave 2018 – 'Education deconstructed: A dialogue with experts' (Zoology, Chemistry, Computer Science, Biomedical Sciences, Physics, Electronics, Mathematics)	117	November 2, 2018
35	2018-2019	Connection between Environmental and Human MicroBiome (Zoology)	45	June 18, 2019
36	2018-2019	Malaria elimination in India: Role of vector control (Zoology)	66	February 19, 2019
37	2018-2019	A talk on Contemporary Approaches in Anti-Malarial Drug Discovery (Zoology)	73	October 10, 2018
38	2017-2018	International Symposium on "Ciliate Biology 2018 " (ISCB 2018) (Zoology)	240	April 04-06, 2018
39	2017-2018	Symposium on "Safety Measures and Laboratory Ethics" (under the aegis of Star College Scheme) (Zoology &Chemistry)	94	February 21-22, 2018
40	2017-2018	Workshop on "PCR & Southern Blotting" (Zoology)	79	September 26, 2017

41	2017-2018	Workshop on "Anxiety at Workplace" (Zoology)	41	August 25, 2017
42	2017-2018	Awareness on IPR and Social Insects (Zoology)	76	September 5, 2017
BMS				
43	2021-22	Webinar on "Designing of a Novel Vector for Rapid One- Step Cloning and Expression in E- Coli(BMS)	75	January 28,2022
44	2021-2022	Introduction to BioNEST- UDSC and Bio entrepreneurship (Biomedical Science)	64	February 15, 2022
45	2021-2022	Workshop on "Tools in Modern Biology" (Biomedical Science)	10	April 21, 2022
46	2021-2022	Kitchen is your Health tool (Biomedical Science)	66	April 18, 2022
47	2020-2021	Webinar on 'Introduction to digital forensics and electronic evidences' (Biomedical Sciences)	78	April 3, 2021
48	2021-2022	Symposium on "Phage Lysins: Promising alternatives to antibiotics" (Biomedical Science)	150	July 9, 2021
49	2020-2021	Webinar on "Virology: Importance in human health management, scope & prospects" (Biomedical Sciences,Botany & Zoology)	79	March 17, 2021
50	2020-2021	Webinar on "Flow cytometric approach to understanding disease biology" (Biomedical Sciences,Botany & Zoology)	79	March 17, 2021
51	2020-2021	Webinar on "Complexity of immune response in Covid19" (Biomedical Sciences,Botany & Zoology)	79	March 17, 2021
52	2020-2021	Webinar on "Vaccine development for respiratory viruses: Past & Future" (Biomedical Sciences,Botany & Zoology)	79	March 17, 2021
53	2020-2021	Webinar on "Phage genome annotation: the right way and/or the easy way"	59	March 2, 2021

		(Biomedical Sciences)		
54	2020-2021	IBRC-Phage Directory webinar series on Phage Bioinformatics: Tailored Medicine: Bioinformatic anlysis of bacteriophages for therapeutic use lessons learned from single patient cases (Biomedical Sciences)	55	March 30, 2021
55	2020-2021	Webinar on BRC-Phage Directory webinar series on 'Phage Bioinformatics: Phage genome annotation pipelines in CPT Galaxy and WebApollo' (Biomedical Sciences)	63	April 7, 2021
56	2020-2021	Event: Covid- 19 vaccines:From bench to bedside;amidst a pandemic, Webinar on"Lesson learned from COVID 19" (Biomedical Sciences)	76	January 21, 2021
57	2020-2021	Event: Covid- 19 vaccines:From bench to bedside;amidst a pandemic , Webinar on "Vaccines for COVID-19 and the way ahead" (Biomedical Sciences)	76	January 21, 2021
58	2020-2021	Webinar on "Challenges in commercially developing phage therapy to target drug-resistant bacteria" (Biomedical Sciences)	67	January 27, 2021
59	2020-2021	Webinar on "Genomic annotation and comparative bioinformatic analysis of action-bacteriophages" (Biomedical Sciences)	60	February 16, 2021
60	2019-2020	Science Setu, Typhoid Diagnostics, Innovation in Diagnostics (Biomedical Sciences)	78	February 25, 2020
61	2019-2020	Webinar on COVID 19- Truths and Myths (Biomedical Sciences)	99	June 9, 2020
62	2019-2020	Webinar on Mycobacteriophages: Diversity, Dynamics and Therapy (Biomedical Sciences)	67	June 17, 2020

63	2020-2021	Webinar on "Phage Directory: Making the world's phages more accessible, manageable and shareable" by Dr Jessica Sacher and Mr Jan Jhang, Co-Founders, Phage Directory USA (Biomedical Sciences)	69	September 3, 2020
64	2020-2021	Online workshop on "Python coding workshop for biologists" by Ms Shruti Gupta and Mr Alok Anand, Jawaharlal Nehru University. November 2020. (weekends, 20 hour) (Biomedical Sciences)	14	November 20, 2020
65	2020-2021	Webinar on "Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages" by Prof B.N.Tripathi, Deputy Director-General, Animal Science, ICAR HQ, New Delhi and Dr Juliannae H. Grose, Associate Professor, Brigham Young University, USA (Biomedical Sciences)	65	October 1, 2020
66	2020-2021	Seminar on "Using phages to combat AMR: Scientific capacity building through laboratory training workshops" by Dr. Tobi Nagel, Founder & President of Phages for Global Health, USA and Dr. Janet Nale, Research Associate, Department of Infection, Immunity and Inflammation, University of Leicester, UK (Biomedical Sciences)	63	August 14, 2020
67	2019-2020	Webinar on COVID 19- Truths and Myths (Biomedical Sciences)	99	August 17,2020
68	2020-2021	Webinar on "From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria" (Biomedical Sciences)	57	July 9, 2020
69	2018-2019	Demystifying Myths surrounding Human Health by Science Behind Myths (Biomedical Sciences)	67	January 31, 2019

70	2018-2019	Workshop on Foldscope (Biomedical Sciences)	40	February 2, 2019
71	2019-2020	An interactive session on Drug Discovery against MDR Microbes (Biomedical Sciences)	84	August 14, 2019
72	2019-2020	BMS Alumni Lecture Series: An Interactive Session on Science Communication (Biomedical Sciences)	67	August 28, 2019
73	2018-2019	e-Health: Exploring it's potential for Healthcare Delivery (Biomedical Sciences)	56	October 25, 2018
Computer Science				
74	2021-2022	Workshop on "Effective Presentation & Image Management for Success" (Computer Science)	110	August 24-25, 2021
75	2021-2022	Workshop on "Front End Web UI Frameworks Overview: Bootstrap" (Computer Science)	105	October 02-03, 2021
76	2021-2022	Workshop on "HTML: A Prerequisite for MERN Stack" (Computer Science)	74	October 06-07, 2021
77	2021-2022	Workshop on "A First Step Towards Developing Virtual Lab Using MERN Stack" (Computer Science)	78	October 09-24, 2021
78	2021-2022	Workshop on "Face recognition using Python" (Computer Science)	102	October 26-30, 2021
79	2021-2022	Workshop on "Let's Talk DevOps" (Computer Science)	78	March 11-13, 2022
80	2021-2022	Role of IT in Indian Banking System (Computer Science,Commerce)	78	July 14, 2021
81	2021-2022	Explainable AI (Computer Science)	73	October 4, 2021
82	2021-2022	Predictive Modeling using Python (Computer Science)	67	October 8, 2021

83	2021-2022	Cisco Network Administration (Computer Science)	65	March 3-4,2022
84	2021-2022	Wireless Security Network (Computer Science)	78	March 4, 2022
85	2020-2021	One day workshop on "Google classroom" under the aegis of DBT Star Scheme (Computer Sciences)	53	November 27, 2020
86	2019-2020	Workshop on "Linux and FOSS" (Computer Science)	740	September 16, 2019
87	2019-2020	Workshop on "Machine Learning" (Computer Science)	55	March 4, 2020
88	2019-2020	Technical Talk on "System Automation and HA Clustering " (Computer Sciences)	63	November 7, 2019
89	2019-2020	Webinar on Unravelling The Social Network Of Covid-19 In India (Computer Sciences)	76	June 15, 2020
90	2018-2019	Workshop on"Awareness on FOSS and LINUX" (Computer Science)	722	August 28-30, September 4, 2018
91	2018-2019	Workshop on "Awarness on Digital India Initiative" (Computer Science)	147	September 18, 2018
		Chemistry		
92	2021-2022	Workshop on "Introduction to New Experiments" (Chemistry)	45	April 21, 2022
93	2021-2022	Hands-on workshop on "Computational Chemistry: A New Approach to Understanding & Solving Chemical Problems" (Chemistry)	56	October 06-07, 2021
94	2021-2022	Workshop on "Basics of Photoshop" (Chemistry)	67	September 30-October 01, 2021
95	2021-2022	Hands-on workshop (online mode) on "Exploring and Understanding Computational Chemistry Using	45	March 07-10, 2022

		Gaussian: Molecular Builder and Visualization Tool" (Chemistry)		
96	2021-2022	Ethics to Paper writing (Chemistry)	77	April 19, 2022
97	2021-2022	e- resources of Delhi University and inflibnetNList (Chemistry)	67	July 31, 2021
98	2021-2022	Lecture series (online mode) of "Journey of an Alumni" Journey of an Alumni Episode -1 The Rise (Chemistry)	56	October 16,2021
99	2021-2022	Lecture series (online mode) of "Journey of an Alumni" Journey of an Alumni Episode -2 The Rise (Chemistry)	57	October 22, 2021
100	2021-2022	Lecture series (online mode) of "Journey of an Alumni" Journey of an Alumni Episode -3 The Rise (Chemistry)	67	30-Oct-21
101	2021-2022	Lecture series (online mode) of "Journey of an Alumni" Journey of an Alumni Episode -4 The Rise (Chemistry)	66	November 26, 2021
102	2021-2022	Lecture series (online mode) of "Journey of an Alumni" Journey of an Alumni Episode -5 The Rise (Chemistry)	67	December 10, 2021
103	2020-2021	Workshop on "Hands on training for skill development" (Chemistry)	22	March 1-2, 2021
104	2020-2021	Career Opportunities After Graduation (Chemistry)	95	November 12, 2020
105	2019-2020	Seminar on Intellectual Property Rights (IPR) Patents (Chemistry)	67	November 7, 2019

106	2019-2020	Workshop on "Empowering teachers: Current technology based educational contents creation and delivery" (using open source, free software) (Botany and Chemistry)	25	December 02-06,2019
107	2019-2020	Covid 19 Impact: Strategies for Education and Challenges in Virtual Learning' (Chemistry)	45	May 20, 2020
108	2018-2019	Workshop on "Legal Awareness Program on E-Waste Management" (Chemistry)	60	August 11, 2018
109	2018-2019	Workshop on "Teachers as Mentors" (Chemistry)	25	October 25, 2018
110	2018-2019	Tinkering for Scientist (Chemistry)	69	February 13, 2019
111	2017-2018	Three day National Symposium on Contemporary Environmental Concerns (Chemistry)	100	March 15-17, 2018
		Electronics		
112	2021-2022	Workshop on "Full Stack Web Development using MERN" (Electronics)	86	March 05-09, 2022
113	2021-2022	Training Workshop and demonstration of lab Equipment (Electronics)	20	March 23, 2022
114	2021-2022	Hands-on Workshop on "Arduino and Sensor Interfacing" (Electronics)	58	March 26, 2022
115	2021-2022	Training Workshop and demonstration of "Control Lab with software and Data acquisition And Universal Dev Board with FPGA and CPLD(Electronics)	16	April 25, 2022
116	2021-2022	Digital Transformation and it's impact on the future after Covid-19 (Electronics)	63	July 07, 2021
117	2021-2022	Cloud Computing	50	Sept 6-9 &11, 2021

118	2021-2022	Career Opportunities in Publishing (Electronics)	67	Feb 4,2022
119	2021-2022	Magnetic Nano-structures based Microwave monolithic signal processing devices:Fabication and testing (Electronics)	56	April 19, 2022
120	2020-2021	A five day workshop on "Hybrid Mobile App development using Flutter programming" (Electronics)	13	July 13-17, 2020
121	2020-2021	Workshop on "Data Science with Python" Under the aegis of DBT star College Scheme (Electronics)	31	March 3-7, 2021
122	2020-2021	Invited Talk : Invited Talk on Creative Thinking and Enterpreneurial Skills by Dr. Ravinder Kaur, Associate Professor, Deptt. Of Electronics, Deen Dayal Upadhaya College, Delhi University	40	June 23, 2021
123	2020-2021	Invited Talk : Imaging Arithmetic	125	June 29,2021
124	2020-2021	Invited Talk:All You need to Know About Writing a Research Paper	70	Feb 28,2021
125	2019-2020	Technical Talk on "IOT and Connectivity Solution" (Electronics)	79	March 3, 2020
126	2019-2020	Workshop on Raspberry Pi automation system (Electronics)	41	March 3, 2020
127	2019-2020	Workshop on Robotics "Robo Race" (Electronics)	45	March 3, 2020
128	2019-2020	One Day Interdisciplinary Exhibit Presentation New Frontiers in Science (Biomedical Sciences, Chemistry, Computer Science, Electronics, Physics, Zoology)	112	October 22, 2019
129	2019-2020	Workshop on "Arduino" (Electronics)	100	September 7, 2019
130	2019-2020	Workshop on Optical Colour Mixing (Electronics)	110	August 9, 2019

131	2019-2020	Workshop on "LabView": Hands-on exposure to Virtual Instrumentation and LabView (Electronics)	67	June 23, 2020
132	2019-2020	Invited Talk:Autonomous Navigation System with Intelligent Camera for Space and Earth	73	March 3,2020
133	2018-2019	A lecture on 'Current trends in Mobile Application Development' (Electronics)	85	September 20, 2018
134	2018-2019	Professional conduct with positive attitude (Electronics)	71	October 04, 2018
135	2018-2019	Satellite Communication (Electronics)	68	January 31, 2019
136	2018-2019	Workshop on "SPIE Induction" (Electronics)	158	September 25-26, 2018
137	2018-2019	Python Workshop: A workshop on 'PYTHON' was organized in association with, industry partner Coding Blocks for the students of Electronics. (Electronics)	70	April 3, 2019
138	2017-2018	A preface into Wireless Communication Warfare (Electronics)	82	January 29, 2018
		Commerce		
139	2017-2018	The Trending Economic and Business Related Issues (Commerce)	130	September 27, 2017
140	2019-2020	Lets Talk Session on "Stock Markets" (Commerce)	120	January 17, 2020
141	2020-2021	Webinar on 'Stop Worrying and Start Living and Earning': Career Vs Job: Road Map (Commerce)	87	August 27, 2020
142	2020-2021	Webinar on 'Top Trends Driving Digital Marketing Strategy' (Commerce)	79	October 9, 2020
143	2020-2021	Webinar on "Insurance for Youth" (Commerce)	79	November 6, 2020

144	2020-2021	Workshop on "E-Filing of ITR 1", Bodhini, Academic Events and Research Committee, Department of Commerce, Acharya Narendra Dev College (Commerce)	88	November 10, 2020
145	2020-2021	Webinar on "How to Publish Research Papers in Scopus/ Indexed Journals?" (Commerce)	49	December 12, 2020
146	2020-2021	Webinar on "An Overview of Indian Contract Act, 1872" (Commerce)	63	January 16, 2021
147	2020-2021	Organised talk under the first series "In Conversation with our Alumni" on "Early Investment- Secured Future" (Commerce)	70	January 28, 2021
148	2020-2021	Two week (online) Interdisciplinary FDP on "From Research to Publication" jointly organized by Department of Commerce, Acharya Narendra Dev College and Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi (Commerce)	128	April 5-17, 2021
149	2021-2022	An Insight into Currency Derivatives (Commerce)	112	September 11, 2021
150	2021-2022	Career Opportunities in MNCs (Commerce)	116	October 9, 2021
151	2021-2022	Workshop on "Ace Canva" (Commerce)	105	February 04-06, 2022
152	2021-2022	Workshop on "Ace Excel" (Commerce)	127	March 07-09, 2022
153	2021-2022	Alumni series on "career options after graduation" (Commerce)	109	April 01, 2022
154	2021-2022	Workshop on "Ace Google" (Commerce)	105	April 06-08, 2022
155	2021-2022	Workshop on "Application of Cost Accounting Standards in the Preparation of Cost Statement" (Commerce)	109	April 20, 2022

Physics				
156	2017-2018	Applications of Biomedical Imaging in Drug Discovery and Treatment Monitoring (Physics)	72	September 26, 2017
157	2017-2018	The Invisible Universe (Physics)	87	February 22, 2018
158	2017-2018	Workshop on "Arduino Microcontrollers" (Physics)	50	April 11-12, 2018
159	2018-2019	Workshop on "Paradigm Shift in Physics Education through hands-on techniques in Optics" (Physics)	150	September 5 &7, 2018
160	2018-2019	A talk on Nanotechnology- Applications in Optoelectronics and Renewable Energy (Physics)	76	January 31, 2019
161	2018-2019	Seminar on Functional Materials for device applications (Physics)	83	March 15, 2019
162	2018-2019	Seminar on MoS2 ; A promising 2-D material (Physics)	83	March 15, 2019
163	2018-2019	Seminar on MIMO antennas for 5G and IoT (Physics)	83	March 15, 2019
164	2018-2019	Interdisciplinary workshop 'Learning Science by Doing Science'. (Botany, Chemistry, Physics, Zoology)	30	June 18-24, 2019
165	2019-2020	Workshop on "Surface Plasmon Resonance (SPR) and UV-Visible Spectroscopy: Basic working principle and Environmental Applications" (Botany and Physics)	123	August 23-27,2019
166	2019-2020	Quartz Crystal Microbalance (QCM) for environmental monitoring and gas detection (Physics)	78	September 12, 2019

167	2019-2020	One Day Interdisciplinary Exhibit Presentation New Frontiers in Science (Biomedical Sciences, Chemistry, Computer Science, Electronics, Physics, Zoology)	112	October 22, 2019
168	2019-2020	Do I see myself doing science (Physics)	75	January 9, 2020
169	2019-2020	Materials for Future Generation Photovoltaic Solar Cells (Physics)	74	March 5, 2020
		Botany		
170	2017-2018	Research Based Pedagogy Tools (RBPT) based workshop on "Microbial Techniques" (Botany)	90	March 12-14, 2018
171	2017-2018	Biodiversity and the Need for its Conversation (Botany)	55	November 2, 2017
172	2017-2018	Environment, Ecology, Ecosystems and Ecological Restoration (Botany)	42	January 18, 2018
173	2017-2018	Saumya Saxena Memorial Lecture ' The Plants that changed India and the world' (Botany)	45	March 23, 2018
174	2018-2019	Interesting advances in Haemoglobin Research: Beyond the textbook (Botany)	63	October 11, 2018
175	2018-2019	Computational Gastronomy :The emerging data science of Food ,Flavors and Health (Botany)	57	February 14, 2019
176	2018-2019	Dr. Saumya Saxena Memorial lecture on Bionics and Bionic Engineering: Learning Science from Nature (Botany)	72	March 26, 2019
177	2019-2020	Lecture on "Biomedical Research in India: from a Rat Race to Taking-up the Real Challenge of Combating Disease" (Botany)	83	September 25, 2019

178	2019-2020	Bioprospecting: "A Path from Ecology to Entrepreneurship" (Botany)	83	September 25, 2019
179	2019-2020	Lecture on "Hitchhikers guide to Integrative System Biology" (Botany)	69	February 25, 2020
180	2020-2021	Webinar on "Humans for Nature" (Botany)	79	October 15, 2020
181	2020-2021	Saumya Memorial lecture entitled 'Arbuscular Mycorrhizal Fungi: true friends of plants' by Prof. Roopam Kapoor, University of Delhi (Botany)	60	March 23, 2021
182	2020-2021	Dr. Saumya saxena Memorial Lecture on Matrix of Multicellular Life: How cell adhesion regulates cell function ; by Dr. Balasubramanian Nagaraj (IISER, Pune) (Botany)	70	July 16, 2020
183	2020-2021	TARUMITRA-The Botanical Society organized lecture on"Cultivation of edible mushroom:Pleurotus species by Prof. Rajni Gupta Department of Botany Kirori Mal College University of Delhi (Botany)	70	June 17, 2021
184	2020-2021	TARUMITRA-The Botanical Society organized lecture on" From mycorrhizosphere to rhizosphere microbiome: The beautiful journey by Prof. Manju M. Gupta, Sri Aurobindo College, University of Delhi (Botany)	70	June 23, 2021
185	2021-2022	Workshop for the non-teaching staff on "Tools in Modern Biology" (Botany)	15	April 26, 2022
186	2021-2022	Challenges and strategic solutions for breaking the bias for better nutrition and health outcomes (Botany)	56	March 8, 2022
187	2021-2022	Dr Saumya Saxena Memorial talk on 'Biomarker discovery for cardiovascular diseases using multiomics approaches'	63	March 23, 2022

		(Botany)		
188	2021-2022	Biodiversity Conservation as if people and ecosystem matter (Botany)	79	October 28, 2021
Eco Club				
189	2021-2022	Effects of Good Ozone and Bad Ozone on Human (Eco Club)	74	September 16, 2021
Sashakt				
190	2021-2022	Why Him, Why Not Her (Sashakt)	56	January 24, 2022
191	2021-2022	Energy Work to Declutter and Re-energize (Sashakt)	67	March 8, 2022
192	2020-2021	Webinar on "Menstrual Hygiene, in collaboration with UNICHARM" (Sashakt Society)	67	July 13, 2020
193	2020-2021	Webinar on "Managing Life in COVID Times: Yoga Shows the Way" (Sashakt)	76	May 29, 2021
194	2018-2019	Empower HER stories (Sashakt Society)	67	October 29, 2018

DEPARTMENT OF ZOOLOGY

CONFERENCES/WORKSHOPS/SEMINARS FOR THE YEAR 2021-22

Title: International Conference on Mitigating Contemporary Environmental Issues by Sustainable Approaches [ICMCESA-2022]

Chief Patron: Prof. Yogesh Singh, Vice Chancellor, University of Delhi

Patron: Prof. BalaramPani, Dean of Colleges, University of Delhi and Mr. Anil Kumar Saini, Chairman, Governing Body, Acharya Narendra Dev College

1.1.1 Co-patrons: Prof. Shri Prakash Singh, Director, University of Delhi, South Campus; Prof. Sanjeev Singh, Joint Director, University of Delhi, South Campus and Dr Vikas Gupta, Registrar, University of Delhi

1.1.2 Chairpersons: Prof. Ravi Toteja, Officiating Principal, Acharya Narendra Dev College and Dr Garima Gupta, Scientist F, Departmentof Biotechnology, Govt. of India

1.1.3 Co-chairpersons: Prof. Rup Lal, NASI Senior Scientist Platinum Jubilee Fellow The Energy and Resources Institute; Sr. Prof. Suman Lakhanpaul, HOD, Department of Botany, University of Delhi and Prof. Ashutosh Bhardwaj, OSD, Institute of Eminence, University of Delhi

1.1.4 Scientific Chair: Prof. Arijit Chowdhuri, Prof Charu K Gupta and Prof. Seema Makhija

1.1.5 Convenors: Prof. Sunita Hooda, Prof. Sarita Kumar, Dr Sanjeeta Rani, Prof. Geetu Gambhir and Dr Archana Pandey

Session Chairs: Sr. Prof. Mridula Gupta, Prof. Rupam Kapoor, Prof. Vishnu Bhat, Prof. R. K. Negi, Prof. Rup Lal, Prof. Shashi Bhushan, Prof. Rina Chakrabarti, Prof. Indranil Dasgupta, Dr Vijay Pal Singh, Prof. Sanjeev Singh, Prof. Alan Warren, Prof. Sukanya Lal, Prof. Prem Lal Uniyal, Dr Renu Bhagat Kumar, Prof. Rajesh Tandon, Prof. Atul Johri, Prof. Sunita Hooda, Prof. Seema Gupta, Dr Sanjeeta Rani, Prof. SharanjitKaur, Dr Anupama Shukla, Prof. Sarita Kumar, Dr Anita Narang,Dr Sunita Jetly, Dr Neeti Mishra, Prof. Arijit Chowdhuri, Prof. Charu K. Gupta, Dr Manisha Verma, Dr V Bhasker Raj, Dr Geetika Kalra, Prof. Gagan Dhawan, Dr Rashmi Sharma, Dr Rahul Dev, Dr Neelakshi N. K. Borah, Dr Siddhartha, Dr SumitSahni, Mr Abhay PratapSingh, Prof. Pankaj Khanna, Dr Harita Ahuja, Prof. Urmi Bajpai, Dr Aparna Sharma, Prof.Geetu Gambhir, Dr Sanjay Kumar, Dr Kavita Mittal, Dr Sandeep Kumar Goel, Dr Mamta Bhatia

Session Co-chairs: Dr Anupama Shukla, Dr Anita Narang, Dr Pooja Bhagat, Dr Manisha Verma, DrArchna Pandey, Dr Rashmi Sharma, Prof. Seema Makhija, Prof. Arijit Chowdhuri, Prof. Charu K.

Gupta, Dr Geetika Kalra, Dr Manoj Kumar Singh, Dr Sada Nand Prasad, Dr Ravneet Kaur, Dr Aparna Sharma, Dr Kavita Mittal, Dr Rahul Dev, Dr Pragati Malik, Ms Bhawna Kaushik, Dr Jitender Goel, Dr Yash Mangla, Prof. Gagan Dhawan, Dr Vineet Kumar Singh, Dr Neelakshi N. K. Borah, Dr Narayan Singh, Dr Anita Thakur, Dr Gurudutt Rao Ambedkar, Dr Sweety Shrimali, Mr Pawan Kumar, Dr Sidhartha, Dr Sanjay Kumar

1.1.6 **Organizing Secretaries: Dr Vineet Singh, Dr Sumit Sahni, Dr V Bhasker Raj, Dr Gurudatt Rao Ambedkar, Dr Narayan Singh**

1.1.7 **Coordinators: Prof. Gagan Dhawan, Prof. Pankaj Khanna, Dr Manisha Verma, Dr Pooja Bhagat, Dr Anita Narang, Dr Sandeep Kumar Goel, Dr Anupama Shukla, Dr Rashmi Sharma, Dr Sada Nand Prasad, Dr Ravneet Kaur, Dr Harita Ahuja, Mr Pawan Kumar**

Program Committee: Dr Yash Mangla, Dr Pragati Malik, Dr Sweety Shrimali, Dr Manoj Kumar Singh, Dr Sanjay Kumar, Dr Jitender Goel, Dr Aparna Sharma, Dr Rahul Dev, Mr Abhay Pratap Singh, Dr Siddhartha, Dr Neelakshi N. K. Borah, Dr Kavita Mittal, Dr Anita Thakur, DrRimpy Kaur Chowhan, DrRitu Khosla, Ms Bhawana Kaushik, Ms Ankita Rasaily

Date: February 22-28, 2022

No of Participants: 373

Resource Persons (Plenary/Keynote/Invited Speakers):

https://www.andcollege.du.ac.in/icmcesa22/index#plenaryspakers

Report:

Acharya Narendra Dev College organized an International E-Conference titled "Mitigating Contemporary Environmental Issues by Sustainable Approaches [ICMCESA-2022]. In commemoration of Science week the event spanned from February 22-28,2022. With consideration of the ongoing "Decade of Action" proclaimed by the United Nations, the main focus of the conference was to generate interest among all on the pressing environmental concerns and the urgent need to adopt sustainable approaches worldwide to protect the habitat. A theme of such pertinence, the speakers and various presenters confronted diverse 'Areas of Concern'. Adhering to Covid-19 protocols regarding travel restrictions and social distancing, this conference was conducted over the virtual platform, the event hosted speakers from USA, Slovenia, Australia, UK, Uruguay, and Czech Republic, to name a few. Prof. Gaytha A Langlois, with extensive experience in crafting municipal and statewide environmental policies, from the Department of Environmental Policy at Byrant University, Rhode Island, USA, graced the inauguration day as the plenary speaker. She addressed the crises arising from misalignment of policy goals and strategies

of navigating environmental challenges in her plenary talk titled, "Syzygy or Sisyphus: The Future of Environmental Policy Making". There were a total 16 keynote speakers from all over the world who shared their innovative knowledge and application methodology regards to environment in the conference. There were 28 invited talks from all over India and consisted of an inclusive amalgamation of Professors, Academicians, Scientists, Ecologists, and Law Practitioners etc. The scientific advisory board members for the conference were, Professor C. R. Babu (Retd.) Department of Botany, University of Delhi, INDIA; Professor Gaytha L. Langlois, Professor of Environmental Policy, Bryant University, Rhode Island, USA; Dr Alan Warren (Retd.), Natural History Museum, London, UNITED KINGDOM; Professor Rup Lal, FNA, FNASc, FNAAS, NASI Senior Scientist Platinum Jubilee Fellow, The Energy and Resources Institute, INDIA; Dr J. R. Bhatt Advisor (Climate Change), Ministry of Environment, Forest and Climate Change, INDIA; Prof.Rupam Kapoor, Department of Botany, University of Delhi, INDIA; Prof.RadheyShyam, Department of Environmental Science, University of Delhi, INDIA; Prof. M. M. Chaturvedi, Department of Zoology, University of Delhi, INDIA; Prof. Amit Singh, Department of Commerce, Delhi School of Economics, INDIA; Prof. Ashutosh Bhardwaj, OSD, Institute of Eminence, University of Delhi, INDIA; Dr Debasish Mohanty, National Institute of Immunology, INDIA; DrGarima Gupta, Scientist F, Department of Biotechnology, Ministry of Science and Technology, INDIA.

This e-conference was a unique affair for a varied number of reasons, the themes and scope of the conference covered the following expansive range, Environmental Assessment, Environmental Mitigation by Physical, chemical and biological approaches, Biodiversity conservation and reclamation, Laws and Policies for Environmental protection, GIS mapping and remote sensing for environmental assessment, Environmental toxicology, Sustainable cities and communities, Environmental economics and eco-preneurship, Igniting young minds for environmental sensitization, Data analytics in environment, Green Finance and Environment and Public Health. Apart from the talks by keynote, invited speakers and participants, the conference programme also consisted of Technical sessions for a pragmatic and empirical approach to the theoretical discussions. There were more than 100 oral presentations by undergraduate, postgraduate research scholars and faculty traversing the entire nation from Kashmir to Kerala. There were 51 oral presentations by the faculty and students of ANDC where they got the opportunity to present their work. The event was successfully culminated, first of its kind to be executed by any college under University of Delhi, with the hope that it will play a pivotal role in inspiring further synergy on a

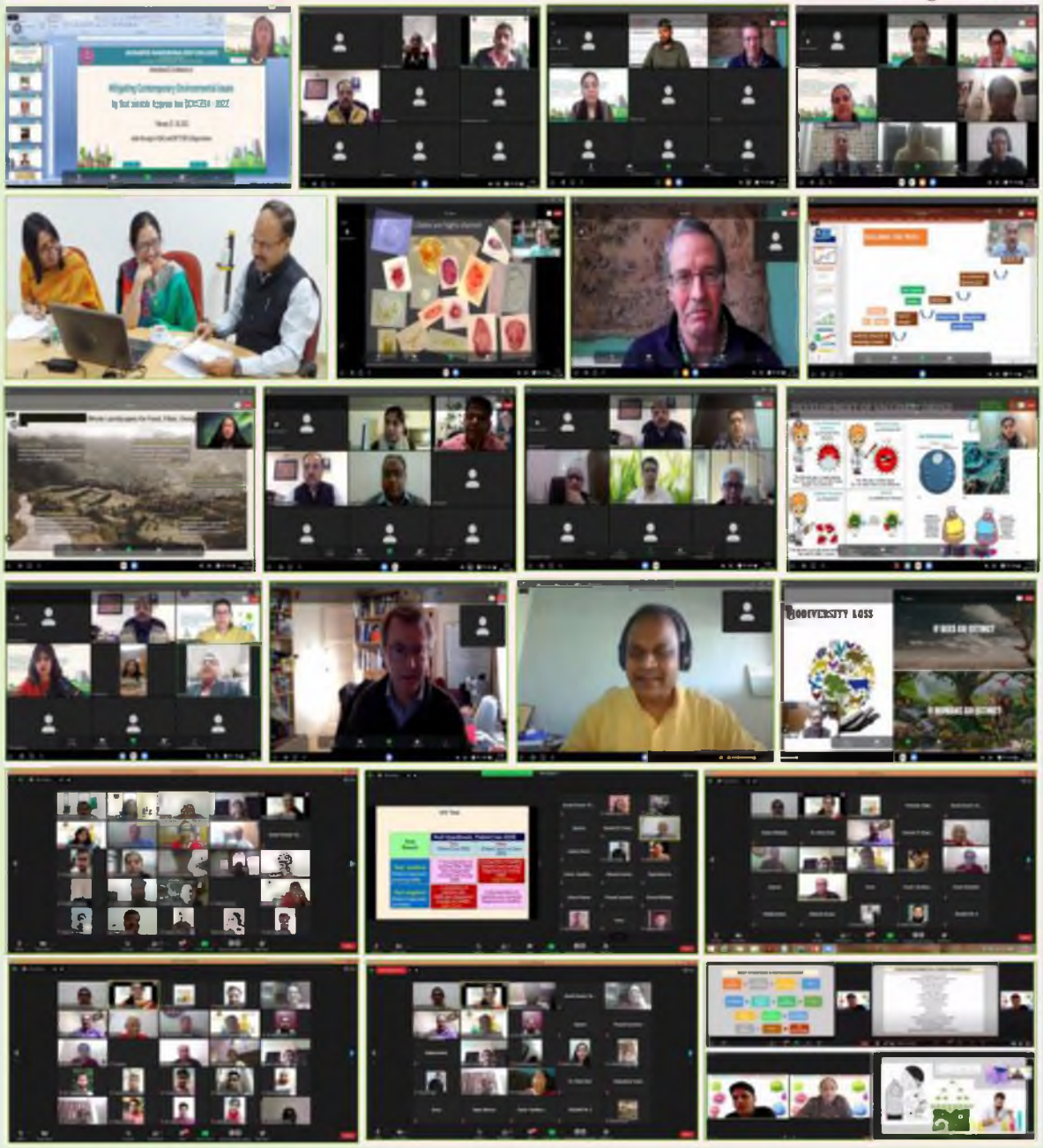
global scale, which is the only feasible way to manage and sustain our environment. The ambitious feat of planning and executing this week long international conference was possible because of the accommodating nature of all involved. Best Oral and Poster presentations were awarded during the valedictory function.

Acharya Narendra Dev College

NAAC Accreditation Grade 'A' NIRF Ranking 20

DBT Star Department – Department of Zoology

PHOTO GALLARY OF NATIONAL & INERNATIONAL CONFERENCES



TRINITY MIRROR

MONDAY 07-3-2022

Mitigating Contemporary Environmental Issues by Sustainable Approaches

Acharya Narendra Dev College shows the way

Dr. Ravi Chaturvedi

Environmental sustainability covers a wide range of issues starting from a specific location to a global situation. Global issues comprise concerns about GHG mitigation, climate change, and renewable energy, while the location-specific issues are soil erosion, water management, soil quality, and air and water pollution.

Befittingly, giving priority to environmental issues, Acharya Narendra Dev College of University of Delhi while celebrating the Science Week organised an International E-Conference on Mitigating Contemporary Environmental Issues by Sustainable Approaches recently. Kudos to dynamic Principal Dr. Ravi Toteja, visionary teacher Dr. Seema Makhija, faculty members and students for their initiative and efforts on a burning issue confronting the mankind at the moment.

It will be pertinent to point out that known as prima donna of education in The University of Delhi, Acharya Narendra Dev College accredited 'A' Grade by NAAC with a score of 3.31has been awarded Star status by DBT. It is another feather of success in the cap of Principal Prof. Toteja and the faculty members of a centre of knowledge and learning.

In the wake of recently declared "Decade of Action" proclaimed by the UN, the main focus of the conference was on the pressing environmental concerns and the urgent need to adopt sustainable approaches worldwide to protect the habitat. The significance of a burning topic of the conference drew eminent scholars from diverse fields to converge on to college auditorium from Australia, Czech Republic, Slovenia, UK, Uruguay and USA who participated actively in the deliberations of the conference. Adhering to COVID-19 protocols, constraints regarding travel restrictions and social distancing, the conference still turned out to be a benchmark on "Mitigating Contemporary Environmental Issues by Sustainable Approaches".

There were a total 16 keynote speakers from all over the world who shared their innovative knowledge and application methodology with regard to environment in the conference. There were 28 invited speakers from such diverse domains - Professors, Academicians, Environmentalists, Researchers from Environmental related fields, Scientists involved in Mitigation of Environmental issues and even Legal Practitioners.

Prof. Gaytha A Langlois, a doyen in crafting municipal and statewide environmental policies, Department of Environmental Policy, Byrant University, Rhode Island, USA, was plenary speaker who graced the inaugural deliberations. She focused on the crises of misalignment of policy goals and strategies of navigating environmental challenges in talk entitled, "Syzygy or Sisyphus: The Future of Environmental Policy Making".

This E- conference was unique in dealing with diverse themes while the scope of the conference covered important areas extensively - ranging from Environmental Assessment, Environmental Mitigation by Physical, chemical and biological approaches, Biodiversity conservation and reclamation, Laws and Policies for Environmental protection, GIS mapping and remote sensing for environmental assessment, Environmental toxicology, Sustainable cities and communities, Environmental economics and eco-entrepreneurship, Igniting young minds for environmental sensitization, Data analytics in environment, Green Finance and Environment & Public Health.

Apart from the talks by keynote speakers and participants the conference also focused on pragmatic and empirical approach to the theoretical discussions. There were more than 100 oral presentations by undergraduates, postgraduates, research scholars and faculty members from Kashmir to Kerala.

An outreach program for school students, "ECO-VILLE" was another important component of the E- conference where avant-garde research projects, video presentations, environmental quiz and paper presentations were invited. The major initiative of this outreach program was aimed at introducing young minds to innovative thinking and open pathways for research to the aspiring environmentalist. It was designed to encourage and involve students by funding *avant-garde* projects, awarding exciting prizes for quiz winners, best presenters while giving certificates to all. Another highlight of the conference was the inauguration of Virtual lab presided over by Dr. Garima Gupta, Scientist F, Department of Biotechnology, Govt. of India.

Prof. Ravi Toteja, Principal of the College on behalf of the entire faculty and students, had sense of pride at the successful culmination of an unique event, the maiden venture of its kind in the annals of the colleges of the University of Delhi. The event left a feeling of buoyancy in Prof. Toteja who felt that it will play a pivotal role in inspiring further synergy on a global scale, which is the only feasible way to manage and sustain our environment. The ambitious feat of planning and executing this week-long international conference was possible because of the accommodating nature of all involved. Right in sync with the driving force required in bringing substantial change in approach towards environment, everyone participated in the conference with a sense of awe towards a larger cause of the health of our Mother Nature!

The recommendations of the conference were aimed at environmental sustainability, provision of clean drinking water and the pointer that road towards progress are the vision of tomorrow. Successful environmental sustainability and global water initiative are in the process of new scientific vision. Provision of clean drinking water stands as a major prerogative of successful sustainable development in developed and developing countries. Environmental pollution control, industrial wastewater treatment, and veritably drinking water treatment in today's world are at a disastrous state with devastating end. History of science needs to be restructured at this crucial juncture. Environmental sustainability is in a disastrous state of immense distress. History of human civilisation is at veritable crossroads. Man's vision, as well as a scientist's progress is in the process of re-envisioning with every step of progress. Dr. Ravi Toteja, Dr. Seema Makhija and the entire team are to be commended for their laudable efforts for organising the event with perfection and precision.

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NAAC Grade 'A' | NIRF Ranking 2021 – #20 | DBT STAR College

celebrates ***Science Week*** with

International e-Conference on
Mitigating Contemporary Environmental issues by Sustainable Approaches [ICMCESA – 2022]

February 22 – 28, 2022

under the aegis of IQAC & DBT STAR College Scheme

About the Conference

UN mandated "Decade of Action" has already begun from the year 2020 with an aim to deliver the Sustainable Development Goals by 2030. This decade long endeavour is assigned to promote the shared vision of nations and proffer multipronged accelerated responses to one of the world's most serious challenges – reversing climate change. The main focus of the conference is to generate interest amongst all to concentrate on the burning issue of environmental mitigation through proactive uptake of sustainable approaches. It is in line with the global scenario wherein the latest developments occurring in the field of environmental monitoring & assessment have generated intense research in all branches of science (Biological, Chemical and Physical). The field of contemporary environmental issues demand affirmative action in fields including but not limited to biodiversity conservation/reclamation and environmental toxicology. Creation of sustainable cities through strict laws and policies for environmental protection while assessing environment status via GIS mapping and remote sensing comprise the basic step forward. Pioneering ideas of adoption of environmental economics and eco-preneurship constitute another important phase. Worldwide scientific findings necessitate that there is an urgent need to ignite young minds to think out-of-the-box and in an innovative manner to help stoke interest in environmental sensitization. The International e-Conference on Mitigating Contemporary Environmental Issues by sustainable approaches envisions to make available a platform for free exchange of ideas for the same.

Call for Abstracts

Abstracts are invited from UG/PG/Research Scholars/Faculty for oral/poster presentations having a maximum of 250 words, in Times New Roman 12 point font (1.5 line spacing). Title, author name, and affiliation should be in separate lines and are to be centered. The presenting author's name should be underlined. E-mail address of the corresponding author should be given. The abstract should be sent as an attachment in MS word format by e-mail to: icmcesa@andc.du.ac.in

Awards for outstanding presentation will be given to the participants

Abstracts will be accepted after peer-review and acceptance will be conveyed by e-mail.

Abstract submission details and registration form is available on the college website – http://andcollege.du.ac.in. Abstract(s) and Registration form should be sent as attachment in Word format by e-mail to: icmcesa2022@andc.du.ac.in. Selected full-length papers will be published in Proceedings with ISSN/ISBN numbers (extra charge Rs. 1500/- OR USD 60).

Themes and scope of conference

1. Environmental assessment
2. Environmental mitigation by physical, chemical and biological approaches
3. Biodiversity conservation and reclamation
4. Laws and policies for environmental protection
5. GIS mapping and remote sensing for environmental assessment
6. Environmental toxicology
7. Sustainable cities and communities
8. Environmental economics and eco-preneurship
9. Igniting young minds for environmental sensitization
10. Data analytics in environment
11. Green finance
12. Environment & Health

Registration Link: https://www.andcollege.du.ac.in/icmcesa22/registrationform

Website: https://www.andcollege.du.ac.in/icmcesa22/index

Email: icmcesa2022@andc.du.ac.in

Azadi Ka Amrit Mahotsav

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Mitigating Contemporary Environmental issues by Sustainable Approaches [ICMCESA – 2022]

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Azadi Ka Amrit Mahotsav

Prof. Gaytha A. Langlois
Professor of Environ. Policy
Bryant University
Rhode Island, USA

Dr. David Kocman
Deptt. of Environmental Sciences, JSI
Ljubljana, SLOVENIA

Dr. Natasa Mori
Deptt. of Organisms and Ecosystem Research
NIB Ljubljana, SLOVENIA

Dr. Rajesh Jalota
Sr. Env. Officer, Energy and Extractive, Southwest Queensland Compliance unit
Queensland, Australia

Dr. Bettina Sonntag
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Dr. Kaustubh Sharma
Senior Ecologist
Snow Leopard Trust
Seattle, USA

Prof. Andy Purvis
Life Sci. Diversity and Informatics Division, Natural History Museum,
London, UK

Dr Binita Dutta
Senior Business Analyst
Hyloris Pharmaceuticals,
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Prof. Michael W. Murray
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Dr. Siva Karuturi
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SPEAKERS INTERNATIONAL

Email: icmcesa2022@andc.du.ac.in

Website: https://www.andcollege.du.ac.in/icmcesa22/index

Registration Link: https://www.andcollege.du.ac.in/icmcesa22/registrationform

25.	Dr Neeraja Sood	Associate professor	Dyal Singh College, university of Delhi
26.	Abhishek Kumar Shrivastav	M.Sc Microbiology Student	Galgotias University
27.	Jagjeet Singh	Research Scholar	Maharshi Dayanand University
28.	Annu	Research Scholar	Maharshi Dayanand University
29.	Swetanshu	Graduate student	Galgotias University
30.	Sunil Khati	Research Scholar	Department of Zoology, Jai Narain Vyas University Jodhpur
31.	PRIYANKA SAHU	Assistant Professor	Ghani Khan Choudhury Institute of Engineering and Technology (GKCIET) Malda West Bengal, India
32.	Steffi Simmi Maxim	Research Scholar, Department of Environmental Science	Central University of Kerala
33.	Kartikey Sahil	Senior Reserarch Fellow	Dr Yashwant Singh Parmar University of Horticulture and Forestry, Nauni, Solan-173230 (HP)
34.	Maleeha Taqdees Malik	Research Scholar	Maulana Azad National Urdu University
35.	Dr. Manisha Verma	Associate Professor	Acharya Narendra Dev College
36.	S. Sripoorna	Assistant Professor	Galgotias University
37.	Jeeva Susan Abraham	Assistant Professor	Hindu College, University of Delhi
38.	Bhavna kumari	Student	school of basic and applied sciences Galgotias University greater Noida
39.	Dr. Sarita Agarwal	Assistant Professor	Acharya Narendra Dev College (University of Delhi)
40.	Abdullah A. Ansari	Assistant Professor	Shivaji college
41.	SREEPARVATHI CK	JUNIOR RESEARCH FELLOW	MES MAMPAD COLLEGE (AUTONOMOUS)
42.	DR. SWEETY SHRIMALI	Assistant Professor	Acharya Narendra Dev College
43.	Kapil Sharma	Student	Acharya Narendra Dev College
44.	GOPIKA S G UNNI	RESEARCH FELLOW	M E S MAMPAD COLLEGE. MALAPPURAM
45.	GHAFOOR UNNISA	RESEARCH SCHOLAR	MAULANA AZAD NATIONAL URDU UNIVERSITY
46.	Dr Yash Mangla	Assistant Professor	Acharya Narendra Dev College, University of Delhi
47.	Dinesh Kumar Verma	Assistant Professor	Acharya Narendra Dev College

ACHARYA NARENDRA DEV COLLEGE

ICMCESA

S. No.	Name	Position	Affiliation
1.	Seema Makhija	Professor	Acharya Narendra Dev College, University of Delhi
2.	Swati M. Biswas	Associate professor	ARSD College
3.	Charu Khosla Gupta	Professor	Acharya Narendra Dev College
4.	Dr Pooja Bhagat	Associate Professor	Acharya Narendra Dev College
5.	Dr. Sanjay Kumar	Assistant Professor	Acharya Narendra Dev College, University of Delhi
6.	VANYA GARG	PG STUDENT	M.Sc. MICROBIOLOGY, GALGOTIAS UNIVERSITY
7.	Shivangani sharma	PG student	Galgotias university
8	Jyoti Dagar	Junior Research Fellow	Acharya Narendra Dev College, University of Delhi
9.	Ashish Arora	UG Student	Amity University, Noida
10.	Swati Maurya	PhD Scholar	Acharaya Narendra Dev College, Delhi University
11.	Sandeep	Ph.D Scholar	Acharya Narendra Dev College, DU
12.	Rok Novak	Young researcher	Jozef Stefan Institute
13.	V. Bhasker Raj	Assistant Professor	Acharya Narendra Dev College
14.	SAKINA BANOO	Research Scholar	University of Kashmir
15.	Gaurang Kuksal	Student	Department of Physics, Deshbandhu College, University of Delhi
16.	Parul Bhalla	Research Scholar	Guru Jambheshwar University Of Science and Technology, Hisar
17.	Dr A SREENIVAS	Assistant Professor of Botany	SRR GOVERNMENT ARTS AND SCIENCE COLLEGE KARIMNAGAR TELANGANA
18.	Anindita Bhattacharya	Associate Professor	University of Science and Technology Meghalaya
19.	Prabal Sarkar	Associate Professor	University of Science and Technology Meghalaya
20.	Dr. Rakhee Chauhan	Assistant Professor	Kalindi College, University of Delhi
21.	Soma Mondal Ghorai	Associate Professor	Hindu college University of Delhi
22.	Abdullah A. Ansari	Assistant Professor	Shivaji college
23.	Dr Rita Rath	Associate Professor	Dyal Singh College, University of Delhi
24.	Sadhna Gupta	Associate Professor	Dyal Singh College, University of Delhi

72.	Tripti Singh	Research Scholar	Jaypee Institute Of Information & Technology
73.	MRIDULA RANI	STUDENT	ACHARYA NARENDRA DEV COLLEGE
74.	Dr. Narayan Singh	Assistant Professor	Acharya Narendra Dev College, University of Delhi
75.	MRIDULA RANI	STUDENT	ACHARYA NARENDRA DEV COLLEGE
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78.	Pawan Kumar	Faculty	Acharya Narendra Dev College
79.	Geetika Kalra	Associate Professor	Acharya Narendra Dev college, University of Delhi
80.	ANITA THAKUR	Assistant Professor	Acharya Narendra Dev College, University of Delhi
81.	NEHA TANEJA	Research Scholar	Sharda University
82.	Kalpajit Roy	UG student	Acharya Narendra Dev College, DU
83.	Prahlad Sharma	Undergraduate Student	Acharya Narendra Dev College, University of Delhi
84.	Dr. Renu Gupta	Associate Professor	Ramjas College
85.	Varnika Agarwal	UG student	Acharya Narendra Dev College, DU
86.	Vandita Grover	Assistant Professor (AdHoc)	Acharya Narendra Dev College
87.	Radhika	Student (10th Class)	Lakshman prasad charurved arya kanya inter collage
88.	Yashvardhan Singh	Student	Aacharya Narendra Dev College, University of Delhi
89.	Harita Ahuja	Associate Professor	Acharya Narendra Dev College
90.	Sant Kumar	Student	Acharya Narendra Dev College, University of Delhi
91.	Abhishek Kumar Prajapati	Student	Acharya Narendra Dev College, University of Delhi
92.	Kapil Sharma	Student	Acharya Narendra Dev College
93.	Anindita Panda	Student	Acharya Narendra Dev College, University of Delhi
94.	Deepanshu	Student	Acharya Narendra Dev College, University of Delhi
95.	Megha Karki	Student	Acharya Narendra Dev College, University of Delhi
96.	Devansh Sharma	Undergraduate Student	Acharya Narendra Dev College

48.	SUPRIYA KUMARI	PhD RESEARCH SCHOLAR	BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCE
49.	Monica Misra	Associate Professor	Acharya Narendra Dev College, University of Delhi
50.	Bhumika chauhan	Assistant Professor	Acharya Narendra Dev College ,University of Delhi
51.	DR APARNA SHARMA	ASSISTANT PROFESSOR	ACHARYA NARENDRA DEV COLLEGE
52.	GURUDATT RAO AMBEDKAR	ASSISTANT PROFESSOR	Acharya Narendra Dev College, University of Delhi
53.	BABITA SHARMA	RESEARCH SCHOLAR	DEPARTMENT OF PHYSICS AND ASTROPHYSICS, UNIVERSITY OF DELHI
54.	Jatinder Pal Singh	Research Scholar	Department of Physics & Astrophysics, University of Delhi
55.	VINEET GIRDHARWAL	Assistant Professor	Acharya Narendra Dev College
56.	Shiva Lamichhane	Research Scholar	Department of Physics and Astrophysics, University of Delhi
57.	Anju Agrawal	Professor	Acharya Narendra Dev College
58.	Dr. Reema Gupta	Assistant professor	University of Delhi
59.	HARSIMAR KAUR	UG STUDENT- 3RD YEAR	SRI VENKATESWARA COLLEGE , DELHI UNIVERSITY
60.	Dr Neelgagan Singh	Faculty	Acharya Narendra Dev College
61.	Dr Aditi Dubey	Faculty	Acharya Narendra Dev College
62.	Dr. Rinku Manocha	Associate professor	Hindu College, University of Delhi
63.	MD KAISH	student	Deshbandhu College, University of Delhi
64.	Nishita Avasthi	UG student 3 yr	Sri Venkateswara College, Delhi University
65.	Sahil kohli	Research Scholar	University of Delhi
66.	Dr. Kamlesh Kumari	Assistant Professor	Deen Dayal Updhyaya College
67.	Professor Prashant Singh	Professor	Atma Ram Sanatan Dharma College
68.	KAVYA P. TANNA	RESEARCH SCHOLAR	SAURASHTRA UNIVERSITY
69.	Dr. Sanjeeta Rani	Associate Professor	Department of Physics, Acharya Narendra Dev College, University of Delhi, India
70.	Ravneet Kaur	Associate Professor	Department of Electronics, Acharya Narendra Dev College
71.	AISHWARY KUMAR CHATURVEDI	Student	Acharya Narendra Dev College University of Delhi

	Purayil	of Botany	College, Mahe
123.	Dr. Apka. Nageswara Rao	Assistant Professor	Dept .of Zoology, , Nizam College, Osmania University
124.	Yejoor Chawla	Student	BITS Pilani
125.	Harshita Kushwaha	Student	Acharya Narendra Dev college
126.	Sruthi.V.Pillai	PG student	Nizam college, OU campus
127.	Matta Vineetha	PG student	Nizam college, Osmania University, Telangana
128.	Dr. Savita	Assistant Professor	Department of Botany, Hindu College, University of Delhi
129.	Harsha Rohira	Project Associate	Acharya Narendra Dev College, University of Delhi
130.	Dr. Sandeep Kumar Goel	Associate Professor	Acharya Narendra Dev College (University of Delhi)
131.	Dr.A.Sunil kumar	Lecturer, Department of zoology	Girraj Government college(A),Nizamabad
132.	Priyanka Jattan	Student	Dr. Y.S. Parmar University Of Horticulture and Forestry, Solan
133.	SUNIL KAYESTH	Associate Professor	Deshbandhu college, University of Delhi
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136.	Harsha	Ph. D. Scholar	Acharya Narendra Dev College
137.	Helianthous Verma	Assistant Professor	Ramjas College, University of Delhi
138.	Arijit Chowdhuri	Professor	Acharya Narendra Dev College, University of Delhi
139.	Mrityunjoy	Student	Acharya Narendra Dev College
140.	Dr. Anupama Shukla	ASSOCIATE PROFESSOR	ACHARYA NARENDRA DEV COLLEGE
141.	Mamta saini	Student	SKV H - block Ashok vihar ph-I
142.	MAJHAR ALAM	Research scholar	Department of mathematics, University of Delhi
143.	Mohd Afham	Student	Acharya narendra Dev college
144.	Vridhi Singh	Student	Acharya Narendra Dev College, University of Delhi
145.	Amartya Sinha	UG Student	Acharya Narendra Dev College, University of Delhi
146.	Kavita Mittal	Assistant Professor	Acharya Narendra Dev College
147.	Dasari Prasanna	Assistant Professor	Government Degree College for women Begumpet Autonomous Hyderabad

97.	Shruti Jain	Student	Acharya Narendra Dev College, University of Delhi
98.	Prof PANKAJ KHANNA	Professor	Department of Chemistry, Acharya Narendra Dev College, University of Delhi
99.	Tishya Thukral	Undergraduate Student	Acharya Narendra Dev College
100.	Rahul Basu	Undergraduate Student	Acharya Narendra Dev College
101.	Soni Rani	Research Scholar	Hindu College, University of Delhi
102.	Kajal Jindal	Assistant Professor	DEPARTMENT OF PHYSICS, KIRORI MAL COLLEGE, UNIVERSITY OF DELHI
103.	Sharanjit Kaur	Associate Professor	Acharya Narendra Dev College
104.	Sagar Bisht	student	Acharya Narendra Dev College
105.	Jyoti Taneja	Assistant Professor	Daulat Ram College
106.	Laishram Saya	Faculty	Sri Venkateswara College
107.	Rashmi Thukral	Professor	Acharya Narendra Dev College, University of Delhi
108.	Drashya Gautam	Senior Research Fellow	Acharya Narendra Dev College
109.	Somya Singh	Student	Acharya narendra dev college
110.	ANAMIKA YADAV	Research scholar	Department of Zoology, Ramjas college, University of Delhi, Delhi
111.	Paul Joshi	Evironmental Science Post-graduate	Central University of Kerala
112.	Rupali Pandey	PhD Scholar	University of Delhi
113.	Ripamchi Sangma	Research Scholar	Tura Government College, Tura
114.	Rahul Raj M	UG Student	Ramjas College, University of Delhi
115.	Dr. Harikishni Nain	Associate Professor	Bharati College, Delhi University
116.	SRUTHI S. KUMAR	STUDENT	ACHARYA NARENDRA DEV COLLEGE
117.	RAHUL KUMAR	ASSISTANT PROFESSOR	DEPARTMENT OF ZOOLOGY, SHEODENI SAO COLLEGE (MAGADH UNIVERSITY), KALER
118.	Pushkar Pandey	Student	Allahabad State University
119.	SUNITA HOODA	Professor	ACHARYA NARENDRA DEV COLLEGE
120.	Dr Sharda Pasricha	Associate Professor	Department of Chemistry, SV College, New Delhi
121.	Mohd Mukhtar Ansari	Student	Acharya Narendra Dev College
122.	Shijith Puthan	Assistant Professor	Mahatma Gandhi Government Arts

148.	Vibha Gaur	Professor	Acharya Narendra Dev Collge, University of Delhi
149.	siddhartha	Assistant Professor	Department of Physics, ACHARYA NARENDRA DEV COLLEGE University Of Delhi 110019
150.	RAJAT SHARMA	STUDENT	ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI
151.	Dr. Pragya Gahlot	Assistant Professor	Sri Venkateswara College, University of Delhi
152.	Anju	Student	Department of electronics science
153.	Kishore Mendam	Resersch Scholar	Osmania University
154.	Anita Narang	Associate Professor	Acharya Narendra Dev College
155.	subhasree swagatika mohanty	pH.D Scholar	Berhampur University
156.	Amit	Student	ACHARYA NARENDRA DEV COLLEGE (University Of Delhi)
157.	Ramit Yadav	Student	ACHARYA NARENDRA DEV COLLEGE (University Of Delhi)
158.	Dyuti Agrawal	Student	Amity University
159.	Ayushi Sharma	College Student	Acharya Narendra Dev College, University of Delhi
160.	Kanika Nadar	PhD scholar	Acharya Narendra Dev College, University of Delhi
161.	Ritu Arora	PhD scholar	Acharya Narendra Dev College, University of Delhi
162.	Shashi Chawla	Faculty	Gargi College, University of Delhi
163.	Harsh Bamotra	College Student	Acharya Narendra Dev College, Delhi University
164.	Tanisha Sharma	Student	Acharya Narendra Dev College
165.	Nishu Singh	Assistant professor	ANDC
166.	Prof. Monika Bansal	Professor	Deen Dayal Upadhyaya College, University of Delhi
167.	Dr Charu Kalra	Assistant Professor	Department of Botany, Deen Dayal Upadhyaya College, University Of Delhi
168.	Ankush Singh	B.Sc.(H) Zoology	Deen Dayal Upadhyaya College, University of Delhi
169.	Dr Charu Kalra	Assistant Professor	Department of Botany, Deen Dayal Upadhyaya College, University Of Delhi
170.	Dr. Monika Bhattacharya	Assistant Professor (adhoc)	Acharya Narendra Dev College, University of Delhi
171.	DEO DATTA AARYA	Assistant Professor	Acharya Narendra Dev College (University of Delhi)
172.	ITENDRA	Research Scholar	University of Delhi.

	KUMAR		
173.	Maniket Chauhan	Undergraduate	Acharya Narendra Dev College
174.	Riya Dayal	Undergraduate	Acharya Narendra Dev College
175.	Dr Neelakshi Niti Kachari Borah	Asst. Prof. (Ad-hoc)	Acharya Narendra Dev College
176.	Yash Lohia	UG Student	Acharya Narendra Dev College, University of Delhi
177.	Dhruv Kayesth	Undergraduate student	Ramanujan College, university of Delhi.
178.	Pooja khoda	Research Scholar	University of Delhi.
179.	Shivani Dayal	Student	Bharati College, Delhi University
180.	Abhay Pratap Singh	Assistant Professor	Acharya Narendra Dev College
181.	Vibhor	Testing	Acharya Narendra Dev College
182.	Dr. Neeti Misra	Associate professor	Acharya Narendra Dev college
183.	Dr. Neeti Misra	Associate professor	Acharya Narendra Dev college
184.	MANU SANKAR	Ph.D. RESEARCH SCHOLAR	ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI, NEW DELHI, INDIA
185.	Piyush and	Student (Class 11)	SOSE
186.	DIVYA	PhD Research Scholar	Acharya Narendra Dev College, University of Delhi
187.	Ruchi Sharma	Student	SoSE kalkaji
188.	Rahul Dev	Assistant Professor (Adhoc)	Acharya Narendra Dev College, University of Delhi
189.	Jyotika Sharma	Student	Acharya Narendra Dev College
190.	Vibha Gaur	Professor	Acharya Narendra Dev Collge, University of Delhi
191.	Sumit Yadav	Student	K.G.S.V chirag Enclave new Delhi 11048
192.	Pratham Sharma	College Student	Acharya Narendra Dev College
193.	Rimpy Kaur Chowhan	Assistant Professor	University of Delhi
194.	Archna Pandey	Assistant Professor	University of Delhi
195.	Alina saifi	Student	Gov.girls middle scholl sector 24 rohini
196.	Rimpy Kaur Chowhan	Assistant Professor	University of Delhi
197.	Dr. Savita	Assistant Professor	Department of Botany, Hindu College, University of Delhi
198.	Vishal	Student	Kautilya govt sarvodaya bal vidhalya chirag enclave
199.	PRIYA KUMARI	Student (Class 8th)	Governmet Girls Middle School

Seema Mukhija

200.	Arjun yadav	Student (Class XI)	School of specialised excellence
201.	Komal	Student (8th A)	G.G.M.S
202.	Dr. Tanushri Saxena	Associate Professor	Swami Shraddhanand College, Alipur
203.	Pushpam Kumari	Student (8A)	Girls government middle school
204.	ANUSHKA GUPTA	Student (8TH)	GGMS SECTOR -24
205.	Bhawna Singh	Ph.D Scholar	Dept.of Mathematics, University of Delhi
206.	Sania Chauhan	Student	Government girls middle school
207.	Ritesh Raj	Student	Department of electronics science
208.	Anjali	Student	Government girl middle school
209.	Shraddha pal	Student	Government girls medium school
210.	Zaheer Abbas	Student	Kautilya Government Sarvodaya (Co - ed) vidyalya
211.	Bhoomi sharma	Student	Government girls middle school
212.	Meenakshi rai	Student	Government girls middle school
213.	Dr. Jitender Goel	Assistant Professor	Acharya Narendra Dev College (University of Delhi)
214.	Aniket Saxena	Hindi	K G S B V Chirag enclave
215.	Gagan Dhawan	Professor	Acharya Narendra Dev College, University of Delhi
216.	Anjali Kumari	Student	Girls Government middle School
217.	Dr. Soumya Mukherjee	Assistant Professor	Department of Botany, Jangipur College, University of Kalyani, West Bengal
218.	Samiksha ojha	Student (8th class)	Girls government middle school
219.	Anjali	Student	G.G.M.S school sec 24 Rohini
220.	Dr. Shrankhla	Assistant Professor	Acharya Narendra Dev College
221.	Tushar gupta	New Delhi	K. G. S. (Co-Ed) vidyalaya
222.	Bhoomi	Student	Govt.girls middle school
223.	Geetika Kalra	Associate Professor	Acharya Narendra Dev college, University of Delhi
224.	Bhawna Kaushik	Assistant Professor	Acharya Narendra Dev College
225.	Dr. Pragati Malik	Assistant Professor	Acharya Narendra Dev College, University of Delhi
226.	Ankita Rasaily	Assistant Professor	Acharya Narendra Dev College
227.	Shubham kumar	Student	Kautilya govt sarvodaya co-ed vidayalaya
228.	Shubham kashyap	Student (11 class)	Kautilya government Sarvodaya bal Vidhyalaya
229.	Rajeev Negi	Student (11th standard)	Kautilya Sarvodaya bal vidhyalay co-ed (1925003) , Chirag Enclave
230.	Tushar	Student (11 class)	Kautilya government sarvodaya coed.

Seema Mathur

			Vidyalayo
231.	Amaan	Student (Class 10)	Kautilya govt. Co-(ed) chirag enclave
232.	Nikhil Kumar Mehta	Student (Class 11th)	Kautiliya govt Sarvodaya (co-edu) Vidhyalaya chirag enclave new Delhi 110048
233.	Pushkar Singh	Student (11th class)	K.G.S(co.ed).V - 1925003
234.	Mayank pal	Student (Class 11th)	Kautilya Sarvodaya bal Vidhyalaya
235.	Ritesh Kumar Mishra	Student (Class 11)	Kautilya Sarvodaya co-ed vidyalaya
236.	Rahul Saha	Student (Class 11)	Kautilya Govt Sarvodaya Bal Vidyalaya, G6WW+X48, Chirag Enclave, Greater Kailash, New Delhi, Delhi 110048
237.	Gaurav singh latwal	Student (Class 11th)	Kautilya govt. Sarvodya (CO-ED) vidyalya
238.	Pratham Shailani	Student (Class 11th)	Kautilya Govt Sarvodaya Bal Vidyalaya
239.	Dipesh kumar	Student (Class 11th)	Kautilya government SBV
240.	Paras	Student (Class 11)	Kautilya govt sarvodaya bal vidyalaya
241.	Ritik Karki	Student (class 11)	Kautilya Sarvodaya govt vidyalay Chirag enclave
242.	Akshat Singh	Student (class 11th)	Kautilya Government Sarvodaya Bal Vidyalaya
243.	Neeraj singh	Student (class 11th)	kautilya govt. sarvodaya co-education vidyalaya,Chirag enclave-110048
244.	Jitesh Kumar	Student (class 11th)	Kautilya bal vidhyalae Chirag enclave kalkajii
245.	Sartaj alam	Student (class 9)	K G S (co.edu.) V. Chirag Enclave
246.	Mansi	Student	GGMS sector 24 rohini
247.	SOHAN Pratap	Student (class 11)	K.G.B.S.V Chirag enclave
248.	Aditya Jadon	Student (class 11th)	Kautilya Government Sarvodya Bal Vidyalya
249.	RAVI RANJAN JHA	Student (class 11)	K.G.S.V - COED
250.	Osheen Jain	Student (class 11th)	Kautilya Government Sarvodhya (co-ed) Bal Vidhyalya -48
251.	Rahul Verma	Student (class 11)	Kautilya Government Sarvodaya co-ed vidyalaya
252.	Vimal Kumar Thakur	Student (class 11th)	Kautiliya sarvodaya bal vidalaya ,chirag Enclave New delhi ,1925003
253.	Arun Kumar	Student (class 11th)	Katiualya govt. sarvoday co.ed. Vidyalay
254.	Piyush jha	Student (class 10th)	Kautilaya government Sarvodaya bal Vidhyalaya
255.	Sandeep Singhania	PhD Scholar	University of Delhi
256.	Shivam Kumar Dwivedi	Student (class 11th)	Kautilya government Sarvodaya co-ed bal vidhyalaya

Seema Mahajan

257.	Rohit Kumar	Student	Kautilya Govt Sarvodaya (Co-Ed) Vidyalaya
258.	Aditya Sharma	Student (Class 11)	Kautalya Government Sarvoday Bal Vidyalay
259.	Shivamyadav	Student (class 10)	K. G. S. B. V chirag enclave
260.	Hasnain Raja	Student (class 10)	K.G.S.B.V Co-Ed vidhalaya
261.	Arhan	Student (class 10)	Kautilya government co-eduction vidyalya
262.	Vijay Singh	Student (class 10)	Kautilya Govt. Sarvodaya Baal Vidhyalay
263.	Sachin	Student (class 9th)	K.G.S(Co.ed)Chirag Enclabe
264.	Sujal Prajapati	Student (XI Student)	Kautilya Sarvodaya co-ed Govt School, Chirag Enclave
265.	Sarita Kumar	Professor	Acharya Narendra Dev College, University of Delhi
266.	Anubhav Gupta	Student	Kautilya govt sarvodaya bal vidhyalaya
267.	Zaheer Abbas	Student (class 10)	Kautilya Government Sarvodaya (Co - ed) vidyalya
268.	Sandhya kumari	Student	Gov. Girl model school
269.	Kunal sharma	Student (class XI)	Chirag enclave kautilya
270.	Nitin singh rawat	Student (class 9)	KGS(co-ed)v chirag enclave
271.	YASH	Student (class XIth)	Kautilya G.S.B.V
272.	Abdullah	Student (class 11)	Kautilya govt sarvodya bal vidhlaya
273.	Prashant	Student	Chirag enlave
274.	Sachin sharma	Student (class 11)	Kautilya government sarvodya bal vidhalya
275.	Pravesh kumar sharma	Student (class 11)	Kautilya Govt Sarvodaya Bal Vidyalaya
276.	Suraj	Student (class 11)	Kautilya govt sarvodaya co.ed vidhlaya
277.	Om Kumar	Student	K gs b v Chirag enclave
278.	Vishal	Student (class 11)	Kgsbv
279.	Roshan Jha	Student (class 11th)	Kautilya govt. Sarvodaya bal vidyalaya (chirag enclave)
280.	Rohit	Student (class 11)	K.G.S.B.V chirag enclave
281.	Sakshi rajwaniya	Student	Government. Girls middle school
282.	Janvi rajwaniya	Student	Government.girls middle school
283.	Rathika Jeniffer	Student (class 6th)	Govt.girls middle school
284.	Sujal	Student	K.G.S.B.V Chirag Enclave
285.	Aakash Mahto	Student (Class 11th)	Kautilya gav. Sarvodhya bal vidhalya
286.	Vivek	Student (class 10th)	KGSBV Chirag enclave

Seema Maktija

287.	NITISH KUMAR MANDAL	Student (class 11)	KGSBV (CHIRAGH ENCLAVE) ND 110048
288.	PIYUSH KUMAR	Student	K.g.s.coed vidhyalya chirag enclave 19
289.	Sakshi Tripathi	Student (class 11th)	Kautilya sarvodaya bal vidyalaya (co-ed) in cherag enclave
290.	Tannu	Student (class 6)	Girls gorment middle school
291.	Dhruv Bamnawat	Student (class 11)	Chirag enclave (co - ed)
292.	Trisha Pathak	student	Government Girls Middle School near New Delhi, Delhi 110086
293.	Yogesh Kumar	Student	K.g.s(Co-ed)v Chirag Enclave
294.	Divya tete	Student (class 11th)	Kautilya govt. Sarvodaya Bal vidyalaya
295.	Priya mandal	Student	G.G.M.S
296.	Vigyanshu	Student	K. G. S. B. V CHIRAG ENCLAVE
297.	Prashant prajapati	Student (class 11)	Kgsbv chirag enclave
298.	Akriti jha	Student (class 6)	Girls government middle school
299.	Raj Solanki	Student (class 11th)	Kautilya (coed) Sarvodya bal vidhyalay (chirag enclave)
300.	Shubham kashyap	Student (class 11)	Kautilya government Sarvodaya bal Vidhyalaya
301.	Kashish	Student	Government girls medium School
302.	Chetna Singh	Student	Govt girls middle school
303.	Saurav	Student (class 8th)	K.G.S.B.V
304.	Sagar Singh	Student (class 11)	Kautilya Government SBV Chirag Enclave
305.	Nitin thakur	Student	K. G. S. Co-ed vidyalaya
306.	Vaibhav gupta	Student (class XI)	K. G. S. B. V chirag enclave new delhi
307.	Anshita	Student (class 6th)	G. G. Middle school
308.	Karan	Student (class 10)	Kautilya Govt. sarvodaya Co-Ed Vidyalya Chirag Enclave New Delhi-110048
309.	Muskan	Student (class 6)	Government girls middle school
310.	Faiz Alam	Student	Kautilya Govt sarvodaya (co-ed) vidyalaya
311.	Ritik Singh	Student (class 10)	Kautilya Govt (co-ed) vidhyala
312.	Disha	Student	Government girls middle school
313.	Ranjan Kumar Yadav	Student (class 11)	Kautilya govt s (co-ed)v; Chirag enclave
314.	Ranjan Kumar Yadav	Student (class 11)	Kautilya govt s (co-ed)v; Chirag enclave
315.	Pratiti Majumder	Student	Ramjas College, University of Delhi
316.	Arsalan Ahmad	Student (Class 11th)	CBSE/ Kautilya co-ed 1925003) chirag enclave New Delhi 110048
317.	Anubhav Rana	Student (class 11 th)	Kautilya Government Sarvodaya Co- ED Vidyalaya

Seema Mahajan

318.	Lipika sharma	Student (Class- 8th)	Rajkiya madhyamik balika vidhyalay
319.	Aryan negi	Student	K.g.s(co-ed)school chirag enclave new delhi 110048
320.	Shailender Kumar thakur	Student	K.g.s (co-ed) vidhyalay school
321.	Dr. Arunima Sahgal	Associate Professor	Ramjas College
322.	Anandi Saxena	Student	Direction of education
323.	Aniket Chauhan	Student (class 11)	Kautilya govt. Sarvodya bal vidhyalay
324.	SATYA PRAKASH YADAV	Assistant Professor	Acharya Narendra Dev College
325.	PRADEEP KUMAR GUPTA	Assistant Professor	Acharya Narendra Dev College
326.	Bagish	Student	Kautilya government sarvodya bal vidhyalay
327.	PANKAJ KHANNA	Professor	Department of Chemistry
328.	Prof.Seema Gupta	Professor	Acharya Narendra Dev College
329.	Nitin singh rawat	Student (class 9)	KGS(co-ed)v chirag enclave
330.	Kavita Singh	Assistant Professor	Mata Sundri College For Women, University of Delhi
331.	Omkar singh tomar	Student (class 11)	Kautilya government sarvodhaya (co-ed) vidhayalaya
332.	Priyanshu Mishra	Student (class 11)	K.s.g.b.v chirag enclave
333.	Poornima	Student (class 6)	G.G.M.S
334.	Gauri	Student (class 8)	GGMS
335.	Kiran Madhav	Student (class 8)	GGMS
336.	Akshita	Student (class 6th)	Govt. Girls middle school
337.	Dr. Rakesh Kumar Sonker	Assistant Professor	Department of Physics, AND College, University of Delhi
338.	Urmi Bajpai	Professor	Acharya NArendra Dev College
339.	Sadaf naaz	Student	G.G.M.S
340.	Nidhi sharma	Student (class 6)	G. G. M. S
341.	Mansi mourya	Student	Government girl middle school
342.	Shristi sharma	Student (class 6th)	Government girl middle school
343.	Nancy katariya	Student	Govt girls middle school
344.	Mohd sameer	Student (class 11th)	K.G.S.B.V chirag enclave
345.	Isha	Student	Ravi Shankar Sarvodaya Kanya vidyalaya
346.	Siddhi Agrawal	Student (class 6)	GGMS

Seema Makkar

347.	Meghana Bisht	UG Student	Acharya Narendra Dev College
348.	Tanya Chopra	Student	Acharya narendra dev college
349.	Ayushi Gupta	UG Student	Acharya Narendra Dev college , University of Delhi
350.	Kiranbala Panigrahi	Student	Berhampur University
351.	Bharti	Student	Ravi shanker Sarvodaya kanya Vidyalaya Bawana Delhi-39
352.	BHUMI CHOUDHARY	student	hansraj model school
353.	Radha	Student (class)	R.S.G.S.K.V Bawana delhi 39
354.	Ravinder Kumar Sagar	Associate Professor	Acharya Narendra Dev College
355.	Priya	Student	government girl middle school
356.	Kashish	Student (class 7)	gbms
357.	Sakshi	Student	Ravi Shankar Sarvodaya kanya vidhyalay
358.	Khushi Khandelwal	Student	Daulat Ram College, University of Delhi
359.	Vineet Kumar Singh	Assistant Professor	ACHARYA NARENDRA DEV COLLEGE
360.	Rashmi Sharma	Associate Professor	Acharya Narendra Dev College
361.	Ritu Khosla	Assistant Professor	BMS, ANDC
362.	MANOJ KUMAR SINGH	Assistant Professor	Acharya Narendra Dev College
363.	Rishang Singh	Student (class 11)	Kautilya Govt Sarvodaya Bal Vidyalaya
364.	Dr. Sumit Sahni	Assistant Professor	Acharya Narendra Dev College, University of Delhi
365.	Manisha Jain	Associate Professor Chemistry	Acharya Narendra Dev College
366.	Shashank Kumar singh	Students	CSJM UNIVERSITY KANPUR
367.	Nancy katariya	Student (class)	Govt girls middle school
368.	Arjun Gupta	Student (class 9)	Kautilya govt. Sarvodaya Co-Ed Vidyalaya Chirag Enclave New Delhi-110048
369.	Zaheer Abbas	Student (class 10)	Kautilya Government Sarvodaya (Co - ed) vidyalya
370.	Md Nasirul Alam	Student (class 9)	K.G.S.Co.Ed. Vidhyalaya
371.	Karuna	Student (class 12th)	SKV H BLK Ashok vihar ph 1 delhi 52
372.	Dr.Rajesh Yadav	Assistant professor	Galgoltias university

Seema Mukhija

Topic: 6th Annual International e-Conference on International Network of Soil Contamination Research-INSCR2021 on "MICROBES IN SUSTAINABLE DEVELOPMENT"

Co-Organizers:PG Department Zoology (Magadh University), Department of Zoology, (University of Delhi), Acharya Narendra Dev College (University of Delhi), Deen Dayal Upadhyay College (University of Delhi), Maitreyi College (University of Delhi), Ramjas College (University of Delhi), Kirori Mal College (University of Delhi), Sri Venkateswara College (University of Delhi), CMP College (Allahabad University) and Phixgen Pvt Ltd.

Co-Patron: Prof. Ravi Toteja (Officiating Principal, Acharya Narendra Dev College)

Organizing Secretary (from ANDC): Prof. Seema Makhija

Organizing Committee Members (from ANDC):Dr Vineet Kumar Singh and Dr Sumit Sahni

Date: November 15-18, 2021

No. of Participants: 250

Report:

In January 2016, the 2030 Goals for Sustainable Development were set by the United Nations to achieve environmental, social and economic development through green methods and clean production technologies. The most important aim of these goals is the fulfilment of basic human needs and wants, as the essential human needs such as food, clothing, shelter and health care are still not available to most people, despite the rapid growth in the world economy. The increase in waste products and depleting natural resources have turned human attention towards efficient green and clear production technologies. The Sustainable Development Goals aim to provide these basic needs for all, through the intelligent use of sustainable science. In this perspective, microorganisms, which are vital for sustaining life on Earth, can play a major role. Keeping in view about the role of microbes in sustainable development, INSCR organized 6th International Conference over the virtual platform. Prof. P. C. Joshi, former Vice Chancellor, University of Delhi and Prof. Balram Pani, Dean of Colleges, University HOD, Zoology, Magadh University, Dr Sanjay Kumar, Director CISR Palampur Himachal Pradesh, Dr Umesh Rai, former Head of Zoology Department, University of Delhi, besides the principals of co-organizing colleges.

The event hosted 30 International and 40 National speakers of international repute. A few of them are: Edward DeLong, University of Hawaii, Honolulu; Prof. Jizhang Zhou, University of Oklahoma, USA; Prof. Kenneth Timis, Germany; Hilary Lapin Schott and Prof. Jack Gilbert, University of California; Daniel Macdonald, University of California; Hock Midt, Netherlands; Hans, Germany.

H Reknow, New Zealand's Stephen Craig Carey, America's NASA Program Scientist Mitch Schalte, South Korea's Vipin C Kalia of Konkuk University, Korea's Ganesh de Sartale, Poland's Agnizeka Dybala Defratka, Uruguay's PavloScavone, Prof. Jyoti Prakash Tamang of Sikkim University, INDIA, Prof. Rama Chaudhary of AIIMS Delhi, INDIA. Anushree Malik of IIT Delhi, INDIA and others who enlighten about the role of microbes in sustainable development.

Two Pre conference workshops namely, Art of scientific writing and communication, and Hands on to computational Biology, for (Meta)genomic analysis were also organized for Undergraduate, Postgraduate students and research scholars from November 14-15, 2021. An online Agar Competition was also organized that show active participation from all over the country.

Themes covered in this conference were:

a. Host Microbiota Interactions
b. Clinical Microbiology and Infectious Diseases
c. Microbes for Sustainable Agriculture
d. Translational and Industrial Microbiology
e. Microbial Ecology and Biotechnology
f. Microbiology of Extreme Environments
g. Empowering academics through Innovative Research

During the conference, undergraduate, postgraduate students, research scholars and faculty members presented their research papers on host microbiota interactions, clinical microbiology and infectious disease, microbes for sustainable agriculture, microbial ecology and biotechnology, microbiology of extreme environment and translation and industrial microbiology under the main themes Microbes in Sustainable Development.

The Conference was a great success with a record total of more than 500 attendees and 138 registered participants. During the conference three parallel sessions were conducted to accommodate 80 poster and more than 70 oral presentations by students and faculty across the globe. The conference concluded with a valedictory session, in which the participants were acknowledged, winners for poster and oral presentations were announced, winners for Agar Art competition were announced and INSCR Journal was released. The chief guest for the valedictory

session was Dr Paola Scavone and the Guest of Honor was Prof. BalaramPani, Dean of Colleges, University of Delhi.

दैनिक भास्कर **गया भास्कर** 19-11-2021

सेमिनार • चार दिवसीय छठा इंटरनेशनल ई-कांफ्रेंस के दौरान अंतिम सत्र में जर्मनी टेक्निकल विवि के प्रो केनेथ टिम्मिस ने कहा

सामाजिक क्षमता निर्माण को माइक्रोबायोलॉजी में साक्षरता जरूरी, इससे नीतिगत निर्णय होंगे प्रभावी

एजुकेशन रिपोर्टर | बोधगया

माइक्रोबायोलॉजी लिटरेसी इनिशिएटिव अर्थात माइक्रोबायोलॉजी फॉर साइंस एंड सोसाइटी का उद्देश्य समाज में, हमारे दैनिक जीवन को प्रभावित करने वाली सूक्ष्मजीवविज्ञानी प्रक्रियाओं की गहन समझ और स्थिरता के विभिन्न पहलुओं के लिए उनके महत्व को स्थापित करना है। इसके तहत रोग और स्वास्थ्य, पोषण और खाद्य उत्पादन में सूक्ष्म जीव विज्ञान शामिल है। माइक्रोबायोलॉजी फॉर साइंस एंड सोसाइटी सेक्शन के तहत जर्मनी टेक्नीकल विवि के प्रो केनेथ टिम्मिस ने माइक्रोब्स इन सस्टेनेबल डेवलपमेंट पर चार दिवसीय छठा इंटरनेशनल ई-कांफ्रेंस के दौरान अंतिम सत्र में उक्त बातें कही। इंडियन नेटवर्क फॉर स्वॉयल कंटेमिनेशन रिसर्च दिल्ली ने इसका आयोजन किया व पीजी डिपार्टमेंट ऑफ जूलोजी मगध विवि, दिल्ली विवि सहित अन्य संस्थान सह आयोजक हैं। उन्होंने कहा कि समुद्री पारिस्थितिकी तंत्र और पर्यावरण परिवर्तन और यहां तक कि कैसे रोगाणु हमारे मूड और व्यवहार को नियंत्रित करते हैं, इन विषयों को एक एकीकृत, परस्पर और अनुभवात्मक तरीके में पढ़ाकर दक्षताओं को स्थापित करना है। इस तरह सामान्य जानकारी के महत्वपूर्ण मूल्यांकन के लिए एक सामाजिक क्षमता का निर्माण करना है। यह स्थापना, कर्वण लाभ और भ्रामक सूचनाओं के प्रभाव का प्रतिकार करने के प्रयासों का भी समर्थन करेगा जो हमारे दैनिक जीवन में तेजी से व्यापक होता जा रहा है। इंगलैंड के एसेक्स विवि के प्रो टेरी मैक्जेन्टी, भारत के प्रो रूपलाल सहित अन्य ने शोधपत्र पढ़ा।

स्कूलों में सूक्ष्म जीव विज्ञान के शिक्षण के लिए नई सामग्री प्रदान करना है

इंटरनेशनल कॉन्फ्रेंस के बाद आयोजक समिति के सदस्य।

पृथ्वी के सब-सरफेस में हजारों साल जीवित रह सकते हैं माइक्रोब्स

किनीकल माइक्रोबायोलॉजी सेशन के तहत प्रो करेन लॉयड ने अननोन माइक्रोब्स इन अर्थ सब-सरफेस शोध पत्र में कहा कि सतह के पास, जीवित जीव कार्बनिक पदार्थों का उपभोग करते हैं और ऑक्सीजन का सांस लेते हैं। नीचे की ओर, ये उपलब्ध नहीं हैं, इसलिए वे हाइड्रोजन (विभिन्न रासायनिक प्रक्रियाओं द्वारा चट्टानों से मुक्त), मीथेन, सल्फर यौगिकों और अमोनियम जैसे इलेक्ट्रॉन दाताओं का उपयोग करते हैं। वे नाइट्रेट और नाइट्राइट, मैंगनीज और आयरन ऑक्साइड, ऑक्सीकृत सल्फर यौगिकों और कार्बन डाइऑक्साइड जैसे इलेक्ट्रॉन का सांस लेते हैं। अधिक गहराई पर बहुत कम ऊर्जा होती है, इसलिए चयापचय सतह की तुलना में दस लाख गुना धीमा होता है। कोशिकाएं विभाजित होने से पहले हजारों वर्षों तक जीवित रह सकती हैं और उनकी आयु की कोई ज्ञात सीमा नहीं है।

स्कूल जीवन से ही अध्ययन जरूरी

प्रो केनेथ टिम्मिस ने कहा कि इस पहल का उद्देश्य स्कूलों में सूक्ष्म जीव विज्ञान के शिक्षण के लिए नई सामग्री प्रदान करना है, ताकि एक ऐसे समाज का निर्माण किया जा सके, जो सूक्ष्म जीव विज्ञान के प्रमुख पहलुओं में साक्षर हो, जो ज्ञान-आधारित रोजमर्रा के पारिवारिक निर्णयों के साथ-साथ क्षेत्रीय, राष्ट्रीय और वैश्विक नीतिगत निर्णयों को प्रभावित करने वाले हों। इसका उद्देश्य माइक्रोबायोलॉजिस्ट बनाना नहीं है, बल्कि बच्चों की कल्पना को पकड़ने के लिए, बाल-केंद्रित और प्रासंगिक विषयों जैसे भोजन, जानवरों, छुट्टियों आदि से निपटने के लिए जानकारी देना है।

अंटार्कटिका का माइक्रोबियल इकोसिस्टम बचाएं

कांफ्रेंस के तीसरे दिन माइक्रोबायोलॉजी इन एक्सट्रीम एनवायरमेंट सेक्शन के तहतबाइकाटो विश्वविद्यालय, न्यूजीलैंड के डॉ. क्रेग कैरी ने इस चरमपंथी वातावरण में माइक्रोबायोटा और माइक्रोबियल पारिस्थितिकी को उजागर करने के लिए अंटार्कटिक क्षेत्र में किए गए शोधों की जानकारी दी। डॉ. हीके स्मिड्ट ने हैलोजन साइकलिंग के चालकों में गहरी अंतर्दृष्टि प्राप्त करने के लिए प्रदूषित और प्रदूषित वातावरण में अन्वेषण के बारे में बात की।

समापन सत्र में विजेताओं की हुई घोषणा

सम्मेलन का समापन एक समापन सत्र के साथ हुआ, जिसमें पोस्टर और मौखिक प्रस्तुतियों के लिए विजेताओं की घोषणा की गई। आगर कला प्रतियोगिता के विजेताओं की भी घोषणा की गई और आईएनएसडीआर जर्नल का विमोचन किया गया। समापन सत्र के मुख्य अतिथि डॉ. पाओला स्कावोन थे और विशिष्ट अतिथि दिल्ली विवि के डीन ऑफ कॉलेजेज प्रो. बलराम पाणि थे। आयोजन में मगध विवि जूलॉजी विभाग के डा रोशन कुमार की महत्वपूर्ण भूमिका रही।

6th Annual International Conference of
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MICROBES IN SUSTAINABLE DEVELOPMENT
NOVEMBER 15-18, 2021
In Association with
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125	Raj Adarsh Bandhu , Deshbandhu college
126	Aishee Bhowal, Zoological Survey of India; Kolkata
127	Jeeva Susan Abraham, Kirori Mal College, University of Delhi
128	VRIDHI SINGH, ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI
129	Madhav Gupta, Sri Venkateswara College, University of Delhi
130	Srianshu Kumar Panda, Sri Venkateswara College, University of Delhi
131	Dr. Renu Gupta, Ramjas College, University of Delhi
132	Vidhi Wadhawan, Sri Venkateswara College, University of Delhi
133	DEEPANSHU, University of Delhi
134	Suman Kumar Ghose, PG Department Of Zoology, Kolhan University
135	Chanchal Sharma, University of Delhi
136	Reena Kumari, PG Department Of Zoology, Kolhan University
137	Mohd Afham, Acharya Narendra Dev College, DU
138	Haritha Prasad, Zoological Survey of India, Kolkata
139	SONAM ANTIL, Department of Microbiology, CCS HAU, Hisar
140	Manya Vashishtha, Miranda House, University of Delhi
141	Muskan, Deshbandhu college
142	Sana Khan, Miranda House College, University of Delhi
143	Shubhanshu Krishna, Acharya Narendra Dev College, DU
144	Sana Khan , Miranda House College, University of Delhi
145	Krishna Kumar Ramashankar Yadav, Symbiosis International University
146	ANNU KUMARI, UNIVERSITY OF DELHI
147	PATATRI SARKAR, ZOOLOGICAL SURVEY OF INDIA, KOLKATA
148	CHINMAY KUMAR GIRI, P.G. Department of Zoology, Kolhan University
149	RAKESH KUMAR GUPTA, CSIR-NEERI, Nagpur
150	Nitin V, Bhaskaracharya College of Applied Sciences, University of Delhi
151	Tanmay Anand, Bhaskaracharya College of Applied Sciences , University of Delhi
152	Dr. Renu Solanki, Deen Dayal Upadhyaya College, University of Delhi
153	Vaibhav Vankatrao Kadam, Symbiosis International University, Pune
154	Rajni Gupta, Kirori Mal College
155	TANAYA BHOWMICK, Jadavpur University
156	MADHUBALA KUMARI, Bodh gaya, Magadh University
157	Nitin Mahal
158	Pranjali
159	Priyanka Bokade, CSIR-NEERI, Nagpur
160	Ayush Thakur, Kirori Mal College, University of Delhi

161	HRITIKA SHREE, SHIVAJI COLLEGE (UNIVERSITY OF DELHI)
162	Harsh Lakhera , University of Delhi
163	Parikshit Sahotra , Central University of Kerala
164	Swati M. Biswas, ARSD College
165	Anju Agrawal, Acharya Narendra Dev College
166	SUJAL SAHU, UNIVERSITY OF DELHI
167	ANSH SHARMA, DESHBANDHU COLLEGE (UNIVERSITY OF DELHI)
168	ARUHSI DOGRA, DESHBANDHU COLLEGE (UNIVERSITY OF DELHI)
169	ROUSHAN KUMAR, Magadh University, BodhGaya
170	Sushma Bhardwaj, Acharya Narendra Dev College
171	Chibuike Charles Odo, University of Nigeria Nsukka
172	ANKITA SHELLY, Department of Environmental Studies
173	Aantra Rao, Shivaji college, University of Delhi
174	Geetu Gambhir, Acharya Narendra Dev College
175	Dr. Ravneet Kaur, Acharya Narendra Dev College, University of Delhi
176	Shallu Sachdeva, Delhi University
177	Dr Archna Pandey, Acharya Narendra Dev College, University of Delhi
178	Dr Ritu Khosla, Biomedical Science, Acharya Narendra Dev College
179	DIVYA, Acharya Narendra Dev College, University of Delhi
180	Dr. JASMINE P, ZOOLOGICAL SURVEY OF INDIA
181	Vineet Girdharwal , Acharya Narendra Dev College
182	Priyadarshini Pratikshya Nayak, KIIT SCHOOL OF BIOTECHNOLOGY
183	Hirva Mehta, Department of Microbiology at Atmiya University, Gujrat
184	Manika Kaur, SGTB Khalsa College, University of Delhi
185	Dr. Usha Yadav, Shivaji College
186	Vadodariya Krupali Dilipbhai, Atmiya University, Gujrat
187	Merwin Mammen Mathew, Department of Biosciences, Jamia Millia Islamia
188	Sughra Mehdi , SGTB Khalsa College, University of Delhi
189	Sneha Chopra, University of Delhi
190	Dr Lopamudra Ray, KIIT University
191	Arijit Chowdhuri, Acharya Narendra Dev College (University of Delhi)
192	Anindita Biswas, Deen Dayal Upadhyaya College, University of Delhi
193	Priyanka Mehta, Deen Dayal Upadhyaya College, University of Delhi
194	Varnika Singhal, Deen Dayal Upadhyaya College, University of Delhi
195	Divya Kumari, Deen Dayal Upadhyaya College, University of Delhi
196	Priyanshi Jain, Deen Dayal Upadhyaya College, University of Delhi
197	Devi Archana Rana, Deen Dayal Upadhyaya College, University of Delhi
198	Simran, Deen Dayal Upadhyaya College, University of Delhi
199	Jaya, Deen Dayal Upadhyaya College, University of Delhi
200	Aditi Rawat, Deen Dayal Upadhyaya College, University of Delhi
201	Ankush Singh, Deen Dayal Upadhyaya College, University of Delhi

202	Ashutosh, Deen Dayal Upadhyaya College, University of Delhi
203	Durvesh Marwal, Deen Dayal Upadhyaya College, University of Delhi
204	Ishika Namdev, Deen Dayal Upadhyaya College, University of Delhi
205	Om Prakash Kumar, Deen Dayal Upadhyaya College, University of Delhi
206	Shreya Upadhyay, Deen Dayal Upadhyaya College, University of Delhi
207	Dr. Anita Gulati, Deen Dayal Upadhyaya College, University of Delhi
208	Dr. Vineet Kumar Singh, Acharya Narendra Dev College, University of Delhi
209	Anita Thakur, Aacharya Narendra Dev College, University of Delhi
210	Krishna Natvarlal Savariya
211	Dr. Mandeep Kaur, Acharya Narendra Dev College
212	Nabeela Farhat, Aligarh Muslim University
213	Absar Talat, Aligarh Muslim University
214	Dr. Yash Mangla, Acharya Narendra Dev College
215	Dr. L. P. Singha, School of Biotechnology
216	Dr Rimpy Kaur Chowhan , Acharya Narendra Dev College, University of Delhi
217	Dr. Tejendra Kumar, University of Delhi
218	Dr Preeti Marwaha, University of Delhi
219	Mayank Singh Pundir, Indian Agricultural Statistics Research Institute
220	Harsha, Acharya Narendra College, University of Delhi
221	Kajal Gupta, Delhi University
222	Dr. Prateek Kumar, Department of Zoology, University of Allahabad
223	Mansi Singh, Sri Venkateswara College, University of Delhi
224	Dr. Veena Ghuriani, University of Delhi
225	Rashmi Sharma, Acharya Narendra Dev College, University of Delhi
226	Rama Sisodia, Maitreyi College, University of Delhi
227	Dr. Jyotsna Wassan
228	Sharanjit Kaur, University of Delhi
229	Neelu Dheer, DU
230	Prajwalit Shikha, Maitreyi College, University of Delhi
231	Subhransu Sekhar Behera, KIIT University
232	Dr Ankita Sehrawat, Maitreyi College, University of Delhi
233	Dr. Ankita Chaudhary, Maitreyi College, University of Delhi
234	Dr. Lathika Nair, Deen Dayal Upadhyaya College, University of Delhi
235	Pranav Aggarwal, Bal Bharati Public School, Pitampura, New Delhi
236	Shweta Sharma , Department of Botany, Maitreyi college, University of Delhi
237	Satender kumar, G.D Goenka University, Gurugram
238	ISHU PRIYA, Mandsaur University, M.P.
239	Geetika , Acharya Narendra Dev College, University of Delhi
240	Monica Balli Yadav, HPT ARTS And RYK Science College SPPU
241	Dr. Supriya Singh Gupta, HPT Arts & RYK Science College, Nashik
242	BHAWNA CHUPHAL, DEPARTMENT OF ZOOLOGY, UNIVERSITY OF DELHI

243	Ritam Das, Acharya Narendra Dev College
244	Ranjeeta Bhujabal, Delhi University
245	SHEEBA , JNU
246	Anjali Yadav, JawaharLal Nehru University
247	Prof. Renu Gupta, Maitreyi College, University of Delhi
248	Arshiya Sood, MCM DAV College, Kangra
249	Pankaj Kumar Sharma , Himachal Pradesh University
250	Aditi Raj, Dev Bhoomi Uttarakhand University

Two workshops were also organized during the Conference:

Title: Workshop on Computational Biology for Metagenomics

Date: November 14, 2021

Number of Participants: 35

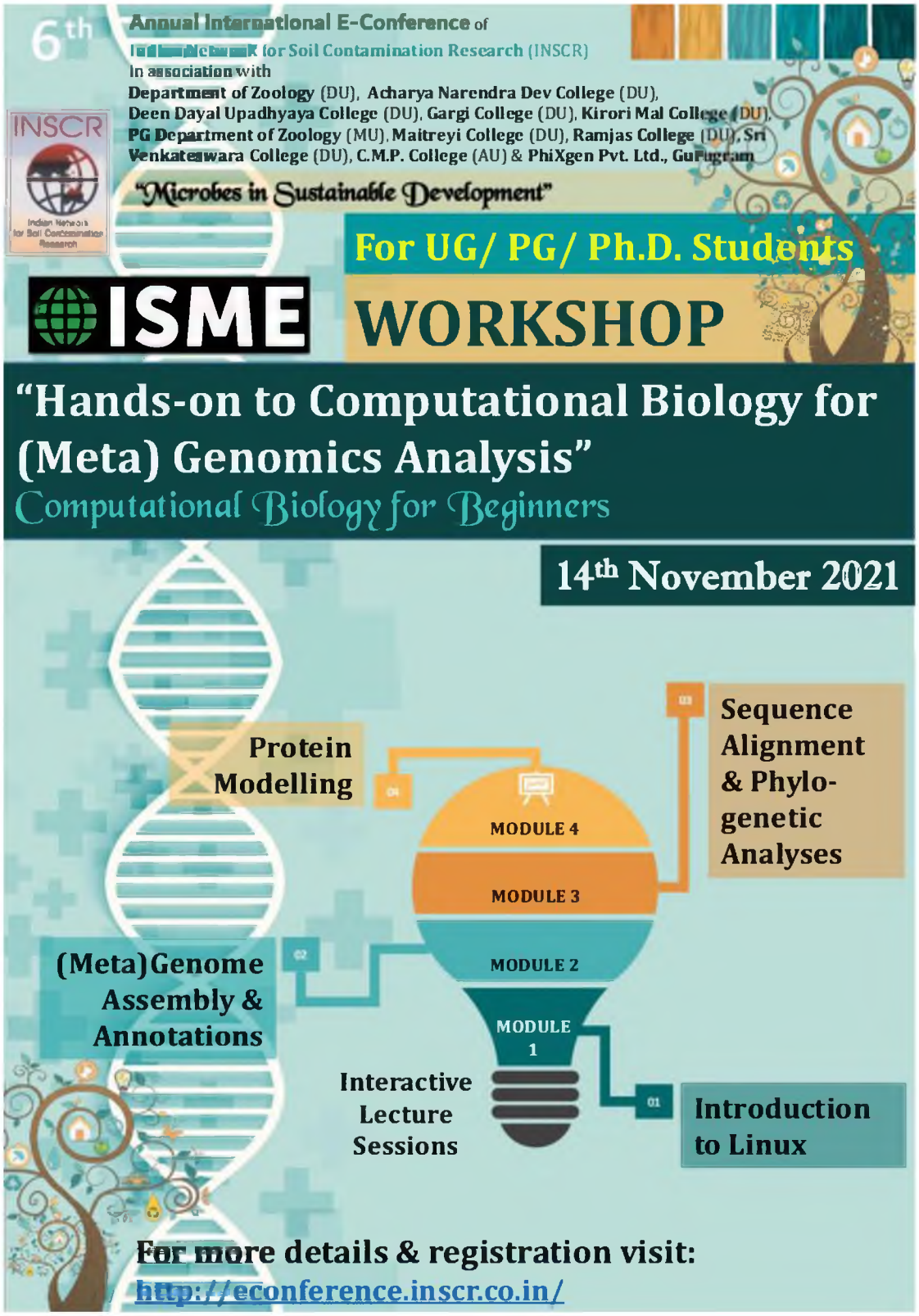
Resource Person: Dr Utkarsh Sood (+91 99999 13310), Dr Gauri Garg (+91 98118 82312) and Dr Princy Hira (9711070176)

Report:

An Intercollege workshop was organised for undergraduate, postgraduate and Research scholars under the aegis of INSCR and ISME. The students were introduced for the following four modules through interactive lecture sessions:

- **Module I**: Introduction to Linux
- **Module II**: Metagemoe assembly and Annotations
- **Module III** Sequence Alingnment and Phylogenetic analysis
- **Module IV** Protein Modelling

The workshop benefitted the students as they could learn Basics of Computational Biology


6th
Annual International E-Conference of
Indian Network for Soil Contamination Research (INSCR)
In association with
Department of Zoology (DU), Acharya Narendra Dev College (DU),
Deen Dayal Upadhyaya College (DU), Gargi College (DU), Kirori Mal College (DU),
PG Department of Zoology (MU), Maitreyi College (DU), Ramjas College (DU), Sri
Venkateswara College (DU), C.M.P. College (AU) & PhiXgen Pvt. Ltd., Gurugram
INSCR
"Microbes in Sustainable Development"
For UG/ PG/ Ph.D. Students
ISME
WORKSHOP
"Hands-on to Computational Biology for (Meta) Genomics Analysis"
Computational Biology for Beginners
14th November 2021
Protein Modelling
Sequence Alignment & Phylo-genetic Analyses
MODULE 4
MODULE 3
MODULE 2
MODULE 1
(Meta)Genome Assembly & Annotations
Interactive Lecture Sessions
Introduction to Linux
For more details & registration visit:
http://econference.inscr.co.in/

ACHARYA NARENDRA DEV COLLEGE

Computational Biology for Metagenomics

14 November, 2021

Sr. no.	Name	Roll No.	Course
1	AASHIFA URF SANIA KHAN	AB-1064	Zoology
2	ADITYA SINGH	AB-1002	Zoology
3	ADITYA SONI	AB-1003	Zoology
4	ANIKET RANJAN	AB-1053	Zoology
5	ANJALI	AB-1006	Zoology
6	ANKIT KUMAR GOND	AB-1063	Zoology
7	ANKIT PANDEY	AB-1007	Zoology
8	ASHUTOSH MAURYA	AB-1054	Zoology
9	AVANIJA TYAGI	AB-1008	Zoology
10	BAKUL DALAL	AB-1009	Zoology
11	DONYI PADU	AB-1062	Zoology
12	GUNJAN GROVER	AB-1013	Zoology
13	HAFIZA	AB-1014	Zoology
14	HARSHDEV SAHU	AB-1056	Zoology
15	HARSHITA	AB-1015	Zoology
16	JYOTI SHARMA	AB-1059	Zoology
17	KHUSHI GOYAL	AB-1019	Zoology
18	KOMAL GOYAL	AB-1020	Zoology
19	MANISH KUMAR	AB-1021	Zoology
20	MANISHA SHARMA	AB-1057	Zoology
21	PAWAN KUMAR	AB-1048	Zoology
22	PRACHI	AB-1065	Zoology
23	PRIYA YADAV	AB-1028	Zoology

24	PUJ KIT SINGH	AB-1029	Zoology
25	RADHIKA GARG	AB-1030	Zoology
26	RAKESH SARKAR	AB-1032	Zoology
27	RITIKA CHANDEL	AB-1060	Zoology
28	ROHIT KUMAR	AB-1034	Zoology
29	RONAK VERMA	AB-1045	Zoology
30	SAHIL KAUSHIK	AB-1035	Zoology
31	SAMIKSHA MEHTA	AB-1046	Zoology
32	SEJAL ARORA	AB-1036	Zoology
33	SHALINI	AB-1037	Zoology
34	SWATI MAHESHWARI	AB-1039	Zoology
35	TRISHA NAIR	AB-1040	Zoology

Title: Workshop on "Art of Scientific Writing and Communication"

Date: November 15, 2021

Number of Participants: 35

Resource Person: Prof Ruplal (+91 98107 85766)

Report:

An Intercollege workshop was organised for undergraduate, postgraduate and Research scholars under the aegis of INSCR and ISME in which students were enlightened to improve their scientific writing skills by adhering to accurate expression and clarity of the concept.

ACHARYA NARENDRA DEV COLLEGE

Art of Scientific writing and communication

15 November, 2021

Sr. no.	Name	Roll No.	Course
1	AASHIFA URF SANIA KHAN	AB-1064	Zoology
2	ADITYA SINGH	AB-1002	Zoology
3	ADITYA SONI	AB-1003	Zoology
4	ANIKET RANJAN	AB-1053	Zoology
5	ANJALI	AB-1006	Zoology
6	ANKIT KUMAR GOND	AB-1063	Zoology
7	ANKIT PANDEY	AB-1007	Zoology
8	ASHUTOSH MAURYA	AB-1054	Zoology
9	AVANIJA TYAGI	AB-1008	Zoology
10	BAKUL DALAL	AB-1009	Zoology
11	DONYI PADU	AB-1062	Zoology
12	GUNJAN GROVER	AB-1013	Zoology
13	HAFIZA	AB-1014	Zoology
14	HARSHDEV SAHU	AB-1056	Zoology
15	HARSHITA	AB-1015	Zoology
16	JYOTI SHARMA	AB-1059	Zoology
17	KHUSHI GOYAL	AB-1019	Zoology
18	KOMAL GOYAL	AB-1020	Zoology
19	MANISH KUMAR	AB-1021	Zoology
20	MANISHA SHARMA	AB-1057	Zoology
21	PAWAN KUMAR	AB-1048	Zoology
22	PRACHI	AB-1065	Zoology
23	PRIYA YADAV	AB-1028	Zoology

24	PULKIT SINGH	AB-1029	Zoology
25	RADHIKA GARG	AB-1030	Zoology
26	RAKESH SARKAR	AB-1032	Zoology
27	RITIKA CHANDEL	AB-1060	Zoology
28	ROHIT KUMAR	AB-1034	Zoology
29	RONAK VERMA	AB-1045	Zoology
30	SAHIL KAUSHIK	AB-1035	Zoology
31	SAMIKSHA MEHTA	AB-1046	Zoology
32	SEJAL ARORA	AB-1036	Zoology
33	SHALINI	AB-1037	Zoology
34	SWATI MAHESHWARI	AB-1039	Zoology
35	TRISHA NAIR	AB-1040	Zoology

Title: Bootcamp1.0 (online)

Patron: Prof. Ravi Toteja, Officiating Principal, ANDC

Nodal Officers: Dr SumitSahni, Dr Vineet Kumar Singh

Conveners: Dr Sanjeeta Rani, Dr Pooja Bhagat, Prof. Seema Makhija

Organizing Committee Members: Dr Rahul Dev, Mr Abhay Pratap Singh

Date: January 17-22, 2022

Number of Participants: 125

Resource Persons: Mr Ayush Mishra (+91 94521 65398), Mr Vaibhav Thapliyal (+91 95207 83447), Mr Yash Vermani (+91 99107 29880), Ms Avnija Tyagi (+91 83750 63068)

Report:

Bootcamp 1.0 was organized for the College students to train them to build digital content on web i.e. web pages. These pages will also be used for the V-Lab experiment's content page. The topics covered during the workshop were:

(1) HTML- History and Features, Tags, Special characters, linking images and videos, Internal and external Linking, Working with DOM elements of HTML

(2) CSS- Animations, Applying properties to DOM (shadow, font size, font family, padding, margin, color, background, display, position, border radius, table)

(3) JavaScript- Basic Introduction, Objects, Elements, Data Types, Keywords, Looping Constructs, Functions, Animations using Event Listeners

Daily Quizzes were conducted based upon the topics taught in addition to assignments.About 240 students participated in this Bootcamp. The camp was a great success.

Dr. Sanjeeta Rani (Guest)
Richa Sharma
Dr Pooja Bhagat (Guest)
Abhay G
satya prakash yadav (Guest)
MOHD AFHAM (Guest)
Manisha J
Seema M
AM
NK
UK
AT
S
RC
C
AB
AK
NB
AYUSH M
Neha Khanra
Utkarsh Kumar
Anuj Thakur
RATI C
Arpit Bhardwaj
Rahul D
5:15
Sat, 1/22

DR
Dr. Sanjeeta Rani (Guest)
AK
Ayush kapoor (Guest)
Dr Pooja Bhagat (Guest)
Manisha J
MA
MOHD AFHAM (Guest)
Seema M
A
Anushka (Guest)
NK
NB
AG
DR
A
HK
DM
PS
NJ
VK
Nisha Khanra
Vineet K
Abhay G
HARSHITA K
Devansh M
PALAK S
Nidhi Jain
Vinesh Kumar
5:16
Sat, 1/22

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NAAC Grade 'A' | NIRF Ranking 2021- #20 | DBT STAR College

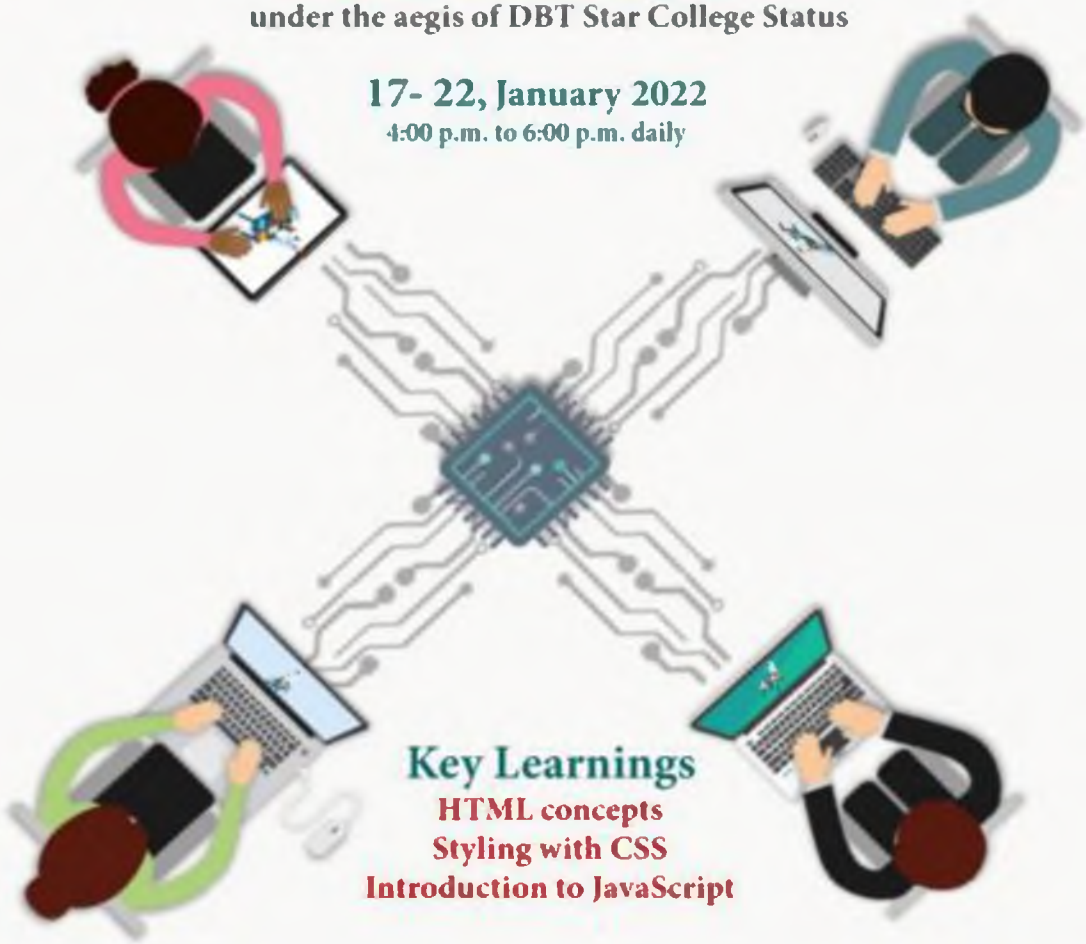
organizing one-week online bootcamp for

V-Lab Development

under the aegis of DBT Star College Status

17- 22, January 2022

4:00 p.m. to 6:00 p.m. daily



Key Learnings

HTML concepts

Styling with CSS

Introduction to JavaScript

Professor Ravi Toteja
Patron

Dr Sanjeeta Rani
Dr Pooja Bhagat
Professor Seema Makhija
Convenors

Dr Sumit Sahni
Dr Vineet Kr Singh
Nodal Officers
(Virtual Labs @ANDC)

Organizing Committee: Dr Rahul Dev, Mr Abhay Pratap Singh

Resource Persons: Ayush Mishra, Vaibhav Thapliyal, Yash Virmani, Avanija Tyagi

Register at: https://forms.gle/qnmuT3Az1vFAmFrr6

ACHARYA NARENDRA DEV COLLEGE

V Lab Development Bootcamp 1.0

January 17-22, 2022

Sr. no.	Name	Designation
1	Aashi Gupta	B.Sc. Life Science
2	Abhay Gupta	B.Sc. (Hons.) Zoology
3	Abhishek	Physical science with chemistry
4	Abhishek	Bsc(H)Computer science
5	Abhishek kumar	Bsc(chemistry owners)
6	Abhishek Kumar	Bcom. (Hons)
7	Abhishek Prajapati	Physical science with electronics
8	Adarsh Mishra	BSc. Mathematics(Honours)
9	Aditya Pratap Yadav	Bsc in Life Science
10	Ainampudi Ambedkar	Bsc(hons) computer science
11	Ajay Kumar	BSc Hons physics
12	Ajay yadav	Bsc (hons.) Computer science
13	Ajeet singh rathor	Bcom hons
14	Akanksha Singh	B.Sc(H)Botany
15	Akash	Bsc physical science
16	Akash Jha	B.Sc(H) Electronics
17	Akhil Bangri	LLB
18	AKRAMUZ ZAMAN	life science
19	Akshay	B.sc (computer science)
20	ALOK RANJAN	Bsc Hons zoology
21	ALOK SINGH	B.Sc.(Hons) Electronic Science
22	Aman	Bsc. Electronic (hons)
23	Aman Sharma	B.Sc.(H)Computer Science
24	Aman Yadav	Bsc physical science with be electronic
25	Amartya Sinha	BSc Hons CS
26	Amit	Bsc (Hons) Computer Science
27	Amit kumar	Bsc (prog) physical science with chemistry
28	Amit kumar	Electronics
29	Amit Kumar	Botany
30	AMIT KUMAR	Physical science with electronics
31	Amit Kumar	B.com (hons)

32	Amit Singh	B.Sc(Hons.) Physics
33	Amitesh Kumar Singh	Bsc cs
34	Amritanshu	Bsc Hons computer science
35	Anamika Binu	Biomedical sciences
36	Anjali	BSC (HONS) BOTANY
37	Ankit	Bsc cs
38	Ankit Verma	Bsc. CS (H)
39	Ankita Gupta	Bsc in physical science with electronics PME
40	Ankush Rana	B.Sc. (Hons.) Electronics
41	Ansh Nimker	Physical science with computer science
42	Anshika Sharma	B.Sc. (Hons.) Zoology
43	Anshul Roulaniya	BSC CHEMISTRY HONOURS
45	Anubhav Singh	Bsc(H) Electronics
46	ANUJ THAKUR	Bsc(hons)Chemistry
47	Anurag bamrara	Bsc honours chemistry
48	Anushka Sahu	BSc(H) Computer Science
49	Arjun Suresh	Bcom hons
50	Arnika Patel	BSc Computer Science
51	Arpit Bhardwaj	BSc H CS
52	Arpit Saini	B.Sc Computer Science Hons
53	Artika Gupta	BSc Zoology
54	Arzoo	Physical science with computer science
55	Ashish jha	B.sc electronics
56	Ashish Kumar	Computer science (hons.)
57	Ashish yadav	BSc physical science computer science
58	Ashwin Vijayan	BCOM HONS.
59	AVINAV KUMAR	Zoology Hons
60	Ayush Bhardwaj	Bsc H Computer Science
61	Ayush kapoor	Bsc Hons computer science
62	Ayush Rawat	B.Sc.(H) Electronics
63	Ayush Yadav	Bsc (hons.) Computer Science
64	Basab Bhattacharjee	BSC Hons Zoology
65	Bharti yadav	Bsc (H) cs
66	BIBEK UPADHYAYA	introduction to JavaScript

67	Chirag Anand	BSC COMPUTER SCIENCE (H)
68	Deeksha yadav	Physical science with electronics
69	Deepak	Bsc Hons computer science
70	Deepak Jangir	BSC. Physical science with CS
71	Deepak Jaswal	B.sc (Physical science with electronics)
72	Deepak Kumar	Bsc Hons Computer Science
73	Deepika Bhardwaj	Bsc Hons Computer science
74	Devanshi Mitra	BSc. Hons. Physics
75	Devanshi Saini	B. Sc life science
76	DEVENDER KUMAR	Bsc pmcs
77	Dheeraj Kumar Sharma	BSc (H) Chemistry
78	Dhruv Bhasin	Bsc Hons Zoology
79	Diksha	Bsc. Maths hons
80	Diksha gupta	Bcom honrs
81	DIPANKAR DEV RISHI	B Sc Honors Chemistry
82	Divya Pant	B.Sc.(hons) Zoology
83	Divyam Singh	B.Sc(H) Computer Science
84	Divyam Singh	B.Sc(h) Computer Science
85	Divyanshi Goyal	B.tech
86	Dr. Ravneet Kaur	B.Sc(H) Electronics
87	Dr. Tarkeshwar	Zoology
88	Ekanshu Kumar	BSc (Prog.) Physical Science with Electronic
89	Eniya Tapo	B.Sc.Life Science
90	Etti Jha	Bsc(h) Computer Science
91	Faizan Nezami	B.com Hons
92	Gaurav yadav	Bsc.hons computer science
93	Gauri Ghai	Electronics Faculty
94	Geni Yao	Bsc.life science
95	Gunjan Grover	Bsc. Hons. Zoology
96	Harsh Bamotra	BSc. (H) Computer Science
97	Harsh Dalal	B.Sc Biomedical Science
98	Harsh Kumar Singh	BSC PSCS
99	Harshita Kushwaha	Zoology honors
100	Himanshi Nagar	B.Sc (Hons.)Computer Science

101	Himanshu	BSC Physical Science with Computer Science
102	Himanshu Rai	Electronic science
103	Himanshu Raj	Bsc (cs)
104	Ishika kapoor	Bsc life science
105	Ishika Mishra	Bcom Hons
106	Jagdeesh arya	Physical science with chemistry
107	Janvi	Bsc. computer science
108	Jay Kumar Sirmoria	Botany Hons
109	JAYANTA MONDAL	Bsc (Hons) zoology
110	Jhalak bhandari	Bsc(H) Electronic Science
111	JIGYASA NANDWANA	BSC. Prog Physical Sciences With Chemistry
112	Jitender	Bsc Physics science with computer science
113	Juhi Mahavar	B. Com(Hons)
114	JUNAID MUZAFFAR	B.Sc Hons Zoology
115	Jyoti Singh	PG diploma IT
116	Kanchan singh	B. Sc. Zoology hons.
117	kanjika rastogi	Bsc. chemistry hons.
118	Kapil Sharma	Bsc. Life Sciences
119	Karishma Goswami	Bsc (H) Electronics
120	Khushi	Bsc biomedical science
121	Khushi Goyal	B.S.C honours Zoology
122	Khushi vashishtha	Bsc. Hons. Zoology
123	Khushi vishwakarma	Bsc life science
124	Komal	B.S.C Zoology
125	Lakshit Bhatt	Bsc.(Honours)

Title: Bootcamp 2.0 (offline)

Patron: Prof. Ravi Toteja, Officiating Principal, ANDC
Nodal Officers: Prof. Seema Makhija, Dr SumitSahni, Dr Vineet Kumar Singh
Organizing Committee Members: Dr Pooja Bhagat, Mr Abhay Pratap Singh

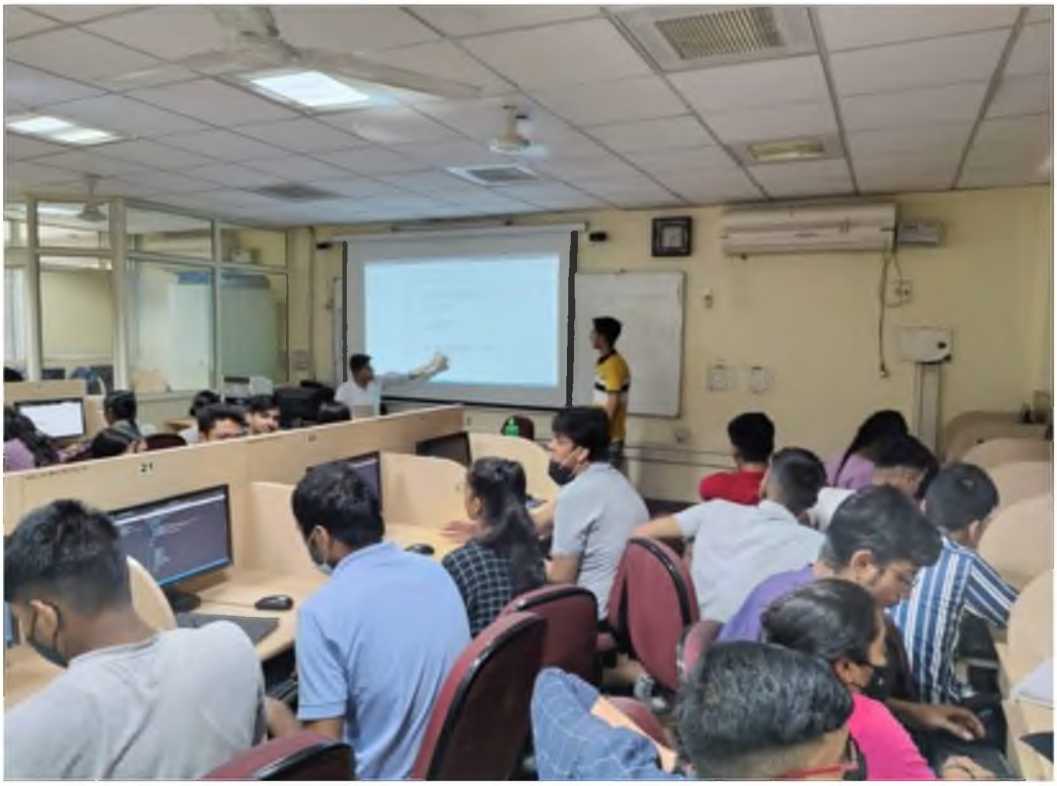
Date: June 27-July 01, 2022

Number of Participants: 35

Resource Persons: Mr Ayush Mishra (+91 94521 65398), Mr Vaibhav Thapliyal (+91 95207 83447)

Report:

Bootcamp 2.0 was a level II workshop for the students who developed interest in V-Lab development. This workshop was held in offline mode in the Web Centre. The topics covered during the workshop were: Javascript Level 2.0, Programming Methodology and Application Development. The Workshop was attended by more than 30 students from various departments of the college.



STAR STATUS COLLEGE
PARTICIPATING DEPARTMENTS
BIOMEDICAL SCIENCE
BOTANY
CHEMISTRY
COMPUTER SCIENCE
ELECTRONICS
PHYSICS
ZOOLOGY

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
ACCREDITED 'A' GRADE BY NAAC SCORE 3.31
DBT STAR COLLEGE | NIRF Ranking '20'
organizes
V-Lab Boot Camp 2.0
KEY LEARNINGS
JAVASCRIPT LEVEL 2.0
PROGRAMMING MEHODOLOGY
APPLICATION DEVELOPMENT
27 June 2022
to
1 July 2022
TIMINGS: 1:00 PM - 3:00 PM
VENUE: WEB CENTRE
PROF. RAVI TOTEJA
(PATRON)
PROF. SEEMA MAKHIJA
DR. SUMIT SAHNI
DR. VINEET KUMAR SINGH
NODAL COORDINATORS
(V-LAB @ ANDC)
ORGANIZING COMMITTEE: MR. ABHAY PRATAP SINGH
RESOURCE PERSONS: AYUSH MISHRA, VAIBHAV THAPLIYAL

ACHARYA NARENDRA DEV COLLEGE

V Lab Development Bootcamp 2.0

June 27-July 01, 2022

Sr. no.	Name	Designation
1	harshita Kushwaha	B.Sc. (Hons.) Zoology
2	Jayanta Mondal	B.Sc. (Hons.) Zoology
3	Basab Bhattacharjee	B.Sc. (Hons.) Zoology
4	Pranchal	B.Sc. (Hons.) Zoology
5	Rajkumar	B.Sc. (Hons.) Zoology
6	Sheelam	B.Sc. (Hons.) Zoology
7	Khushboo	B.Sc. (Hons.) Zoology
8	Shagun	B.Sc. (Hons.) Zoology
9	Devanshi Mitra	BSc Hons physics
10	Shivam Tomar	BSc Hons physics
11	nikhil prajaptai	BSc Hons physics
12	nisha khanra	BSc Hons physics
13	neha khanra	BSc Hons physics
14	Aranya Shukla	B.Sc(H)Chemistry
15	Anurag Bamrara	B.Sc(H)Chemistry
16	Anoop Kumar Thakur	B.Sc(H)Chemistry
17	Bipasa Arya	B.Sc(H)Chemistry
18	Abhijit Roy	B.Sc(H)Chemistry
19	Puneet Chauhan	B.Sc(H)Chemistry
20	Soven	B.Sc(H)Chemistry
21	Ayush Bhardwaj	Bsc (Hons) Computer Science
22	Pankaj Sahu	Bsc (Hons) Computer Science
23	Siya Agarwal	Bsc (Hons) Computer Science
24	Arpit Bhardwaj	Bsc (Hons) Computer Science
25	Avishkaar Pawar	Bsc (Hons) Computer Science
26	Chirag Anand	Bsc (Hons) Computer Science
27	Priyanshu	Bsc (Hons) Computer Science
28	Amit kumar	Electronics
29	Amit Kumar	Botany
30	AMIT KUMAR	Physical science with electronics
31	Amit Kumar	B.com (hons)
32	Amit Singh	B.Sc(Hons.) Physics
33	Amitesh Kumar Singh	Bsc cs
34	Amritanshu	Bsc Hons computer science

35	Anamika Binu	Biomedical sciences

Title: Workshop on "**Initiating Virtual labs @ ANDC**"

Date: August 24, 2021

Resource Persons: Prateek Sharma (9873266626) and Tanmay Das (9891646324)

Number of Participants: 74

Report:

Workshop on "**Initiating Virtual labs @ ANDC**" was organized on August 24, 2021 in collaboration with IIT Delhi. The workshop was very well attended by faculty and students of ANDC where IIT Delhi agreed to make ANDC as Nodal Center for Virtual Labs. **Virtual lab (V-lab)** was set up at ANDC to provide remote access of various labs to the undergraduate science students through internet under the aegis of DBT-STAR scheme. The V-Lab@ANDC is being coordinated by Prof. Seema Makhija, Dr. Sumit Sahni and Dr. Vineet Kumar Singh. Acharya Narendra Dev College is the first college in the University of Delhi to start V-Lab at its campus.

Acharya Narendra Dev College conceptualized the idea of Virtual lab (V-Lab) to provide remote access of various labs to the undergraduate science students through the internet, and thus became the first college in the University of Delhi to start V-Lab at its campus. Virtual lab allows the student to understand, learn and perform the practical on their own remotely with a click of the mouse. It provides a complete Learning Management System (LMS) where students can avail the various learning, including additional web-resources, video-lectures, animated demonstrations and self-evaluation. Web enabled experiments have been designed for remote operation and viewing so as to enthuse the curiosity and innovation into students. This would help them in learning basic and advanced concepts through remote experimentation.

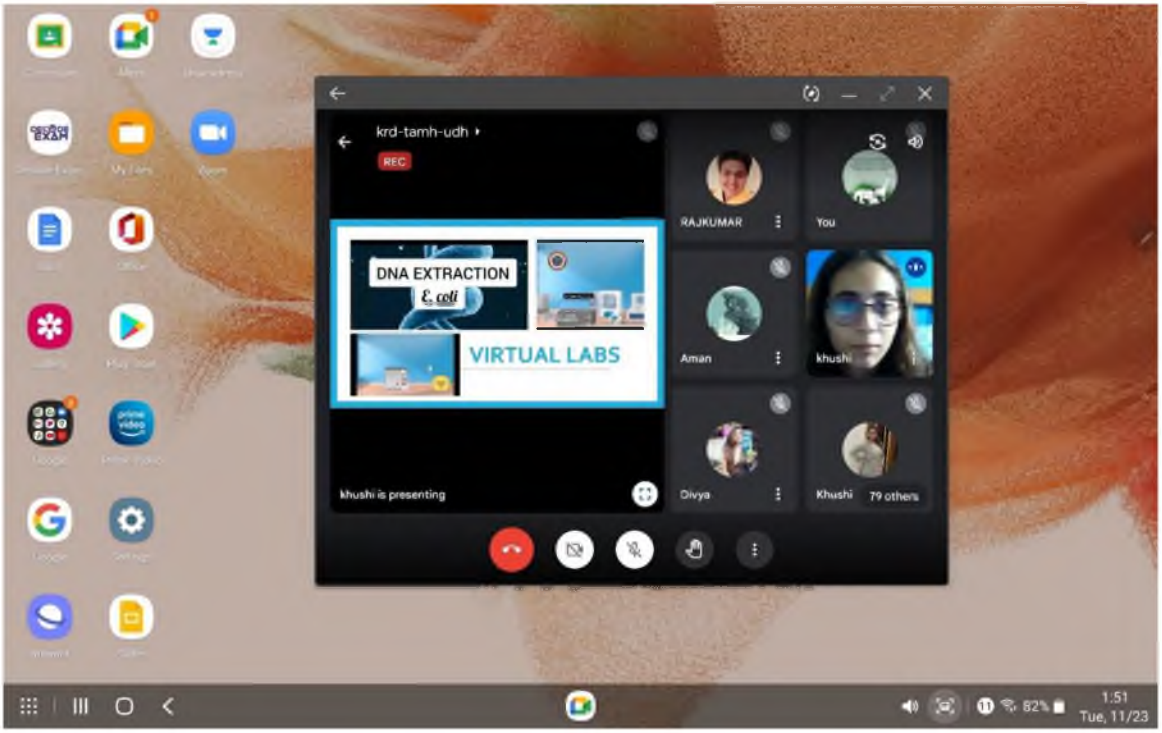
The course structure of various labs and experiments available on V-Lab@ANDC is futuristic, following a four quadrant model for e-content, and is developed considering the National Education Policy (NEP)-2020. V-Lab@ANDC website is created and maintained by our own students for four domains i.e. Biological Science, Chemical Science, Electronics and Physical Science which include seven departments i.e. Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics and Zoology.

Although the V-Lab@ANDC was initiated to tackle the COVID related problems in teaching and learning process but is not confined to it. Students now can perform their experiments 24X 7, on

even sophisticated and expensive instruments, multiple times and at their ease without wasting the resources and can even generate the measured data for at least a few experiments.

Through V-Lab@ANDC we are proving the ideology of our college 'Preparing for the future' by exploring and innovating 'Beyond the classroom' or rather 'Beyond the Practical Lab'. The lab is developed under four domains:

Biological Science:	Developed by the Department of Biomedical Science, Botany and Zoology
Chemistry:	Developed by the Department of Chemistry
Computer Science:	Developed by the Department of Computer Science
Physical Science:	Developed by the Department of Electronics and Physics


krd-tamh-udh
REC
DNA EXTRACTION
E. coli
VIRTUAL LABS
RAJKUMAR
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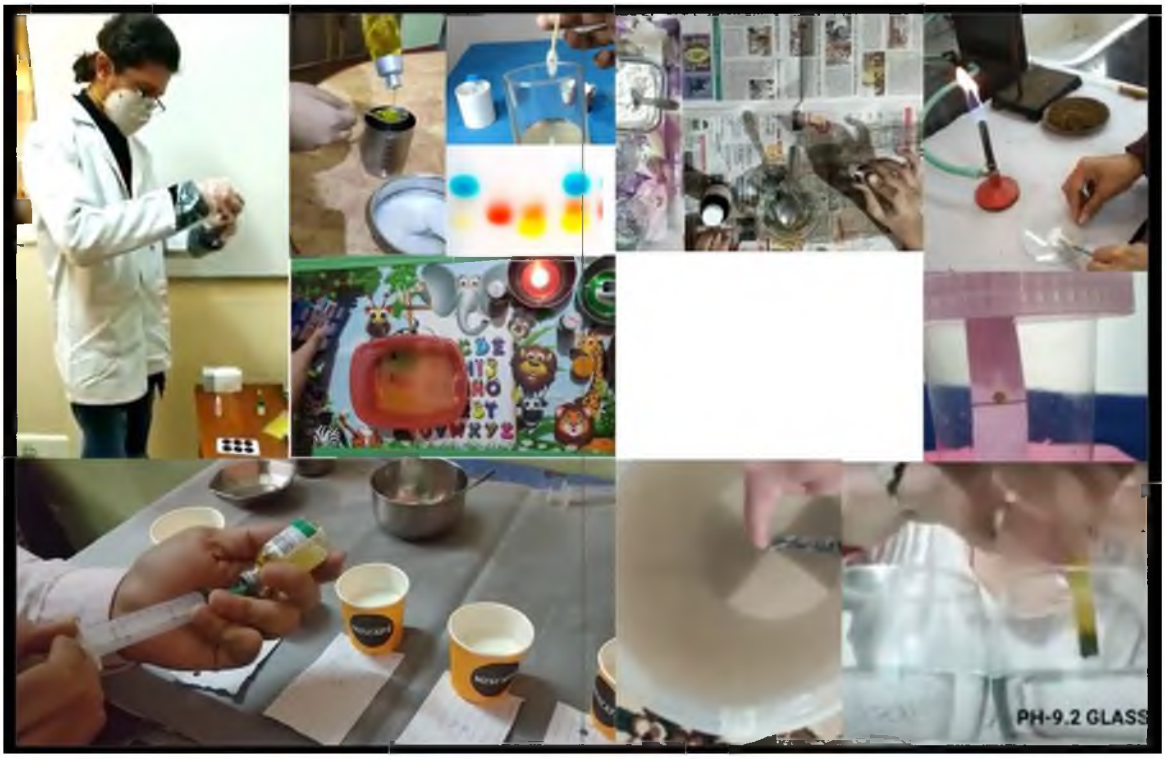
Divya
Khushi
79 others
khushi is presenting
1:51
Tue, 11/23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ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
DBT STAR COLLEGE
ACCREDITED 'A' GRADE BY NAAC/ ALL INDIA NIRF 2020 RANKING-18
Under the aegis of IQAC & DBT STAR College Scheme
Workshop
on
"Initiating Virtual Labs @ ANDC"
in collaboration with
Indian Institute of Technology-Delhi
August 24, 2021
04:00 to 05:30 pm
Register at : https://forms.gle/dXJb4Fh6U/zeuhk3f7
Patron
Prof. Ravi Toteja
(Officiating Principal)
Dr. Sumit Sahni
Department of Botany
(Nodal Coordinator)
Dr. Vineet Kumar Singh
Department of Botany
(Nodal Co-coordinator)

WORKSHOP REPORT OF VIRTUAL LABS

An online Workshop on Virtual Labs was organized successfully on **24/08/2021** for **Acharya Narendra Dev College, University Of Delhi**, for Faculty members & Students from various disciplines (**Applied Sciences, CSE, ECE/EE, Biotech, Civil and ME**) by Virtual Labs team, IIT Delhi. Virtual Labs mentors for this workshop were **Mr. Tanmay Das, Mr. Prateek Sharma & Mr. Shivam Sundaram**. Total of **42** Faculty members & **43** Students attended the workshop. The detailed report of the workshop is given below:

Session	Time	Discipline	Labs / Experiments Demonstrated	No of Students attended (X)	No of Faculties attended (Y)
1	04:00 - 05:30	CS, Electronics, Biomedical Sciences, Botany, Zoology, Physics, Chemistry, Mathematics & Applied Sciences	• Molecular Fluorescence Spectroscopy Lab • Digital Electronics Lab-I • Solid State Physics Virtual Lab • Image Processing Lab • Cell Biology Virtual Lab I • Molecular biology Virtual Lab I • Analog Electronics Lab • Inorganic Chemistry Virtual Lab • Python Programming Lab • Transportation Engineering Lab	43	42
			Total attendees (X+Y)	**85**	

**NOTE: Photographs of this workshop will be submitted separately.*

Nodal Coordinator

Head of the Institute

Officiating Principal
Acharya Narendra Dev College
(University of Delhi)
Govindpuri, Kalkaji
New Delhi-110019

ACHARYA NARENDRA DEV COLLEGE

Initiating Virtual labs @ ANDC

August 24, 2021

Sr. no.	Name	Department
1	Karishma Goswami	B.S.C (H) Electronic Science
2	Rohit Maurya	B.Sc (H) Electronics
3	Yash Lohia	B.Sc Hons. Computer Science
4	Anuj kumar	B.Sc(Hons.) Electronics science
5	Amit Singh	B.Sc(Hons.) Physics
6	SHAURYA CHAK	BCA
7	Ridhi bhatt	Biomedical science
8	Manas Singhal	Biomedical science
9	Deeparati Datta	Biomedical Science
10	Harinandana B	Biomedical science
11	Tripti	Biomedical science
12	Aastha	Biomedical Science
13	Pritika Kwatra	Biomedical science
14	Niharika Upadhyay	Biomedical science
15	Yash goel	Biomedical science
16	Aastha	Biomedical science
17	Anamika Binu	Biomedical sciences
18	Ankita Malakar	Biomedical sciences
19	Alshad	Bms
20	Sreedevi TV	BMS
21	KALYANI KUMARI	BMS

22	Devangna Sharma	Botany honours
23	Anubhav Singh	Bsc (H) electronics
24	Bisakha Das	Bsc (H)Biomedical science
25	PRAJJWAL AKASH	Bsc Chemistry Hons
26	Aniket Roy	BSc CS
27	Lokendra yadav	BSC honors physics
28	Swati Shukla	BSc hons. Electronics
29	Pankaj sahu	Bsc physical science with computer science
30	Aditya Goyal	Bsc Physical Science with Computer Science
31	Himanshu	Bsc physics hons
32	Sneha khurana	Chemistry
33	Meghana Bisht	Chemistry
34	Krishna Agrawal	Chemistry
35	Tanya Chopra	Chemistry hons
36	Devesh Yadav	Computer Science
37	Amartya Sinha	Computer Science
38	Nilesh Pandey	Computer science
39	Abhishek Bhangalia	Computer Science
40	Shrey Singhal	Computer Science
41	RISHI SARBOBHOUM	COMPUTER SCIENCE
42	Himanshu	Computer Science
43	Dipankar Debnath	Computer Science
45	Yashwardhan Singh	Computer Science
46	Sakshi Garg	Computer Science
47	Aliya	Cs
48	VIVEK SHARMA	Department of

		Computer Science
49	PARTH YADAV	Electronic
50	Ankush Rana	Electronic Science
51	SHIVANSH BHATNAGAR	ELECTRONICS
52	DIWAKAR MAHATO	Electronics
53	Sushant Sharma	Physical Science
54	Rohit	Physical science with computer science
55	DEVANG KAMAL	PHYSICAL SCIENCE WITH COMPUTER SCIENCE
56	Aditya Kumar	Physics
57	Anjani Nandan Tiwari	Physics
58	Pradeep Kumar Gupta	Physics
59	Ajay Kumar	Physics
60	Bhavya	Physics
61	Vaibhav Thapliyal	Physics
62	Ayush Mishra	Physics
63	Vaidik Thakre	PMCS
64	Disha Verma	School
65	PIYUSH Kumar	Science department
66	Komal goyal	Zoology
67	Harshita	Zoology
68	Yash Virmani	Zoology
69	Karishma Goswami	Zoology
70	Hritik kadian	Zoology
71	Pooja sharma	Zoology
72	Shivani panchal	Zoology
73	Ujjwal kr. Gupta	Zoology
74	Monika Koul	Zoology

Organizing Committee: Department of Zoology & Department of Biomedical Sciences, ANDC
Date: September 27-October 4, 2021
No. of Participants: 32
Resource Person: Faculty members of Zoology Department - Prof Sarita Kumar (9810309912), Prof Monisha Khanna (9810763211), Prof Ravi Toteja (9811675982), Prof. Seema Makhija (9136563762), Mr Ravinder Sagar (9711115176), Dr Aparna Sharma (9871013149), Dr Sweety Shrimali (9818540058), Dr Rahul Dev (9873087811), Dr Neelgagan Singh (8882006671), Dr Shrankhla (9997926822), Mr Vineet Girdharwal (9456095779), Mr Abhay Pratap Singh (9891274760), Mr Sanjay Kumar (8010550990)
Prof Urmi Bajpai (+91 98112 99719) (Department of Biomedical Sciences) and
Mr Vikas Sachdev (+91 98687 40625), Technical Officer, AIIMS, New Delhi

Report:
Organized six days Hands-on workshop on B[**iological Techniques** under the aegis of DBTSTAR College Scheme and IQAC from September 27 –October 4, 2021.During this workshop, students were given hands on experience for the preparation of LB Media, Blood group determination. SDS-PAGE and ELISA etc.

The Department aims to impart practical Knowledge of Molecular Biology and Immunology to III rd Year UG students. Molecular Biology practical involves practical knowledge of raising, handling, maintenance and special features such as antibiotic resistance of a simple prokaryotic model organism, *Escherichia coli* and Quantitatively estimation of DNA by colorimetric methods.Immunology practical involves determination of Blood Group Types, Ouchterlony's double immuno-diffusion method and study of different types of blood cells in blood film.

To fulfill this in the available short period, Department is planning to organize 6 days workshop for undergraduate students.
The Schedule of the Workshop is as follows:

Day	Time	Techniques	Resource Person	Technical Staff

September 27, 2021	9:00am-12:00pm	Visit to Research Laboratories	Prof Sarita Kumar, Prof Urmi Bajpai, Prof Monisha Khanna, Prof Ravi Toteja	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 27, 2021	1:00pm-4:00pm	Preparation of liquid and solid culture medium (LB)/ SDS PAGE/ Agarose Gel Electrophoresis	Prof. Seema Makhija Dr Rahul Dev	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 28, 2021	9:00am-12:00pm	Blood Group Determination Preparation of stained blood film	Mr Ravinder Sagar Mr Abhay Pratap Singh	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 28, 2021	1:00pm-4:00pm	Inoculation of *E.coli*	Dr Rahul Dev	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma,

		into liquid media. Plating of *E.coli* by streaking and spreading method	Mr Vineet Girdharwal	Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 29, 2021	9:00am-12:00pm	Preparation of Polytene Chromosome	Prof Ravi Toteja Dr Neelgagan Singh	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 29, 2021	1:00pm-4:00pm	Estimation of the growth kinetics of *E. coli* by turbidity method.	Dr Rahul Dev Dr Shrankhla	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
September 30, 2021	9:00am-12:00pm	Demonstration of antibiotic sensitivity /resistance of *E. coli*	Dr Rahul Dev Prof Seema Makhija	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra

				Ms Kanika Chaddha (Musem Curator)
September 30, 2021	1:00pm-4:00pm	Quantitative estimation of salmon sperm/calf thymus DNA using colorimeter	Dr Rahul Dev Mr Sanjay Kumar	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
October 1, 2021	9:00am-12:00pm	Ouchterlony's double immuno-diffusion method	Dr Sweety Shrimali Dr Aparna Sharma	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)
October 1, 2021	1:00pm-4:00pm	PTC Test	Dr Aparna Sharma Dr Sweety Srimali	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)

October 4, 2021	9:00am-4:00pm	ELISA	Mr Vikas Sachdev, Technical Officer, AIIMS, New Delhi	Mr Sachidanand Misra, Mr Sanjeev, Mr Tara Dutt Sharma, Mr Pramod Bhatt , Mr Jai Prakash, Mr Vikas Sharma, Mr Sagar, Mr Mahesh, Mr Harshal, Ms Sumitra Ms Kanika Chaddha (Musem Curator)

Acharya Narendra Dev College

(University of Delhi)

NAAC Accreditation Grade 'A' | NIRF Ranking 20 | DBT STAR College

under the aegis of DBT STAR COLLEGE Scheme and IQAC

organizes

Hands on Workshop

on

Biological Techniques

Venue: Department of Zoology
Date: September 27 - October 4, 2021
Time: 9:00 am - 4:00 pm

Patron: Prof. Ravi Toteja, Officiating Principal

Convenor: Dr Rahul Dev, Department of Zoology

Organizing Team: Faculty and Non-teaching Staff, Department of Zoology

1

Biological Techniques Workshop (September 27 - October 04, 2021)

Organized by Department of Zoology, ANDC

	S. No.	Name of Participants	27/09/21	28/09/21	29/09/21	30/09/21	01/10/21	04/10/21
AB+	1	Aditya Singh	Aditya	Aditya	Aditya	Aditya	Aditya	Aditya
A+	2	Anjali	Anjali	Anjali	Anjali	Anjali	Anjali	Anjali
	3	Ankit pandey	AB	AB	[illegible]	AB	[illegible]	AB
O+	4	Ashutosh Maurya	Ashutosh	Ashutosh	Ashutosh	Ashutosh	Ashutosh	Ashutosh
O+	5	Avanija Tyagi	Avanija	Avanija	Avanija		Avanija	Avanija
	6	Bhumika Makhija	AB	AB	AB			
	7	Domyi Padu	[illegible]	AB	AB	[illegible]	[illegible]	
O+	8	Hafiza	hafiza	hafiza	hafiza	hafiza	hafiza	hafiza
B+	9	Harshita	Harshita	Harshita	Harshita	Harshita		
O+	10	Khushi Goyal	Khushi	Khushi	Khushi	Khushi	Khushi	Khushi
O+	11	Komal goyal	Komal	Komal	Komal	Komal		
	12	Manish kumar	AB	AB	Manish	Manish Kumar	[illegible]	Manish
B+	13	MANISHA SHARMA	Manisha	Manisha	Manisha	Manisha	Manisha	Manisha
B+	14	Pawan kumar	Pawan Kumar	Pawan Kumar	Pawan Kumar	Pawan Kumar	Pawan Kumar	Pawan Kumar
B+	15	Prachi	Prachi	Prachi	Prachi	Prachi	Prachi	Prachi
A+	16	Priya Yadav	Priya	Priya	Priya	Priya	Priya	Priya
B+	17	Pulkit Singh	AB	Pulkit Singh	Pulkit	Pulkit Singh		
B+	18	Rakesh Sarkar	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh
AB+	19	Ritika Chandel	Ritika	Ritika	Ritika	Ritika	Ritika	Ritika
A+	20	Rohit Kumar	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O	21	Ronak Verma	Ronak	Ronak	Ronak	Ronak	Ronak	Ronak

		27/9/21	28/29/21	29/9/21	30/9/21	1/10/21	4/10/21
22	Sejal Arora				AB		
23	Shalini sheoran						
24	Swati Maheshwari						
25	Trisha Nair						
26	Ujjwal Kumar Gupta						
27	Virender nehra			AB	AB		
28	Yash Virmani				AB		
29	Yogesh Rawat						
30	Aashifa Akhtar Samia Khan						

31. Radhika Garg
32. Jyoti sharma
33. Sahil Kaushik

Topic: Hands-on workshop on Tools and Techniques of Biotechnology

Organizing Committee: Dr Monisha Khanna and Dr Seema Makhija

Date: April 7-8, 2022

Number of Participants: 65

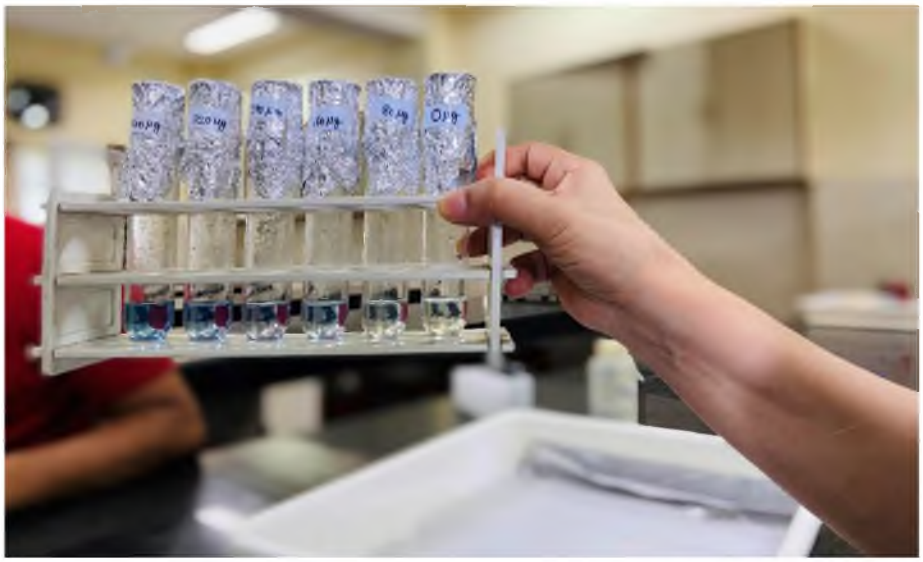
Resource Person: Faculty members of Zoology Department - Prof Sarita Kumar (9810309912), Prof Monisha Khanna (9810763211), Prof Ravi Toteja (9811675982), Prof. Seema Makhija (9136563762), Mr Ravinder Sagar (9711115176), Dr Aparna Sharma (9871013149), Dr Sweety Shrimali (9818540058), Dr Rahul Dev (9873087811), Dr Neelgagan Singh (8882006671), Dr Shrankhla (9997926822), Mr Vineet Girdharwal (9456095779), Mr Abhay Pratap Singh (9891274760), Mr Sanjay Kumar (8010550990)

Report:

Two days Hands-on workshop on **Tools and Techniques of Biotechnology** under the aegis of DBTSTAR College Scheme and IQAC from April 7-8, 2022 was organized by Department of Zoology, ANDC. During this workshop, students were given hands on experience for DNA isolation, Agarose Gel Electrophoresis, PCR, Haemoglobin estimation, BP measurement and Southern Blotting.

A workshop on tools and techniques of molecular biology could cover a range of topics related to the methods and equipment used in molecular biology research. Topics covered in the workshop were:

1. DNA extraction and purification: Techniques for extracting DNA from various bacteria
2. PCR (polymerase chain reaction): An overview of the basic principles of PCR, including primer design, amplification, and detection.
3. Gel electrophoresis: Techniques for separating DNA or protein samples based on size or charge using gel electrophoresis, including agarose and polyacrylamide gel electrophoresis.
4. Southern Blotting



ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
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DBT STAR STATUS COLLEGE
आज़ादी का अमृत महोत्सव
Department of Zoology
Under the aegis of
IQAC & DBT STAR COLLEGE
organizes
Hands on Workshop
Tools and Techniques of
Biotechnology
April 7-8, 2022
9:00 am - 5:00 pm
PATRON
Prof. Ravi Toteja
COORDINATORS
Prof. Monisha Khanna
Prof. Seema Makhija
CONVENOR
Dr. Monica Misra
(TIC, Zoology)
Click Here To Register

ACHARYA NARENDRA DEV COLLEGE

Tools and Techniques of Biotechniques

07-08, April 2022

Sr. no.	Name	Roll No.	Course
1	AASHI GUPTA	AC-601	Zoology
2	Aastha Srivastava	AC-602	Zoology
3	Abhishek Kumar Yadav	AC-603	Zoology
4	ADITI SHARMA	AC-605	Zoology
5	Akshita mahendra parate	AC-606	Zoology
6	AMAL NASEER	AC-664	Zoology
7	Anchal Tomar	AC-608	Zoology
8	Anuj Singh	AC-610	Zoology
9	Arnav Bhatt	AC-612	Zoology
10	Arunima Dey	AC-613	Zoology
11	DEEPANSHU KUMAR	AC-616	Zoology
12	Devanshi Saini	AC-617	Zoology
13	DIKSHANT JANGRA	AC-620	Zoology
14	Eniya Tapo	AC-621	Zoology
15	Geni Yao	AC-622	Zoology
16	Harshika Dewangan	AC-623	Zoology
17	Heena Parveen	AC-626	Zoology
18	Himanshu Kumar	AC-628	Zoology
19	ISHIKA	AC-629	Zoology
20	kanishka chhatrawal	AC-631	Zoology
21	AASHI GUPTA	AC-601	Life Sciences
22	Aastha Srivastava	AC-602	Life Sciences
23	Abhishek Kumar Yadav	AC-603	Life Sciences
24	ADITI SHARMA	AC-605	Life Sciences

25	Akshita mahendra parate	AC-606	Life Sciences
26	AMAL NASEER	AC-664	Life Sciences
27	Anchal Tomar	AC-608	Life Sciences
28	Anuj Singh	AC-610	Life Sciences
29	Arnav Bhatt	AC-612	Life Sciences
30	Arunima Dey	AC-613	Life Sciences
31	DEEPANSHU KUMAR	AC-616	Life Sciences
32	Devanshi Saini	AC-617	Life Sciences
33	DIKSHANT JANGRA	AC-620	Life Sciences
34	Eniya Tapo	AC-621	Life Sciences
35	Geni Yao	AC-622	Life Sciences
36	Harshika Dewangan	AC-623	Life Sciences
37	Heena Parveen	AC-626	Life Sciences
38	Himanshu Kumar	AC-628	Life Sciences
39	ISHIKA	AC-629	Life Sciences
40	kanishka chhatrawal	AC-631	Life Sciences
41	SHUBHAM ROHILLA	AC-1038	Zoology
42	sneha sharma	AC-1050	Zoology
43	Sunidhi Kumari	AC-1040	Zoology
45	**Surbhi Goel**	AC-1057	Zoology
46	SWAPNIL MEENA	AC-1041	Zoology
47	**Toko Nyat**	AC-1042	Zoology
48	Twishi Mishra	AC-1053	Zoology
49	AASHIFA URF SANIA KHAN	AB-1064	Zoology
50	ADITYA SINGH	AB-1002	Zoology
51	ADITYA SONI	AB-1003	Zoology
52	ANIKET RANJAN	AB-1053	Zoology

53	ANJALI	AB-1006	Zoology
54	ANKIT KUMAR GOND	AB-1063	Zoology
55	ANKIT PANDEY	AB-1007	Zoology
56	ASHUTOSH MAURYA	AB-1054	Zoology
57	AVANIJA TYAGI	AB-1008	Zoology
58	BAKUL DALAL	AB-1009	Zoology
59	DONYI PADU	AB-1062	Zoology
60	GUNJAN GROVER	AB-1013	Zoology
61	HAFIZA	AB-1014	Zoology
62	HARSHDEV SAHU	AB-1056	Zoology
63	HARSHITA	AB-1015	Zoology
64	JYOTI SHARMA	AB-1059	Zoology
65	KHUSHI GOYAL	AB-1019	Zoology

Topic: Hands-on Training on Tools in Modern Biology

Organizing Committee: Dr Seema Makhija and Dr Monica Misra

Date: April 21, 2022

Number of Paticipants: 12

Resource Person: Dr Rahul Dev (9873087811), Dr Neelgagan Singh (8882006671), Mr Vineet Girdharwal (9456095779) and Dr Seema Makhija (9136563762).

Report:

Organized Hands-on Training on **Tools in Modern Biology** was organized for the support staff to familiarize them with the new equipment purchased under the STAR Scheme.

Dr Ved Prakash gave an insight into the microscope maintenance to the Non teaching Staff. He also demonstrated how microscopes should be handled and cleaned regularly,

Dr Rahul Dev explained the working and maintenance of autoclave and UV-VIS . He did hands on training for the staff to explain them the usage of UV-VIS Spectrophotometer.

Dr Neelgagan Singh and Mr Vineet explained the working and maintainence of Laminar Flow.

Acharya Narendra Dev College

NAAC Accreditation Grade 'A' NIRF Ranking 20

DBT STAR DEPARTMENT - Department of Zoology

Glimpses of Workshop For Non-Teaching

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

ACCREDITED 'A' GRADE BY NAAC

NIRF 2021 RANKING -20

Under the aegis of DBT STAR Scheme and IQAC

Department of Zoology

organizes a

Hands-on Training for Support Staff

on

Tools in Modern Biology

***Date*: April 21, 2022 *Time*: 11:00am–3:00pm**

- Microscope
- Autoclave
- Laminar Flow
- UV-VIS Spectroscopy

PATRON

Prof. Ravi Toteja

CONVENORS

Prof Seema Makhija

Dr Monica Misra

COORDINATORS

Dr Rahul Dev

Dr Neelgagan

Mr Vineet Girdharwal

Mr Abhay P Singh

ACHARYA NARENDRA DEV COLLEGE

Tools in Modern Biology

21 April 2022

Sr. no.	Name	Department
1	S. N. Mishra	Zoology
2	Sanjeev Kumar	Zoology
3	Taradutt Sharma	Zoology
4	Pramod kumar Bhatt	Zoology
5	Jai Prakash	Zoology
6	Vikash Sharma	Zoology
7	Sagar Kumar	Zoology
8	Mahesh Kandpal	Zoology
9	Sumitra Devi	Zoology
10	Harshal Bishnoi	Zoology
11	Kanika	Zoology
12	Rajveer Singh	Zoology

Topic: Environmental Hazards of e-waste and Plastic waste
Organizing Committee: Dr Rashmi Sharma, Dr Archna Pandey, Prof Seema Makhija
Date: July 31, 2021
Number of Participants: 79
Resource Person: Mr Jai Kumar Gaurav (9811808661)

Report:
Webinar on **Environmental Hazards of e-waste and Plastic waste** was organized by Department of Biomedical Science, Botany and Zoology. The talk was held on July 31, 2021 in online mode by Mr Jai Kumar Gaurav Senior Advisor climate change and circular economy, GIZ india. He explained to the gathering about pollution created by the electronic devises and plastic material.

Jai Gaurav delivered a talk on the environmental hazards of e-waste and plastic waste. He emphasized that the increase in electronic devices and plastic products has led to a significant increase in waste production, which has caused severe environmental issues globally.

Firstly, Jai Gaurav spoke about e-waste, which refers to discarded electronic devices such as computers, mobile phones, televisions, and other electrical appliances. He pointed out that the improper disposal of e-waste can lead to severe environmental problems, such as pollution of the soil, air, and water. He explained that e-waste often contains toxic substances such as lead, mercury, and cadmium, which can leach into the environment and cause contamination. Furthermore, he emphasized that the e-waste recycling process can also be hazardous, as it involves burning or shredding the electronic devices, which can release harmful chemicals into the environment.

Next, Jai Gaurav discussed plastic waste, which he argued is one of the most significant environmental problems globally. He highlighted that plastic waste takes hundreds of years to decompose and often ends up in landfills or the ocean, where it poses a severe threat to wildlife. He pointed out that plastic waste can break down into tiny particles known as microplastics, which can enter the food chain and have adverse effects on human health.

Jai Gaurav also discussed the need for individuals and organizations to take action to address these environmental hazards. He suggested that people could reduce their e-waste and plastic waste by

using products for a longer time, repairing them instead of buying new ones, and properly disposing of them when they are no longer needed. He also highlighted the importance of recycling and emphasized the need for governments to implement policies that encourage the proper disposal of e-waste and plastic waste.

Overall, Jai Gaurav's talk highlighted the severe environmental hazards of e-waste and plastic waste and stressed the need for individuals, organizations, and governments to take action to address these problems.

Acharya Narendra Dev College

Webinar on Environmental Hazards of e-waste and Plastic waste

31st July, 2021

S No	Course	Name	Roll Number
1	Botany	ANURADHA TOMAR	AC-008
2	Botany	Aparna Saji Kumar	AC-009
3	Botany	AYAN CHANDRA	AC-010
4	Botany	Darshit Singh Rawat	AC-011
5	Botany	DEEPALI SINGH	AC-012
6	Botany	GEETIKA JOSHI	AC-013
7	Botany	JAY KUMAR SIRMORIA	AC-017
8	Botany	KANCHAN	AC-018
9	Botany	KANISHKA	AC-019
10	Botany	LALIT PAL	AC-021
11	Botany	MANIKET CHAUHAN	AC-022
12	Botany	MAYANK YADAV	AC-023
13	Botany	Mohd Afham	AC-024
14	Botany	MRIDULA RANI	AC-025
15	Botany	Mrityunjoy Chakraborty	AC-026
16	Botany	NEERAJ	AC-027

17	Botany	NIDHI	AC-054
18	Botany	NIKHIL MEHAR	AC-028
19	Botany	Paarth Bhatnagar	AC-031
20	Zoology	ANKIT PANDEY	AB-1007
21	Zoology	ASHUTOSH MAURYA	AB-1054
22	Zoology	AVANIJA TYAGI	AB-1008
23	Zoology	BAKUL DALAL	AB-1009
24	Zoology	DEVISHA TIWARI	AB-1055
25	Zoology	DIVYA DEEP	AB-1011
26	Zoology	DONYI PADU	AB-1062
27	Zoology	GUNJAN GROVER	AB-1013
28	Zoology	HAFIZA	AB-1014
29	Zoology	Harshdev Sahu	AB-1056
30	Zoology	HARSHITA	AB-1015
31	Zoology	JANVI BATRA	AB-1017
32	Zoology	JYOTI SHARMA	AB-1059
33	Zoology	KHUSHI GOYAL	AB-1019
34	Zoology	KOMAL GOYAL	AB-1020
35	Zoology	MANISH KUMAR	AB-1021

36	Zoology	MANISHA SHARMA	AB-1057
37	Zoology	NILESH KUMAR SONKAR	AB-1026
38	Zoology	Pawan Kumar	AB-1048
39	Zoology	Prabhakar Samdershi	AB-1051
40	Zoology	PRACHI	AB-1065
41	Zoology	PRIYA YADAV	AB-1028
42	Zoology	PULKIT SINGH	AB-1029
43	Zoology	RADHIKA GARG	AB-1030
45	Zoology	RAKESH SARKAR	AB-1032
46	Zoology	Ritika Chandel	AB-1060
47	Zoology	ROHIT KUMAR	AB-1034
48	Life Sciences	ANTIMA	AB-655
49	Life Sciences	ASTHA PUJARA	AB-644
50	Life Sciences	ATHIRA SHENO	AB-608
51	Life Sciences	CHANDRIKA CHAUDHARY	AB-609
52	Life Sciences	DANISH SIRAJ	AB-610
53	Life Sciences	DIVYA PAL	AB-612
54	Life Sciences	Gunjeeta Raheja	AB-645

55	Life Sciences	Inshul Bansal	AB-640
56	Life Sciences	KHUSHI SAXENA	AB-615
57	Life Sciences	KRITH UNNI KRISHNAN	AB-616
58	Life Sciences	MAHAK	AB-618
59	Life Sciences	MARIYAM ALI	AB-620
60	Life Sciences	MOHIT KUMAR	AB-651
61	Life Sciences	MUSKAN	AB-621
62	Life Sciences	NANCY VISHWAKARMA	AB-622
63	Life Sciences	NIKHIL KUMAR	AB-625
64	Life Sciences	Nikhil Sharma	AB-641
65	Life Sciences	POOJA RAI	AB-650
66	Life Sciences	POOJA KACHAWAHA	AB-627
67	Life Sciences	PREETI	AB-629
68	Life Sciences	PRITEE SINGH	AB-656
69	Life Sciences	RAJU SHARMA	AB-631
70	Life Sciences	Rumpa Majumder	AB-654
71	Life Sciences	SAYANTAN CHATTERJEE	AB-634
72	Biomedical Sciences	ASHUTOSH SINGH	AB-206
73	Biomedical Sciences	BISAKHA DAS	AB-207

74	Biomedical Sciences	ISHITA DHARAMSHAKTU	AB-253
75	Biomedical Sciences	KAJAL MANGLA	AB-210
76	Biomedical Sciences	KRITIKA GARG	AB-244
77	Biomedical Sciences	MAHIKAA KAUL	AB-212
78	Biomedical Sciences	Manish Kumar	AB-241
79	Biomedical Sciences	MANSI ANAND	AB-213

Topic: IPR Awareness Training Program

Date: December 29, 2021

Number of Participants: 89

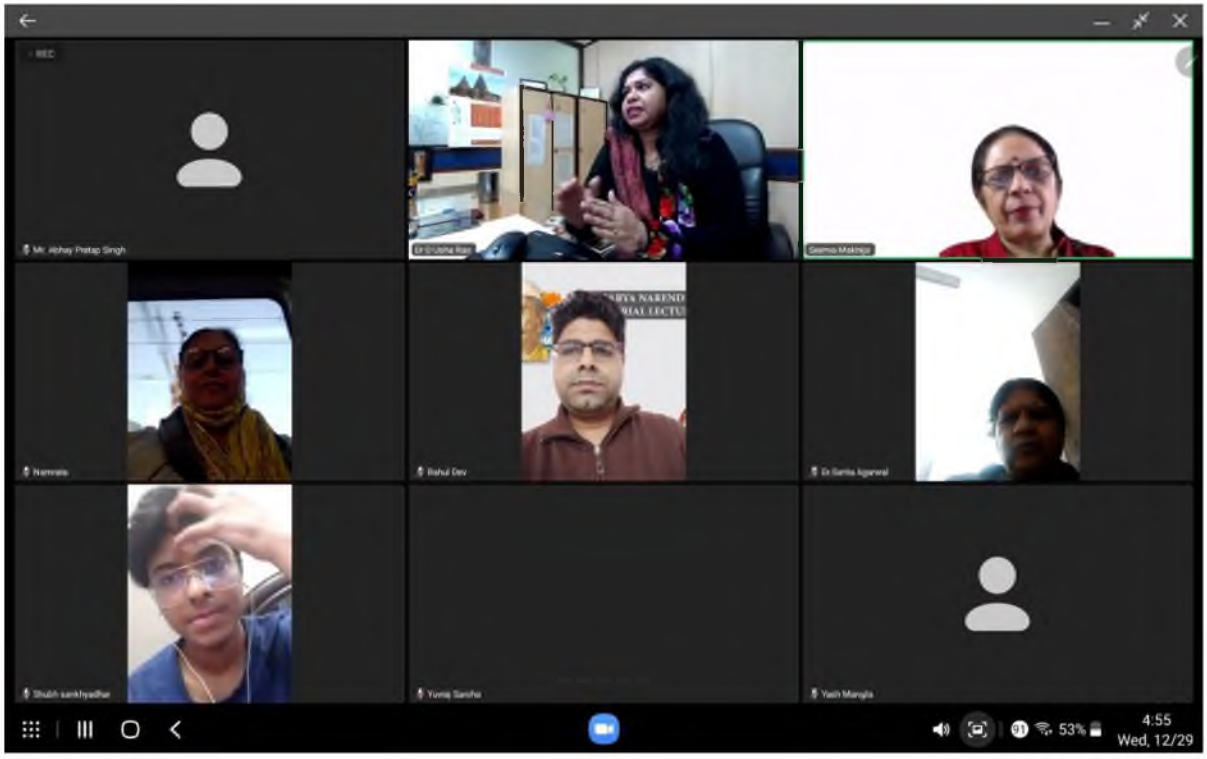
Resource Person: Dr Usha Rao (9911162584)

Report:

An **IPR Awareness/Training Program** was organized under the National Intellectual Property Awareness Mission by the Intellectual Property Office, India. The event was organized in online mode by the Department of Zoology, The speaker for the program was Dr Usha Rao Assistant Controller of Patents and Designs Intellectual Property Office.

Dr. Usha Rao conducted a talk on Intellectual Property Rights (IPR) Awareness Program, which was insightful and informative. The talk was held to educate individuals about the importance of protecting their intellectual property and to raise awareness of the legal framework and processes related to IPR.During the talk, Dr. Usha Rao emphasized the significance of IPR protection for individuals and organizations to safeguard their innovations, creations, and ideas from infringement by others. She explained how IPR includes patents, trademarks, copyrights, and trade secrets, which offer exclusive rights to the owners over their intellectual property. Furthermore, Dr. Rao discussed the various legal procedures involved in obtaining and enforcing IPR. She explained the importance of conducting a thorough search to ensure that the idea is unique and not infringing on any existing IP rights. Dr. Rao also provided examples of the various steps involved in the patent application process, including drafting and filing the application, prosecution, and maintenance. Additionally, Dr. Rao highlighted the significance of IP protection in the digital age, where IP infringement is prevalent due to the ease of digital copying and dissemination. She stressed the importance of cybersecurity measures to protect IP and discussed how digital watermarking can help in identifying the origin of digital copies.

In conclusion, Dr. Usha Rao's talk on IPR Awareness Program was insightful and informative. It provided a comprehensive overview of the legal framework and processes related to IPR and highlighted the importance of protecting intellectual property in the digital age. Overall, the talk was an excellent initiative to raise awareness of IPR among individuals and organizations.


Mr. Abhay Pratap Singh
Rahul Dev
Yuvraj Sancha
Yash Manglia
53%
4:55
Wed, 12/29

Acharya Narendra Dev College
IPR Awareness Training Program
December 29, 2021

S. No.	Name	Designation
1	Prof. Seema Makhija	Faculty
2	Dr. Pooja Bhagat	Faculty
3	Dr.Sumit Sahni	Faculty
4	Prof. Sarita Kumar	Faculty
5	Dr.Yash Mangla	Faculty
6	Dr.Ravneet kaur	Faculty
7	Prof.Sunita Hooda	Faculty
8	Dr.Neelgagan Singh	Faculty
9	Dr. Aparna Sharma	Faculty
10	Dr.Sweety Shrimali	Faculty
11	Mr.Abhay Pratap Singh	Faculty
12	Mrs.Namrata	Faculty
13	Dr.Rahul Dev	Faculty
14	Dr. Anita Narang	Faculty
15	Dr.Ritu Khosla	Faculty
16	Dr.Sarita Agarwal	Faculty
17	Dr. Hanisha Bhagat	Faculty
18	Prof. Urmi Bajpai	Faculty
19	Prof. Anju Agrawal	Faculty
20	Abhay Gupta	Student
21	Abhishek Kumar Mandal	Student
22	Akshita	Student

Seema Makhija

23	Anshika Sharma	Student
24	Anuj Sharma	Student
25	Akshay Unnikrishnan	Student
26	Jai Gautam	Student
27	Harshita Kushwaha	Student
28	Prabhat Kumar	Student
29	Rajat Sharma	Student
30	Sandeep Antil	Research Scholar
31	Shubh Sankhyadhan	Research Scholar
32	Sripoorna	Research Scholar
33	Swati	Research Scholar
34	Tanmoy Roy	Student
35	Yuvraj Saroha	Student
36	Jyoti Dagar	Research Scholar
37	Kirti Yadav	Student
38	Komal	Student
39	Mahesh Kumar	Student
40	Dr Anupama Shukla	Faculty
41	Aryan Keserwani	Student
42	Deeoarati Datta	Student
43	Diwakar Mahato	Student
44	Jayanta Mondal	Student
45	Basab Bhattacharjee	Student
46	AKSHITA	Student
47	ALKA RAJU	Student
48	ALOK RANJAN	Student

Seema Maktiya

49	Anaam Asif Moin	Student
50	ANAND	Student
51	Anju	Student
52	Aryama Priya	Student
53	Charu	Student
54	Divya Yadav	Student
55	Rajkumar Jain	Student
56	HIMANSHU	Student
57	JATIN CHOUDHARY	Student
58	JUNAID MUZAFFAR	Student
59	KAIBALYA BHATRA	Student
60	Kanishka Bothra	Student
61	Khushi Agrawal	Student
62	Khushi Vashishtha	Student
63	MAHIP SINGH	Student
64	Manisha	Student
65	Manshi	Student
66	MOHIT SINGH BOHARA	Student
69	NAVEDULLA KHAN	Student
70	Neha Rana	Student
71	Nitesh	Student
72	PRANAV	Student
73	Pranjal Dwivedi	Student
74	Praphul Tyagi	Student
75	Preeti Singh	Student
76	PRIYANKA	Student

Seema Maktiya

Topic: One-week International conference (ICMCESA-22)

Date: February 22-28, 2022

Number of Participants: 374

Resource Person: Dr Himender Bharti (8591645454). Prof.Gaytha A Lagolis (langlois@bryant.edu), Dr Charu Dogra Rawat (9818616058), Prof Ram Kumar (9811766991), Dr Anjan Prusty (8780978137), Dr Rachna Chandra (94282486226), Dr Bettina Sonntag (bettina.sonntag@uibk.ac.at) , Prof.Rup Lal (9810785766), Prof. Andy Purvis (Andy.Purvis@nhm.ac.uk), Dr Mrityunjay Kar Suar , Dr Binita Dutta and Dr Gayatri Kanungo

Report:

The College under the aegis of DBT Star College Scheme and IQAC organized an Interdisciplinary One-week long International conference (ICMCESA-22) where students got chance to interact with several national and international eminent speakers, Faculty from across the globe delivered invited, Keynote and Plenary talks conducted by Department of Zoology during the Conference were:

(1) Dr Himender Bharti Delivered a talk on Anthropocene: A misplaced trust in Ecological Utopia
(2) Prof.Gaytha A Lagolis delivered a talk on Syzygy or Sisyphus: The Future of Environmental Policy Making
(3) Dr Charu Dogra Rawat delivered a talk on Overcoming challenges in the sustainable remediation of Hexachlorocyclohexane (HCH) dumpsite soils
(4) Prof Ram Kumar delivered a talk on Zero Hunger and climate mitigation: Constraints and possibilities
(5) Dr Anjan Prusty delivered a talk on Criteria for Identifying Coastal & Marine Eco Sensitive Areas: A Revisit.
(6) Dr Rachna Chandra delivered a talk on Mangrove plantation activities in Kachchh, Gujarat
(7) Dr Bettina Sonntag delivered a talk on Identification and monitoring of ciliated key protists in aquatic environments in the light of a sustainable environmental approach

(8) Prof.Rup Lal delivered a talk on Hot springs located Atop the Himalayan Ranges at Manikaran and KheerGanga in Himachal Pradesh, India : Potential Sources of Microbial Diversity and Thermostable Enzymes

(9) Prof. Andy Purvis delivered a talk on Using biodiversity models to support the nature-positive transition

(10) Dr Mrityunjay Kar Suar delivered a talk on Incubating Ideas to Build Sustainable Environmental Technologies.

(11) Dr Binita Dutta delivered a talk on Health care sustainability

(12) Dr Gayatri Kanungo delivered a talk on Nourish Ecosystems, Nurture Biodiversity, Enable Food and Enhance Resilience – Integrating Nature's potential

For details refer to: https://www.andcollege.du.ac.in/icmcesa22/index
https://andcollege.du.ac.in/icmcesa22/schedule/Schedule%20Final.pdf

Ciliates have very different nutrition modes
Zoom
Leave
Unmute
Start Video
Participants
More
2:08
Fri, 2/25

ACHARYA NARENDRA DEV COLLEGE
University of Delhi
NAAC Grade 'A' | NIRF Ranking 2021 – #20 | DBT STAR College
celebrates Science Week with
International E-Conference on
Mitigating Contemporary Environmental issues by Sustainable Approaches [ICMCESA – 2022]
February 22 – 28, 2022
under the aegis of DBT STAR College scheme and IQAC
Sponsors
Thank You & Questions
"ECOVILLE"
Igniting Young Minds
an outreach program for school students
on February 27, 2022
During International E-Conference on
Mitigating Contemporary Environmental issues by Sustainable Approaches [ICMCESA – 2022]
under the aegis of IQAC and DBT STAR College scheme

Conferences/Workshops/Seminars for the year 2020-21

Title: Tools and Techniques in Statistical Analysis

Organizing team: Dr Archna Pandey Dr Rimpy Kaur Chowhan Dr Ritu Khosla (Department of Biomedical Science) Dr Rashmi Sharma Dr Manoj Kumar Singh Dr Sumit Sahni Dr Vineet Kumar Singh (Department of Botany) Dr Vatsla Kohli Dr K. R. Meena Dr Neeti Goel Dr Gurudutt Rao Ambedkar Dr Narain Singh (Department of Mathematics) Prof. Seema Makhija Dr Neelgagan Singh, Dr Rahul Dev (Department of Zoology)
Date: April 06-19, 2021

No. Of Participants: 210

Resource Persons: Prof T.R. Rao (9810129396), Professor Aditi Gangopadhaya (8126767145), Dr Mohd. Arshad (9336340459), Dr Amit Kumar Misra (9839425105), Dr Akanksha Gupta, Dr Qazi Azhad Jamal (7417962055), Dr Shashi Bhushan (8004466444), , Dr.Shakuntala Misra and Dr K R Meena (9897727093)

Report:

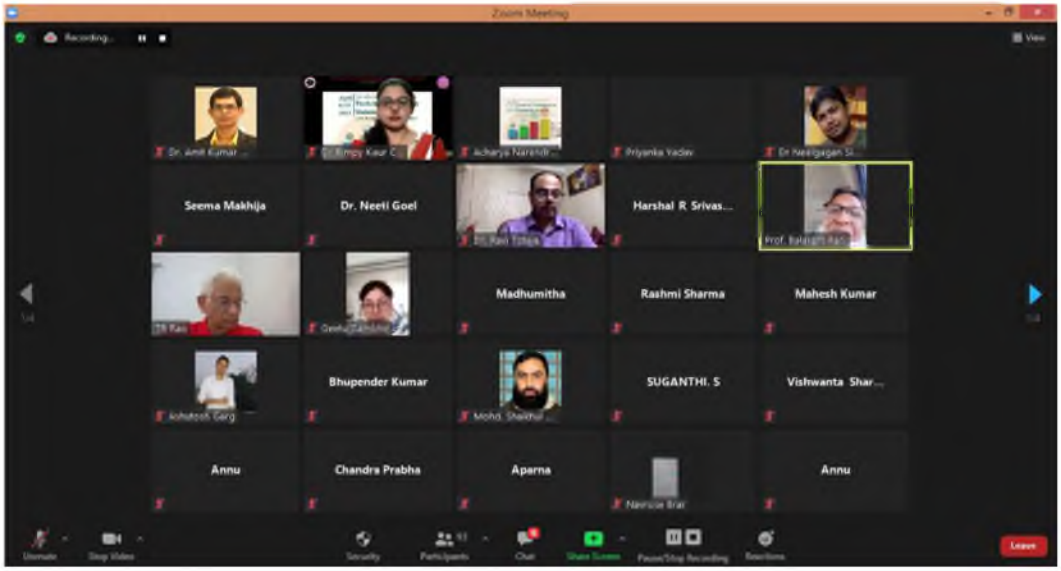
Department of Biomedical Science, Botany, Mathematics and Zoology of Acharya Narendra Dev College (ANDC), University of Delhi under the patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized the two-week national workshop (online)on "Tools and Techniques in Statistical Analysis" under the aegis of DBT-STAR College Scheme on 6-9thApril 2021 on Zoom from 4-6 pm every day. Prof Balaram Pani, Dean of Colleges, University of Delhi was the chief guest and Prof S M Anwar Alam, Chairman governing body, ANDC was the chief patron of the workshop. The organizing team comprised of the convenors - Dr.Vatsla Kohli (Department of Mathematics), Dr. Seema Makhija (Department of Zoology), and Dr. K. R. Meena (Department of Mathematics); co-convenors – Dr.Archana Pandey (Department of Biomedical Science) and Dr. Rashmi Sharma (Department of Botany); organizing secretaries – Dr Sumit Sahni and Dr Vineet Kumar Singh; and technical team – Dr Manoj Kumar Singh, Dr Neelgagan Singh, Dr Rahul Dev, Dr Rimpy Kaur Chowhan, Dr Ritu Khosla, Dr NeetiGoel, Dr Gurudutt Rao Ambedkar, Dr Narain Singh, Dr Deo Dutt Arya, Mr Tarun Sharma, and Mr Sanjay Sangwan.

Statistics or state arithmetic, as called in the roman era, is not a new field, in fact it dates back to as early as 1st century B.C with roots in real life applications. In the current scenario, the statistical methods are used extensively in mathematics, biology, medicine, physics, chemistry, engineering, environmental science, sociology and several other interdisciplinary fields. Thus, making the knowledge of various tools and techniques in statistical analysis and how to effectively use them for research and decision making as an imperative tool for any scientific endeavour. To upkeep these goals, with the kind counsel of our advisory team comprised of Dr Garima Gupta, Scientist E, Department of Biotechnology; Prof C S Lalitha, Head and Dean, Faculty of Mathematical Sciences, University of Delhi; Professor Umesh Rai, Head, Department of Zoology, University of Delhi; Professor S B Babbar, Head, Department of Botany, University of Delhi; Professor Shobha Bagai, Cluster Innovation Centre, University of Delhi; Dr.Anjan, Associate Professor and Head, Department of Natural Resource Management and Geoinformatics, Khallikote University; Prof. Daman Saluja, Director, Dr. B R Ambedkar Centre for Biomedical Research(ACBR), University of Delhi; Dr. Abdullah A Ansari, Assistant Professor, International Centre for Advanced Interdisciplinary Research; Dr.Kamlesh Jangid, Assistant Professor, Department of Mathematics, Rajasthan Technical University; and Dr. Manish Khandelwal, Assistant Professor, Department of Mathematics, Indira Gandhi National Tribal University (IGNTU), Amarkantak, this workshop has been meticulously designed to provide knowledge on statistical modelling, data mining, and fitting statistical models to data in real-world applications using various statistical analysis tools like R and SPSS.

The information about the webinar was disseminated on various official social medial channels of the college including instagram, facebook, twitter and college website with few selective sessions of the workshop to be released on college'syoutube channel as well. Approximately, 205 participants including undergraduate and postgraduate students, research scholars and academicians from all over the country, registered for the event after paying the registration fee of Rs. 100 for ANDC Students (UG and PG), Rs. 200 for other Students (UG and PG), Rs 500 for Research Scholars, and Rs 1000 for Industry Sponsored individuals.

During this 15 day long workshop, two sessions were being conducted almost every day by the eminent speakers - Professor T R Rao, IISER, Berhampur; Professor Ram Kumar, Central University of South Bihar; Professor Aditi Gangopadhaya, Department of Mathematics, IIT-Roorkee; Dr Mohd. Arshad, Assistant Professor, Department of Mathematics, IIT-Indore; Dr Amit Kumar Misra, Assistant Professor, Department of Statistics, Babasaheb Bhim Rao Ambedkar University, Lucknow; Dr Akanksha Gupta, Assistant Professor, Department of Statistics, Institute of Science, Bangalore; Dr QaziAzhad Jamal, Assistant Professor, Department of Mathematics and Statistics, Banasthali Vidyapith, Rajasthan; Dr Shashi Bhushan, Associate Professor and Head, Department of Mathematics &Statistics, Dr.Shakuntala Misra National Rehabilitation University, Lucknow; and Dr K R Meena, Assistant Professor, Department of Biomedical Science, Acharya Narendra Dev College. They gave lectures on the broad themes of Fundamentals of Statistics (special reference to biology), Data types and collection, Sampling techniques, Measures of central tendency and Measures of dispersion, Correlation and Regression Analysis, Statistical inference, Estimation procedures, hypothesis testing (Student's 't' test, chi square test, F test), Introduction to Binomial, Poisson and Normal distribution, and uses of advance software's (R, SPSS and Sigma plot) in modern biostatistics. The end of every session was followed by a Q & A session, where all the attendees actively participated and all of their doubts and queries were answered.

The workshop ended with a lively valedictory session with speeches by Prof Ravi Toteja, Prof BalaramPani, Prof T R Rao, Dr Amit Kumar Misra, several participants and a formal vote of thanks by Dr Rashmi Sharma. Overall, it was definitely a successful workshop, evident by the hordes of positive feedbacks and quiz turnouts submitted every day.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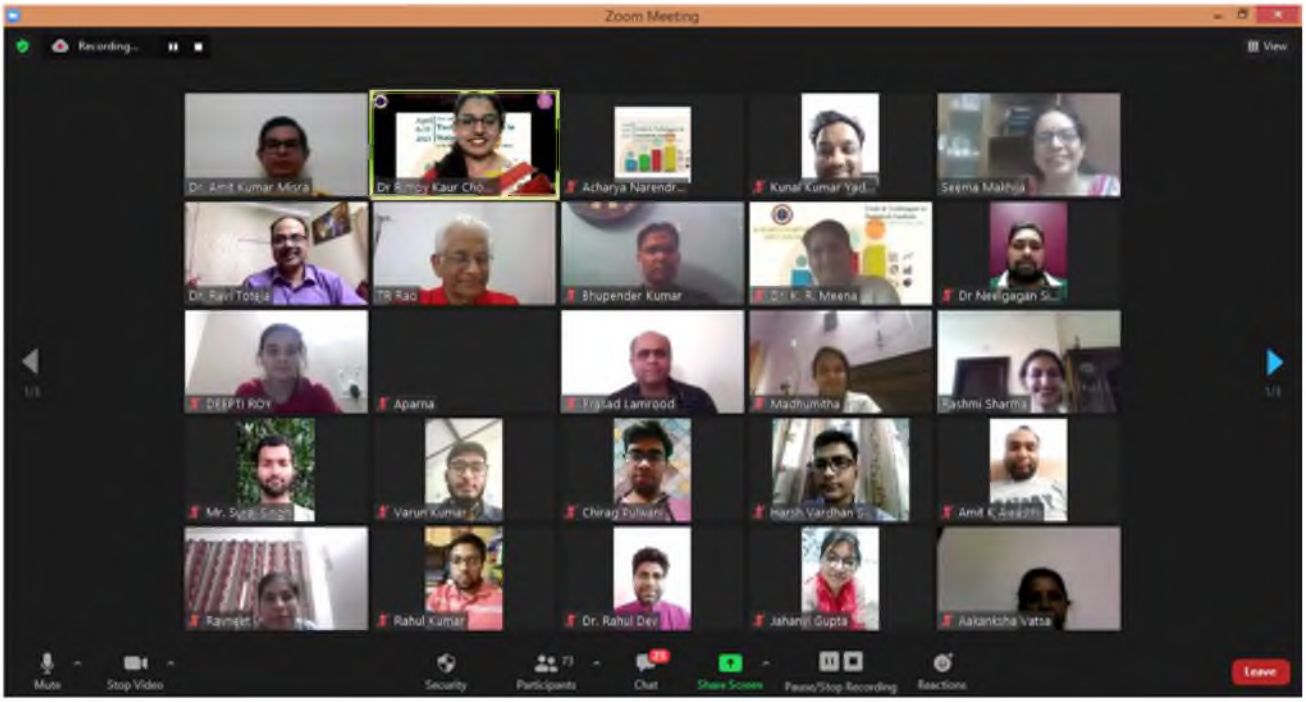
Seema Makhija
Dr. Neeti Goel
Harshal R Srivas...
Madhumitha
Rashmi Sharma
Mahesh Kumar
Bhupender Kumar
SUGANTHI. S
Annu
Chandra Prabha
Aparna
Annu


Zoom Meeting
Dr. Amit Kumar Mishra
Acharya Narendr...
Kunal Kumar Yad...
Seema Makhija
Dr. Ravi Toteja
TR Rao
Bhupender Kumar
Dr Neelgagan Si...
DEEPTI ROY
Aparna
Prasad Lamrood
Madhumitha
Rashmi Sharma
Varun Kumar
Chirag Pulwani
Harsh Vardhan
Amit K Awasthi
Ravneet
Rahul Kumar
Dr. Rahul Dev
Jahanvi Gupta
Aakanksha Vatsa
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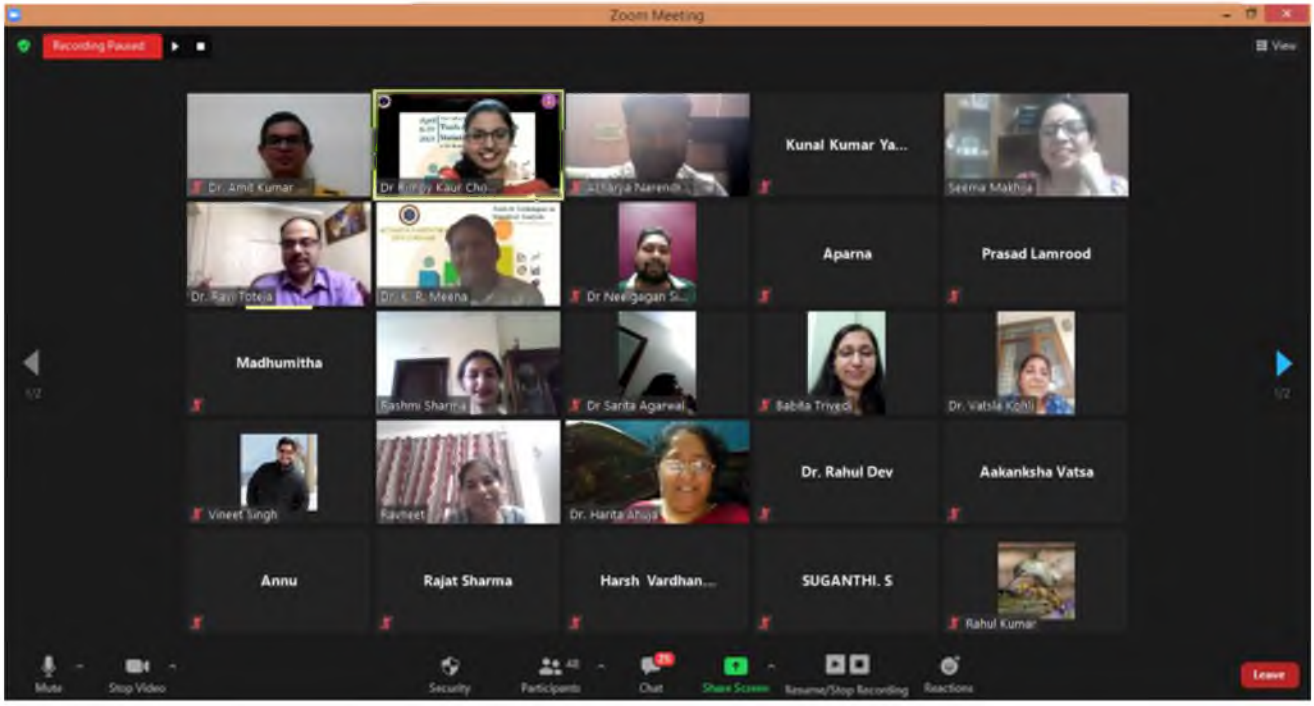
Stop Video
Security
Participants
Chat
Share Screen
Pause/Stop Recording
Reactions
Leave


Zoom Meeting
Recording Paused
View
Dr. Amit Kumar
Kunal Kumar Ya...
Seema Makhija
Dr. Ravi Toteja
Dr. K. R. Meena
Aparna
Prasad Lamrood
Madhumitha
Rashmi Sharma
Dr Sarita Agarwal
Babita Trivedi
Dr. Vatsla Kohli
Vineet Singh
Ravneet
Dr. Harita Ahuja
Dr. Rahul Dev
Aakanksha Vatsa
Annu
Rajat Sharma
Harsh Vardhan...
SUGANTHI. S
Rahul Kumar
Mute
Stop Video
Security
Participants
Chat
Share Screen
Resume/Stop Recording
Reactions
Leave

April 6-19 2021

Two-week national workshop (online)

Tools & Techniques in Statistical Analysis

under the aegis of DBT STAR College Scheme

Link for Registration: https://forms.gle/I9rURdrGbn4fhwoCA

Chief Guest
Professor Balaram Pani
Dean of Colleges, University of Delhi

Chief Patron
Professor S. M. Anwar Alam
Chairman, Governing Body, ANDC

Patron
Dr Ravi Toteja
Officiating Principal

Co-Convenors
Dr Archna Pandey
Department of Biomedical Science
Dr Rashmi Sharma
Department of Botany

Convenors
Dr Vatsla Kohli
Department of Mathematics
Dr Seema Makhija
Department of Zoology
Dr K R Meena
Department of Mathematics

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NIRF 2020 Ranking-18

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Two-week national workshop (online)

Tools & Techniques in Statistical Analysis

under the aegis of DBT STAR College Scheme

Chief Guest

Professor Balaram Pani

Dean of Colleges, University of Delhi

Members of Advisory Board

- Dr Garima Gupta, *Scientist-E, DBT, India*
- Professor C. S. Lalitha, *Head and Dean, Faculty of Mathematical Sciences, University of Delhi*
- Professor Umesh Rai, *Head, Department of Zoology, University of Delhi*
- Professor S. B. Babbar, *Head, Department of Botany, University of Delhi*
- Professor Shobha Bagai, *Cluster Innovation Centre, University of Delhi.*
- Dr Anjan, *Associate Professor & Head, Deptt. Natural Resources Management and Geoinformatics, Khallikote University.*
- Dr Madhu Chopra, *Assistant Professor, Dr B.R. Ambedkar Center for Biomedical Research* (ACBR)
- Dr Abdullah A. Ansari, *Assistant Professor, International Center for Advanced Interdisciplinary Research* (ICAIR)
- Dr Manish Khandelwal, *Assistant Professor, Department of Mathematics, IGNTU Amarkantak*
- Dr Kamlesh Jangid, *Assistant Professor, Department of Mathematics, Rajasthan Technical University*

Scan QR Code for Registration

April 6-19, 2021

Speakers

Professor T.R. Rao
IISER, Berhampur

Professor Ram Kumar
Central University of South Bihar

Dr Aditi Gangopadhyay
Associate Professor
Department of Mathematics
IIT Roorkee

Dr Mohd. Arshad
Assistant Professor
Department of Mathematics
IIT Indore

Dr Amit Kumar Misra
Assistant Professor
Department of Statistics
Babasaheb Bhimrao Ambedkar University, Lucknow

Dr Akanksha Gupta
Assistant Professor
Department of Statistics
Institute of Science, BHU

Dr Qazi Azhad Jamal
Assistant Professor,
Department of Mathematics & Statistics
Banasthali Vidyapith

Dr K.R. Meena
Assistant Professor
Department of Mathematics
Acharya Narendra Dev College

Acharya Narendra Dev College

University of Delhi

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Workshop Schedule

April 6	3:30 pm-3:45 pm Welcome Address Dr Ravi Toteja Officiatng Principal	3:45 pm-4:00 pm Inaugural Address Professor Balaram Pani, Chief Guest Professor Anwar Alam, Chief Patron	4:00 pm-5:00 pm Biostatistics: General Perspective Professor T.R. Rao	5:00 pm-6:00 pm Basics of Statistics, Measurements Dr Amit Kumar Misra
April 7	4:00 pm-5:00 pm Probability Theory in Information Security Dr Aditi Gangopadhyay	5:00 pm-6:00 pm Basics of Statistics, Measurements Dr Amit Kumar Misra		
April 8	4:00 pm-5:00 pm Normal Distribution Professor T.R. Rao	5:00 pm-6:00 pm Collection of data, Classification of data, Sampling methods Dr M. Arshad		
April 9	4:00 pm-6:00 pm Collection and classification of data, Sampling methods. Measure of central Tendency Dr M. Arshad			
April 10	4:00 pm-5:00 pm Measure of Dispersion Dr Akanksha Gupta	5:00 pm-6:00 pm Basics of R-software Dr Qazi Azhad Jamal		
April 11	OFF DAY			
April 12	4:00 pm-5:00 pm Skewness and Kurtosis Dr Akanksha Gupta	5:00 pm-6:00 pm Correlation and regression analysis, similarities and dissimilarities Dr Qazi Azhad Jamal		
April 13	4:00 pm-5:00 pm Correlation and regression analysis, similarities and dissimilarities Dr Qazi Azhad Jamal	5:00 pm-6:00 pm Standard probability distributions, Estimation procedures-I Dr M. Arshad		
April 14	4:00 pm-5:00 pm Standard probability distributions, Estimation procedures-I Dr M. Arshad	5:00 pm-6:00 pm Estimation procedures-II Dr K.R. Meena		
April 15	4:00 pm-5:00 pm Hypothesis Testing Professor T.R. Rao	5:00 pm-6:00 pm Testing of Hypothesis-I Dr Amit Kumar Misra		
April 16	4:00 pm-6:00 pm Testing of Hypothesis-II Dr Amit Kumar Misra			
April 17	4:00 pm-5:00 pm Non-parametric procedures Dr Akanksha Gupta	5:00 pm-6:00 pm Simulation and data analysis using R-software Dr Qazi Azhad Jamal		
April 18	OFF DAY			
April 19	4:00 pm-6:00 pm Sampling techniques Professor Ram Kumar	6:00 pm-7:00 pm Valedictory Session		

Acharya Narendra Dev College

Tools and Techniques in Statistical Analysis, April 06-19 2021

S. No.	Full Name	Institution Name	Department
1	Manish Pal	Acharya Narendra Dev College University of Delhi	Physics
2	LUV NAGPAL	Ramanujan College,University of Delhi	Statistics
3	Somesh	Acharya narendra dev college	Computer science
4	Jahanvi Gupta	Aligarh Muslim University	Statistics
5	MANISHA BEHERA	UNIVERSITY OF DELHI	ZOOLOGY
6	Micky Anand	Central University of South Bihar	Department of Life Science
7	Jagjot Arora	Hindu College, University of Delhi	Department of Zoology
8	Adrija Mohanta	Deen Dayal Upadhaya College, University of Delhi	Zoology
9	Prasad Y. Lamrood	Ahmednagar College	Botany
10	Utkarsh Sood	The Energy and Resources Institute	DGO
11	Sidrah Iqbal	Deen Dayal Upadhyay college	Zoology
12	Devendra Singh	Aligarh Muslim University, Aligarh	Interdisciplinary Biotechnology Unit

13	Annu	Maharshi Dayanand University, Rohtak	Department of Zoology
14	Jagjeet Singh	Maharshi Dayanand University, Rohtak	Department of Zoology
15	Manoj Kumar YADAV	Maharshi Dayanand University Rohtak	Genetics
16	Navrose Brar	Guru Nanak Dev University , Amritsar , Punjab	Department of Botanical and Environmental Science
17	NAZMI PERWEEN	CENTRAL UNIVERSITY OF SOUTH BIHAR,GAYA	SOCIOLOGICAL STUDIES
18	Simran Madaan	Hindu College, University of Delhi	Zoology Department
19	Parul Vats	Central University of Gujarat	School of Environment and Sustainable Development
20	Lakshmi N R	Psg College of arts and science	Zoology
21	B. Balaji	St. Xavier's College (Autonomous), Tirunelveli	Zoology
22	s.sowmiya	PSG college of arts and science	M.sc zoology
23	Suraj Singh	Sri Aurobindo College, University of Delhi	Life Science
24	Kamlesh Jangid	Rajasthan Technical University, Kota	Mathematics
25	Kirandeep Kour	University of Jammu	Statistics
26	Ruchi	Kedarnath girdharilal	Mathematics

		khatri pg college	
27	Pooja Rai	V. V.(P.G.) COLLEGE SHAMLI, UTTAR PRADESH	Mathematics
28	N Khachuk Debbarma	Acharya Narendra Dev College	Department of Botany
29	Swati Maurya	Acharya Narendra Dev College	Zoology Department
30	Jyoti Dagar	Acharya Narendra Dev College	Zoology
31	Miss Purnima Konwar	IGNOU	Education
32	VARUN KUMAR	Central University of South Bihar Gaya	Sociological Studies
33	Vinod Kumar Gangwar	K.G.K (P.G.) College Moradabad Uttar Pradesh	Department of Physics
34	SHARANJIT KAUR	Acharya Narendra Dev College	Computer Science
35	Priyanka Anand	University of Jammu	Statistics
36	Akshita Sharma	Janki Devi Memorial College	Maths
37	Indrajit Borah	Amity Business School, Amity University Noida	Amity Business School
38	Ningthibi Mangsatabam	Acharya Narendra Dev college	Mathematics
39	Abhishek yadav	Acharya Narendra dev college	B.sc (Hons) mathematics
40	Babita Rana	G N Khalsa College Matunga	Botany

41	Sandeep Antil	Acharya Narendra Dev college	zoology
42	Shikha Srivastava	Bhaskaracharya college of applied sciences	Botany
43	S Sripooma	Acharya Narendra Dev College, University of Delhi	Department of Zoology
45	Jeeva Susan Abraham	Acharya Narendra Dev College, University of Delhi	Zoology
46	Moinuddin Mehmood Ali Vakil	Maharashtra College of Arts, Science & Commerce, Myumbai-400008.	Department of Botany
47	NEHA ANILBHAI CHAUDHARI	CENTRAL UNIVERSITY OF GUJARAT	SCHOOL OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT
48	Babita Trivedi	Amity University	Central Library
49	KAJAL MITTAL	MAHARAJA AGRASEN INSTITUTE OF MANAGEMENT STUDIES (MAIMS), AFFILIATED TO GGSIPU, ROHINI , NEW DELHI	COMMERCE
50	Deepak Kumar	Acharya Narendra Dev College	Mathematics
51	Vivek Kumar Maurya	Army Institute of Management and Technology	Business Administration
52	Dr. Prashant Pant	Government College Daman	Department of Botany

53	Sushma Sardana	Delhi Public School	Biology
54	Anmol Singh	-	-
55	Muzaffer Ahmed Bhat	AIIMS-Delhi	Biochemistry
56	Saurabh yadav	Deshbandhu college	Zoology
57	NAINA VERMA	BANARAS HINDU UNIVERSITY	DEPARTMENT OF BOTANY
58	JEEVANT SUHAG	RAMJAS COLLEGE, UNIVERSITY OF DELHI	Department of Zoology
59	Leena Prasher	CT University, Ludhiana	Mathematics
60	Moses Rinchui Ngasainao	Deshbandhu college	Zoology
61	Ashish kashyap	Deshbandhu college, University of Delhi	Department of lifesciences
62	KUNAL KUMAR YADAV	S N SINHA COLLEGE, TEKARI, GAYA, MAGADH UNIVERSITY, BODHGAYA, BIHAR, INDIA	Political Science
63	HARSH VARDHAN SAHU	Acharya Narendra Dev College	Chemistry
64	Samruddhi Sontakke	Ferguson college Pune	Biochemistry
65	Kalyani subhash kolhe	Fergusson college, shivaji nagar	chemistry
66	Kaustav Gauthaman	Acharya Narendra Dev College	Biomedical Sciences
67	DEEPTI ROY	university of delhi	genetics

68	NIDHI KUMARI	BHU	MOLECULAR AND HUMAN GENETICS
69	Vaidik Thakre	Acharya Narendra Dev College	PMCs
70	Mahesh choudhary	Acharya Narendra Dev College	Mathematics
71	Niharika Payal	Ramjas College	Zoology
72	Chandra Prabha	SNKP Govt College, Neem Ka Thana, Sikar, Rajasthan	Dept of Zoology
73	MANISH SHARMA	GOVERNMENT COLLEGE DAMAN, U.T. ADMINISTRATION OF DADRA & NAGAR HAVELI AND DAMAN & DIU	PG DEPARTMENT OF ZOOLOGY
74	Ashish garg	Banaras Hindu University	Faculty of Social Science
75	piya rawat	SRCASW, DU	biomedical sciences
76	Rohitash Kumar	Acharya Narendra Dev College	Mathematics
77	Manpreet Singh	Sri Aurobindo College	Life Sciences
78	Syed Amjad Ali	Acharya Narendra Dev College	B.Sc (Hons) Mathematics
79	Narayan Yadav	Acharya narendra dev college	Mathematics
80	Shraddha saroj	Banaras Hindu University	Home Science
81	Vineet Prakash Singh	Government College	Department of Zoology

S Mehta

		Daman	
82	Annie Singh Batra	Acharya Narendra Dev College	Biomedical sciences
83	Renu Bala	Banras Hindu University	Molecular and Human Genetics
84	NAMRATA YADAV	BHU	MOLECULAR AND HUMAN GENETICS
85	Aryan Chauhan	Achraya Narendra Dev College	B.Sc Programme
86	DEVANG KAMAL	ACHARAYA NARENDRA DEV COLLEGE	PHYSICAL SCIENCE WITH COMPUTER SCIENCE
87	Ashutosh Garg	Acharya Narendra Dev College	Mathematics
88	JOSIAH JOSE KADITHALA	St. Stephen's College, DU	Physics
89	Anupam Mishra	Government Mohindra College	Management
90	Manjeet Kumar	University of Jammu	Department of Statistics
91	Himani Nanda	University of Jammu	Department of Statistics
92	RAJAT SHARMA	Acharya Narendra Dev College, UNIVERSITY OF DELHI	Computer Science Hons.
93	Neha sharma	University of Jammu	Statistics
94	Isha Das	Acharya Narendra dev college	Bsc Hons Mathematics
95	Wahida Rehman Shaikh	Maharashtra College of Arts, Science &	Botany

		Commerce	
96	Madhumitha B	NIMR ICMR, New Delhi	Biotechnology
97	Bhumika Chauhan	Acharya narendra dev college,DU	Zoology
98	KM Kanika	Acharya Narendra Dev College	Biomedical science
99	J RASHMI	Ethiraj College for women	Plant Biology and Plant Biotechnology
100	Mayank Tyagi	Galgotias University	MSc Microbiology
101	Showkat Ahmad	BSA CRESCENT INSTITUTE OF SCIENCE AND TECHNOLOGY	Bio Engineering
102	Abhishek Durgude	Fergusson College	Biotechnology
103	Rahul Kumar	Sheodeni Sao College (Magadh University), Kaler	Zoology
104	PUNITHA. S	Ethiraj College for Women	Plant Biology and Plant Biotechnology
105	SUGANTHI. S	Ethiraj College for Women	Plant Biology and Plant Biotechnology
106	Mayank Gaur	Mayank Gaur	Maths
107	Armaan Mehra	Max Planck Institute for Heart and Lung Research	Developmental Genetics
108	Bhawna kumari	Acharya nerendra dev college	BSc(P) Physical science with computer science

S Mohy

109	PALUKURI YASHWANTH KUMAR	Galgotias University	Biochemistry
110	Vishwantra Sharma	University of Jammu	Department of Statistics
111	Akshita Sharma	University of Jammu	Statistics
112	Aditya Khandelwal	University of Delhi	Dr. B.R. Ambedkar Center For Biomedical Research
113	Shrashti Shrivastava	Hindu College, University of Delhi	Zoology
114	Gershon Nitheesh M	Loyola college	Zoology
115	Bhupender kumar	Institute of Home Economics, University of Delhi	Department of Biochemistry
116	Vivek Tripathi	Miranda House College	Geography
117	PRINCY HIRA	Maitreyi College	Zoology
118	Parvati	Banaras Hindu University, Varanasi	Department of Home Science
119	S. Saikrishna	Loyola College	Advanced Zoology and Biotechnology
120	PRITIKA KWATRA	Acharya Narendra Dev College	Biomedical Science
121	INDU SONI	Govt. P.G.College Arang Raipur C.G.	BOTANY
122	Quazzafi Rabbani	Integral University Lucknow	Mathematics and Statistics
123	S. Saikrishna	Loyola College	Advanced Zoology and Biotechnology

124	Khadija Hassan	DELHI UNIVERSITY	BR Ambedkar Center for biomedical Reserch
125	Varsha Baweja	Deshbandhu College, University of Delhi	Zoology
126	Sonu Darnal	Sikkim University	Psychology
127	Adarsh kumar Dixit	Adarsh kumar Dixit	Mathematics
128	Priyanka Dahiya	University of Delhi	Department of Zoology
129	Shiv kumar gupta	Banaras Hindu University	Statistics
130	Neha Sharma	University of hyderabad	Animal biology and biotechnology
131	Gunjan Rani	Acharya Narendra Dev College	Computer Science
132	Nishu singh	ANDC	Computer science
133	Rubina Chongtham	Deshbandhu College, University of Delhi	Botany
134	Manshi	Acharya Narendra Dev College	B.sc (H) Zoology
135	Chirag Pulwani	Acharya Narendra Dev College,University of Delhi	Department of Life Sciences
136	Vishwarubini K	PSG College of Arts and Science	Msc Zoology
137	Tarun kumar	Aligarh Muslim University, Aligarh	Department of statistics and operation research
138	Rasmikanta Pati	Sambalpur University Institute of Information Technology(SUIIT)	BS&H

139	Mahesh Kumar	Acharya Narendra Dev College, University of Delhi	Computer Science
140	Daniyal Khan	Aligarh Muslim University, Aligarh, U.P	Department of Statistics and Operations Research
141	GUL E ZEHRA	ALIGARH MUSLIM UNIVERSITY	DEPARTMENT OF BIOTECHNOLOGY
142	Deepshikha	Acharya Narendra Dev College	Department of Biomedical science
143	Mayank Bajaj	University of Hyderabad	Animal Biology and Biotechnology
144	PALETI NARENDAR	LOVELY PROFESSIONAL UNIVERSITY, PUNJAB	MITTAL SCHOOL OF BUSINESS
145	Pooja Arora	Hansraj College	Zoology
146	REETIKA Singh	Delhi Technological University	Biotechnology
147	PRANJAL SHARMA	LOYOLA COLLEGE ,CHENNAI	ADVANCED ZOOLOGY AND BIOTECHNOLOGY
148	Seema Yadav	Ramjas College	Zoology
149	Gunwant Singh Atwal	Ramjas College, DU	Zoology
150	Suman	University of Hyderabad	Animal biology
151	ALFISA SIDDIQUE	Zoological Survey of India	Protozoology
152	Harshitha Botsa	Benares Hindu University	Molecular and human genetics

153	AKANKSHA UPADHYAY	contral university of punjab	department of computational sciences
154	Aparna Tiwari	ICMR-National Institute of Malaria Research	Parasite-Host Biology
155	Gauri Ghai	Acharya Narendra Dev College	Electronics
156	HARSHAL SRIVASTAVA	UNIVERSITY OF HYDERABAD	DEPARTMENT OF PLANT SCIENCES
157	Chanchal Bareja	ACBR	ACBR
158	Amit Kant Awasthi	Dyal Singh College	Environmental Science
159	Praveena Suresh	University of Hyderabad	Department of Plant Sciences
160	Madhav Gaur	Hans Raj College, Delhi University	Life sciences
161	CHANDRIKA KONWAR	University of Delhi	ACBR
162	GAYATHRI A G	HYDERABAD UNIVERSITY	PLANT SCIENCES
163	Dr Savita	IHE, Delhi University	Biochemistry
164	Sakshi Sharma	University of Delhi	Dr BR Ambedkar Centre for Biomedical Research
165	Akansha Rehani	Rukmini Devi Institute Of Advanced Studies	Management
166	Aishee Bhowal	Zoological Survey of india	Protozoology
167	Pronomita Das	University of Hyderabad	Department of Plant sciences

168	Tahseen Fatima	Aligarh Muslim University AMU	Interdisciplinary biotechnology unit AMU
169	Athira A	Zoological Survey of India, Kolkata	Protozoology
170	Pradeep Kumar Rajput	Central University of Gujarat	School of life Sciences
171	UTKARSH CHIRAG SHANDILYA	LOVELY PROFESSIONAL UNIVERSITY	MITTAL SCHOOL OF BUSINESS
172	Shivangani sharma	Galgotias University	M.sc. Microbiology
173	Helen Agnes	Kerala university of fisheries and ocean studies	Marine biology
174	NAYANA TM	Kerala university of fisheries and ocean studies	Marine biology
175	Haritha Prasad	Zoological Survey of India, Kolkata	Protozoology Section
176	Manas Singhal	Acharya Narendra Dev College, University of Delhi	Biomedical science
177	Komal Kotra	Acharya Narendra Dev College	Zoology
178	Saba Perween	Aligarh Muslim university	Department of statistics and OR
179	Aviral Pathak	Science	Statistics
180	Rashi Ladha	Science	Department of Molecular and Human Genetics
181	Shrutika ashok	Fergusson college pune	Biochemistry

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	chamate		
182	GEETIKA ARORA	DR. B.R. AMBEDKAR CENTER FOR BIOMEDICAL RESEARCH	DR. B.R. AMBEDKAR CENTER FOR BIOMEDICAL RESEARCH
183	Vaishnavi Jaiswal		
184	Dr. KAYNAT NASSER		
185	DR. MOHD. SHAIKHUL ASHRAF		
186	K SUSHMA VARMA		
187	Anupama Rastogi		
188	Shruti Sethi		
189	Annu		
190	Ashutosh garg		
191	Brijendra Yadav	ANDC	Maths
192	Abhay Pratap Singh	ANDC	EVS
193	Aakanksha		
194	Shikha Devi		
195	Neha sharma		
196	Rasmikanta Pati		
197	Soni Rani		
198	Yuga Vani		

199	Dr. Divya Bajaj		
200	Dr. Neelgagan Singh	ANDC	ZOOLOGY
201	Dr. Aparna Sharma	ANDC	ZOOLOGY
202	Dr. Sweety Shrimali	ANDC	ZOOLOGY
203	Dr. Shrankhla	ANDC	ZOOLOGY
204	Dr. Rahul Dev	ANDC	ZOOLOGY
205	Ms. Bhumika	ANDC	ZOOLOGY
206	Dr. Aditi Dubey	ANDC	ZOOLOGY
207	Ms. Swati Maurya	ANDC	ZOOLOGY
208	MR Sandeep	ANDC	ZOOLOGY
209	Ms Jyoti	ANDC	ZOOLOGY
210	Mr Munendra	ANDC	ZOOLOGY

Title: National Workshop on Advanced Bioinformatics

Organizing team: Dr Archna Pandey Dr RimpyKaur Chowhan Dr Ritu Khosla (Department of Biomedical Sciences) Dr Rashmi Sharma (Department of Botany) Prof. Seema Makhija (Department of Zoology)

Date: March 01-03, 2021

Number of Participants:

Resource person: Dr. Srinivasan Ramachandran (9818766438)

Report:

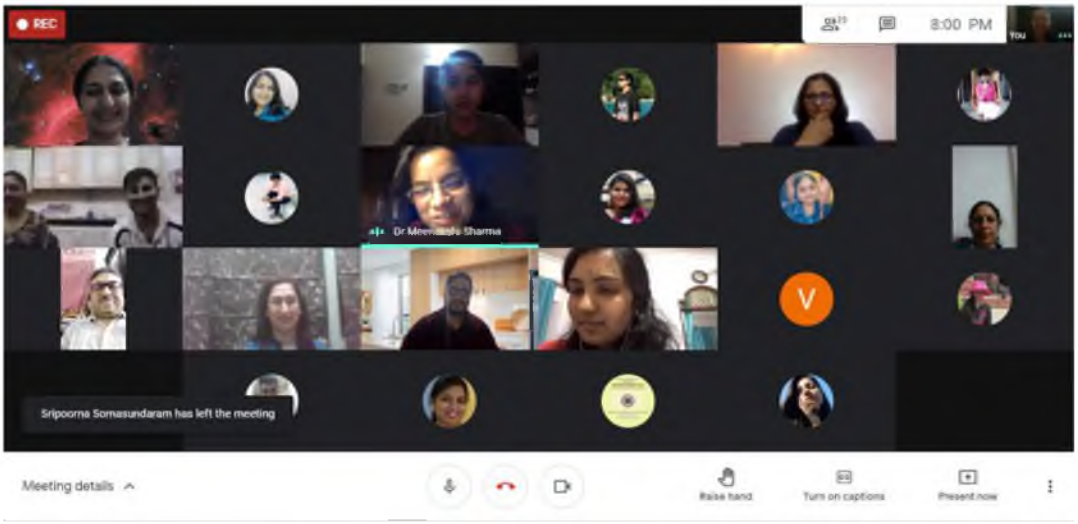
Department of Biomedical Science, Botany and Zoology of Acharya Narendra Dev College, University of Delhi under the patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized three days long national workshop on the topic "A step-by step guide to data mining from literature to database" under the aegis of DBT-STAR College Scheme on 1st-3rd March 2021 on google meet. The organizing team comprised of the convenors - DrSeema Makhija (Department of Zoology), Dr Archna Pandey (Department of Biomedical Science) and Dr Rashmi Sharma (Department of Botany).

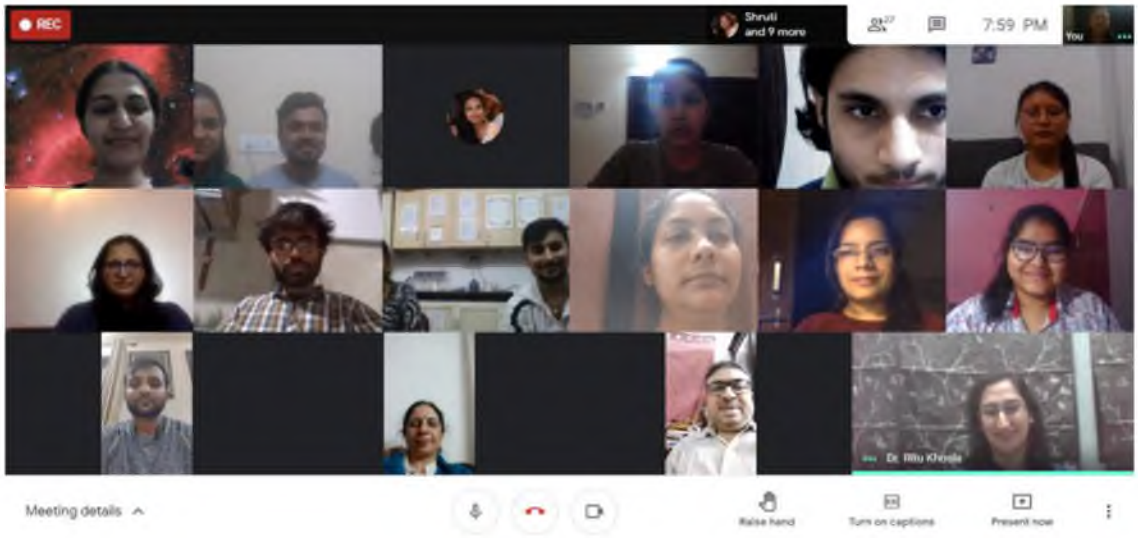
The resource person for the workshop was Dr. Srinivasan Ramachandran, Senior Principal Scientist, CSIR-Institute of Genomics and Integrative Biology. To ensure maximal interaction between participants and resource person, the maximum participant number was limited to 30 seats. The information about workshop was disseminated on various official social medial channels of the college including instagram, facebook, twitter and the college website, wherein the list of interested participants were sought viaa registration form. All the participants selected on first-cum-first-serve basis were required to pay the nominal fee of Rs. 250 each.The first day talk was also released on the YouTube channel of the college at https://www.youtube.com/watch?v=cvnMiSaGqek.

On the first day participants were given theoretical instructions on the significance and techniques involved in performing data mining from literature to pathways. For the subsequent

two days the participants were divided into small groups of 4-5 participants, where each group was guided in a step-by-step manner to work on any one disease case or a technology case. During this workshop, the participants learned how to extract gene list for different topics from t2doacid.igib.res.in, Enrichment analysis functional interactive network, Pathways recognition and biological interpretation of data using Gene cards and Uniprot.After the hands-on work each group also presented for about 5-8 minutes on their results with discussion.The session was concluded with a vote of thanks by Dr. Rashmi Sharma.

This immensely interactive session bridged the communication gap, we often feel during online workshops, and allowed participants to enhance their applied bioinformatics knowledge. The participants were highly satisfied with their experience and showed willingness to attend many more such workshops in the future.

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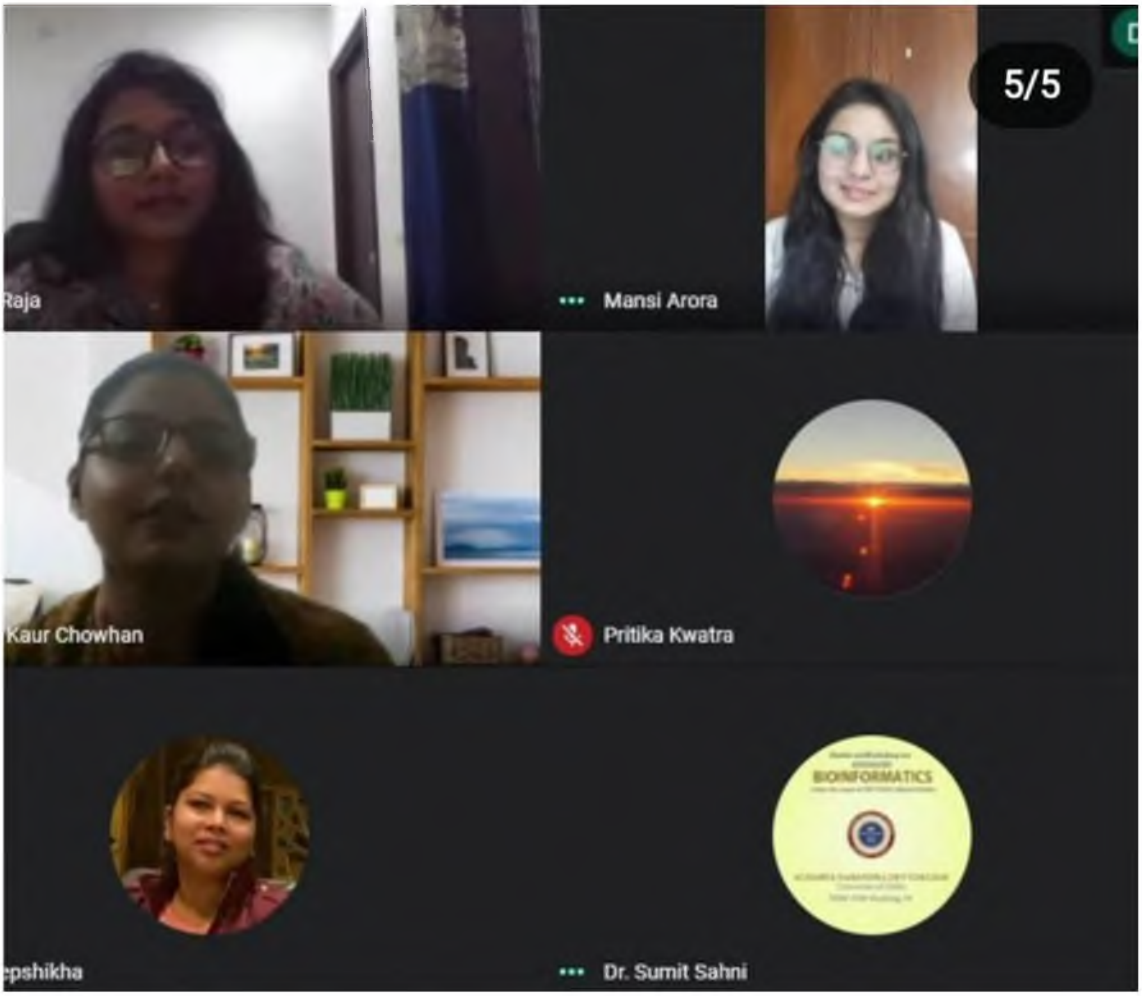

5/5
Raja
Mansi Arora
Kaur Chowhan
Pritika Kwatra
epshikha
Dr. Sumit Sahni

Acharya Narendra Dev College

University of Delhi

(All India NIRF 2020 Ranking-18, NAAC Score-3.31)

Under the aegis of DBT-STAR College Scheme

Hands-on Workshop on ADVANCED BIOINFORMATICS

Date: March 1-3, 2021

Schedule

Time	Day 1 (March 1, 2021)
5 P.M. to 6 P.M.	Talk on "A Step-by-Step Guide of Data Mining from Literature to Pathways.
Time	**Day 2 and 3 (March 2-3, 2021)**
5 P.M. to 7 P.M.	Hands-on Workshop on: • Extracting gene list using pubmed.mineR • Gene enrichment analysis • Functional interactive network • Biological interpretation using Gene cards and Uniprot

Instructions

- All participants must have their own computer/laptop
- Install R, R studio, pubmed.mineR in the sequence in your laptop
- For R: https://cran.cnr.berkeley.edu/ https://cran.r-project.org/
- For R studio: https://rstudio.com/products/rstudio/download/
- For pubmed.mineR
  - install pubmed.mineR package from R or Rstudio console using the following command:
  - install.packages("pubmed.mineR")# install from RStudio console

Dr Srinivasan Ramachandran
Senior Principal Scientist, CSIR-IGIB

Patron

Dr Ravi Toteja
Officiating Principal

Convenor

Dr Seema Makhija
Department of Zoology

Dr Archna Pandey
Department of Biomedical Science

Dr Rashmi Sharma
Department of Botany

Acharya Narendra Dev College

Advanced Bioinformatics, March 01-03, 2021

S. No.	Course	University	Name
1	PhD	University of Delhi	Sandeep Antil
2	PhD	Gondwana University, Gadchiroli	Mr. Dhananjay Ghanashyam Madavi
3	B.Sc. (Hons.) Zoology	University of Delhi	Adrija Mohanta
4	PhD	University of Delhi	Swati Maurya
5	B.Sc. (Life sciences)	University of Delhi	Vishesh rao
6	B.Sc. (Life sciences)	University of Delhi	Vaishali VAIDYA
7	B.Sc. (Life sciences)	University of Delhi	Arunima Dey
8	B.Sc. (Life sciences)	University of Delhi	Shruti Prakash
9	B.Sc. (Life sciences)	University of Delhi	ayush shukla
10	B.Sc. (Hons.) Botany	University of Delhi	Ritu
11	B.Sc. (Hons.) Botany	University of Delhi	NIKHIL kumar
12	B.Sc. Clinical Research	Jamia Hamdard University	Rishabh Sharma
13	M.Sc. (Biotechnology)	Mizoram University	R. LALENGKIMI
14	B.Sc. (Hons.) Zoology	University of Delhi	Ujjwal Kumar Gupta
15	B.Sc. (Hons.) Zoology	University of Delhi	Bakul Dalal
16	B.Sc. (Hons.) Zoology	University of Delhi	Swati Maheshwari

17	B.Sc (Hons.) Zoology	University of Delhi	Gunjan
18	PhD	Indira Gandhi National Tribal University, Amarkantak, M.P.	Praveen Shyam
19	M.Sc. (Biotechnology)	Sant Gadge Baba Amravati University, Amravati	Dr Varsha Shamrao Dhoran
20	PhD	University of Delhi	Dr Meenakshi Sharma
21	B.Sc. (Hons.) Zoology	University of Delhi	Komal
22	B.Sc. (Life sciences)	University of Delhi	Ekta
23	B.Sc. (Life sciences)	University of Delhi	Ritam Das
24	PhD	University of Delhi	Aiswarya Mohan
25	PhD	University of Delhi	Kanika
26	PhD	University of Delhi	Sandeep Antil
27	B. Sc. Biochemistry	G D Goenka University	Sagar
28	BSc (Hon.) Zoology	Delhi University	KRITIKA SHARMA

Organizing team: Prof. Urmi Bajpai Dr Archna Pandey (Department of Biomedical Science) Dr Rashmi Sharma Dr Anita Narang (Department of Botany) Prof. SeemaMakhija Dr Monica Misra (Department of Zoology)

Date: January 09-13, 2021

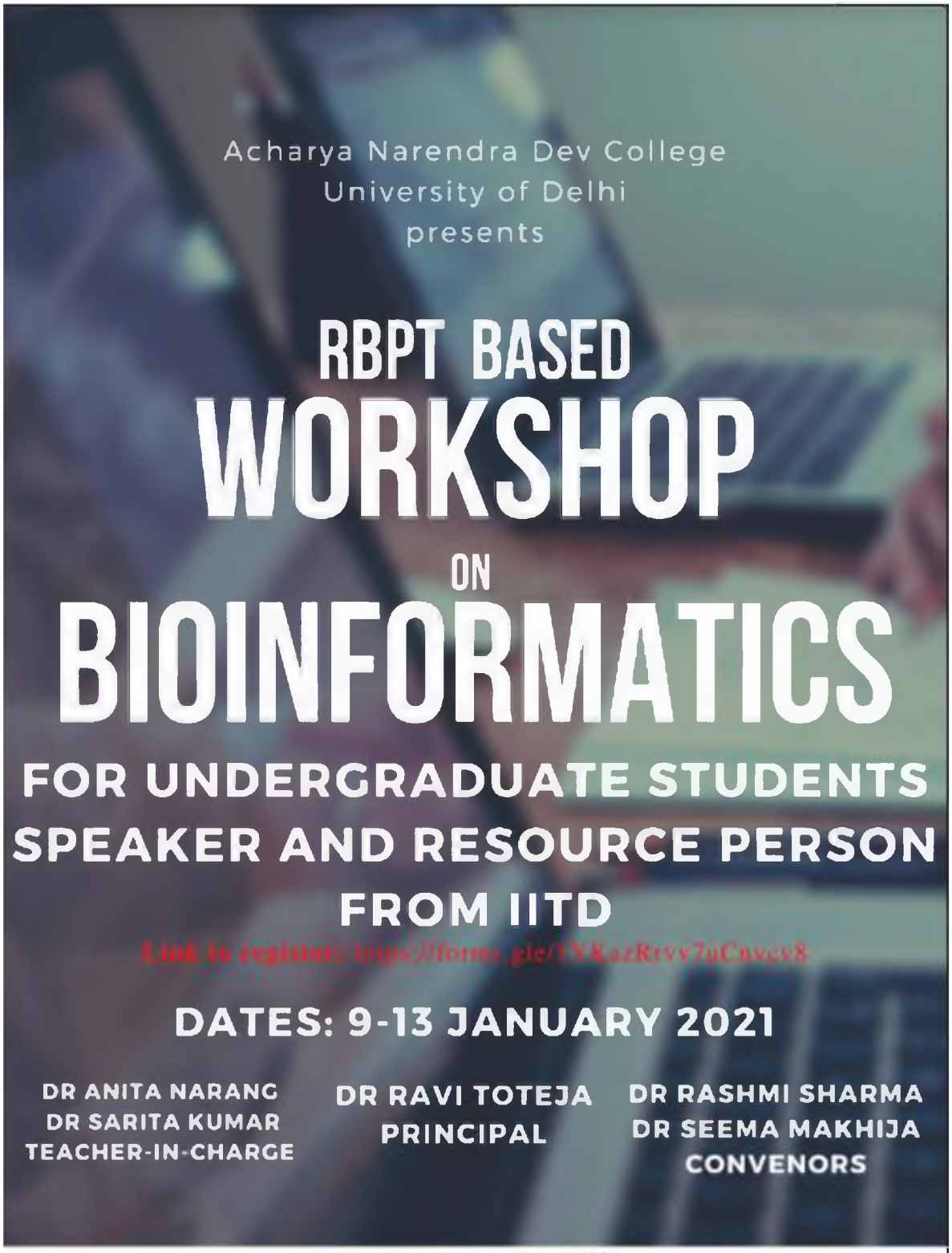
Number of Participants: 86

Resource Persons: Prof Jai Ram (bjayaram@chemistry.iitd.ac.in) and Dr Akhilesh Misra

Report:

Workshop on "Bioinformatics for Undergraduate students" Department of Biomedical Science, Botany and Zoology organised five days long National workshop on 'RBPT based workshop on Bioinformatics' from January 09-13, 2021 on Google meet. The resource persons for the workshop were Prof Jai Ram, Professor, IIIT Delhi and Dr Akhilesh Misra, Research Associate, IIT Delhi. Online workshop for students for understanding databases and learning tools like BLAST, CLUSTAL and knowing how to predict gene in the genome. The topics covered during the workshop were:

1. Introduction to bioinformatics: This included a brief overview of the field and its applications in biology, such as genomics, proteomics, and metabolomics.
2. Data analysis: Bioinformatics is heavily focused on data analysis, so our resource persons have discussed some of the tools and techniques used to analyze biological data, such as sequence alignment, clustering, and machine learning.
3. Databases: Another important aspect of bioinformatics is the use of databases to store and manage biological data. Students were introduced to popular databases in bioinformatics, such as GenBank, UniProt, and the Protein Data Bank.
4. Applications of bioinformatics: There are many applications of bioinformatics in biology, medicine, and biotechnology. Prof. Jai Ram and Dr Akhilesh discussed some of these applications, such as drug discovery, personalized medicine, and synthetic biology.
5. Future directions of bioinformatics were discussed, such as the integration of multiple types of biological data, the development of new tools and techniques for data analysis, and the use of artificial intelligence and machine learning to make sense of biological data.


Acharya Narendra Dev College
University of Delhi
presents
RBPT BASED
WORKSHOP
ON
BIOINFORMATICS
FOR UNDERGRADUATE STUDENTS
SPEAKER AND RESOURCE PERSON
FROM IITD
Link to register: https://forms.gle/1YKazRrvv7uCnxcv8
DATES: 9-13 JANUARY 2021
DR ANITA NARANG
DR SARITA KUMAR
TEACHER-IN-CHARGE
DR RAVI TOTEJA
PRINCIPAL
DR RASHMI SHARMA
DR SEEMA MAKHIJA
CONVENORS

For queries email:
rashmisharma@andc.du.ac.in

Acharya Narendra Dev College
Bioinformatics for Undergraduate students
RBPT based bioinformatics workshop
January 09-13, 2021

S. No	Name	College/Institute	University	Course
1	A D Noni Dui	Shivaji College	University of Delhi	Bsc(hons) Botany
2	Aastha Gupta	Acharyanarendra Dev college	University of Delhi	Biomedical science
3	Aastha Srivastava	Acharya NARENDRA DEV COLLEGE	DELHI UNIVERSITY	BSC. LIFE SCIENCE
4	Adarsh Jha	Acharya Narendra Dev College	University of Delhi	Zoology
5	Aditya Singh	Manav Rachna International Institute of Research and Studies	Manav Rachna International Institute of Research and Studies	B.tech
6	AKANKSHA	Acharya Narendra dev college	Delhi University	Biomedical science
7	AMBIKA CHATURVEDI	DAYALBAGH EDUCATIONAL INSTITUTE	DAYALBAGH EDUCATIONAL INSTITUTE	PhD
8	Anchita Priyadarshini	Ramjas College	Delhi University	B.Sc (hons) Zoology
9	Anirudh Kumar	Acharya Narendra dev college	University of delhi	BSc hons biomedical science
10	Anjali Bhadana	Acharya narendra dev college	Delhi University	Biomedical sciences
11	Ankita Malakar	Acharya Narendra Dev College	Delhi University	Biomedical sciences
12	Ankita Paty	Acharya Narendra Dev College	University of Delhi	BSc(hons) Biomedical Science
13	Anshul Gautam	ACHARYA NARENDRA DEV COLLEGE	University of Delhi	B.sc.Hons.zoology
14	Arnav Bhatt	Acharya Narendra Dev College	University of Delhi	B.Sc Life science

15	Deepali Singh	Acharya Narendra Dev College	Delhi University	B.Sc Botany honors
16	DEEPARATI DATTA	Acharya Narendra Dev College	Delhi University	B. Sc. Hons Biomedical Science
17	Divya Aggarwal	Shivaji College	University of Delhi	B.Sc. (H) Botany
18	Gargi Rajpoot	Gargi college	University of Delhi	BSc Life sciences
19	Hunny Waswani	DAYALBAGH EDUCATIONAL INSTITUTE	DAYALBAGH EDUCATIONAL INSTITUTE	M.Sc PLANT AND MICROBIAL BIOTECHNOLOGY
20	Indu M	Acharya Narendra Dev college	Delhi University	Bsc Hons Biomedic sciences
21	Junaid hassan	Shivaji college	University of delhi	Bsc. (Hons.) Botany
22	Kalyani	ANDC	DU	BMS
23	Madhav Goel	Acharya Narendra Dev College	Acharya Narendra Dev College	B. Sc. Hons. Zoolog
24	Manas Singhal	ANDC	DU	Biomedical sciences
25	Md Badruddin	Acharya Narendra Dev college	University of Delhi	Biomedical science
26	Mehak	Acharya narendra Dev college	Delhi university	Bsc(H) Biomedical Science
27	Mohd Tabish	Acharya Narendra Dev College	Delhi University	Biomedical sciences
28	Mrinalini Prasad	Dayalbagh Educational Institute	Dayalbagh Educational Institute	Research methodology
29	Mukund Nagpure	Acharya Narendra Dev College	University of Delhi	B.Sc.(Hons.) Zoolog
30	Naeem Ahmed	Acharya Narendra Dev College	Delhi University	B. Sc. (Hons.) Zoology
31	Nikhil Sharma	Acharya Narendra Dev College	University of Delhi	Bsc Life sciences
32	Nikita Gupta	Acharya Naren Dev College	Delhi University	Bsc Hons. Biomedic science

33	Parikshit Sahotra	Acharya Narendra Dev College	Delhi university	Bsc. Hons. Zoology
34	Pooja Saraswat	Dayalbagh Educational Institute	Dayalbagh (Deemed University)	PhD
35	Pritika Kwatra	Acharya Narendra Dev College	Delhi University	B. Sc. Hons. Biomedical Science
36	Priyanjana Ghosh	Acharya Narendra Dev College	Delhi University	B.Sc (H) Biomedical Science
37	Pulkit Singh	Acharya Narendra Dev College	University of Delhi	B.Sc. (H) Zoology
38	R Eloni Koren	Acharya Narendra Dev College	University of Delhi	Biomedical Science
39	Ramesh Niraula	Acharya Narendra Dev College	Delhi University	B.Sc(Hons)Biomedical Science
40	Ravi Yadav	acharya narendra dev college	university of delhi	PhD
41	Rinyarin Keishing	Acharya Narendra Dev College	University of Delhi	BSc(H) (cbcs) Zoology
42	Riya Sargiari	Acharya Narendra Dev College	University of Delhi	Biomedical science
43	Rohit	ACHARYA NARENDRA DEV COLLEGE	University of Delhi	B.Sc (Hon) Botany
45	RUDDHI SUNDAR JENA	DESHBANDHU COLLEGE	UNIVERSITY OF DELHI	B.SC. LIFE SCIENCES
46	Sakshi Sharma	Acharya Narendra Dev College	Delhi University	BSc(H) Biomedical Sciences
47	Sandeep	ANDC	DU	Ph.d Zoology
48	Sarah Parwez	Acharya Narendra Dev College	Delhi University	Bsc. Hons Zoology
49	SHRISHTI SINGH	ACHARYA NARENDRA DEV COLLEGE	UNIVERSITY OF DELHI	BIOMEDICAL SCIENCES
50	Shruti Prakash	Archarya Naredra Dev	Delhi University	Life Science
51	Sonam Angmo	Acharya Narendra dev college	Delhi University	B.Sc(honors)Biomedical Science

52	Soni Gupta	Acharya Narendra Dev College	Delhi University	Bsc Zoology honours
53	Sugyan Preet	Hans Raj	University of Delhi	B. Sc. Botonny (Honors)
54	Sunidhi Aneja	Acharya Narendra Dev College	University of Delhi	B.sc.(H) Zoology
55	Suravi Bhaya	Acharya Narendra Dev College	Delhi University	BSc Hons in Biomedical science
56	Swati Maurya	Acharya Narendra Dev College	University of Delhi	Ph.D
57	T K Rini	Acharya Narendra Dev College	University of Delhi	BSc(Hons.) Biomedical Sciences
58	Tanya Adlakha	Shivaji College	University of Delhi	B.Sc. (Hons.) Botany
59	Tanya Arora	Dyal Singh college	University of Delhi	BSc Botany (H)
60	Tejaswini C	Acharya Narendra Dev College	Delhi University	B.Sc(Hons)Biomedical Science
61	Thabsheer Vp	Ramjas College	University of Delhi	BSc(Hons.) Zoology
62	Than Dar Aung	Acharya Narendra Dev College	Delhi University	B.Sc.(H) Biomedical Sciences
63	Tripti	Acharya narendra dev college	University of delhi	Bio medical science
64	Tulika Sharma	St. Xavier's College, Mumbai	University of Mumbai	Life Science and Biochemistry
65	Varinder Madhav Verma	Bhaskaracharya College of Applied Sciences	University of Delhi	B.Sc. Honours Zoology
66	Vatsal Bhargava	Acharya Narendra Dev College	Delhi University	B.S.c (Hons) Zoolo
67	Yash goel	ANDC	Delhi university	Biomedical science
68	Sandeep Antil	ACHARYA NARENDRA DEV COLLEGE	Delhi university	PhD
69	Mr. Dhananjay Ghanashyam Madavi	ACHARYA NARENDRA DEV COLLEGE	Delhi university	PhD

70	Adrija Mohanta	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology
71	Swati Maurya	ACHARYA NARENDRA DEV COLLEGE	Delhi university	PhD
72	Vishesh rao	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Life sciences)
73	Vaishali VAIDYA	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Life sciences)
74	Arunima Dey	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Life sciences)
75	Shruti Prakash	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Life sciences)
76	ayush shukla	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Life sciences)
77	Ritu	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Botany
78	NIKHIL kumar	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Botany
79	Rishabh Sharma	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. Clinical Research
80	R. LALENGKIMI	ACHARYA NARENDRA DEV COLLEGE	Delhi university	M.Sc. (Biotechnology)
81	Ujjwal Kumar Gupta	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology
82	Bakul Dalal	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology
83	Swati Maheshwari	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology
84	Gunjan	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology
85	Praveen Shyam	ACHARYA NARENDRA DEV COLLEGE	Delhi university	PhD
86	Dr Varsha Shamrao Dhoran	ACHARYA NARENDRA DEV COLLEGE	Delhi university	B.Sc. (Hons.) Zoology

Title: Evolution as Darwin knew as a child

Organizing team: Dr Sarita Kumar Dr Monica Misra Dr Seema Makhija Mr Ravinder K. Sagar Dr Aparna Sharma Dr Sweety Shrimali Dr Rahul Dev Dr Neelgagan Singh Mr Sanjay Kumar Mr Vineet Girdharwal Dr Shrankhla (Department of Zoology)

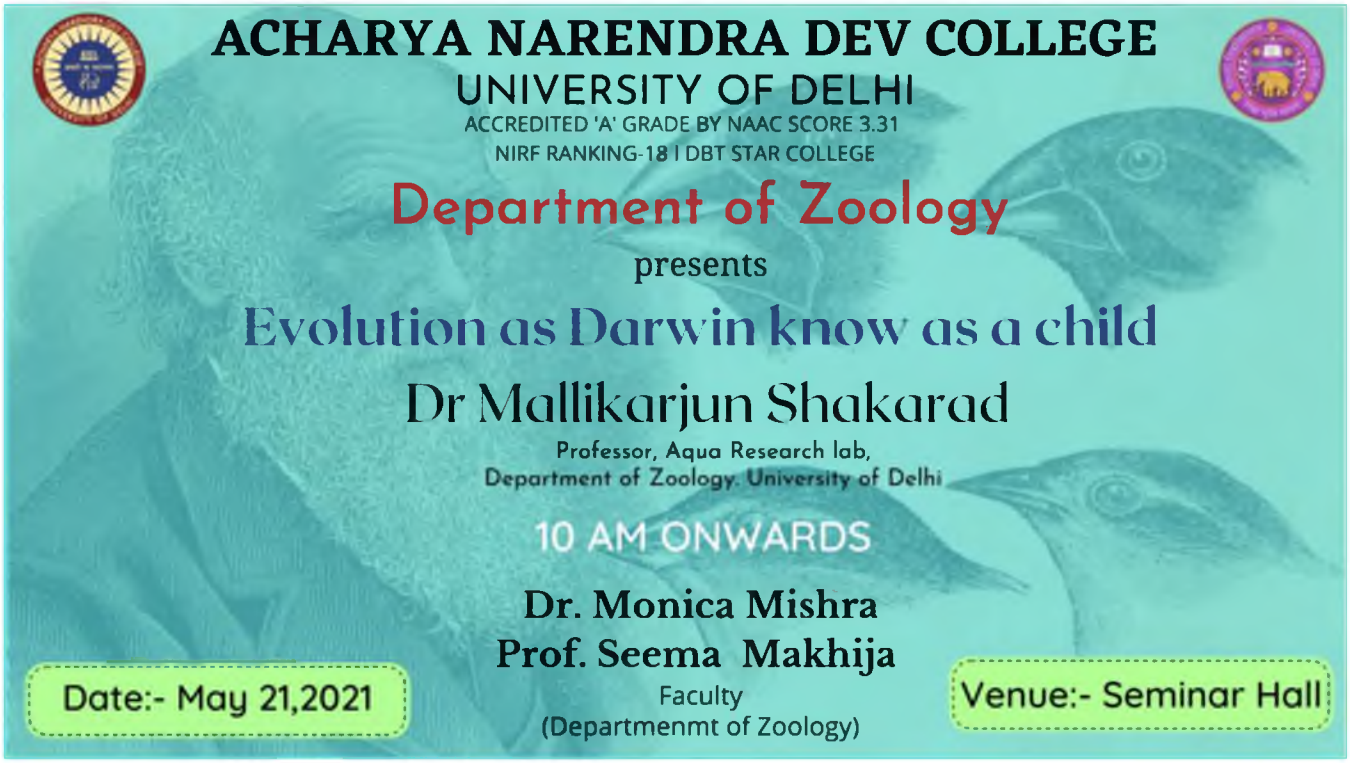
Date: May 22, 2021

Number of Participants:

Resource Person: Prof Mallikarjun Shakarad (8376999076)

Report:

Prof Mallikarjun Shakarad who is a Professor in Aqua Research lab, Department of Zoology. University of Delhi enlighted us on the interesting topic Evolution as Darwin knew as a child. He began his talk with an introduction to Charles Darwin who was a British naturalist. Darwin's theory of evolution was met with controversy and skepticism in his time, as it challenged the prevailing belief in a fixed and unchanging natural order. However, his work has had a profound impact on our understanding of biology and the natural world, and his ideas continue to be a subject of study and debate to this day. Interesting lecture ended with a vote of thanks to the speaker.


ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
ACCREDITED 'A' GRADE BY NAAC SCORE 3.31
NIRF RANKING-18 I DBT STAR COLLEGE
Department of Zoology
presents
Evolution as Darwin know as a child
Dr Mallikarjun Shakarad
Professor, Aqua Research lab,
Department of Zoology. University of Delhi
10 AM ONWARDS
Dr. Monica Mishra
Prof. Seema Makhija
Faculty
(Departmenmt of Zoology)
Date:- May 21,2021
Venue:- Seminar Hall

Acharya Narendra Dev College

Evolution as Darwin knew as a child, May 22, 2021

1	BSc (Hon.) Zoology	AB-1064	AASHIFA URF SANIA KHAN
2	BSc (Hon.) Zoology	AB-1002	ADITYA SINGH
3	BSc (Hon.) Zoology	AB-1045	RONAK VERMA
4	BSc (Hon.) Zoology	AB-1035	SAHIL KAUSHIK
5	BSc (Hon.) Zoology	AB-1046	SAMIKSHA MEHTA
6	BSc (Hon.) Zoology	AB-1045	RONAK VERMA
7	BSc (Hon.) Zoology	AB-1028	PRIYA YADAV
8	BSc (Hon.) Zoology	AB-1043	YOGESH RAWAT
9	BSc (Hon.) Zoology	AB-1008	AVANIJA TYAGI
10	BSc (Hon.) Zoology	AB-1009	BAKUL DALAL
11	BSc (Hon.) Zoology	AB-1062	DONYI PADU
12	BSc (Hon.) Zoology	AB-1013	GUNJAN GROVER
13	BSc (Hon.) Zoology	AB-1014	HAFIZA
14	BSc (Hon.) Zoology	AB-1056	HARSHDEV SAHU
15	BSc (Hon.) Zoology	AB-1064	AASHIFA URF SANIA KHAN
16	BSc (Hon.) Zoology	AB-1002	ADITYA SINGH
17	BSc (Hon.) Zoology	AB-1045	RONAK VERMA

18	BSc (Hon.) Zoology	AB-1035	SAHIL KAUSHIK
19	BSc (Hon.) Zoology	AB-1046	SAMIKSHA MEHTA
20	BSc (Hon.) Zoology	AC-1044	ALKA RAJU
21	BSc (Hon.) Zoology	AC-1056	ALOK RANJAN
22	BSc (Hon.) Zoology	AC-1004	Anaam Asif Moin
23	BSc (Hon.) Zoology	AC-1010	Charu
24	BSc (Hon.) Zoology	AC-1012	Divya Yadav
25	BSc (Hon.) Zoology	AC-1013	Guru Prakash Pandey
26	BSc (Hon.) Zoology	AC-1014	HIMANSHU
27	BSc (Hon.) Zoology	AC-1028	**PRIYANKA**
28	BSc (Hon.) Zoology	AC-1029	Rajkumar Jain
29	BSc (Hon.) Zoology	AC-1031	RAKHI YADAV
30	BSc (Hon.) Zoology	AC-1052	Raushan Kumar
31	BSc (Hon.) Zoology	AC-1053	Twishi Mishra
32	BSc (Hon.) Zoology	AC-1014	HIMANSHU
33	BSc (Hon.) Zoology	AC-1028	**PRIYANKA**
34	BSc (Hon.) Zoology	AC-1029	Rajkumar Jain
35	BSc (Hon.) Zoology	AC-1031	RAKHI YADAV

36	BSc (Hon.) Zoology	AC-1052	Raushan Kumar
37	BSc (Hon.) Zoology	AC-1053	Twishi Mishra
38	BSc (Hon.) Zoology	AC-1004	Anaam Asif Moin
39	BSc (Hon.) Zoology	AC-1005	ANAND
40	BSc (Hon.) Zoology	Z-1050	BHAVESH KUMAR
41	BSc (Hon.) Zoology	Z-1010	BHUMIKA
42	BSc (Hon.) Zoology	Z-1044	DAS TRIPTA
43	BSc (Hon.) Zoology	Z-1016	KUSHAGRA SATI
45	BSc (Hon.) Zoology	Z-1042	LAIRIKYENGBAM ELIZA DEVI
46	BSc (Hon.) Zoology	Z-1052	MADHAV GOEL
47	BSc (Hon.) Zoology	Z-1017	MUKUND NAGPURE
48	BSc (Hon.) Zoology	Z-1022	PARIKSHIT SAHOTRA
49	BSc (Hon.) Zoology	Z-1049	PRIYA CHAUDHARY
50	BSc (Hon.) Zoology	Z-1024	RINYARIN KEISHING
51	BSc (Hon.) Zoology	Z-1025	RUPAM KUMARI
52	BSc (Hon.) Zoology	Z-1034	SUNIDHI ANEJA
53	BSc (Hon.) Zoology	Z-1036	VANDANA GAUTAM
54	BSc (Hon.) Zoology	Z-1037	VATSAL BHARGAVA

55	BSc (Hon.) Zoology	Z-1048	VIDUSHI SAXENA
56	BSc (Hon.) Zoology	Z-1050	BHAVESH KUMAR

Title: Career in Indian Forest Service: A session with IFS officers

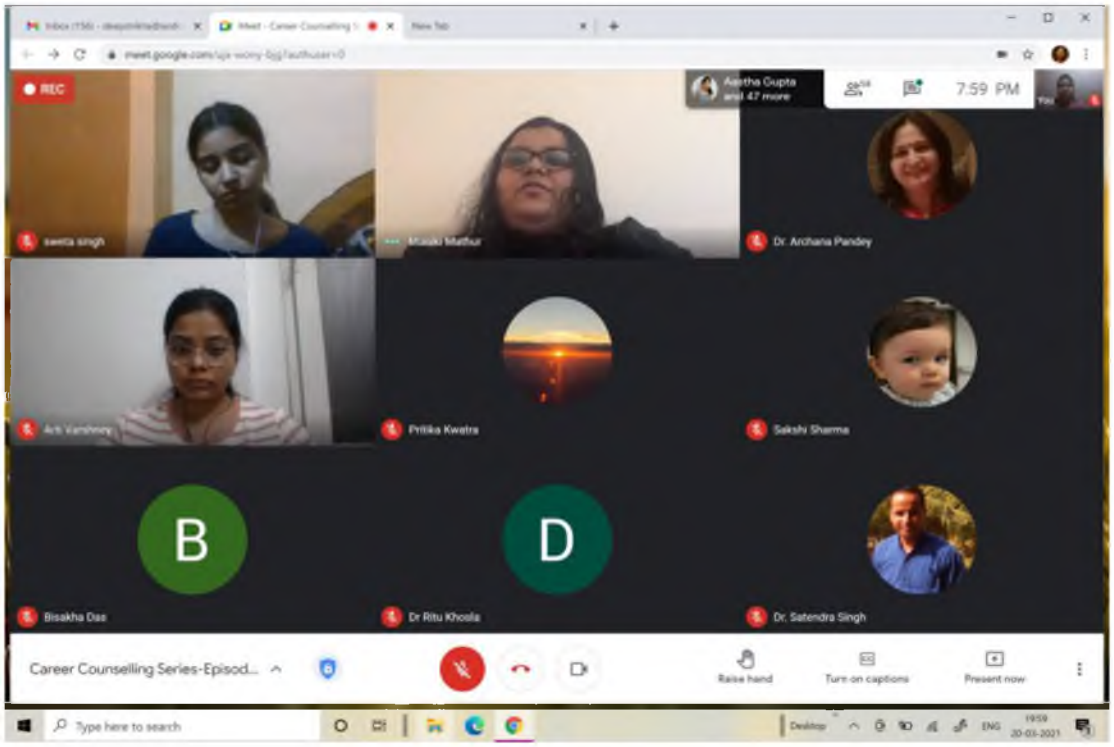
Organizing committee: Dr ArchnaPandey Dr Satendra Singh Dr Rimpy Kaur Chowhan DrRituKhosla Dr Deepshikha (Department of Biomedical Sciences) DrRashmi Sharma DrManoj Kumar Singh DrSumitSahni DrVineet Kumar Singh (Department of Botany) Prof. SeemaMakhija DrNeelgagan Singh Dr Rahul Dev Mr Sanjay Kumar (Department of Zoology)

Date: April 18, 2021

Number of Participants: 67

Resource Persons: Prof. Sandeep Tambe (9474059791), Banumathi G ( ) and Jrishna Devan ( )

Career in Indian Forest Service: A session with IFS officers': Department of Biomedical Science, Botany, Mathematics and Zoology of Acharya Narendra Dev College (ANDC), University of Delhi under the patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized the the fourth webinar of the ANDC career counselling series entitled "Career in Indian Forest Service: A session with IFS officers " on 18thApril 2021 on Google meet from 7-9 pm. The distinguished guests invited for the talk were IFS officers, Prof. Sandeep Tambe from IIFM, Bhopal; S. Elamurugannan, Deputy Director, Forest Survey of India, South Zone and Banupathi G., Deputy secretary, DBT India and ANDC alumni at IFS, Karthikeyani (2018 Batch) and Jrishna Devan (2018 Batch). All of them introduced the current students to the enticing and challenging field of Forest services and make them explore the plethora of career opportunities available in the field.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Aastha Gupta and 47 more
7:59 PM
Dr. Archana Pandey
Pritika Kwatra
Sakshi Sharma
B
D
Bisakha Das
Dr Ritu Khosla
Dr. Satendra Singh
Career Counselling Series-Episod...
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ACHARYA NARENDRA DEV COLLEGE

University of Delhi

Star College Status by DBT | NIRF All India Ranking 2020- 18

ANDC CAREER COUNSELLING SERIES

Under the aegis of DBT STAR COLLEGE SCHEME

CAREER IN INDIAN FOREST SERVICES: A SESSION WITH IFS OFFICERS

APRIL 18, 2021 | 07:00 p.m. to 09:00 p.m.

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SANDEEP TAMBE
PROFESSOR
IIFM, BHOPAL

S. ELAMURUGANNAN
DEPUTY DIRECTOR
FOREST SURVEY OF INDIA
SOUTHERN ZONE

BANUMATHI G.
DEPUTY SECRETARY
DBT, INDIA

KARTHIKEYANI
IFS, 2018 BATCH

KRISHNA DEVAN
IFS, 2018 BATCH

PATRON
DR RAVI TOTEJA
OFFICATING PRINCIPAL

CONVENORS
DR ARCHNA PANDEY
DEPARTMENT OF BIOMEDICAL SCIENCE

DR RASHMI SHARMA
DEPARTMENT OF BOTANY

DR SEEMA MAKHIJA
DEPARTMENT OF ZOOLOGY

ORGANIZING COMMITTEE

DEPARTMENT OF BIOMEDICAL SCIENCE
Dr. Satendra Singh
Dr. Rimpy K Chowhan
Dr. Ritu Khosla
Dr. Deepshikha

DEPARTMENT OF BOTANY
Dr. Manoj Kr Singh
Dr. Sumit Sahni
Dr. Vineet Kr Singh

DEPARTMENT OF ZOOLOGY
Dr. Neelgagan Singh
Dr. Rahul Dev
Mr. Sanjay Kuma

ACHARYA NARENDRA DEV COLLEGE

ANDC career counselling series Career in Indian Forest Service:

A session with IFS officers April 18, 2021

Sr No	Name	Name of college	Name of the University	Course
1	Arunima Dey	Acharya Narendra Dev College	Delhi University	Bsc life science
2	Neha	Acharya Narendra Dev College	Delhi University	B.Sc (Hons) Botany
3	Gaurav rawat	Acharya narendra dev college	University of delhi	Bsc honours botany
4	Hitesh Kala	Acharya Narendra Dev College	University of Delhi	Bsc Hons. Botany
5	SAYANTAN CHATTERJEE	Acharya Narendra Dev College	Delhi University	BSc. Life Science
6	Manish Soni	Acharya Narendra Dev College	University of Delhi	B.Sc(H) Botany
7	Abhijeet Kumar	Acharya Narendra Dev college	Delhi university	B.sc.(life sciences)
8	Shruti	Acharya Narendra Dev college	University of Delhi	B.Sc. (prog.) Life Science
9	Nikhil Kumar	Acharya Narendra Dev College	University of Delhi	B.Sc. Life sciences
10	Tanushree	Acharya Narendra Dev College	Delhi University	B.Sc Hons Chemistry
11	Kalpana sharma	Acharya narendra dev college	Delhi University	Bcom hons.
12	Deeparati Datta	Acharya Narendra Dev College	Delhi University	B. Sc. Hons. Biomedical Science
13	Harinandana B	Acharya Narendra Dev College	Delhi University	Bsc Biomedical Science
14	DIWAKAR MAHATO	Acharya Narendra Dev college	Delhi University	Bsc. Honours Electronics
15	Eniya Tapo	Acharya Narendra Dev College	Delhi University	B.Sc. Life Sciences
16	Vridhi Singh	Acharya narendra dev college	Delhi university	Botany Hons.
17	Himanshu Kosta	Acharya Narendra Dev college	University of Delhi	Bsc chemistry (hons.)
18	Bisakha Das	Acharya Narendra Dev college	Delhi university	BMS
19	Sparsh Chauhan	Acharya Narendre Dev College	University of Delhi	Bsc.(HONS.)Mathematics
20	Ishank	ANDC	DU	Botany
21	Pooja Kumari	ANDC	DU	Botany Hons.
22	Prateek Kumar Raut	At.Xaviers	Mumbai University	BSc
23	Parth kumar	BCAS DU	Delhi University	BSc botany honours

S Mary.
राखी शर्मा

24	MADHUMITHA.A	BHARATHIAR UNIVERSITY	BHARATHIAR UNIVERSITY	Zoology
25	V. KAVIYA	Bharathiar University, Coimbatore.	Bharathiar University, Coimbatore.	Msc - Zoology
26	Sneha dandriyal	Bhaskaracharya college of applied sciences	Delhi University	Bsc. Hons. Botany
27	Alka Raj	Bhaskaracharya college of applied sciences	Delhi University	B.Sc(Hons.)Botany
28	Shiney Peter	Bhaskaracharya college of applied sciences	Delhi University	BSc Hons Botany
29	Ankita Chaudhary	Bhaskaracharya College Of Applied Sciences	Delhi University	B.Sc(hons) .Botany
30	Madhur	Bhaskaracharya college of applied sciences	Delhi university	Bsc(H) botany
31	Taslima Rahi	Bhaskaracharya College of Applied Sciences	Delhi University	Botany
32	Chanika Mandal	Bhaskaracharya College of Applied Sciences,	Delhi University	Bsc. Botany (hons.)
33	Chetna	Bhaskhracharya college of applied science	University of Delhi	Botany
34	Abhijit Nayek	Central University of Punjab	Central University of Punjab	M.Sc Biochemistry
35	Harini P	CHRIST (Deemed to be University)	CHRIST (Deemed to be University)	M.Sc Zoology
36	Mrunali Devidas Nagpure	D. R. B SINDHU MAHAVIDYALAYA NAGPUR	RTMNU	Bsc-pcm
37	Sandeep Nitnaware	D. R. B. Sindhu Mahavidyalay Nagpur	Ratrasant Tukdoji Maharaj Nagpur University, Nagpur	BSc (Physics, Electronic, Mathematics)
38	Prajwal Raut	D.R.B Sindhu Collage ...	RTMNU	MSCIT , NCC
39	Anita Ravindra Bobade	D.R.B Sindhu Mahavidalaya	Rtm	RTM Nagpur University
40	Arpita Ajay Khandekar	D.R.B Sindhu Mahavidyalaya	RTM Nagpur University	B.Sc PCM
41	Roshan Peter Nagarale	D.R.B Sindhu Mahavidyalaya	Rashtrasant Tukdoji Maharaj Nagpur University (RTMNU)	Bsc V-sem (PCM) Final year
42	Payal Moreshwar Shambharkar	D.R.B. Sindhu Collage	Rtmnu University	Bsc. Sem 6 (PCM).
43	Chetan Dewangan	D.R.B.Sindhu Mahavidyalaya	R.T.M.Nagpur University	B.sc (CBZ)
45	Shreyash pundkar	Dada Ramchand Bakhru Sindhu Mahavidyalaya	Nagpur	Bsc.computer science

46	Aarushi Goel	Daulat Ram College	University of Delhi	B.Sc. (H) Botany
47	Sonal Nimbriya	Daulat Ram College	University of Delhi	B.Sc (H)Botany
48	Rashmi Kaushal	Daulat Ram College	Delhi University	B.Sc (H) Botany
49	Kajal Thakur	Daulat Ram College	University of Delhi	Botany Hons
50	Bharti Yadav	Daulat Ram college	Delhi university	BSc botany Hons.
51	Nancy	Daulat Ram College	Delhi University	B.Sc .(H)) Botany
52	Komal Yadav	Daulat Ram College	University of Delhi	B.sc (h) Zoology
53	Rubeena bano	Daulat ram college	Delhi University	BSc Botany hons
54	Shiwani	Daulatram college	Dellhi University	Botany Hons.
55	MAYANK SINGH	Dayal Singh college	Delhi University	Bsc Life sciences
56	Deepak Prajapat	Deen Dayal Upadhyay College	Delhi University	Botnay(H.)
57	Shallu	Deen Dayal Upadhyaya College	Delhi University	B.Sc. (Hons.) Zoology
58	SAUMYA	Deshbandhu college	Delhi university	Zoology honours
59	Salman Khan	Deshbandhu College	University of Delhi	B.Sc.(Hons) Botany
60	Shiv pratap singh	Deshbandhu college	Delhi university	Bsc(Hons)Botany
61	Nandini	Deshbandhu college	University of delhi	Botany hons
62	Ruchi Gupta	Deshbandhu College	Delhi University	B.Sc.Botany (H)
63	Prasenjit Kar	Deshbandhu College	University of Delhi	Bsc Hons Botany
64	Tushar Kangwal	Deshbandhu College	Delhi University	Bsc BOTANY
65	Jyotsna	Deshbandhu College	Delhi University	B.Sc. Life Science
66	Shagun	Deshbandhu college	Delhi University	Bsc life sciences
67	Shrishti soni	Deshbandhu college	Delhi university	Bsc. Life science

Title: Career counselling series: Career in Forensic Science: An Interaction with Seniors

Organizing team: Dr Archna Pandey Dr Satendra Singh Dr Rimpy Kaur Chowhan Dr Ritu Khosla Dr Deepshikha (Department of Biomedical Sciences) Dr Rashmi Sharma Dr Manoj Kumar Singh,

Dr SumitSahni Dr Vineet Kumar Singh (Department of Botany) Prof. SeemaMakhija Dr Neelgagan Singh Dr Rahul Dev Mr Sanjay Kumar (Department of Zoology)

Date: March 20, 2021

Number of Participants: 49

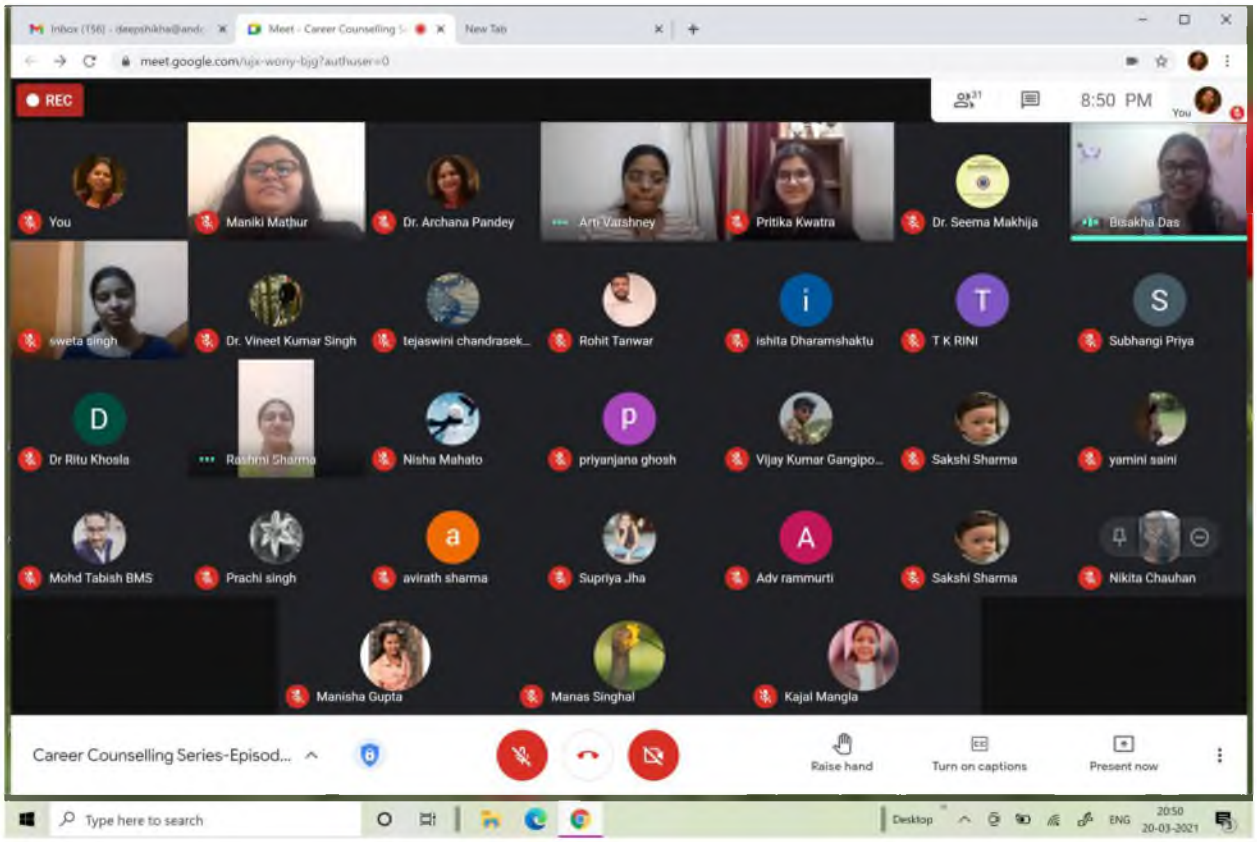
Resource Persons: Ms. Sweta(965442186), Ms. Maniki Mathur, Ms. Arti Varshney

Report:

Under the Aegis of DBT-STAR College Scheme, the third webinar of the ANDC career counselling series entitled "Career in Forensic Science" was successfully organized by the Department of Biomedical Science, Department of Botany and Department of Zoology of Acharya Narendra Dev College (ANDC). The event was held on google meet on 20th March 2021 (https://meet.google.com/ujx-wony-big, IST 19:30 to 21:00 hours). The underlying theme was to introduce the current students to the enticing and challenging field of forensic science and make them explore the plethora of career opportunities available in the field.

The first speaker for the day, Ms. Sweta shared a glimpse of her journey from a bachelor's in biomedical science from ANDC to pursuing a master's in forensic science with specialization in Forensic Chemistry and Toxicology from LNJN National Institute of Criminology and Forensic Science, MHA, Govt. of India. She explained the prerequisites for entrance process for NICF, covering the syllabus in detail and introduced the participants to different specialization fields and the most sought-after career options for forensic science. The second talk was by Ms. Maniki Mathur, an alumnus of Daulat Ram College, University of Delhi. She completed her M.Sc. in Forensic Molecular Biology from George Washington University, USA and is currently working as DNA technologist at Bode Technology Group Inc., USA. She explained the application process for foreign universities, citing her experience as an example. She also focused on the importance of internships while exploring job opportunities in the field and shared the details of her work profile to help the students understand what it means to be a forensic scientist. The final speaker, Ms. Arti Varshney went on for a master's in forensic science from Sam Higginbottom University of Agriculture, Technology and Sciences, India after completing a PG Diploma in Forensic Science from SGTB Khalsa College, University of Delhi. She got employed at Sherlock Institute of Forensic

Science, India through a training-cum-placement program and is currently working as a content developer and educational trainer. She told about the various professional fields available at SIFS and emphasized on the hard work the field demands.



ACHARYA NARENDRA DEV COLLEGE

University of Delhi

(All India NIRF 2020 Ranking-18, NAAC Score-3.31)

Under the Aegis of DBT-STAR College Scheme

Presents

ANDC Career Counselling Series
"Career in Forensic Science"

by

Sweta

M.Sc. Forensic Science (specialization in Forensic Chemistry and Toxicology), LNJN National Institute of Criminology and Forensic Science (MHA, Govt. of India)

Maniki Mathur

DNA Technologist, Bode Technology Group Inc

M.Sc. Forensic Molecular Biology, George Washington University, USA

Arti Varshney

Scientific Officer, Sherlock Institute of Forensic Science, India

M.Sc. Forensic Science, Sam Higginbottom University of Agriculture, Technology and Sciences, India

Post Graduate Diploma in Forensic Science, SGTB Khalsa College, University of Delhi, India

Date: March 20, 2021; Time: 07:30 pm to 09:00 pm

On Google Meet (https://meet.google.com/ujx-wony-bjg)

Patron

Dr. Ravi Toteja
Officiating Principal

Convenor

Dr. Archna Pandey
Department of Biomedical Science

Dr. Rashmi Sharma
Department of Botany

Dr. Seema Makhija
Department of Zoology

Organizing Committee

Dr. Satendra Singh, Dr. Rimpy K Chowhan, Dr. Ritu Khosla, Dr. Deepshikha (Department of Biomedical Science)
Dr. Manoj Kumar Singh, Dr. Sumit Sahni, Dr. Vineet Kumar Singh (Department of Botany)
Dr. Neelgagan Singh, Dr. Rahul Dev, Mr. Sanjay Kumar (Department of Zoology)

Student Coordinator

Pritika Kwatra, Bisakha Das, Sakshi Sharma
(Department of Biomedical Science)

ACHARYA NARENDRA DEV COLLEGE

ANDC career counselling series March 20, 2021

Career in Forensic Science: an interaction with seniors

Sr No	Name	Name of college	Name of the University	Course
1	Tanya Saxena	Deshbandhu College	Delhi University	B.Sc. (Hons.) Botany
2	Suraj Sharma	Deshbandhu College	Delhi University	Bsc (H) Botany
3	Humera Mirza	Deshbandhu college	Delhi university	B.sc hons. Botany
4	Harsh Sharma	Deshbandhu College	Delhi University	Bsc life science
5	Ansh	Deshbandhu College Day(019)	(University of Delhi)	Bsc.(Prog).Life Sciences
6	Manas Shukla	Doon Business School	Sri Dev Suman University	B. Sc. Forestry
7	Monibhadra Roy	Doon Business School	Sree Dev Suman	B. Sc (Forestry)
8	Mukul Sudhakar	Doon Business School	Sri Dev Suman University	Bsc. Forestry
9	Piyush Kumar	Doon Business School	See Dev Suman	B. Sc forestry
10	Bhumika chauhan	drb sindhu mahavidyalaya	RTMNU	BSc
11	Ankita Tembhurne	DRB Sindhu Mahavidyalaya Nagpur	Rtmnu nagpur University	Bsc
12	Harsha Awasthi	Dyal Singh College	Delhi University	B.sc. Life science
13	Yash Bhardwaj	Dyal Singh College	Delhi university	Botany hons.
14	Ria	Dyal Singh College	University of Delhi	B.Sc. Botany hons.
15	Adarsh Mishra	Dyal Singh College	University of Delhi	BSc. Life Science
16	Shivanshu Tyagi	Dyal Singh College (M)	University of Delhi	B.Sc. Life Science
17	Utpal dewangan	Government Nagarjuna P. G. science college Raipur	Pt. Ravishankar shukla Raipur	Bsc. Plane (pcm)
18	Poornima Taram	Government Nagarjuna Post Graduate College of	Pandit Ravishankar Shukla University Raipur Chhattisgarh	M.sc 1sem(Botany)

		Science Raipur (C.G)		
19	Prakriti namdeo	Government Nagarjuna Post graduate College Raipur	Pt. Ravishankar Shukla University	MSc physics
20	SIMRAN KHANDE	Govt Nagarjuna post graduate college raipur	Pt. Ravishankar Shukla University Raipur	MSc physics
21	Sarvesh Kaushik Patel	Govt. N. P. G. College Of Science, Raipur, CG	Pt. Ravishankar Shukla University, Raipur, CG	Ph.D.
22	Sushma paul	Govt. Nagarjuna college of science Raipur	Pandit ravi shanker university	Nothing
23	Urvashi Lodhi	Govt.Nagarjun PG college of Science Raipur	PtRSU	M.Sc. Botany
24	MAMTA MANIKPURI	govt.science college raipur	Govt.N.P.G.college of science, raipur chattisgarh	M.sc.botany
25	Garima	Kalindi college	Delhi University	BSc.(H) Botany
26	Himadri Mandal	Kalindi College	University of Delhi	BSc.(H) Botany
27	Km Sonal	Kalindi college	University of Delhi	B.Sc (hons.) Botany
28	Divinia Juanita.D	Madras Christian College	University of Madras	M.Sc.Zoology
29	Rhythem Kaushal	Madras University	Madras University	Msc.Biomedical Genetics
30	Vaishnavi	Maiteryi College	Delhi University	B.Sc. (Hons.) Botany
31	Diksha Bodwal	Maitreyi College	Delhi University	Botany hons
32	Savina	Maitreyi college	Delhi University	Bsc hons botany
33	Priya Boora	Maitreyi College	University of Delhi	B.Sc (H) Botany
34	Kriti Upadhyay	Nagarjun post-graduate college of science	Ravishankar shukla university	Msc. Botany
35	Rajlaxmi Diwakar	Nagarjuna post gradute college of science	Pandit ravishankar shukl	Msc physics
36	DEVASENATHIPATHI M	PSG COLLEGE OF ART'S and SCIENCE	Bharathiar University	BSc Botany

37	Kavi ilakkiya	PSG college of arts and science	Bharathiyar	B.sc zoology
38	Manjusha S	PSG College of Arts and Science	Bharathiyar University	Bsc Botany
39	Mahalakshmi M	Psg college of arts and science	Bharathiar university	B.sc botany
40	Madhu Samyuktha	PSG college of arts and science	Bharathiyar	Botany
41	Madeshwaran.S	PSG college of arts and science	Bharathiyar university	Botany
42	R.SATHYAPRABHA	PSG College of Arts and Science	Bharathiyar university	BSC.ZOOLOGY
43	Sanjay selvan.A	Psg college of arts and science coimbatore	Bhartiyar university	Bsc botany
45	Sri vignesh.T.S	PSG college of arts and sciences	Bharathiyar University	B.sc,zoology
46	Priyanka Chakradhari	Pt Ravishankar Shukla University	Pt Ravishankar Shukla University	Research scholar
47	sahib singh	Ramjas college	delhi university	B.sc botany(H)
48	Shivani kumari	Ramjas college	Delhi university	Botany hons
49	Amal Thomas	Sacred Heart College	MG university	Bsc Physics

Title:

Career counselling series: Studying in Europe: Interaction with seniors:

Organizing team: Dr ArchnaPandey Dr Satendra Singh Dr Rimpy Kaur Chowhan Dr RituKhosla DrDeepshikha (Department of Biomedical Sciences) Dr Rashmi Sharma Dr Manoj Kumar Singh, Dr Sumit Sahni, Dr Vineet Kumar Singh (Department of Botany) Prof. Seema Makhija, Dr Neelgagan Singh, Dr Rahul Dev, Mr Sanjay Kumar (Department of Zoology)

Date: March 14, 2021

Number of Participants: 97

Resource Persons: Ms. Aparna Shandheep(8447783757), Ms. Srishti Vajpayee (+393284464970), Mr. Rahul Saha (9818274651), Mr.Madan Khatiwada(956052637)

Report:

Department of Biomedical Science, Botany and Zoology of Acharya Narendra Dev College, University of Delhi under the patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized the second session of ANDC career counselling series titled "Studying in Europe - Interaction with Seniors" under the aegis of DBT-STAR College Scheme on 14thMarch 2021 on google meet. The organizing team comprised of the convenors - Dr. Archana Pandey (Department of Biomedical Science), Dr. Rashmi Sharma (Department of Botany) and Dr. Seema Makhija (Department of Zoology); organizing committee - Dr. Satendra Singh, Dr. Rimpy Kaur Chowhan, Dr. Ritu Khosla, Dr. Deepshikha, Dr. Manoj Kumar Singh, Dr. Sumit Sahni, Dr. Vineet Kumar Singh, Dr. Neelgagan Singh, Dr. Rahul Dev and Mr. Sanjay Kumar; and student coordinator, Sudeepta Singh.

The information about the webinar was disseminated on various official social medial channels of the college including instagram, facebook, twitter and college website, and the webinar was released on the YouTube channel of the college at https://www.youtube.com/watch?v=CNEPf7bHqmQ. The session intended to provide an insight to the opportunities available to the students to study post-graduate courses abroad, particularly in Europe through a group of five panellists- Ms. Aparna Shandheep, Ms. Srishti Vajpayee, Mr. Rahul Saha, Mr. Shazeb Ahmad and Mr. Madan Khatiwada. All the panellist are college alumni who

went to pursue higher studies in the field of science and are currently employed as research scholars or pursuing their PhD.

The first speaker, Ms. Aparna Shandheep did PG Diploma in Forensic Science from University of Delhi, then moved on to pursue Masters in Biomedical sciences- Infectious and tropical diseases in Belgium. Her talk was followed by Ms. Srishti Vajpayee who did her M.Sc. in Biomedical Science with specialisation in molecular life sciences from Radboud University, Netherlands and has presently secured a Ph.D. position at University of Heidelberg, Germany and Cyanagen Srl, Italy under European Union's Marie Skłodowska-Curie fellowship. Next we had, Mr. Rahul Saha who is an Integrated PhD student at International Max Planck research school for Molecular biology, Germany. Mr. Shazeb Ahmad, PhD student at GARV laboratory at Helmholtz Institut for RNA based Infection Research (HIRI) spoke next about his experiences and struggles. The last speaker was Mr. Madan Khatiwada. He did Masters in Leading International Vaccinology Education as Erasmus Mundus program and is currently working as a researcher at University of Antwerp, Belgium on vaccines and Immunization. All panellists shared their journey from the time of their under-graduation in Biomedical Sciences to the present day and discussed the plethora of options available for the students to apply to.

They shared their journey from the time of their under-graduation in Biomedical Sciences from ANDC to their present times and discussed the plethora of options available for the students to apply to.The talk was followed with an extensive Question and Answer session where they explained the process of applying to the colleges abroad, and guided the students on formulating the required documents within a given timeline. They provided with excellent explanations on how studying abroad broadens your horizons in the field of research and development and enhances your personality. The students who thought that applying to study abroad was a daunting and nerve-wrecking process were rather optimistic at the end of the session and gave affirmative and overwhelming feedback and were thankful to the organizers for the event. The session was concluded with a vote of thanks by Dr. Rashmi Sharma. It was truly a wonderful and inspiring session, and filled the students with enthusiasm to keep progressing in the field of science.

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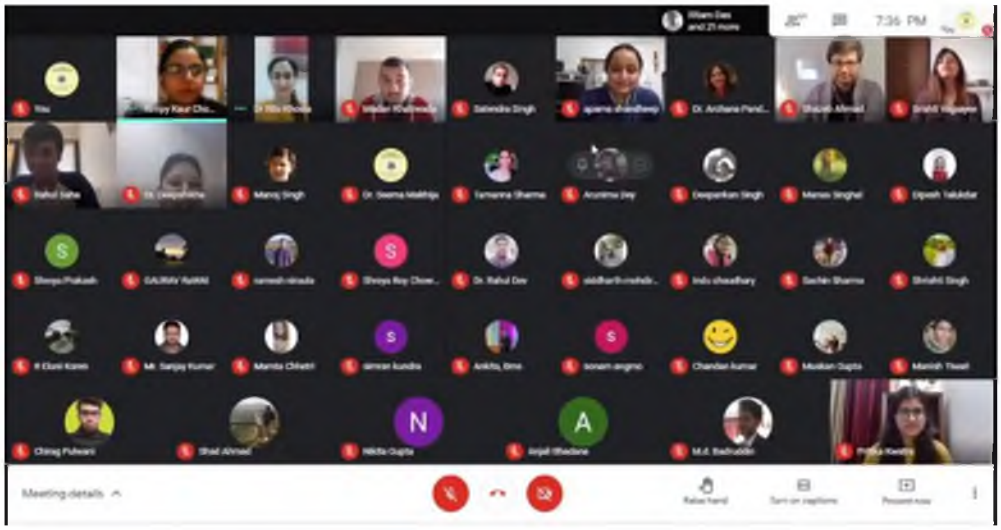
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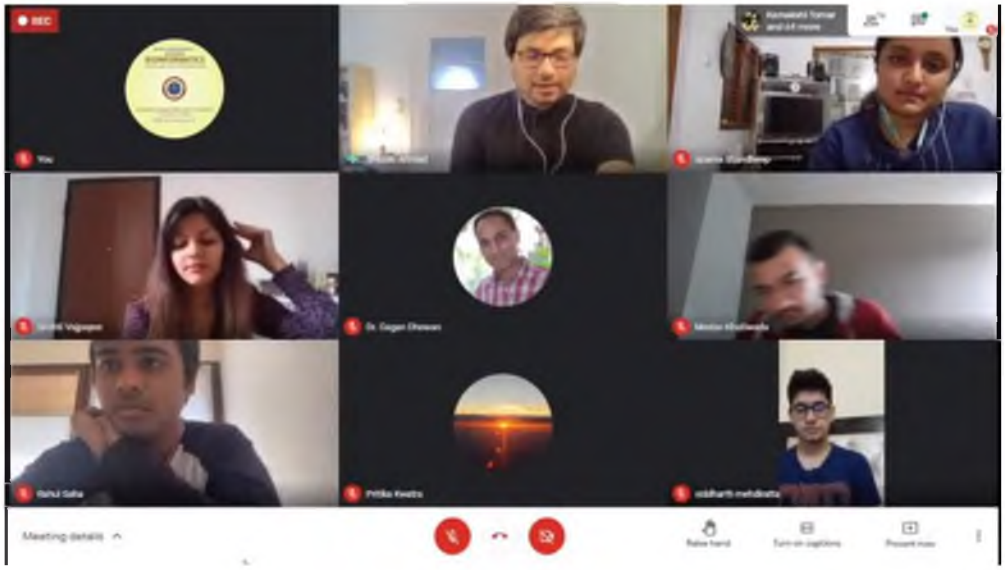
Meeting details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Meeting details

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

(All India NIRF 2020 Ranking-18, NAAC Score-3.31)

Under the Aegis of DBT-STAR College Scheme

Presents

ANDC Career Counselling Series

"Studying in Europe - Interaction with Seniors"

Aparna Shandheep

M.Sc. Biomedical sciences- Infectious and tropical diseases, Belgium
PG Diploma in Forensic Science, University of Delhi
B.Sc. (Hons) Biomedical Science, ANDC, University of Delhi

Madan Khatiwada

Researcher at University of Antwerp, Belgium
M.Sc. in Leading International Vaccinology Education (Erasmus Mundus)
B.Sc. (Hons) Biomedical Science, ANDC, University of Delhi

Srishti Vajpayee

Ph.D. at University of Heidelberg, Germany and Cyanagen Srl, Italy.
M.Sc. in Biomedical Science with specialisation in molecular life sciences from Radboud University, Netherlands.
B.Sc. (Hons) Biomedical Science, ANDC, University of Delhi

Rahul Shaha

Int. PhD at International Max Planck research school, Germany
M.Sc. Biotechnology from IIT Bombay
B.Sc. (Hons) Biomedical Science, ANDC, University of Delhi

Shazeb Ahmad

PhD at GARV laboratory at Helmholtz Institute for RNA based Infection Research
MS in FOKUS Life Science from University of Würzburg, Germany
B.Sc. (Hons) Biomedical Science, ANDC, University of Delhi

Date: March 14, 2021; Time: 07:30 pm to 09:00 pm

On Google Meet (https://meet.google.com/ycs-uzoy-ume)

Patron

Dr. Ravi Toteja
Officiating Principal

Convenor

Dr. Archna Pandey
Department of Biomedical Science

Dr. Rashmi Sharma
Department of Botany

Dr. Seema Makhija
Department of Zoology

Organizing Committee

Dr. Satendra Singh, Dr. Rimpy K Chowhan, Dr. Ritu Khosla, Dr. Deepshikha (Department of Biomedical Science)
Dr. Manoj Kumar Singh, Dr. Sumit Sahni, Dr. Vineet Kumar Singh (Department of Botany)
Dr. Neelgagan Singh, Dr. Rahul Dev, Mr. Sanjay Kumar (Department of Zoology)

Student Coordinator

Sudeepta Singh
(Department of Biomedical Science)

ACHARYA NARENDRA DEV COLLEGE March 14, 2024

ANDC career counselling series

Studying in Europe-Interaction with seniors

S. No	Name	College	University	Course
1	Pranjul Dhankar	Shaheed Rajguru College of Applied Sciences for Women	Delhi University	Biomedical Science
2	Shalini Mishra	Shivaji college	University of Delhi	Botany hons
3	Tanya Adlakha	Shivaji College	University of Delhi	B.Sc. (Hons.) Botany
4	A D Noni Dui	Shivaji College	University of Delhi	BSc (Hona) Botany
5	Junaid hassan	Shivaji college,	University of delhi	Bsc. (Hons.) Botany
6	BHUPENDRA KUMAR SAHU	SoS in Life Science	Pt. Ravishankar Shukla University, Raipur	Ph.D.
7	Vanshika Rana	Sri Venkateswara	Delhi University	B.Sc. Life science
8	Jessica Kannanthanam	Sri Venkateswara College	Delhi University	B.Sc. (Hons) Botany
9	KARNIKA	Sri Venkateswara college	Delhi university	Bsc programme life sciences
10	Pranav p	St Joseph	St Joseph Affliliated to Bangalore university	Biotechnology
11	Rohan Bhargavapuri	St Joseph college	Bengaluru	EPS
12	Vishwa M	St Joseph's autonomous	St Joseph's (Bangalore	Bsc CEZ

		(bangalore)	university)	
13	Kishore yadav A	St Joseph's College	Banglore University	B.A (EPS)
14	Shalini	St Joseph's college	St Josephs college	Mcom
15	Anusha HR	St joseph's college	Bangalore	Bsc
16	Vanathi S	St Joseph's College (autonomous)	St Joseph's College	Chemistry, Botany, Zoology
17	Medha Adiga	St Joseph's College Autonomous	St Joseph's College Autonomous	BSc CBBt
18	Sai Janani K	St Joseph's College Autonomous Bangalore-27	Bangalore University (Central)	BSc. (2nd yr CBZ)
19	Richa bulbul	St Joseph's College autonomous banglore Karnataka	Banglore University	Bsc(chemistry, environment science, botany)2nd year
20	ANJANA P S	St Joseph's College banglore	St Joseph's College	Bsc. Chemistry zoology and environmental science
21	Thilesh. K	St phenomena college puttur	Mangaluru University	BSc(BZC)
22	Piyali Mukherjee	St. Joseph College Bangalore	St. Joseph College Bangalore	BSW
23	Devika B M	St. Joseph's College (Autonomous)	Bangalore University	BSc(Chemistry, Environmental Science, Zoology)
24	Sparsh Sharma	St. Joseph's College (Autonomous), Bengaluru	Bangalore University	B.Sc. Chemistry, Environmental Science, Zoology
25	E. Steffe George	St. Josephs college (Autonomous)	St. Josephs college	Mcom

26	Kingston.s	St.joseph's CLG(autonomous)	St.joseph's clg	Bsc
27	Jeevan .c	St.joseph's college	Banglore University	Bsc . (CBBT) chemistry botany biotechnology
28	R.SEEMA	St.josephs (autonomous)college	St Joseph's University	Bsc.zoology
29	Likhitha James	St.Josephs College (Autonomous)	St.Josephs College (Autonomous)	Bsc.in CEB(Chemistry, Environmental sciences and botany)
30	Karthik A N	st.philomena college puttur	Mangalore	B.sc (BZC)
31	Aviral singh	Deshbandhu college	Delhi university	Bsc. Zoology honours
32	Prerna Notnani	Maitreyi College	University of Delhi	BSc Life sciences
33	Garima	Maitreyi college	Delhi university	Bsc.Botany hons
34	Kirti	Maitreyi college	Delhi university	Bsc. Life science
35	Niyati	MAITREYI COLLEGE	UNIVERSITY OF DELHI	B.SC LIFE SCIENCE
36	Aastha Tandon	Maitreyi college	Delhi university	Bsc life science
37	Ritik sharma	Deshbandhu college	Delhi university	B.sc honrs
38	APARNA	APARNA	Delhi University	Life science
39	Xeena	Dyal Singh College	University of delhi	B.sc. life sciences
40	Dhananjay Vandekar	Mes Abasaheb Garware	SPPU	Msc chem
41	Shivam Chandrashekhar Pokharkar	Balasaheb Jadhav college ale	Savitribai phule pune University	M.sc - Organic Chemistry

42	Ketan prabhakar kurhade	Balasaheb jadhav college ale	University of pune	Forest officer
43	Akash kaushik	Deshbandhu college	Delhi university	Botany
45	Vishal Sopan Bhalke	B. J. College Ale	SPPU	Ty Bsc Chemistry
46	Rishika Bharti	Deshbandhu college	Delhi university	Botany honours
47	TANISHQ VALECHA	Deshbandhu College	Delhi University	B. Sc. Life sciences
48	aastha	acharya narendra dev college	University of delhi	B.Sc biomedical science
49	Hadawale Tushar Ashok	Balasaheb jadhav Ale college	Pune	IFS Officer
50	Aishwarya Dadarao tayade	Shri Shivaji science College amaravti	Sant gadge baba Amaravti	CEZ
51	Aishwarya	Shri shivaji science College Amravati Maharashtra	Sant gadge baba amravati University Maharashtra	Msc Botany
52	Kalyani Dilip ande	Shivaji science collage amt	Sant gadge baba University amt	Msc botany
53	Lochana Mohan Kolwate	Shri. Shivaji science College Amravati	Sant gadge baba Amravati University	.....
54	R Raj nandini	Deshbandhu	Delhi university	Botany
55	Komal goyal	Andc	Delhi University	Bsc(zoology) hons
56	M.Ratchaya	Vellalar College for women	Bharathiar University	Physics
57	Prachi kishorrao Nipane	Shri. Shivaji science college , amravati	Sant gadge baba university, amravati	Msc

58	Pallavi Sarang chandure	Shri Shivaji science College Amravati	Sant gadge Baba University Amravati	UPSC
59	Sakshi thakare	Shri shivaji science college Amravati	Sant gadge baba Amravati university	Bsc biotechnology
60	Gayatri Sachinrao Bhombe	Government Vidarbha Institute of Science and Humanities, Amravati	Sant Gadge Baba Amravati University	Post Gradution in Economics
61	Akshay	Shree Shivaji science college amravti.	Sant gadge Baba unveracity Amravti	Bsc 3 rd year
62	Anamika	Acharya narendra dev college	Delhi University	Life sciences
63	Vishwajeet Punse	Vishwajeet Punse	Sgbau amravati maharashtra	Msc botany
64	Ritu	Sri Venkateswara College	University of Delhi	B.Sc. Botany (H)
65	Gauri Ghotkar	Shri Shivaji Science College Amravati	Sant Gadge Baba University , Amravati	Bachelor of science
66	Krithi kumar G	Dwaraka Doss Goverdhan Doss Vaishnav College	Madras University	B.Sc Physics
67	Manushri K	Vellalar college for women (Autonomous)	Bharathiar University , Coimbatore .	B.Sc., Physics
68	Miss Shivani Chandrashekhar Giri	Shri Shivaji Science College, Amravati	Sant Gadgebaba Amravati University	M.Sc (Bioinformatics)
69	Prashant Sahebrao	Sangamner college	Savitribai Phule	MSc chemistry

	Darade	sangamner	Pune University	
70	Rucha Hari Kaple	Shri Shivaji Science College Amravati	Sant Gadge Baba Amaravti University	MSc environmental Science
71	Rutuja	Shri shivaji science college Amravati	Sant gadage baba Amravati university. Amravati	Msc botany
72	Roshani Arvindrao Modak	Shri Shivaji Science college amravti	Sant gadage baba amravti University	MSc Botany
73	Akshay Sawai	SSMM	SGBAU	Bed
74	Vishal	Shri shivaji science college amaravati	S G B A university	M sc botany
75	Sneha Mahar	ANDC	University of Delhi	B Sc Life sciences
76	Rinyarin Keishing	Acharya Narendra Dev college	University of Delhi	BSc H Zoology
77	BHUPENDER SINGH	Deshbandhu	DU	Bsc life sci
78	Swapnil Telange	PG Dept of Botany, SGBAU	SGBAU	M Sc (BOTANY)
79	Kuldeep Singh	Dyal Singh College	University of Delhi	Bsc (h) Botany
80	Aparna Sharma	Dyal Singh College	Delhi university	Botany hons
81	Naeem Ahmed	Acharya Narendra Dev College	University of Delhi	B Sc (Hons) Zoology
82	Anurag Sharma	Dyal Singh College(Morning)	Delhi University	Bsc (Hons) Botany

83	ALOK RANJAN	Acharya Narendra dev college	Delhi University	B.sc (hons) zoology
84	PRACHI	ACHARYA NARENDRA DEV COLLEGE	UNIVERSITY OF DELHI	ZOOLOGY HONS
85	Preeti	Acharya narendra Dev college	Delhi university	B.Sc.life sciences
86	Deepali	Deshbandhu college	Delhi university	B.sc (H) Botany
87	Rupam kumari	Aacharya Narendra Dev college	Delhi University	B.Sc. (Hons) Zoology
88	Aditya Arjun Ohol	DERE ENGLISH MEDIUM COLLEGE	Pune University	12th
89	Komal	Acharya Narendra Dev College	University of Delhi	BSc Hons. zoology
90	Nikhil Gajanan Bhujbal	S p college pune	Pune University	Msc analytical chemistry
91	Abhishek Gudadhe	Shri. Shivaji science college amravati	SGBAU Amravati	B.Sc
92	Abhijeet Sunil Tayade	Shri. Shivaji Science College Amravati	Sant Gadge Baba Amravati University	Bsc
93	Bhavesh yadav	Acharya Narendra Dev college	Delhi University	Bsc(H)Zoology
94	ANKITA Singh	ANKITA Singh	Bits pilani	M.tech
95	Anshul Gautam	Acharya Narendra Dev college	University of Delhi	B.sc.Hons.Zoology
96	Parkavi K	Bharathiar University , coimbatore	Bharathiar University	Nanoscience and technology
97	Neha Lohan	Deshbandhu College	University of Delhi	B.Sc.(H) Botany

Title: Career counselling series (Career after MBA: Exploring the unexplored)

Organizing team: Dr ArchnaPandey Dr Satendra Singh Dr Rimpy Kaur Chowhan Dr RituKhosla Dr Deepshikha (Department of Biomedical Sciences) Dr Rashmi Sharma Dr Manoj Kumar Singh Dr SumitSahni Dr Vineet Kumar Singh (Department of Botany) Prof. SeemaMakhija Dr Neelgagan Singh Dr Rahul Dev Mr Sanjay Kumar (Department of Zoology)

Date: March 07, 2021

Number of Participants: 90

Resource Persons: Mr. Harshit Arora (7678698594), Ms. Lalita Raja (7838515364), Ms. Mayuri Mathuria (8585947759)

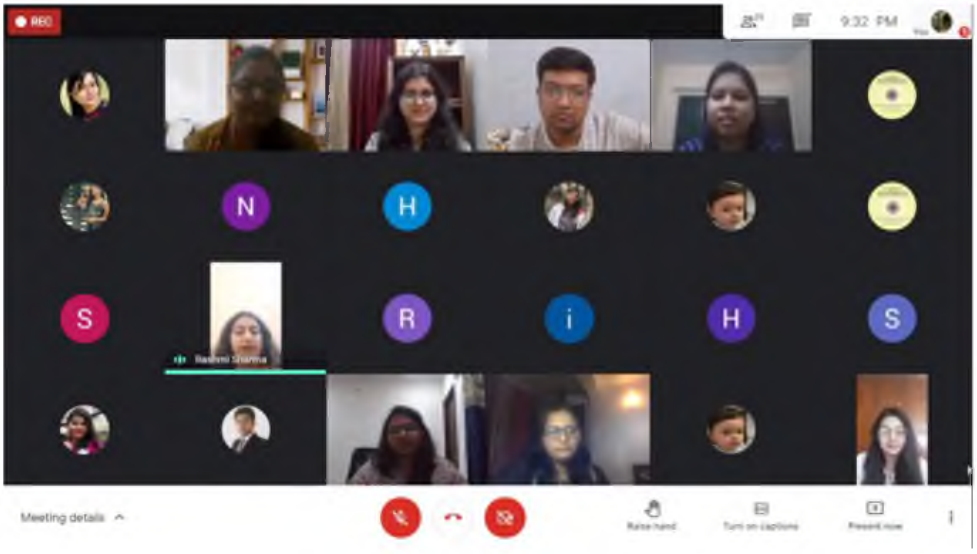
Department of Biomedical Science, Botany and Zoology of Acharya Narendra Dev College, University of Delhi under the patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized the first webinar of ANDC career counselling series on topic "Career after MBA – Exploring the Unexplored" under the aegis of DBT-STAR College Scheme on 7thMarch 2021 on google meet. The organizing team comprised of the convenors - Dr. Archana Pandey (Department of Biomedical Science), Dr. Rashmi Sharma (Department of Botany) and Dr. Seema Makhija (Department of Zoology); organizing committee - Dr. Satendra Singh, Dr. Rimpy Kaur Chowhan, Dr. Ritu Khosla, Dr. Deepshikha, Dr. Manoj Kumar Singh, Dr. Sumit Sahni, Dr. Vineet Kumar Singh, Dr. Neelgagan Singh, Dr. Rahul Dev and Mr. Sanjay Kumar; and student coordinator, Mansi Arora.

The three distinguished guests invited for the talk were college alumni who deviated their paths from science to the world of business administration and found huge success. Mr. Harshit Arora did his PGDM (Healthcare management) from GIM, Goa and is currently the Knowledge Management Associate at ZS Associates. Ms. Lalita Raja did her MBA (Hospital and Health management) from IIHMR, Jaipur and is currently the Research associate at Clarivate. Ms. Mayuri Mathuria did her MBA (Hospital and Health management) from IIHMR, Jaipur and is currently the Knowledge Management Associate at ZS Associates. The information about the webinar was disseminated on various official social medial channels of the college including instagram,

facebook, twitter and college website, and the webinar was released on the YouTube channel of the college athttps://www.youtube.com/watch?v=sks8N1wwD4E.

The guest speakers shared their experiences and presented engrossing slides to explain their journey and their own ways of selecting respective career options. For instance, Mr. Harshit shared with undergraduate students his own experience of appearing in exams like CAT, CMAT and NMAT and his selection criteria for applying and choosing among several Colleges like GIM, NMIMS, IIHMR and IMT. He advisedstudents to focus on immediate next steps andto not lose their strength even in darkest hour. Ms. Lalita highlighted how having a bachelor degree in science could be used advantageously after MBA for placements in various healthcare associated companies. Ms. Mayuri on similar notes shared her experiences while shifting from B.Sc. in Biomedical Science to MBA in Healthcare, and suggested everyone to build string network connections and follow their passions instead of conventional routes.The session was concluded with a vote of thanks by Dr. Rashmi Sharma.

Students attending the webinar were highly encouraged by the talk which was evident by the lively discussion session which yielded a huge range of ideas and suggestions about following a career in MBA. The discussions gave attendees the opportunity to raise questions and made suggestions about what they would like to get covered in future learning events.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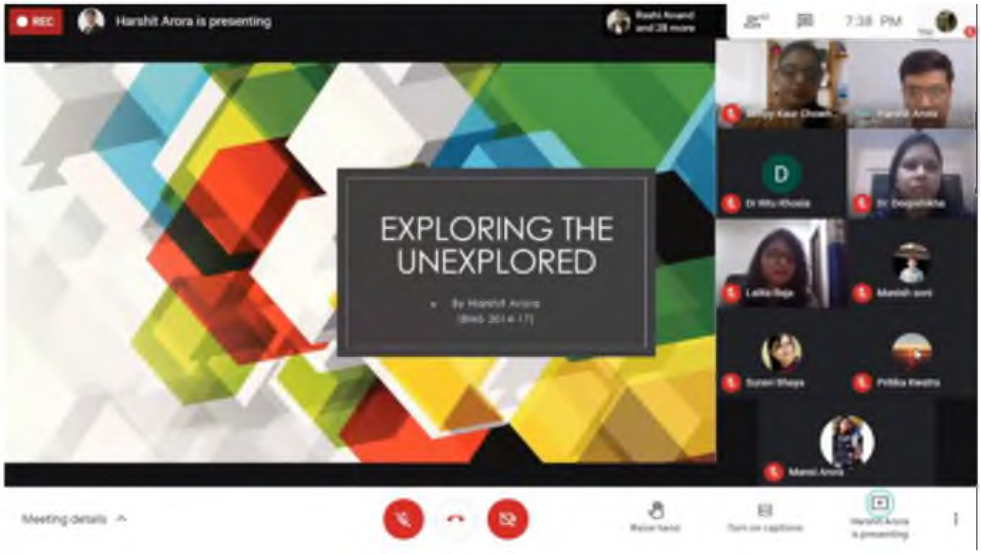
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Harshit Arora is presenting
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Meeting details

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9:38 PM

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

(All India NIRF 2020 Ranking-18, NAAC Score-3.31)

Under the Aegis of DBT-STAR College Scheme

Presents

ANDC Career Counselling Series

"Career after MBA - Exploring the Unexplored"

by

Harshit Arora

Knowledge Management Associate,
ZS Associates

PGDM (Healthcare Management)
GIM, Goa

https://www.linkedin.com/in/harshit-arora-085541149

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Mayuri Mathuria

Knowledge Management Associate,
ZS Associates

MBA (Hospital and Health Management)
IIHMR, Jaipur

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Date: March 7, 2021; Time: 07:30 pm to 09:00 pm

On Google Meet (https://meet.google.com/hrs-cmbd-uyd)

Patron

Dr. Ravi Toteja
Officiating Principal

Convenor

Dr. Archna Pandey
Department of Biomedical Science

Dr. Rashmi Sharma
Department of Botany

Dr. Seema Makhija
Department of Zoology

Organizing Committee

Dr. Satendra Singh, Dr. Rimpy K Chowhan, Dr. Ritu Khosla, Dr. Deepshikha (Department of Biomedical Science)
Dr. Manoj Kumar Singh, Dr. Sumit Sahni, Dr. Vineet Kumar Singh (Department of Botany)
Dr. Neelgagan Singh, Dr. Rahul Dev, Mr. Sanjay Kumar (Department of Zoology)

Student Coordinator

Mansi Arora
(Department of Biomedical Science)

ACHARYA NARENDRA DEV COLLEGE

ANDC career counselling series March 07, 21

Career after MBA- exploring the unexplored'

S. No	Name	College	University	Course
1	Bharti Yadav	Daulat Ram college	Delhi university	BSc botany Hons
2	Nancy	Daulat Ram College	Delhi University	B.Sc .(H)) Botany
3	Komal Yadav	Daulat Ram College	University of Delhi	B.sc (h) Zoology
4	Rubeena bano	Daulat ram college	Delhi University	BSc Botany hons
5	Shiwani	Daulatram college	Dellhi University	Botany Hons.
6	MAYANK SINGH	Dayal Singh college	Delhi University	Bsc Life sciences
7	Deepak Prajapat	Deen Dayal Upadhyay College	Delhi University	Botnay(H.)
8	Shallu	Deen Dayal Upadhyaya College	Delhi University	B.Sc. (Hons.) Zoology
9	SAUMYA	Deshbandhu college	Delhi university	Zoology honours
10	Salman Khan	Deshbandhu College	University of Delhi	B.Sc.(Hons) Botany
11	Shiv pratap singh	Deshbandhu college	Delhi university	Bsc(Hons)Botany
12	Nandini	Deshbandhu college	University of delhi	Botany hons
13	Ruchi Gupta	Deshbandhu College	Delhi University	B.Sc.Botany (H)
14	Prasenjit Kar	Deshbandhu College	University of Delhi	Bsc Hons Botany

15	Tushar Kangwal	Deshbandhu College	Delhi University	Bsc BOTANY
16	Jyotsna	Deshbandhu College	Delhi University	B.Sc. Life Science
17	Shagun	Deshbandhu college	Delhi University	Bsc life sciences
18	Shrishti soni	Deshbandhu college	Delhi university	Bsc. Life science
19	Tanya Saxena	Deshbandhu College	Delhi University	B.Sc. (Hons.) Botany
20	Suraj Sharma	Deshbandhu College	Delhi University	Bsc (H) Botany
21	Humera Mirza	Deshbandhu college	Delhi university	B.sc hons. Botany
22	Harsh Sharma	Deshbandhu College	Delhi University	Bsc life science
23	Ansh	Deshbandhu College Day(019)	(University of Delhi)	Bsc.(Prog).Life Sciences
24	Manas Shukla	Doon Business School	Sri Dev Suman University	B. Sc. Forestry
25	Monibhadra Roy	Doon Business School	Sree Dev Suman	B. Sc (Forestry)
26	Mukul Sudhakar	Doon Business School	Sri Dev Suman University	Bsc. Forestry
27	Piyush Kumar	Doon Business School	See Dev Suman	B. Sc forestry
28	Bhumika chauhan	drb sindhu mahavidyalaya	RTMNU	BSc
29	Ankita Tembhurne	DRB Sindhu Mahavidyalaya Nagpur	Rtmnu nagpur University	Bsc
30	Harsha Awasthi	Dyal Singh College	Delhi University	B.sc. Life science
31	Yash Bhardwaj	Dyal Singh College	Delhi university	Botany hons.
32	Ria	Dyal Singh College	University of	B.Sc. Botany hons.

			Delhi	
33	Adarsh Mishra	Dyal Singh College	University of Delhi	BSc. Life Science
34	Shivanshu Tyagi	Dyal Singh College (M)	University of Delhi	B.Sc. Life Science
35	Utpal dewangan	Government Nagarjuna P. G. science college Raipur	Pt. Ravishankar shukla Raipur	Bsc. Plane (pcm)
36	Poornima Taram	Government Nagarjuna Post Graduate College of Science Raipur (C.G)	Pandit Ravishankar Shukla University Raipur Chhattisgarh	M.sc 1sem(Botany)
37	Prakriti namdeo	Government Nagarjuna Post graduate College Raipur	Pt. Ravishankar Shukla University	MSc physics
38	SIMRAN KHANDE	Govt Nagarjuna post graduate college raipur	Pt. Ravishankar Shukla University Raipur	MSc physics
39	Sarvesh Kaushik Patel	Govt. N. P. G. College Of Science, Raipur, CG	Pt. Ravishankar Shukla University, Raipur, CG	Ph.D.
40	Sushma paul	Govt. Nagarjuna college of science Raipur	Pandit ravi shanker university	Nothing
41	Urvashi Lodhi	Govt.Nagarjun PG college of Science Raipur	PtRSU	M.Sc. Botany
42	MAMTA MANIKPURI	govt.science college raipur	Govt.N.P.G.college of science, raipur chattisgarh	M.sc.botany

43	Garima	Kalindi college	Delhi University	BSc.(H) Botany
45	Himadri Mandal	Kalindi College	University of Delhi	BSc.(H) Botany
46	Km Sonal	Kalindi college	University of Delhi	B.Sc (hons.) Botany
47	Divinia Juanita.D	Madras Christian College	University of Madras	M.Sc.Zoology
48	Rhythem Kaushal	Madras University	Madras University	Msc.Biomedical Genetics
49	Vaishnavi	Maiteryi College	Delhi University	B.Sc. (Hons.) Botany
50	Diksha Bodwal	Maitreyi College	Delhi University	Botany hons
51	Savina	Maitreyi college	Delhi University	Bsc hons botany
52	Priya Boora	Maitreyi College	University of Delhi	B.Sc (H) Botany
53	Kriti Upadhyay	Nagarjun post-graduate college of science	Ravishankar shukla university	Msc. Botany
54	Rajlaxmi Diwakar	Nagarjuna post gradute college of science	Pandit ravishankar shukl	Msc physics
55	DEVASENATHIPATHI M	PSG COLLEGE OF ART'S and SCIENCE	Bharathiar University	BSc Botany
56	Kavi ilakkiya	PSG college of arts and science	Bharathiyar	B.sc zoology
57	Manjusha S	PSG College of Arts and Science	Bharathiyar University	Bsc Botany
58	Mahalakshmi.M	Psg college of arts and science	Bharathiar university	B.sc botany

59	Madhu Samyuktha	PSG college of arts and science	Bharathiyar	Botany
60	Madeshwaran.S	PSG college of arts and science	Bharathiyar university	Botany
61	R.SATHYAPRABHA	PSG College of Arts and Science	Bharathiyar university	BSC.ZOOLOGY
62	Sanjay selvan.A	Psg college of arts and science coimbatore	Bhartiyar university	Bsc botany
63	Sri vignesh.T.S	PSG college of arts and sciences	Bharathiyar University	B.sc,zoology
64	Priyanka Chakradhari	Pt Ravishankar Shukla University	Pt Ravishankar Shukla University	Research scholar
65	sahib singh	Ramjas college	delhi university	B.sc botany(H)
66	Shivani kumari	Ramjas college	Delhi university	Botany hons
67	Amal Thomas	Sacred Heart College	MG university	Bsc Physics
68	SAMEERA ALEX	SACRED HEART COLLEGE THEVARA	AUTONOMOUS MG UNIVERSITY	Bsc
69	Pia Sara James	Sacred Heart College, Thevara	MG University	Bsc Physics
70	Pranjul Dhankar	Shaheed Rajguru College of Applied Sciences for Women	Delhi University	Biomedical Science
71	Shalini Mishra	Shivaji college	University of Delhi	Botany hons
72	Tanya Adlakha	Shivaji College	University of Delhi	B.Sc. (Hons.) Botany
73	A D Noni Dui	Shivaji College	University of	BSc (Hona) Botany

			Delhi	
74	Junaid hassan	Shivaji college,	University of delhi	Bsc. (Hons.) Botany
75	BHUPENDRA KUMAR SAHU	SoS in Life Science	Pt. Ravishankar Shukla University, Raipur	Ph.D.
76	Vanshika Rana	Sri Venkateswara	Delhi University	B.Sc. Life science
77	Jessica Kannanthanam	Sri Venkateswara College	Delhi University	B.Sc. (Hons) Botany
78	KARNIKA	Sri Venkateswara college	Delhi university	Bsc programme life sciences
79	Pranav .p	St Joseph	St Joseph Affliliated to Bangalore university	Biotechnology
80	Rohan Bhargavapuri	St Joseph college	Bengaluru	EPS
81	Vishwa M	St Joseph's autonomous (bangalore)	St Joseph's (Bangalore university)	Bsc CEZ
82	Kishore yadav A	St Joseph's College	Banglore University	B.A (EPS)
83	Shalini	St Joseph's college	St Josephs college	Mcom
84	Anusha HR	St joseph's college	Bangalore	Bsc
85	Vanathi S	St Joseph's College (autonomous)	St Joseph's College	Chemistry, Botany, Zoology
86	Medha Adiga	St Joseph's College Autonomous	St Joseph's College Autonomous	BSc CBBt

87	Sai Janani K	St Joseph's College Autonomous Bangalore-27	Bangalore University (Central)	BSc (2nd yr CBZ)
88	Richa bulbul	St Joseph's College autonomous banglore Karnataka	Banglore University	Bsc(chemistry, environment science, botany)2nd year
89	ANJANA P S	St Joseph's College banglore	St Joseph's College	Bsc. Chemistry zoology and environmental science
90	Thilesh. K	St phenomena college puttur	Mangaluru University	BSc(BZC)

Title: Open Licensing and Online Content

Organizing team:

Date: September 25, 2020

No. of Participants:

Resource Person: Prof Savithri Singh (9873499500)

Report:
Webinar on "Open Licensing and Online Content": An online talk on was organized on September 25, 2020 The talk was given by Prof. Savithri Singh, Country Lead, Creative Commons – India to make the faculty, students aware about the OER, CC licenses and copyright issues while developing e-content. Open licensing and online content are closely related, as open licenses are often used to distribute online content and facilitate its reuse and adaptation. For example, Creative Commons licenses are a popular type of open license that can be applied to various types of creative works, including online content. Creative Commons licenses allow creators to choose the terms under which their works can be used, shared, and modified, while retaining some rights to control their use and attribution.

Prof. Savithri Singh is an expert in the field of open education and has written extensively on the topic of open licensing and online content. Her work explores the potential of open educational resources (OER) to promote equity, access, and quality in education, and the challenges and opportunities of open licensing in the digital age.

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DATE: SEPTEMBER 25, 2020
DAY: FRIDAY TIME: 11.00 AM

SPEAKER

Prof. Savithri Singh
Country Lead - Creative Commons
Principal (Retd.)
Acharya Narendra Dev College
University of Delhi

CONVENOR AND PROJECT INVESTIGATOR

Dr. Sarita Kumar
Associate Professor
Department of Zoology
Acharya Narendra Dev College
University of Delhi

PATRON

Dr. Ravi Toteja
Officiating Principal
Acharya Narendra Dev College
University of Delhi

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ACHARYA NARENDRA DEV COLLEGE

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25th September 2020

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1	Vinay Singh Dagar	Research Scholar	Acharya narendra dev college
2	Aarti Sharma	Research Scholar	Aarti Sharma
3	Prabeer Sinha	Faculty	Hindu College
4	Nisha Singh	Faculty	IGNOU
5	Dr. Pushp Lata Verma	Faculty	NCERT
6	Dr. Amit Ahuja	Faculty	University School of Education, GGSIP University, Delhi
7	Prof Archana Gupta	Faculty	M. J. P. Rohilkhand University, Bareilly
8	Anupama B	Faculty	Tamil Nadu Open University
9	Vineet Girdharwal	Faculty	Acharya Narendra Dev college
10	Dr. Rahul Dev	Faculty	Acharya Narendra Dev College, University of Delhi
11	Dr. Sweety Shrimali	Faculty	Acharya Narendra Dev College
12	Manu Sankar	Research Scholar	Department of Zoology, University of Delhi
13	P. Lanbiliu	Research Scholar	Acharya Narendra Dev College
14	Gautam Gupta	Faculty	Dr. Shyama Prasad Mukherjee Govt. Degree College Bhadohi u.p.
15	Mr Niketan	Student	Dehli University
16	Jasmeet kaur	Faculty	Mata sundri college
17	Chavi	Student	Delhi university
18	Mr. Mohd Shazad	Faculty	Department of Zoology, Deshbandhu College
19	Harveen Kaur	Student	Department of environmental studies,University of delhi
20	DR.BINITA PRAKASH	PRINCIPAL	P M COLLEGE OF EDUCATION ALIGARH
21	Dr Ritu Rai	Faculty	Dyal Singh College, University of Delhi
22	Dr Indu Varshneya	Faculty	University of Delhi, Delhi
23	Dr. Jasvinder Kaur	Faculty	Gargi College, University of Delhi
24	Dr. Jaspreet Kaur	Faculty	Maitreyi College, University of Delhi
25	Gunjan	Student	Acharya narender dev college, DU
26	Dr. Manju Bhaskar	Faculty	D. B. S. College (CSJM University) Kanpur
27	Sushma Bhardwaj	Faculty	University of Delhi
28	Dr.M.Usha Rani	Faculty	Government Degree College, Puttur
29	Virender nehra	Student	Acharya Narendra dev college
30	Dr.Radha Yadav	Faculty	Sahu Ram Swaroop Mahila Mahavidhyalaya Bareilly
31	Shrankhla	Faculty	Acharya Narendra Dev college
32	Dr. Jitendra K Maurya	Research Scholar	University of Delhi

33	Jyoti Falswal	Research Scholar	Acharya Narendra dev college
34	Shweta Yadav	Faculty	GCG, sector 14, Gurugram/ Gurugram University
35	Komal	Job	Acharya Narendra Dev college
36	Dr Sudhida Gautam	Faculty	Hansraj College
37	Divya	Student	University of Delhi
38	Parminder	Faculty	SGTB Khalsa College
39	Priyanka Rajpoot	Student	Kurukshetra university
40	Sunita godiyal	Faculty	H. N. B. Garhwal University, SRTCampus Badshai Thaul Tehri Garhwal
41	Simran	Student	Kurukshetra university kurukshetra
42	Dr. Shailly Anand	Faculty	Deen Dayal Upadhyaya College, University of Delhi
43	Dr. Ravneet Kaur	Faculty	Acharya Narendra Dev College
45	Ayshna Kukreja	Student	Delhi University
46	Neera Kapoor	Faculty	IGNOU, New Delhi
47	Dr. Vikas Kumar	Faculty	SGGS College, Patliputra University, Patna, Bihar
48	Sudhanshu Kumar	Research Scholar	Vindhyan Ecology and Natural History Foundation
49	Dr Nidhi Garg	Faculty	Shivaji College University of Delhi
50	Prateek Trivedi	Student	Kurukshetra University
51	Chirag Pulwani	Student	Acharya Narendra Dev College, University of Delhi
52	Kirti sharma	Student	KUK
53	Jasmeet kaur	Faculty	Mata sundri college
54	MANAS KUMAR DHAL	Faculty	SSN College DU Alipur Delhi 36
55	Shalini	Student	Andc , du
56	Surbhi Singh	Student	Acharya Narendra Dev College, University of Delhi
57	RINKI TEWATIA	Student	Chaudhary Bansi Lal University
58	Anita	Faculty	Sri Venkateswara College, Delhi University
59	Anjali Yadav	Research Scholar	University or Delhi
60	Dr Neel gagan Singh	Faculty	Acharya Narendra Dev College, Delhi University
61	Dr. Ranju Sharma	Research Scholar	University of Delhi
62			
63	Anita	Faculty	Sri Venkateswara College, Delhi University
64	NEHA DHINGRA	Faculty	KALINDI COLLEGE UNIVERSITY OF DELHI
65	Garima Sharma	Faculty	Rishihood university
66	Dr. K Vandana Rani	Faculty	Kalindi college, University of Delhi
67	Dr. Savita	Faculty	Acharya Narendra Dev College
68	Dr. Anuradha Sekhri	Faculty	Institute for Development and Communication, Research Centre of panjab University Chandigarh, Sec 38 A, Chandigarh

69	Dr. Mahtab Zarin	Faculty	Kalindi College, Delhi University
70	Dr. Versha Goel	Faculty	Maitreyi College, University of Delhi
71	Pooja vijay	Research Scholar	University of Delhi
72	Anupam sunny	Faculty	Satyawati College, University of Delhi
73	Ujjwal kr. Gupta	Student	ANDC, DU
74	Monika Koul	Faculty	Hansraj College, University of Delhi
75	MUZAFFER AHMED BHAT	Faculty	ANDC Delhi University
76			
77	Dr. Ngangbam Sarat Singh	Faculty	Dr. Sarvepalli RadhaKrishnan Government Arts College
78	Hritik kadian	Student	Institute of environmental studies
79	Pooja sharma	Student	Delhi University
80	Shivani panchal	Student	University of Delhi
81	Jyoti Otageri	Faculty	Sinhgad College of Science
82	Dr. Reema Mishra	Faculty	Gargi college University of Delhi
83	Jagjeet Singh	Student	Kuk
84	Dr Archana Tiwari	Faculty	Amity University
85	Hemant Yadav	Research Scholar	D.E.I. Agra
86			
87	Deepak	Student	Institute of Environmental Studies, Kurukshetra University
88	Komal	Student	Acharya Narendra Dev College
89	Dr. Zubeda Khan	Faculty	Kalindi College
90	Dr. Anuradha Sekhri	Faculty	Institute for Development and Communication, Research Centre of panjab University Chandigarh, Sec 38 A, Chandigarh
91	Garima kalakoti	Student	ANDC, University Of Delhi
92	Priya Singh	Faculty	University of Delhi
93	Rajiv Kumar Shukla	Research Scholar	V.P. Chest Institute, Delhi University
94	Aditi Dubey	Faculty	AND College (Delhi University)
95	Prabeer Sinha	Faculty	Hindu College
96	Devesh Rawat	Student	Acharya Narendra Dev college
97	Dhruv Khanna	Student	Acharya Narendra Dev College
98	Manish Kumar Tiwari	Student	Acharya Narendra Dev college
99	Vandana Kumari Singh	Faculty	Hansraj College, University of Delhi
100	Rishabh Tiwari	Entrepreneur	Behavioural Research and Innovation Centre
101	Rahul Kumar	Ex - student	Acharya Narendra Dev College
102	Joystu Dutta	Faculty	Sant Gahira Guru University Sarguja Ambikapur Chhattisgarh
103	Frederick NORONHA	Journalist, Publisher	Goa,1556 http://goa1556.in
104	Mostafa Azad Kamal	Faculty	Bangladesh Open University
105	Mini Narayanan	Editor	Freelance

106	HIMANSHU JAIN	Student	KURUKSHETRA UNIVERSITY KURUKSHETRA
107	Ashish Sharma	Faculty	Amity University Madhya Pradesh
108	Smriti Sharma	Faculty	Miranda House
109	Hrishabh Bharadwaj	Research Scholar	University of Delhi
110	Sanjay kumar	Faculty	Acharya narendra dev college
111	Neha Singh	Faculty	Bhaskaracharya College of Applied Sciences
112	Dr. Shikha Srivastava	Faculty	Bhaskaracharya college of applied sciences
113	Ruchika Ramakrishnan	Faculty	SLC, University of Delhi
114	Dr. Ravindra Kumar	Faculty	Shyam Lal College, Delhi University
115	Balram Kindra	Faculty	Shyam Lal College, University of Delhi, Shahdara, Delhi-110032
116	Mamta	Faculty	Shyam Lal College
117			
118	Dr Kiran Prabha	Retired Associate Professor	Gargi College, University of Delhi
119	Dr Yash Mangla	Faculty	Acharya Narendra Dev College
120	Namrata	Research Scholar	The Shriram millennium school
121	Dr. Avneesh Mittal	Faculty	Bhaskaracharya College of Applied Sciences
122	Shubhra Barwa	Faculty	Bhaskaracharya College of Applied Sciences, DU
123	Dr. Seema Gupta	Faculty	Acharya Narendra Dev College(University of Delhi)
124	Pawas Goswami	Faculty	Bhaskaracharya College of Applied Sciences
125	Yamal Gupta	Faculty	Kirori Mal College
126	Dr. Gita Mathur	Faculty	Gargi College, University of Delhi
127	Sambhavana Chauhan	Research Scholar	Department of Genetics, University of Delhi, South Campus
128	VIJAY KUMAR SHAH	Research Scholar	DESHBANDHU COLLEGE, UNIVERSITY OF DELHI
129	SEEMA PURI	Faculty	Institute of Home Economics
130	Dr Sunita Aggarwal	Faculty	Institute of Home Economics
131	Dr. Archana Shah	Faculty	HNB Garhwal University, SRT Campus, Badshahi Thaul, tehri Garhwal
132	Sharanjit kaur	Faculty	Acharya Narendra Dev College
133	Dr. Neetu Chaudhary	Faculty	Miranda House
134	Rashmi Shakya	Faculty	Miranda House
135	Dr Tejmeet Rekhi	Faculty	Institute of Home Economics, University of Delhi
136	Lovely Singh	Research Scholar	Dayalbagh Educational Institute Agra
137	Jyoti Meena	Student	Acharya Narendra dev college
138	ANJALI PRIYADARSHANI	Faculty	Kirori Mal College
139	Divya Singh	Student	IIT MADRAS

140	Abhay Pratap Singh	Faculty	Acharya Narendra Dev College
141	Mahesh Kumar	Faculty	Acharya Narendra Dev College
142	Khushi goyal	Student	Acharya Narendra Dev College
143	Anjali	Student	Acharya narendra dev college
144	Avanija Tyagi	Student	Acharya narendra Dev college
145	Kungreiliu Panmei	Research Scholar	Acharya Narendra Dev College, University of Delhi
146	Radhika Garg	Student	ANDC
147	Mukesh Kumar Gupta	Student	Acharya Narendra Dev College
148			
149	Trisha Nair	Student	Acharya Narendra Dev College
150	Manisha	Student	Acharya Narendra Dev College
151	tripti singh	Student	SDIER
152	Nikita chaudhary	Student	University of delhi
153	Koyna chatterjee	Student	University of delhi
154	Dr. Sunita Hooda	Faculty	Acharya Narendra Dev College University of Delhi
155	Dr Uma Dhawan	Faculty	Bhaskaracharya College of Applied Sciences, University of Delhi
156	Frederick NORONHA	Journalist and publisher	Goa 1556
157			
158	Vandana M	Research Scholar	Department of Education Bangalore University
159	Subir Das	Dy Librarian	Bidhan Chandra Krishi Viswavidyalaya, West Bengal
160	Aditya Ranjan	Library Professional	Azim Premji University
161	Yogita Adlakha	Faculty	Translational Health Science and Technology Institute
162	Ashish Aggarwal	Publisher	Sultan Chand & Sons Pvt. Ltd.
163	AYAN MONDAL	Faculty	GYANDA Academy
164	Rekha Tiwari	Faculty	DIET Bheemtal ntl
165	Prateek Trivedi	Student	Kurukshetra University
166	Prakhar Agrawal	Student	Acharya Narendra Dev College, University of Delhi
167	Hinamudgal	Faculty	Allenhousepublicschool Khalasiline,Kanpur
168	Dr. Lata Sharma	Faculty	Lakshmibai College (University of Delhi)
169	Alka Harneja	Faculty	Lakshmi Bai College,University of Delhi
170	Dr. Gagan Dhawan	Faculty	ANDC, University of Delhi
171	Swati M. Biswas	Faculty	ARSDC
172	Yogesh chadha	Production managet	SCS
173	Lalita Agarwal	GB member ANDC and Education Social Reformer.	ANDC Delhi University
174	Dr. Babeeta C Kaula	Faculty	ZHDC, DU

175	POOJA KUMARI	Research Scholar	University of Delhi
176	Komal goyal	Student	Acharya Narender dev college
177	Andrea Wallace	Research Scholar	University of Exeter

Conferences/Workshops/Seminars for the year 2019-20

Topic: Techniques in Molecular Microbiology

Organizing Committee: Dr Seema Makhija (Department of Zoology), Dr. Shailly Anand, Assistant Professor, DDUC, Dr Renu Solanki, Dr Archna Pandey (Department of Biomedical Sciences)

No. of Participants: 35

Date: February 25, 2020

Resource Person: Dr Aparna Sharma (9871013149), Dr Sweety Shrimali (9818540058), Dr Rahul Dev (9873087811), Dr Muzaffar (8826753204), Ms S.Sripoorna (9868246400), Ms Jeeva S Abraham (9990392287), Ms Swati Maurya (9873154566).

Report

Workshop on "Techniques in Molecular Microbiology" A one-day inter-college workshop on "Techniques in Molecular Microbiology" was jointly organized by Department of Zoology of Deen Dayal Upadhyaya College & Acharya Narendra Dev College (University of Delhi) under the aegis of Science Foundation & DBT Star College Program on 25th February, 2020 for undergraduate students of biological sciences. The workshop was attended by the following 35 students of B. Sc. (Hons.) Zoology, B. Sc.(P) Life Sciences and others from different colleges of Delhi & outside.

LIST OF EXPERIMENTS COVERED DURING THE WORKSHOP:

1. To amplify the small subunit ribosomal RNA (18S rRNA) gene using gene-specific primers by polymerase chain reaction (PCR).
2. To Perform Agarose Gel Electrophoresis of DNA
3. Separation of proteins by SDS-Polyacrylamide Gel Electrophoresis
4. Collection of ciliates from freshwater and soil samples
5. Culturing of ciliates
6. Identification of ciliates by live cell observation and various staining methods

LIST OF LECTURES COVERED DURING THE TRAINING PROGRAM:

1. Polymerase Chain Reaction for in-vitro amplification of genes

2. Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis – A technique for protein separation
3. Agarose Gel Electrophoresis

INVITED TALKS

1. "Typhoid Diagnostics" by Dr. Chandresh Sharma, Translational Health Science & Technology Institute (THSTI), Faridabad
2. "Innovations in Diagnostics" by Dr. Tarun Sharma, Translational Health Science & Technology Institute (THSTI), Faridabad

The workshop was organized in Lab2 and 3 of the Department of Zoology of Acharya Narendra Dev College. The workshop commenced at 9:30 A.M. with the introductory remarks by Dr. Ravi Toteja, Principal, Acharya Narendra Dev College who apprised students of the various activities being conducted in the college under the DBT Star College Scheme. He also emphasized how this collaborative workshop will be useful from the student perspective as they get to exchange scientific talk with their peers in different colleges and how the workshop will be useful in enhancing their skills in molecular microbiology. Such hands-on workshops and lectures by eminent scientists who are contributing immensely in the field of scientific innovations inculcate a sense of understanding n the student minds which in turns plays a crucial role in making informed decisions in opting science as a career. Dr. Anita Gulati interacted with the students and asked them to share their experiences of the workshop. Feedback form was filled by all students. A student representative from each college shared their views about the workshop. Students appreciated the efforts of the organizers and resource persons. They said this workshop was a good opportunity for them to perform the experiments on their own which had been demonstrated to them or they studied in their textbooks only. Some of the students found the workshop beneficial as they want to pursue their career in life sciences. Dr. Seema Makhija gave vote of thanks to all the resource persons, research scholars and supporting staff. After that Dr. Ravi Toteja, Principal, Acharya Narendra Dev College distributed certificates to the participants, resource persons, organizers and supporting staff. At last, a group photograph was taken.

Department of Zoology
Acharya Narendra Dev College
&
Deen Dayal Upadhyaya College
(University of Delhi)
under the aegis of
Science Foundation & DBT Star College Program
Organize a Workshop on
"TECHNIQUES IN MOLECULAR MICROBIOLOGY"
for undergraduate students of biological sciences
On February 25, 2020
Typhoid Diagnostics
(Dr. Chandresh Sharma, THSTI)
Lecture
In-vitro gene amplification
Hands-on work stations
Culturing of Microbes
Identification & Estimation of Proteins
Experimental Sessions
Microbial Staining Techniques
Talk
Innovations in Diagnostics
(Dr. Tarun Kumar Sharma, THSTI)

Acharya Narendra Dev College

Technique in molecular microbiology

February 25, 2020

1.	Ashish	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester I	8076800703
2.	Riya Rai	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester I	8851856339
3.	Harshita	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester I	9625772422
4.	Rahul	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester I	9588942952
5.	Mehak	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester I	7982146078
6.	Sidrah	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester IV	7303235591
7.	Manisha Pal	Deen Dayal Upadhyaya College	B.Sc Life Sciences Semester VI	9873534537
8.	Pooja	Deen Dayal Upadhyaya College	B.Sc Life Sciences Semester VI	7042090446
9.	Priya	Deen Dayal Upadhyaya College	B.Sc Life Sciences Semester VI	8570043803
10.	Rajat	Deen Dayal Upadhyaya College	B.Sc Life Sciences Semester VI	8607116689
11.	Amita	Deen Dayal Upadhyaya College	B.Sc Life Sciences Semester VI	9410286113
12.	Adrija	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester IV	adrija0612@gmail.com 9667109415
13.	Aruna	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester IV	8295025660

14.	Sapna	Deen Dayal Upadhyaya College	B.Sc (Hons.) Zoology Semester IV	9625338020
15.	Pratibha Tewari	Maitreyi College	B.Sc Life Sciences Semester VI	9205151463
16.	Shreyanshi Satapathy	Maitreyi College	B.Sc Life Sciences Semester VI	9650739625
17.	Nitesh Rout	Sri Aurobindo College	B.Sc Life Sciences Sem VI	niteshrout12@gmail.com 8586992612
18.	Garima Bhargav	Sri Aurobindo College	B.Sc Life Sciences Sem VI	bhargavgarima3@gmail.com 9717912385
19.	Himaani Mehra	Gargi College	B.Sc (Hons.) Zoology Sem IV	8448046025
20.	Tanisha Goyal	Gargi College	B.Sc (Hons.) Zoology Sem IV	9999016354
21.	Preeti	Gargi College	B.Sc (Hons.) Zoology Sem VI	Not Available
22.	Sandhya	Gargi College	B.Sc (Hons.) Zoology Sem VI	Not Available
23.	Aanchal Gupta	Gargi College	B.Sc (Hons.) Zoology Sem VI	Not Available
24.	Aman Sharma	Acharya Narendra Dev College	B.Sc (Hons.) Zoology	Not Available
25.	Aman Kumar	Acharya Narendra Dev College	B.Sc (Hons.) Zoology	Not Available
26.	Anmol Singh	Acharya Narendra Dev College	B.Sc (Hons.) Zoology	Not Available
27.	Muskan Yadav	Acharya Narendra Dev College	B.Sc (Hons.) Zoology	Not Available
28.	Manisha	Acharya Narendra Dev College	B.Sc (Hons.) Zoology	Not Available

Title: Molecular Biology Techniques

Organizing committee: Dr Archna Pandey (Department of Biomedical Sciences) Dr Seema Makhija (Department of Zoology)

Date: November 22, 2019

No. of Participants: 56

Resource Person: Dr. Rahul Dev (9873087811), Mr. Vineet Girdharwal (9599316511), Dr. Neelgagan Singh (888006671), Dr. Sushma Bhardwaj (9899270186), Ms. Bhumika Chauhan (7838924652), Mr. Abhay Pratap Singh (9891274760), Dr. Satendra Singh (9871600136), Dr. Rimpy K Chowhan (9560632181), Dr. Ritu Khosala (9873869400), Dr. Deepshikha (9818449560), Dr. Sumit Sahni (9891890065), Dr. Vineet K. Singh (9718013340), Dr. Manoj Kumar Singh (9711474428)

Report:

Workshop on "Molecular Biology Techniques" One Day Hands on workshop on Molecular Biology Techniques was organized by Department of Zoology on November 22, 2019 for the undergraduate and Post Graduate students of G.D.Goenka University.

Students of G.D. Goenka were given an opportunity to visit Following research labs at ANDC: Anti-mycobacterial Drug Discovery Laboratory, Microbial Technology Laboratory, Insect-Vector and Pest Laboratory, Ciliate Biology Laboratory.

Students were given hands on exposure to the following experiments:

(1) Culturing and observation of ciliates/bacteria
(2) DNA Isolation from bacterial culture
(3) Agarose Gel Electrophoresis
(4) Polymerase Chain Reaction and
(5) Phylogenetic analysis using Bioinformatic tools

An e- manual was prepared for the same and shared with the students. Students enjoyed the hands on experience during the workshop.

PREPARING FOR THE FUTURE @
ACHARYA NARENDRA DEV COLLEGE

Acharya Narendra Dev College

(University of Delhi)

Under the aegis of star college scheme

Organized by

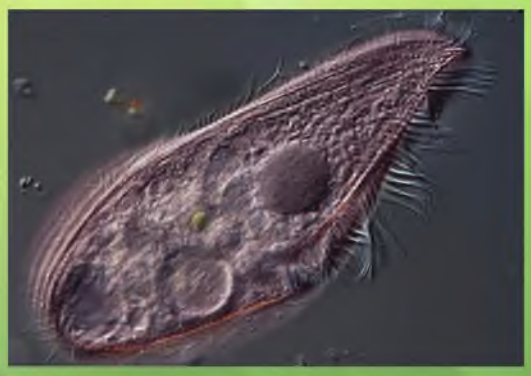
Ciliate Biology Laboratory

Workshop on

Molecular Biology Techniques

Time: 09:30 A.M.

Date : November 22, 2019



Acharya Narendra Dev College

Molecular Biology Techniques, November 22, 2019

S. No.	Course	University	Name
1	B. Sc. Microbiology	G D Goenka University	Himanshu
2	B. Sc. Microbiology	G D Goenka University	Parul
3	B. Sc. Microbiology	G D Goenka University	Ekta
4	B. Sc. Microbiology	G D Goenka University	Janhvi
5	B. Sc. Microbiology	G D Goenka University	Anuska
6	B. Sc. Microbiology	G D Goenka University	Virendra
7	B. Sc. Microbiology	G D Goenka University	Ritika
8	B. Sc. Microbiology	G D Goenka University	Marwin
9	B. Sc. Microbiology	G D Goenka University	Suraj
10	B. Sc. Microbiology	G D Goenka University	Mohit
11	B. Sc. Microbiology	G D Goenka University	Kanchan
12	B. Sc. Microbiology	G D Goenka University	Anjali
13	B. Sc. Microbiology	G D Goenka University	Neha
14	B. Sc. Microbiology	G D Goenka University	Gunja
15	B. Sc. Microbiology	G D Goenka University	Alka
16	B. Sc. Microbiology	G D Goenka University	Drishti
17	B. Sc. Microbiology	G D Goenka University	Ritual

18	B. Sc. Microbiology	G D Goenka University	Vaidehi
19	M. Sc. Microbiology	G D Goenka University	Geetanshi
20	M. Sc. Microbiology	G D Goenka University	Aaunshi
21	M. Sc. Microbiology	G D Goenka University	Arbaj
22	B. Sc. Biochemistry	G D Goenka University	Rubina
23	B. Sc. Biochemistry	G D Goenka University	Parul
24	B. Sc. Biochemistry	G D Goenka University	Armaan
25	B. Sc. Biochemistry	G D Goenka University	Nidhi
26	B. Sc. Biochemistry	G D Goenka University	Sapna
27	B. Sc. Biochemistry	G D Goenka University	Sagar
28	BSc (Hon.) Zoology	Delhi University	KRITIKA SHARMA
29	BSc (Hon.) Zoology	Delhi University	MAHESH KASANA
30	BSc (Hon.) Zoology	Delhi University	MANISH KUMAR
31	Botany	Delhi University	DEVANGNA SHARMA
32	Botany	Delhi University	HITESH KALA
33	Botany	Delhi University	JATIN
34	Botany	Delhi University	KIRTI PANDEY
35	BSc (Hon.) Zoology	Delhi University	DEEPAK PAL
36	BSc (Hon.) Zoology	Delhi University	KALPIT RANI
37	BSc (Hon.) Zoology	Delhi University	KOMAL SHARMA

38	BSc (Hon.) Zoology	Delhi University	MANISHA
39	BSc (Hon.) Zoology	Delhi University	MANJUMA SARKAR
40	BSc (Hon) Zoology	Delhi University	MEHUL NARANG
41	BSc (Hon.) Zoology	Delhi University	KOMAL
42	BSc (Hon.) Zoology	Delhi University	KUSHAGRA SATI
43	BSc (Hon.) Zoology	Delhi University	LAIRIKYENGBAM ELIZA DEVI
45	BSc (Hon.) Zoology	Delhi University	MADHAV GOEL
46	BSc (Hon.) Zoology	Delhi University	NIKHIL KUMAR JHA
47	BSc (Hon.) Zoology	Delhi University	PAMELA BARUA
48	BSc (Hon.) Zoology	Delhi University	PRANJAL SHARMA
49	BSc (Hon.) Zoology	Delhi University	RAHUL MAYANGLAMBAM
50	BSc (Hon.) Zoology	Delhi University	RASHMI KUMARI
51	BSc (Hon.) Zoology	Delhi University	RISHAV KUMAR
52	BSc (Hon.) Zoology	Delhi University	SUNIL
53	BSc (Hon.) Zoology	Delhi University	SURBHI SINGH
54	BSc (Hon.) Zoology	Delhi University	SUSHIL
55	BSc (Hon.) Zoology	Delhi University	YADUVINDER
56	BSc (Hon.) Zoology	Delhi University	YUKTA KHATRI

Topic: Inter-disciplinary exhibit presentation on "New frontiers in science" (under the aegis of DBT star college program)

Organizing Committee: Dr Archna Pandey Dr Rimpy Kaur Chowhan (Department of Biomedical Sciences) Dr Sunita Hooda Dr Pooja Bhagat Dr Kavita Mittal (Department of Chemistry) Dr Harita Ahuja (Department of Computer Science) Dr Ravneet Kaur (Department of Electronics) Dr Arijit Chowdhuri (Department of Physics) Dr Seema Makhija (Department of Zoology).

Date: October 22, 2019

Number of Participants: 112

List Of Dignitaries: Dr. Usha Rao (9911162584),
Dr Sanjukta Subudhi (9818845129),
Dr Aparajita Mohanty (98105 67611) ,
Dr Harsupreet Kaur (98119 05600),
Dr Abid (8750295095),
Dr Hardeep Kaur (9810829629),
Dr Ashutosh Bharadwaj (9910124636),
Dr S Ramchandran (98187 66438),
Dr Neera Mehra (9810536318)

Report:

Acharya Narendra Dev College under the aegis of DBT Star College Scheme organized a One Day Interdisciplinary Exhibit Presentation on "New Frontiers in Science" in the College premises on 22nd October, 2019. Department of Electronics along with the other departments of the college was actively involved in organizing the event.

Various innovative projects of inter-disciplinary nature undertaken by UG students under the following heads were considered for demonstration/exhibition,:

1. Star Projects (2017-2019)
2. ELITE projects (2018-2019)
3. Think Lab (2018-2019)
4. Cube (2018-2019)
5. Extramural projects

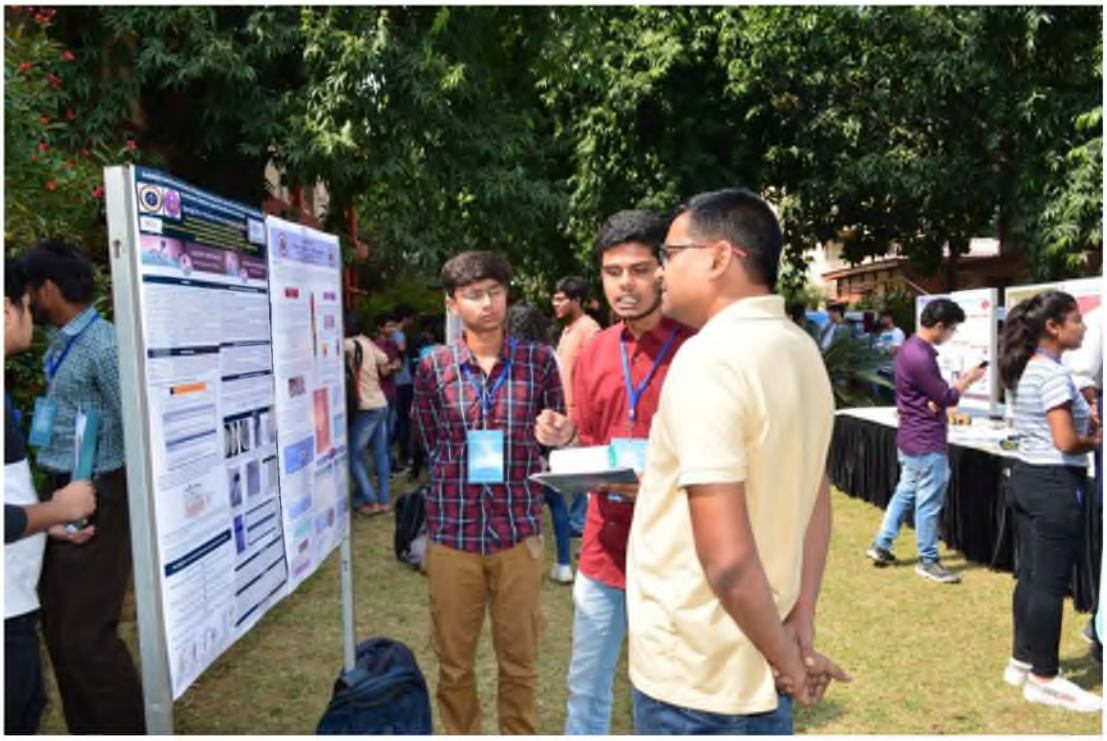
Ph.D. students who are registered with the college teachers were also encouraged to present their work.

All the participants were also asked to submit an abstract of the /project/research work they wish to present in the exhibition. After a rigorous review process by the screening committee, 50 projects were shortlisted for poster presentation.

The event started with an invited lecture talk by a distinguished lecturer which was followed by poster/exhibitpresentation. The posters/exhibits were reviewed by three panels of judges with each panel having three subject experts. After critical review by the panel of judges, 3 projects were awarded 'best poster'. In addition to this, 6 other projects were also awarded 'consolation'. All the other participating students were also awarded certificates of participation.

As a part of outreach program, students from various schools were also invited. Around 110 from three different schools attended the event. Enthusiasm and curiosity amongst the school students towards latest research trends in science and technology was quite evident. Interaction and sharing of ideas between school students and the participants/presenters made the event even more successful.

NEW FRONTIERS
IN SCIENCE



Topic: Learning Molecular Biology Techniques

Acharya Narendra Dev College

New Frontiers in sciences

October 22, 2019

List of Participants

Poster No.	Project Name	Department	Mentors Name	Students Name	Course
P01	Use of Quadruplex Binding Ligands Against Prion Diseases	Biomedical Science	Prashant Pradhan	Purva Abhijit Nayak	B.Sc.(H) Biomedical Science III Yr
P02	Compartmental Model for Traffic Congestion	Mathematics	Dr.Sarita Agarwal	Pushkar Pandey Kunal Pant	B.Sc.(H) Mathematics II Yr
P03	Isolation and Characterization of Mycobacteriophages from soil and in-vitro analysis of phage derived recombinant endolysins against *Mycobacterium smegmatis*.	Biomedical Science	Dr. Urmi Bajpai.	Ritam Das	B.Sc. Life Sciences III Yr
P04	Mathematical Sketch of Symmetric Group of Degree 5	Mathematics	Dr.Sarita Agarwal	Ajay Gupta Vipul Mishra Mahak Gupta	B.Sc.(H) Mathematics III Yr
P05	RFID Based Attendance System	Electronics	Dr. Anju Agrawal Mr. Dinesh Kumar	Aditya Kumar Gagan	B.Sc.(H) Electronics III Yr
P06	Isolation and Characterization of Novel Mycobacteriophages from the soil	Biomedical Science	Dr. Urmi Bajpai.	Garima Kalakoti	B.Sc. Life sciences III Yr

P07	To ascertain the most efficient working hours of the faculty in Acharya Narendra Dev College (ANDC) with in the frame work of 9AM to 4PM.	Biomedical Science
P08	Online Ranking of Educational Websites	Computer Science
P09	Real Time Passenger Counting System (R.T.P.C.S)	Electronics
P010	Gesture Controlled Robot	Electronics
P011	Arduino based Solar tracking system	Electronics
P012	Piezoelectric Energy Harvesting System	Electronics
P013	Magnetic Resonant Anti-Collision System	Electronics
P014	Data Transfer Through CPU Fan	Electronics
P015	Creation of Online Repository of Ciliates of Delhi Region, India	Zoology Computer Science
P016	Android App Development (Attendence App)	Computer Science

Dr. Sunita Jetly Dr. Archna Pandey	Aatiruddin Khan Alisha Ansari Muskan Gupta	B.Sc.(H) Bio Medical Science II Yr
Dr. Sharanjit Kaur	Prakhar Agrawal Shubhang Upadhyay	B. Sc. Physical Science with Computer Science III Yr
Mr. Dinesh Kumar Dr. Anita Kumari	Yash Varshney Abhishek	B.Sc.(H) Electronics II Yr
Dr. Anju Agrawal Ms. Gauri Ghai	Phulender Pushkar Baranwal	B.Sc.(H) Electronics II Yr
Dr. Udaibir Singh Mr. Dinesh Kumar	Prahlad Prajapat Ankita Shukla	B.Sc.(H) Electronics II Yr
Dr. Ravneet Kaur Ms. Gauri Ghai.	Avinash Kumar Lal Abhishek Bhadana	B.Sc.(H) Electronics III Yr
Dr. Ravneet Kaur Ms. Gauri Ghai.	Reya Negi Lalit Shukla	B.Sc.(H) Physics III Yr B. Sc.(H) Electronics II Yr
Dr. Ravneet Kaur Ms. Gauri Ghai.	Anurag Saxena	B.Sc.(H) Electronics II Yr
Dr. Seema Makhija Dr. Ravi Toteja Dr. Preeti Marwaha Dr. Harita Ahuja	Rishabh Jain Shubham Khari Jaya Vishal Kumar	B.Sc. Physical Science with Computer science III Yr B. Sc. Life Sciences II Yr
Dr. Harita Ahuja Dr. Preeti Marwaha Ms.Gunjan Rani	Shivani Saxena Priyanka Rishabh jain	B.Sc. Physical Science with Computer science II Yr

P017	A Computer Application for Editing Multiple Image Document	Computer Science
P018	Electrostimulation in Plants	Electronics
P019	Quartz Crystal Microbalance (QCM) based biosensing	Physics
P020	Assessment of Plants Health By Estimation of Water content, Ascorbic acid and Chlorophylls	Botony
P021	Isolation of native *Caenorhabditis elegans* and used them as bio-indicator for soil toxicity	Zoology
P022	Determination of Ambient Air Pollution (AAP) through estimation of chlorophyll content	Physics Botany
P023	EDTA Modified Chitin for Heavy Metal Ion Adsorption From Waste Water	Chemistry
P024	Synthesis of graphene oxide, and its modification using polysaccharide for water purification	Chemistry
P025	To extract the colored component of *Hibiscus rosa-sinensis* flower and study its potency as a pH indicator	Chemistry

Ms.Vandita Grover	Prince Sharma Ankit Negi	B.Sc.(H) Electronics III Yr
Dr. Ravneet Kaur Ms. Gauri Ghai.	Kunal Sharma Praval Bisht Lalit Upreti	B.Sc.(H) Electronics III Yr
Dr. Arijit Chowdhuri Dr. V. Bhasker Raj	Anudeep A. S. Viren Tyagi Amrit Dutta	B.Sc.(H) Physics II Yr
Dr Charu Khosla Gupta Dr Yash Mangla	Mansi Arora Harshvardhan Gupta Bhashkar Paul Kumud Kaul	B.Sc.(H) Biomedical Science II Yr
Dr. Sarita Kumar	Simran Gupta	B.Sc. Life Sciences III Yr
Dr. Arijit Chowdhuri Dr. Charu Khosla Gupta Dr Yash Mangla	Nitish Kalson Heena Nizam	B.Sc. Life Sciences II Yr
Dr. Geetu Gambhir Dr. Sunita Hooda	Narain Swami Ravina Yadav Drashya	B. Sc. Life Sciences II Yr B.Sc.(H) Chemistry
Dr. Geetu Gambhir Dr. Sunita Hooda	Manisha Gupta Narain Swami Drashya	B.Sc. Life Sciences III Yr
Dr. Neeti Misra Dr. Pankaj Khanna Dr. Kavita Mittal	Kirti Chugh Ramandeep Ishika Sagwal	B.Sc.(H) Chemistry III Yr B.Sc.(H) Chemistry I Yr B.Sc.(H) Chemistry I Yr

P026	Effect of sonication on graphite and graphene oxide (GO)	Chemistry	Dr. Sunita Hooda Dr. Geetu Gambhir	Meghna Singh Sneha Mahar Drashya	B. Sc. Life Sciences III Yr
P027	Detection of Adulterants in Milk from Different Sources and Synthesis of Metal Complexes of Schiff Bases using Sonication	Chemistry	Dr. Neeti Misra Dr. Pankaj Khanna Dr. Kavita Mittal	Harshita Madaan Saatwik Suman	B.Sc.(H) Chemistry II Yr
P028	Text to Speech Converter	Electronics	Dr. Ravneet Kaur Ms. Gauri Ghai.	Aditya Raj Singh	B.Sc.(H) Electronics III Yr
P029	*Moina:* A Prospective Model Organism to study Parkinson's Disease	Zoology	Dr. Sarita Kumar	Amit Babu Akhila A	B.Sc.(H) Biomedical Science III Yr
P030	Drosophila melanogaster: A potent model organism for advanced studies in behavioural science	Zoology	Dr. Sarita Kumar	Komal Kotra Maryada Arya	B.Sc.(H) Zoology II Yr B.Sc. Life Sciences II Yr
P031	Effect of diet on the growth and haemolymph protein profile of *Helicoverpa armigera.*	Zoology	Dr. Sarita Kumar	Vatsal Bhargava Parikshit Sahotra Harshita	B.Sc.(H) Zoology II Yr B.Sc.(H) Zoology II Yr
P032	Quantitive analysis of water from different source for concentration levels of different pollutants	Physics Botany	Dr. Arijit Chowdhuri Dr. Charu Khosla Gupta Dr Yash Mangala	Payal Singh Ankita Negi	B.Sc. Life Sciences II Yr
P033	Surface Plasmon Resonance (SPR) – a tool to detect change in refractive index.	Physics Botany Biomedical Science	Dr. Arijit Chowdhuri Dr. Charu Khosla Gupta Dr. Archna Pandey	Tamanna Sudeepta Singh Sansi Bansal Sarang Saini	B.Sc. (H) Biomedical Science II Yr
P034	CELL PHONE DETECTOR	Electronics	Dr. Anju Agrawal Ms. Gauri Ghai	Avinash Kumar Lal Abhishek Bhadana	B.Sc.(H) Electronics III Yr

P035	Physicochemical and Biological Analysis of Leachate from Okhla Landfill	Zoology Chemistry
P036	Isolation and characterization of macronuclear DNA of ciliates	Zoology
P037	Identification of cysteine rich domains in the ciliate, *Tetmemena* using systematic bioinformatics tools	Zoology
P038	A study on the process of regeneration in ciliate, *Tetmemena sp.*	Zoology
P039	Investigating the effect of Cadmium and ethidium bromide on DNA using Surface Plasmon Resonance (SPR) technique	Physics Botany Zoology
P040	Molecular markers for Authentication of Highly Traded Controversial Medicinal Plants in India: A Compilation	Botany

	Shashank Nagar Anmol Dogra	
Dr. Ravi Toteja Dr. Seema Makhija Dr. Pooja Bhagat	Pranjal Sharma Deepika Joshi	B.Sc.(H) Zoology III Yr
Dr. Ravi Toteja Dr. Seema Makhija	Ruchika Bhardwaj Deepanshu Vats Rajanshi Mishra Naeem Ahmed Shushank Mustabin Ahmed	B.Sc. Life Sciences III Yr B.Sc. Life Sciences II Yr B.Sc.(H) Zoology II Yr
Dr. Ravi Toteja Dr. Seema Makhija	Ankush Singh Khushboo Dalal	B.Sc. Life Sciences II Yr
Dr. Ravi Toteja Dr. Seema Makhija Dr. Pooja Bhagat	Harshvardhan Sahu Vanya Garg Khushboo Garg	B.Sc (H) Chemistry III Yr B.Sc (H) Zoology (Pass Out)
Dr. Arijit Chowdhuri Dr. Charu Khosla Gupta Dr. Seema Makhija Dr. Ravi Toteja	Chaitanya Raj Senjuti Sengupta	B.Sc.(H) Physics (Pass Out) B.Sc.(H) Zoology (Pass Out)
Dr. Sumit Sahni Dr. Vineet Kumar Singh Dr. Manoj Kumar Singh	Radhika Verma Sakshi	B.Sc. Life Sciences III Yr

P041	A Review of Lignin degradation and its Bioconversion	Botany	Dr. Sumit Sahni Dr. Manoj Kumar Singh	Chetna Kalpana	B.Sc.(H) Botany III Yr
P042	Computational analysis of natural antagonists for design of anti-thyroid drugs	Biomedical Science	Dr.Gagan Dhawan	Ashwin Uday	B.Sc.(H) Biomedical Science III Yr
P043	Smartphone To Digital Microscope	Electronics	Dr Amit Garg	Pritika Kwatra	B.Sc.(H) Biomedical Science I Yr
P044	Using the Arduino for the experimental determination of a friction coefficient by movement on an inclined plane.	Electronics	Dr Amit Garg	Avinash Kumar Lal Tripti Varshney	B.Sc.(H) Electronics III Yr B.Sc.(H) Physics II Yr
P045	Voice Controlling Car	Electronics	Dr Amit Garg	Abhishek	B.Sc. (H) Electronics II Yr
P046	Li-Fi- Sound Transmission using LED lights	Electronics	Dr Amit Garg	Devesh Yadav	B.Sc. Physical Science with Computer Science I Yr
P047	Laser based footfall counter	Electronics	Dr Amit Garg	Prahlad Prajapat Jaya	B.Sc.(H) Electronics II Yr B. Sc. Physical Science with Computer Science
P048	Smart Mirror	Electronics	Dr Amit Garg	Prince Sharma Aqil Ali	B.Sc.(H) Electronics III Yr
P049	Assistive Gadgets for visually impaired students	Electronics	Dr Ravneet Kaur Ms Gauri Ghai	Ritesh Raj Chiradeep Das	B.Sc.(H) Electronics (Pass Out)
P050	Synthesis of Zinc Oxide Nanoparticles from *Ficus Religiosa*	Biomedical Science	Dr Gagan Dhawan Dr Satender Singh	Muskan Jindal Astha	B,Sc(H) Biomedical Science III Yr B,Sc(H) Biomedical Science II Yr

Title: Workshop on "Learning Molecular Biology Techniques" One day hands on workshop "Learning Molecular Biology Techniques"

Organizing committee: Dr Archna Pandey (Department of Biomedical Sciences) Dr Sarita Kumar Dr Monica Misra Dr Seema Makhija Mr Ravinder K. Sagar Dr Aparna Sharma Dr Sweety Shrimali Dr Rahul Dev Dr Neelgagan Singh Mr Sanjay Kumar Mr Vineet Girdharwal Dr Shrankhla (Department of Zoology)

Date: September 24, 2019

No of Participants: 88

Resource Person(s): Dr. Aparna Sharma (9871013149),
Dr Sweety Shrimali (9818540058),
Dr Rahul Dev (9873087811),
Dr Neelgagan Singh (8882006671),
Mr Sanjay Kumar (8010550990),
Mr Vineet Girdharwal,(9599316511),
Dr Shrankhla (9997926822)

Report:

Workshop on "Learning Molecular Biology Techniques" One day hands on workshop "Learning Molecular Biology Techniques" was conducted on September 24,,2019 for B.Sc. (H) Zoology and B.Sc. Life Sciences of the College.It was conducted on September 24,2019 for B.Sc. (H) Zoology and B.Sc. Life Sciences of the College.

Inter-departmental one day hands on workshop "Learning Molecular Biology Techniques" was conducted by Acharya Narendra Dev College under the aegis of DBT Star College Scheme organized in the College premises on September 24, 2019. Student's forms B.Sc. Biomedical Science and B.Sc. (H) Zoology had participated in this workshop. These students had done various molecular biology techniques like PCR, Agarose gel electrophoresis, DNA isolation and DNA digestion with restriction enzymes. Students had good experience by doing various biological techniques and understood their principals and significances. The workshop was of great use for students for those who want to pursue higher studies in biological sciences.

An e-manual was prepared and following experiments were conducted:

(1) Amplification of the small subunit ribosomal RNA (18S rRNA) gene using gene-specific primers by polymerase chain reaction (PCR).

(2) Agarose Gel Electrophoresis of DNA.

(3) Separation of proteins by SDS-Polyacrylamide gel.

(4) PTC test, to analyze Mendelian inheritance and study Hardy-Weinberg Law

Acharya Narendra Dev College

(University of Delhi)

Department of Zoology

Under the aegis of DBT STAR College Scheme

Organizes

Hands on Workshop

Learning Molecular Biology Techniques

Time: 09:30 A.M.

Date :September 24, 2019

Venue :Zoology Laboratory

All interested are welcome to attend

Patron: Dr. Ravi Toteja; Coordinators: Dr. Seema Makhija, Dr. Archna Pandey; Convener: Dr. Sarita Kumar

Acharya Narendra Dev College

Learning Molecular Biology Techniques, September 24, 2019

S. No.	Course	Roll Number	Name
1	BSc (Hon.) Zoology	Y-1001	AARUSHI
2	BSc (Hon.) Zoology	Y-1003	ABHAY GIRI
3	BSc (Hon.) Zoology	Y-1062	ABHISHEK MALIK
4	BSc (Hon.) Zoology	Y-1005	ADWAIT MISHRA
5	BSc (Hon.) Zoology	Y-1019	JITUMONI SHARMA
6	BSc (Hon.) Zoology	Y-1060	SURBHI SINGH
7	BSc (Hon.) Zoology	Y-1053	SUSHIL
8	BSc (Hon.) Zoology	Y-1033	PAMELA BARUA
9	BSc (Hon.) Zoology	Y-1012	ASMITA BHARTI
10	BSc (Hon.) Zoology	Y-1056	YADUVINDER
11	BSc (Hon.) Zoology	Y-1034	PRANJAL SHARMA
12	BSc (Hon.) Zoology	Y-1059	DEEPIKA JOSHI
13	BSc (Hon.) Zoology	Y-1015	DRISHTI GAUR
14	BSc (Hon.) Zoology	Y-1063	YUKTA KHATRI
15	BSc (Hon.) Zoology	Y-1021	KALPIT RANI
16	BSc (Hon.) Zoology	Y-1022	KOMAL SHARMA
17	BSc (Hon.) Zoology	Y-1024	MANISHA

18	BSc (Hon.) Zoology	Y-1025	MANJUMA SARKAR
19	BSc (Hon.) Zoology	Y-1026	MEHUL NARANG
20	BSc (Hon.) Zoology	Y-1027	MUKESH
21	BSc (Hon.) Zoology	Y-1028	MUSKAN YADAV
22	BSc (Hon.) Zoology	Y-1031	NIKHIL KUMAR JHA
23	BSc (Hon.) Zoology	Y-1042	ROHIT
24	BSc (Hon.) Zoology	Y-1045	SANJU KUMARI
25	BSc (Hon.) Zoology	Y-1037	RAHUL MAYANGLAMBAM
26	BSc (Hon.) Zoology	Y-1038	RASHMI KUMARI
27	BSc (Hon.) Zoology	Y-1039	RISHAV KUMAR
28	BSc (Hon.) Zoology	Y-1041	RIYA
29	BSc (Hon.) Zoology	Y-1047	SHUBHAM CHAUDHARY
30	BSc (Hon.) Zoology	Y-1050	SONIA SINGH
31	BSc (Hon.) Zoology	Y-1046	SHEETAL YADAV
32	BSc (Hon.) Zoology	Y-1061	SHIFALI JAIN
33	BSc (Hon.) Zoology	Y-1051	SUBHAM MOHANTY
34	BSc (Hon.) Zoology	Y-1052	SUNIL
35	BSc (Hon.) Zoology	AB-1313	BHARTI SAINI
36	BSc (Hon.) Zoology	AB-1315	CHIRAYU MITTAL
37	BSc (Hon.) Zoology	AB-1317	DEEPAK KUSHWAHA

38	BSc (Hon.) Zoology	AB-1319	ESHAAN PATHAK
39	BSc (Hon.) Zoology	AB-1321	GUNJAN
40	BSc (Hon.) Zoology	AB-1323	HARSHITA CHUGH
41	BSc (Hon.) Zoology	AB-1325	HIMANSHI JAISWAL
42	BSc (Hon.) Zoology	AB-1305	AMISHA AMBARDAR
43	BSc (Hon.) Zoology	AB-1307	ANKIT KUMAR
45	BSc (Hon.) Zoology	AB-1309	ARSHITA DUA
46	BSc (Hon.) Zoology	AB-1339	KUNAL GARG
47	BSc (Hon.) Zoology	AB-1341	LAVISH YADAV
48	BSc (Hon.) Zoology	AB-1343	MADHAV AGARWAL
49	BSc (Hon.) Zoology	AB-1345	MEENAKSHI
50	BSc (Hon.) Zoology	AB-1347	NIKITA SAGAR
51	BSc (Hon.) Zoology	Z-1024	RINYARIN KEISHING
52	BSc (Hon.) Zoology	Z-1025	RUPAM KUMARI
53	BSc (Hon.) Zoology	Z-1026	RUSHALI BANERJEE
54	BSc (Hon.) Zoology	Z-1041	SAKSHI TOMAR
55	BSc (Hon.) Zoology	Z-1046	KABIR MOLLA
56	BSc (Hon.) Zoology	Z-1015	KAPIL KUMAR
57	BSc (Hon.) Zoology	Z-1054	KOMAL
58	BSc (Hon.) Zoology	Z-1016	KUSHAGRA SATI

59	BSc Life Science	ZO 640	AASTHA SINGH
60	BSc Life Science	ZO 601	ABHIJEET KUMAR
61	BSc Life Science	ZO 637	ABHISHEK KAUSHIK
62	BSc Life Science	ZO 602	ALIA AFREEN
63	BSc Life Science	ZO 642	AMAN
64	BSc Life Science	ZO-650	AMIT
65	BSc Life Science	ZO-654	AMIT
66	BSc Life Science	ZO-640	AASTHA SINGH
67	BSc Life Science	ZO-601	ABHIJEET KUMAR
68	BSc Life Science	ZO-637	ABHISHEK KAUSHIK
69	BSc Life Science	ZO-1501	SRISHTI
70	BSc Life Science	ZO-1502	STANZIN DUDDUL
71	BSc Life Science	ZO-1503	TATHAGAT VAIBHAV
72	BSc Life Science	ZO-631	VAISHNAVI CHAUHAN
73	BSc Life Science	YO-718	LAKHVEER RANA
74	BSc Life Science	YO-719	LAXMI
75	BSc Life Science	YO-720	MAHAK GUPTA
76	BSc Life Science	YO-721	MANOJ KUMAR SAHU
77	BSc Life Science	YO-752	DIVESH SINGH RAWAT
78	BSc Life Science	YO-761	GAURAV YADAV

79	BSc Life Science	YO-754	GHANSHYAM
80	BSc Life Science	YO-712	HARSH CHAUDHARY
81	BSc Life Science	AB-601	AANCHAL BHASKAR AGGARWAL
82	BSc Life Science	AB-602	ABHISHEK SIHOTE
83	BSc Life Science	AB-603	AMIT KUMAR
84	BSc Life Science	AB-604	AMIT KUMAR
85	BSc Life Science	AB-605	ANISH NAGAR
86	BSc Life Science	AB-606	ANKUSH PANWAR
87	BSc Life Science	AB-607	ASTHA YADAV
88	BSc Life Science	AB-608	ATHIRA SHENO

Topic: Unravel the Microbial World by Foldscope

Organizing Committee: Dr Rashmi Sharma (Department of Botany) Dr. Seema Makhija (Department of Zoology)

Date: September 09, 2019

Number of Participants: 44

Resource Person(s): Dr Anupama Harshal (9820164415)

Report:

A workshop on 'Foldscope' was organized in the college for the students of Botany and Life Science on September 9, 2019. Dr Anupama Harshal from K. C. College, Bombay was the resource person. 20 students of Botany (H) and 24 students from B.Sc. Life Science attended the workshop.

In this workshop on Unravel the Microbial world by Foldscope by Dr. Anupama Harshal discussed the use of Foldscope in microbiology and demonstrated how to assemble and use the microscope. Foldscope can be assembled by folding a single sheet of paper, and can magnify samples up to 140x. Foldscope is an innovative tool that can be used to explore the microbial world and has many potential applications in education, public health, and scientific research. Participants got the opportunity to observe microorganisms in different samples, such as water and learn about the importance of studying microbes in various fields of science. The workshop may have aimed to inspire participants to continue exploring the microscopic world around us and to promote the use of Foldscope in research and education.

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

presents a workshop on

Unravel the Microbial World

Take your microscope along

September 9, 2019

Under the aegis of DBT Star College Scheme

Presided by

Dr Anupama Harshal

K.C. College, Mumbai

Indo-US Foldscope Awardee

Time –1:00 p.m. to 5:00 pm

Venue: Seminar Hall

Organized by

Department of Zoology

Acharya Narendra Dev College
Workshop on "Unravel the Microbial World, Foldscope"
9 Sep 2019

S. No.	Course	Name	Roll Number
1	Zoology	ASHUTOSH MISHRA	W-1075
2	Zoology	AYAZ AHMAD RATHER	W-1022
3	Zoology	ABHISHEK PARKASH	W-1012
4	Life Sciences	SATYAJEET GIRDHAR	XO-668
5	Life Sciences	PRIYANKA	XO-656
6	Life Sciences	PRIYANKA YADAV	XO-657
7	Life Sciences	PRIYANSHU	XO-658
8	Zoology	MANISH KUMAR	X-1026
9	Zoology	MONIKA GUPTA	X-1032
10	Zoology	NACHIKETA GOHAIN DAS	X-1033
11	Zoology	PARISHA YADAV	X-1035
12	Zoology	PARTHO PROTEEM DAS	X-1036
13	Zoology	SUMAN DHULL	W-1020
14	Zoology	UMESH JATAV	W-1011
15	Zoology	VAISHALI SAINI	W-1072
16	Zoology	VIKASH YADAV	W-1047
17	Biomedical Sciences	DIPSHI AGGARWAL	XO-210
18	Biomedical Sciences	DONGLIANLAL SAMTE	XO-212
19	Biomedical Sciences	ELMER CHAKMA KHARKONGOR	XO-213
20	Biomedical Sciences	FATHIMATH FAIHA	XO-263

		IBRAHIM	
21	Zoology	SANGEETA SHARMA	X-1049
22	Zoology	SEEMA YADAV	X-1050
23	Zoology	SENJUTI SENGUPTA	X-1051
24	Zoology	SHASHI YADAV	X-1052
25	Life Sciences	RADHIKA SATIJA	XO-659
26	Life Sciences	SACHIN BISHT	XO-663
27	Life Sciences	SADAF SAMRA	XO-665
28	Life Sciences	SAKSHI SINGH	XO-666
29	Zoology	PRIYA BATRA	X-1037
30	Zoology	PUJA SMRITI DEBBARMA	X-1038
31	Life Sciences	GINNI KHULLAR	XO-625
32	Biomedical Sciences	DEEPAK SAHNI	XO-208
33	Zoology	ANIRBAN MOLLA	W-1032
34	Zoology	ANJALI VERMA	W-1033
35	Zoology	ARUN KUMAR	W-1074
36	Life Sciences	NEHA SHARMA	XO-652
37	Botany	ARUN KUMAR VERMA	XO-006
38	Botany	CHARVEE	XO-057
39	Botany	CHONGOM ALVINA AIMOL	XO-008
40	Botany	DEEPAK MEENA	XO-011
41	Botany	DEVENDRA CHOUDHARY	XO-012
42	Botany	ESHA DIWAKAR	XO-058
43	Botany	GAURAV YADAV	XO-014

44	Botany	HEMANT SINGH	XO-016

Topic: Learning Science 'The Do It Yourself Way

Organizing Committee : Dr Anupama Shukla Dr Geetika Kalra Dr Rashmi Sharma Dr Yash Mangla Dr Anita Thakur Dr Manoj Singh Dr Sumit Sahni Dr Vineet Singh (Department of Botany) Dr Sarita Kumar Dr Monica Misra Dr Seema Makhija Mr Ravinder K. Sagar Dr Aparna Sharma Dr Sweety Shrimali Dr Rahul Dev Dr Neelgagan Singh Mr Sanjay Kumar Mr Vineet Girdharwal Dr Sneh Sagar (Department of Zoology)

Date: July 17-19, 2019

Number of Participants: 38

Resource Person(s): Dr Anupama Shukla (9818024342),
Dr Geetika Kalra (9891165596),
Dr Rashmi Sharma (9810709706),
Dr Yash Mangla (9891280471),
Dr Anita Thakur (9871021236),
Dr Manoj K Singh (9711474428),
Dr Sumit Sahni (9891890065),
Dr Vineet Singh (9718013340) (Department of Botany), Dr Sarita Kumar (9810309912),
Dr Monica Misra (9560076661),
Dr Seema Makhija (9136563762),
Mr Ravinder K. Sagar (9711115176),
Dr Aparna Sharma (9871013149),
Dr Sweety Shrimali (9818540058),
Dr Rahul Dev (9873087811),
Dr Neelgagan Singh (8882006671) Mr Sanjay Kumar (8010550990),
Mr Vineet Girdharwal (9456095779)
Dr Sneh Sagar (9873515059) (Department of Zoology)

Report:

Workshop on "Learning Science 'The Do It Yourself Way' " A Three day workshop entitled "Learning Science: The 'Do It Yourself' way" was organized for school students jointly by the department of Botany and Zoology under the aegis of DBT-Star Scheme for College, in

collaboration with National Bal Bhavan, Delhi from July 17-19, 2019. 38 students of classes IX-XI from different schools of Delhi and National Bal Bhavan participated in the workshop meant to inculcate their interest and curiosity in biological sciences.

Day 1

The workshop started with lamp-lighting with prayers and in hope to ignite curiosity, dispel the darkness of ignorance, to impart knowledge and gain wisdom. This was followed by motivational words by our principal Dr Ravi Toteja. He exhorted students to make best of this opportunity and participate whole heartedly. He wished the students best for the forthcoming sessions. The sessions started soon after with Dr Geetika Kalra's talk on Microscopy. She took students on a journey from simple magnifying glass and rudimentary microscopes, through the confocal microscopes to the present day electron microscopes. The talk was followed by hands on session on microscopy led by Mr Ravinder Kumar Sagar. Students learnt how to check blood group and then checked their own blood group. They also made blood film and saw blood cells.After lunch they were given a taste of their own genes. In PTC tasting exercise they learnt that our characters are governed by our genes which in turn are inherited from our parents. Students were given PTC strips for home as well and were asked to check their parents/grandparents and siblings for Tasters/Non-tasters. Through this simple experiment they were introduced to the concept of pedigree and Mandelian genetics. Dr Aparna Sharma and Dr Sweety Shrimali were the resource persons for this session.

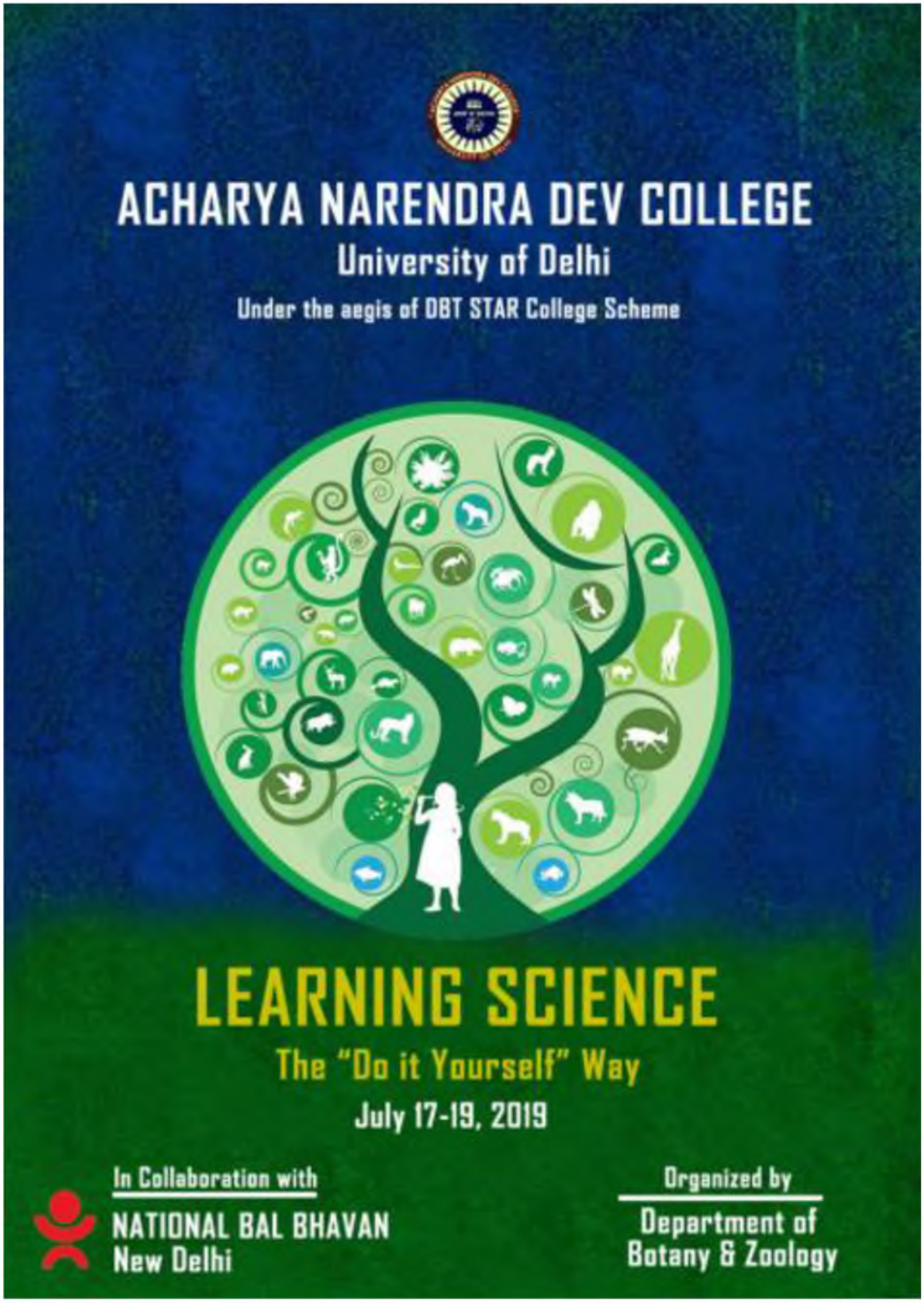
Day 2 saw students learn to make slides of nerve cells, assemble and use their own foldscope and saw stages of mitosis in onion root tip. The session was held by Dr Seema Makhija and Dr Ravi Toteja. After lunch session was conducted by Dr Geetika Kalra, Dr Yash Mangla and Dr Anita Thakur. Students learnt how to make slides of plant cells and leant the concept of plasmolysis by watching it happen in *Rhoeo* cells. Students prepared slides of *Hydrilla* to watch cytoplasmic streaming.

Day 3 started with isolation of the DNA from cauliflower. Students were introduced to and apprised about the functioning of all the equipments used during the process. Dr Sumit Sahni, Dr Manoj Kumar and Dr Rashmi Sharma. After this students visualized the DNA under transilluminator. Students visualized bacteria by Gram staining under the guidance of Mr Vineet Girdharwal and Dr Sneh Sagar. They were introduced to techniques like Gel Electrophoresis and

PCR by Dr Ravi Toteja. They were shown the butterfly garden of the college by Mr Vinesh. They visited the museum of the department of zoology especially curated for school students by Dr Seema Makhija.

Finally, the valedictory session began by a surprise quiz for the participants. Dr Neelgagan prepared the quiz. Students actively took part in the quiz. There were prizes for each correct answer. It not only broke the monotony of lectures and practical sessions but helped students recapitulate whatever they learnt during the workshop.

Students were given feedback forms to put on record their experience and for us to have an idea of their expectations to help in future planning of similar workshops. Participants were also given platform to express their opinion and suggestion regarding the workshop. They all unanimously agreed that the workshop has made them to appreciate the science of life better and that the workshop will be of great help when it's time for them to make their career choice. A vote of thanks was proposed to acknowledge all those involved in the planning and execution of the workshop and making it a great success. Workshop ended after distribution of certificates and a group photograph. Inaugural and valedictory sessions were hosted by Dr Rashmi Sharma.



2019-2020

Seminars

Acharya Narendra Dev College

Learning Science 'The Do It Yourself Way', July 17-19, 2019

S. No.	Name	Class	School
1	Harshit Gupta	10th	St. Mark's Sr. Sec .Public school.
2	Sanshit Yadav	10th	St. Mark's Sr. Sec .Public school.
3	Kanishka Sarohiya	9th	St. Mark's Sr. Sec .Public school.
4	Yajeya Wadhawa	9th	St. Mark's Sr. Sec .Public school.
5	Advaita Kadam	9th	St. Mark's Sr. Sec .Public school.
6	Pragyajanli Sahoo	9th	Lovely Public Sr. Sec. School
7	Shubham Sehgal	9th	Lovely Public Sr. Sec. School
8	Arpit Jha	9th	Lovely Public Sr. Sec. School
9	Nikhil Gupta	10th	Lovely Public Sr. Sec. School
10	Prakriti Srivastva	10th	Lovely Public Sr. Sec. School
11	Saanvi Gupta	10th	Lovely Public Sr. Sec School
12	Eshika Rana	10th	Lovely Public Sr. Sec. School

13	Saumil Jain	10th	Lovely Public Sr. Sec. School
14	Tripti Jain	10th	Lovely Public Sr. Sec. School
15	Ishan Sharma	10th	Lovely Public Sr. Sec. School
16	Ritika Jain	9th	Lovely Public Sr. Sec. School
17	SiyaSachedeva	9th	St. Lawrence Public Sr. Sec. School
18	KunalBansal	9th	St. Lawrence Public Sr. Sec. School
19	AmanGoel	9th	St. Lawrence Public Sr. Sec. School
20	AdityaChauhan	9th	St. Lawrence Public Sr. Sec. School
21	PiyushAggarwal	9th	St. Lawrence Public Sr. Sec. School
22	RiyaAgnihotri	9th	St. Lawrence Public Sr. Sec. School
23	Vibhav	10th	St. Lawrence Public Sr. Sec. School
24	IshitaAggarwal	10th	St. Lawrence Public Sr. Sec. School
25	RidhiRastogi	10th	St. Lawrence Public Sr. Sec. School
26	RadhikaBansal	10th	St. Lawrence Public Sr. Sec. School

27	NamishJalan	10th	St. Lawrence Public Sr. Sec. School
28	IshitaBhagat	10th	Ramjas Public School (Day Boarding)
29	PratyushBiswal	10th	Ramjas Public School (Day Boarding)
30	Gatik Gupta	10th	Ramjas Public School (Day Boarding)
31	Devansh Mittal	10th	Ramjas Public School (Day Boarding)
32	SimranChauhan	10th	Ramjas Public School (Day Boarding)
33	Eshani Sharma	9th	Ramjas Public School (Day Boarding)
34	VibhanshuChauhan	9th	Ramjas Public School (Day Boarding)
35	YashiGulati	9th	Ramjas Public School (Day Boarding)
36	RashikaArora	9th	Ramjas Public School (Day Boarding)
37	LakshayAlagh	9th	Ramjas Public School (Day Boarding)
38	Bhumika	10th	National Bal Bhawan
39	Suraj	11th	National Bal Bhawan
40	Ghaniya	12th	National Bal Bhawan
41	Madiha	11th	National Bal Bhawan

Title: Protecting Wildscapes in Contemporary India

Organizing team: Dr Sarita Kumar Dr Monica Misra Dr Seema Makhija Mr Ravinder K. Sagar Dr Aparna Sharma Dr Sweety Shrimali Dr Rahul Dev Dr Neelgagan Singh Mr Sanjay Kumar Mr Vineet Girdharwal Dr Sneh Sagar (Department of Zoology)

Date: August 30, 2019

Number of Participants: 76

Resource Person: Mr Debadityo Sinha (9090848433),
Founder of Vindhyan Ecology and Natural History Foundation

Report:

Mr. Debadityo Sinha, the founder of the Vindhyan Ecology and Natural History Foundation, is a renowned conservationist and wildlife biologist. He is committed to protecting wildscapes in contemporary India through various initiatives, including advocacy, research, and policy interventions. Mr. Sinha emphasized that wildscapes are not only essential for biodiversity conservation but also for ensuring the well-being of human communities. Wildscapes provide ecosystem services, such as clean air and water, pollination, and soil conservation. They also have cultural, spiritual, and recreational values for local communities. Mr. Sinha stated that wildscapes are a vital resource that needs to be conserved and managed sustainably to ensure the well-being of both humans and wildlife. Mr. Sinha highlighted that India has made significant progress in wildlife conservation in recent years, with several flagship programs, including Project Tiger, Project Elephant, and the National Wildlife Action Plan. However, he also highlighted some of the challenges that conservation efforts face in contemporary India.

One of the major challenges is the increasing human-wildlife conflict due to habitat loss and fragmentation. Human activities, such as deforestation, mining, and infrastructure development, have resulted in the loss of wildlife habitat and fragmentation of landscapes. This has led to the displacement of wildlife, which often results in human-wildlife conflict.

Another challenge is the lack of public awareness and participation in conservation efforts. Mr. Sinha emphasized the need for public education and awareness programs to sensitize people about the importance of wildscapes and their role in conservation.Mr. Sinha also shared some of the initiatives taken by the Vindhyan Ecology and Natural History Foundation to protect wildscapes in contemporary India. The foundation works with local communities to promote sustainable

livelihoods that are compatible with wildlife conservation. It also conducts research and advocacy on policy issues related to conservation.

The talk ended with a vote of thanks to the eminent speaker and alumni of the college.....

Acharya Narendra Dev College
(University of Delhi)

NICHE
THE ZOOLOGICAL SOCIETY

(Under DBT Star Scheme)

25th ANNIVERSARY

Organizes

TALK

"PROTECTING WILDSCAPES IN CONTEMPORARY INDIA"

By

Mr. Debadityo Sinha

Founder of Vindhyan Ecology and Natural History Foundation

AUGUST 30, 2019

Time: 10:30am onwards

Venue: Conference Hall

Acharya Narendra Dev College

Protecting wildscapes in Contemporary India, August 30, 2019 (Seminar)

S. No	Course	Roll Number	Name
1	BSc (Hon) Zoology	Y-1001	AARUSHI
2	BSc (Hon) Zoology	Y-1053	SUSHIL
3	BSc (Hon.) Zoology	Y-1056	YADUVINDER
4	BSc (Hon.) Zoology	Y-1005	ADWAIT MISHRA
5	BSc (Hon.) Zoology	Y-1052	SUNIL
6	BSc (Hon.) Zoology	Y-1009	ANKIT
7	BSc (Hon.) Zoology	Y-1013	DEEPAK PAL
8	BSc (Hon.) Zoology	Y-1014	DEEPALI SINGH
9	BSc (Hon.) Zoology	Y-1019	JITUMONI SHARMA
10	BSc (Hon) Zoology	Y-1021	KALPIT RANI
11	BSc (Hon.) Zoology	Y-1059	DEEPIKA JOSHI
12	BSc (Hon.) Zoology	Y-1022	KOMAL SHARMA
13	BSc (Hon.) Zoology	Y-1025	MANJUMA SARKAR
14	BSc (Hon.) Zoology	Y-1026	MEHUL NARANG
15	BSc (Hon.) Zoology	Y-1033	PAMELA BARUA
16	BSc (Hon.) Zoology	Y-1034	PRANJAL SHARMA
17	BSc (Hon.) Zoology	Y-1028	MUSKAN YADAV

18	BSc (Hon.) Zoology	Y-1045	SANJU KUMARI
19	BSc (Hon.) Zoology	Y-1046	SHEETAL YADAV
20	BSc (Hon.) Zoology	Y-1041	RIYA
21	BSc (Hon.) Zoology	Y-1061	SHIFALI JAIN
22	BSc (Hon.) Zoology	Y-1047	SHUBHAM CHAUDHARY
23	BSc (Hon.) Zoology	Y-1042	ROHIT
24	BSc (Hon.) Zoology	Y-1050	SONIA SINGH
25	BSc (Hon.) Zoology	Y-1051	SUBHAM MOHANTY
26	BSc (Hon.) Zoology	Y-1063	YUKTA KHATRI
27	BSc (Hon.) Zoology	Y-1060	SURBHI SINGH
28	BSc (Hon.) Zoology	AB-1001	ADITYA ARORA
29	BSc (Hon.) Zoology	AB-1036	SEJAL ARORA
30	BSc (Hon.) Zoology	AB-1014	HAFIZA
31	BSc (Hon.) Zoology	AB-1004	AKSHAT KAUSHIK
32	BSc (Hon.) Zoology	AB-1005	AMAN GAUTAM
33	BSc (Hon.) Zoology	AB-1006	ANJALI
34	BSc (Hon.) Zoology	AB-1007	ANKIT PANDEY
35	BSc (Hon.) Zoology	AB-1008	AVANIJA TYAGI
36	BSc (Hon.) Zoology	AB-1035	SAHIL KAUSHIK
37	BSc (Hon.) Zoology	AB-1010	BHAWNA

38	BSc (Hon.) Zoology	AB-1011	DIVYA DEEP
39	BSc (Hon.) Zoology	AB-1018	KALPANA RAUTELA
40	BSc (Hon.) Zoology	AB-1013	GUNJAN GROVER
41	BSc (Hon.) Zoology	AB-1022	MILAN YADAV
42	BSc (Hon.) Zoology	AB-1020	KOMAL GOYAL
43	BSc (Hon.) Zoology	AB-1016	HRITHIK K P
45	BSc (Hon.) Zoology	AB-1017	JANVI BATRA
46	BSc (Hon.) Zoology	AB-1025	NAKUL MEHTA
47	BSc (Hon.) Zoology	AB-1019	KHUSHI GOYAL
48	BSc (Hon.) Zoology	AB-1012	GAURAV BANSAL
49	BSc (Hon.) Zoology	AB-1027	NISHTHA MAHAJAN
50	BSc (Hon.) Zoology	AB-1023	MONIKA
51	BSc (Hon.) Zoology	AB-1028	PRIYA YADAV
52	BSc (Hon.) Zoology	AB-1024	MUSKAN
53	BSc (Hon.) Zoology	AB-1026	NILESH KUMAR SONKAR
54	BSc (Hon.) Zoology	AB-1029	PULKIT SINGH
55	BSc (Hon.) Zoology	Z-1011	DEEPANKAN
56	BSc (Hon.) Zoology	Z-1012	DEEPANSHI SACHAN
57	BSc (Hon.) Zoology	Z-1013	HALEEMA ANJUM
58	BSc (Hon.) Zoology	Z-1040	HARSHITA

59	BSc (Hon.) Zoology	Z-1014	JYOTI NAWARIYA
60	BSc (Hon.) Zoology	Z-1023	PRERNA SIROHI
61	BSc (Hon.) Zoology	Z-1049	PRIYA CHAUDHARY
62	BSc (Hon.) Zoology	Z-1024	RINYARIN KEISHING
63	BSc (Hon.) Zoology	Z-1042	LAIRIKYENGBAM ELIZA DEVI
64	BSc (Hon.) Zoology	Z-1053	PALLAVI
65	BSc (Hon.) Zoology	Z-1040	HARSHITA
66	BSc (Hon.) Zoology	Z-1002	AMISHA PANDA
67	BSc (Hon.) Zoology	Z-1021	NIRMEGH BASU
68	BSc (Hon.) Zoology	Z-1045	AKARSHAN GUPTA
69	BSc (Hon.) Zoology	Z-1022	PARIKSHIT SAHOTRA
70	BSc (Hon.) Zoology	Z-1013	HALEEMA ANJUM
71	BSc (Hon.) Zoology	Z-1001	ALKA YADAV
72	BSc (Hon.) Zoology	Z-1014	JYOTI NAWARIYA
73	BSc (Hon.) Zoology	Z-1047	ADARSH JHA
74	BSc (Hon.) Zoology	Z-1052	MADHAV GOEL
75	BSc (Hon.) Zoology	Z-1017	MUKUND NAGPURE
76	BSc (Hon.) Zoology	Z-1018	NABARUN SONOWAL

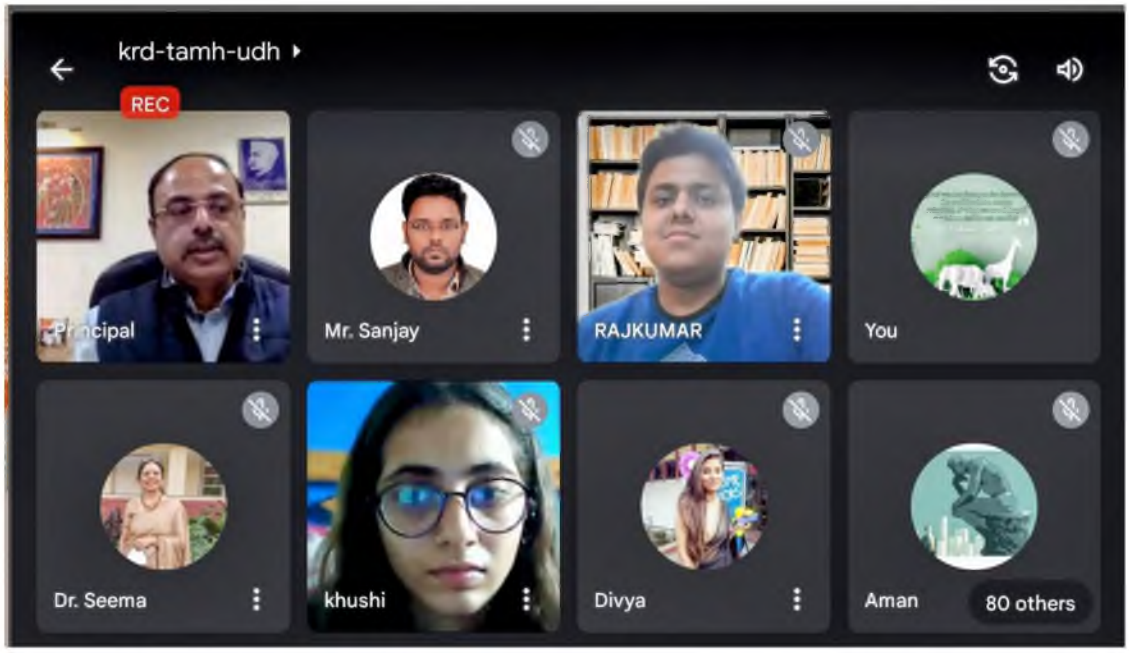
Title: The Growth of Linnean thought: Impact of common descent and current understanding
Organizing team: Dr Monica Misra, Prof. Seema Makhija (Department of Zoology)
Date: May 11, 2020
Number of Participants: 48
Resource Person: Dr Himender Bharti (9356785454)

Report:

Dr. Himender Bharti gave a talk on "The Growth of Linnean Thought: Impact of Common Descent and Current Understanding". The talk focused on the evolution of Linnean thought and its impact on our current understanding of biology.Dr. Bharti began by discussing the Linnean system of classification, which was developed by the Swedish naturalist Carl Linnaeus in the 18th century. This system is based on a hierarchical structure of classification, with organisms grouped into increasingly specific categories, from kingdom to species. Linnaeus's system was based on morphology, or physical characteristics, and did not take into account evolutionary relationships.However, with the development of the theory of evolution by natural selection in the 19th century, scientists began to recognize the importance of evolutionary relationships in classification. The concept of common descent, or the idea that all living things share a common ancestor, became a key tenet of evolutionary theory.

Dr. Bharti discussed how this concept of common descent has had a significant impact on Linnean thought and classification. Scientists now use phylogenetic trees, which show the evolutionary relationships between organisms, to classify living things. These trees are based on molecular data, such as DNA sequences, as well as morphology. Dr. Bharti also discussed some of the challenges that arise when using a phylogenetic approach to classification. For example, convergent evolution, or the evolution of similar traits in distantly related organisms, can make it difficult to determine evolutionary relationships based on morphology alone. In these cases, molecular data can be particularly useful in determining the true relationships between organisms.

Overall, Dr. Bharti's talk highlighted the evolution of Linnean thought and the importance of the concept of common descent in our current understanding of biology. By recognizing the evolutionary relationships between organisms, we can better understand the diversity of life on Earth and the processes that have shaped it over time.


krd-tamh-udh
REC
Principal
Mr. Sanjay
RAJKUMAR
You
Dr. Seema
khushi
Divya
Aman
80 others

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NAAC Accreditation Grade 'A' | Mentor under UGC *PARAMARSH* Scheme

presents

WEBINAR ON

The growth of Linnaean thought, impact of common descent and current understanding

by

Professor Himender Bharti

Head, Department of Zoology & Environmental Sciences
Punjabi University, Patiala

Monday, May 11 , 2020 | 4:00 p.m.

Organized by
Department of Zoology, under the aegis of DBT STAR College Scheme

Join us Live via ZOOM Meetings

https://zoom.us/j/2057117811?pwd=VXBzVVBwkUrcDE5T1MvaGozLzR6dz09

Meeting ID: 205 711 7811
Password: 7KbhV4

Visit
http://andcollege.du.ac.in

Acharya Narendra Dev College
The Growth of Linnean thought: Impact of common descent and current understanding
11 May 2020

S. No.	Course	Name	Roll Number
1	Life Sciences	NEHA SHARMA	XO-652
2	Life Sciences	NITISH KUMAR	XO-696
3	Life Sciences	PRACHI SINGH	XO-654
4	Life Sciences	PREETI	XO-655
5	Life Sciences	PRIYANKA	XO-656
6	Life Sciences	PRIYANKA YADAV	XO-657
7	Life Sciences	PRIYANSHU	XO-658
8	Zoology	MANISH KUMAR	X-1026
9	Zoology	MONIKA GUPTA	X-1032
10	Zoology	NACHIKETA GOHAIN DAS	X-1033
11	Zoology	PARISHA YADAV	X-1035
12	Zoology	PARTHO PROTEEM DAS	X-1036
13	Zoology	PRIYA BATRA	X-1037
14	Zoology	PUJA SMRITI DEBBARMA	X-1038
15	Life Sciences	GINNI KHULLAR	XO-625
16	Biomedical Sciences	DEEPAK SAHNI	XO-208
17	Biomedical Sciences	DIPSHI AGGARWAL	XO-210
18	Biomedical Sciences	DONGLIANLAL SAMTE	XO-212
19	Biomedical Sciences	ELMER CHAKMA KHARKONGOR	XO-213
20	Biomedical Sciences	FATHIMATH FAIHA IBRAHIM	XO-263

Conferences/Workshops/Seminars for the year 2018-19

Title: Learning Science by Doing Science

Organizing team: Dr Charu Khosla Gupta (Department of Botany) Dr Pooja Bhagat Dr Geetu Gambhir (Department of Chemistry) Dr Arijit Chowdhuri (Department of Physics) Dr Seema Makhija (Department of Zoology)

Date: June 18-24, 2019

No of Participants: 30

Resource Persons:

Name	Contact Details
Prof Rup Lal	9810785766
Dr Utkarsh Sood	9999913310
Dr Vipin Gupta	9015862845
Dr Princy Hira	9711070176

Report:

Workshop on "Learning Science by Doing Science" An interdisciplinary workshop titled "Learning Science by Doing Science" was organized by Departments of Botany, Zoology, Physics and Chemistry in collaboration from 18 – 22 June 2019. The main objective was to give the students an exposure to cutting-edge research in frontier areas of science besides imparting advanced hands-on laboratory skills to them. The workshop began with sessions on physico-chemical analysis of soil coordinated by faculty from chemistry department Dr.Pooja Bhagat and Dr. Geetu Gambhir. The students were made to determine the pH of soil accurately in the laboratory by electrometric method. The investigation assumes importance because determination of pH in soil is important as it plays a great role in availability of nutrients to plants. pH determination is useful for soil classification on the basis of acidity or alkalinity. The electrometric determination of pH by a pH

meter was based on measuring the e.m.f. (millivolts) of a pH cell both a reference buffer and then with a test solution. Further experiments on determination of organic carbon present in the soil as also calcium carbonate (free lime) were undertaken. Sessions on Surface Plasmon Resonance (SPR) – Working Principle and Applications were coordinated by faculty from Department of Physics – Dr. V. Bhasker Raj and Dr.Arijit Chowdhuri. The students were taught how technique involved detection of changes in refractive index at the surface of a sensor whence the sensor comprised of a glass substrate and thin gold coating. The concept of light passing through the substrate and getting reflected off the gold coating at certain angles of incidence, whence a portion of the light energy couples through the gold coating and creates a surface plasmon wave at the sample and gold surface interface. The students were given hands-on training on a table-top SPR machine and made to perform the following three experiments a) To measure the surface plasmon resonance (SPR) reflectance curve at metal (gold)-air interface. b) To find the optical properties of metal film by fitting the experimental SPR data with Fresnel's equations. c) To determine plasma frequency and surface plasmon frequency of a metal. The students observed that angle of incident light required to sustain the surface plasmon wave was very sensitive to changes in refractive index at the surface (due to mass change), and these changes were noted to be critical to makingit a very sensitive technique. Sessions on studies on effect of environmental degradation on plant health by estimating chlorophyll and ascorbic acid content were coordinated by faculty members from Department of Botany – Dr. Yash Mangla and Dr.Charu Khosla Gupta. Students were given idea about how plants responded to air quality degradation, how their health gets impacted at molecular, cellular, physiological, and behavioural level, and about the mechanisms by which the plants attempt to overcome the ill-effects of air pollution and how their health weakens. All of the aforementioned were indirectly measured by way of estimation of chlorophyll content and ascorbate content in plants. The plants studied in question were sourced from clean and varying polluted environs.

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

Grade "A" by NAAC | DBT Star College

organized by Departments of Botany, Chemistry, Physics & Zoology under the aegis of DBT Star College Scheme

June 18 – 24, 2019

Time: 9.15 a.m.

Interdisciplinary workshop

"Learning Science by Doing Science"

Coordinator: Dr. RaviToteja
Department Convenors: Dr. Seema Makhija (Zoology), Dr. Geetu Gambhir (Chemistry), Dr. Charu K. Gupta (Botany), Dr. Arijit Chowdhuri (Physics), Dr. Pooja Bhagat (Chemistry)

For details visit - http://andcollege.du.ac.in/

Acharya Narendra Dev College

Interdisciplinary Workshop Learning Science by Doing Science

June 18-24, 2019

S.No.	Name of the student	Course
1.	HARSH VARDHAN SAHU	B.Sc (H) Chemistry II Year
2.	PRANJAL SHARMA	B.Sc (H) Zoology II Year
3.	SHUSHANK	B.Sc. Life Science I Year
4.	DEEPANSHU	B.Sc. Life Science I Year
5.	ANUDEEP V S	B.Sc (H) Physics I Year
6.	VIREN TYAGI	B.Sc (H) Physics I Year
7.	PAYAL	B.Sc (H) Botanyl Year
8.	MANISHA GUPTA	B.Sc. Life Science I Year
9.	SNEHA MEHAR	B.Sc. Life Science I Year
10.	NARAIN SWAMI	B.Sc. Life Science I Year
11.	KIRTI CHUG	B.Sc (H) Chemistry I Year
12.	RAMAN	B.Sc (H) Chemistry I Year
13.	BHASKAR PAL	B.Sc (H) Botanyl Year
14.	AMRIT DUTT	B.Sc (H) Physics I Year
15.	NITISH	B.Sc. Life Science I Year
16	ABHISHEK PARKASH	ABHISHEK PARKASH
17	AMAN	Zoology
18	AMAN ANAND	Zoology
19	ANAND SHARMA	Zoology
20	SHAKSHI SHAH	Zoology
21	SONU YADAV	Zoology
22	SUMAN DHULL	Zoology

23	UMESH JATAV	Zoology
24	VAISHALI SAINI	Zoology
25	VIKASH YADAV	Zoology
26	TANYA SHARMA	Zoology
27	UMESH RAO	Zoology
28	VAASAVI SINGH	Zoology
29	VANYA GARG	Zoology
30	VIKAS MEENA	Zoology

Title: "Two-day workshop on "Hands-on to Computational Biology for (meta)genomic analysis" jointly organized by Department of Zoology and Department of Botany, Acharya Narendra Dev College under the aegis of DBT Star College Scheme"

Organizing team: Dr Rashmi Sharma (Department of Botany)
Dr Seema Makhija (Department of Zoology)

Date: April 04-05, 2019

No of Participants: 37

Resource Persons: Dr Utkarsh Sood (9999913310),
Dr Vipin Gupta (9015862845)

Report:

A two-day workshop on '**Hands-on to Computational Biology for (meta)genomic analysis**' was organized jointly by Department of Zoology and Department of Botany, Acharya Narendra Dev College under the aegis of DBT Star College Scheme from April 4-5, 2019. The workshop was conducted by two resource persons: Dr. Vipin Gupta and Dr. Utkarsh Soodfrom PhiXGen Pvt. Ltd. This workshop was coordinated by Dr. Ravi Toteja, Acting Principal, ANDC, Dr. Seema Makhija and Dr. Rashmi Sharma.This workshop on 'Hands on to Computational Biology for (meta) genomics analysis' was an attempt to empower the next generation to take up the bigger challenges in environmental microbiology. A total of 37 participants attended the workshop. It was a two-day long session where hands on modules were conducted to understand the workflow of bioinformatic tools to analyze huge sequence datasets. The workshop modules were prepared keeping in mind the need of basic to moderate level knowledge by students who wants to enter exciting area of genomics and metagenomics.

The workshop began with the welcome address by Dr. Ravi Toteja at the web center. He welcomed the resource persons and introduced the students to this workshop. This was followed by detailed sessions and hand on experience about the methodology of (meta)genomic data generation, Linux operating system and cloud computation, bacterial genomic assembly and annotation, metagenomic diversity analysis and Systems biology.

Before hands on modules, Dr. Utkarsh and Dr. Vipin introduced the work flow of Genomics and Metagenomics data analysis. They motivated the students to properly design the study for the bioinformatic analysis and then start venturing into the computational tools that are needed for

the analysis. Dr. Vipin started **Module 1** with a brief introduction about Linux and Ubuntu operating software and emphasized mainly on knowing your machine and minimum hardware requirement for starting any analysis. Further, **Module 2** by Dr. Utkarsh focused on cloud computing using google genomics. Students were told how without having a workstation they can analyze the biological data using cloud computation on google genomics platform. Installation of Ubuntu was also discussed in this module followed by **Module 3** on Genome Assembly. With the basic overview of operating system, participants performed hands on trial and learned about genomic assembly using ABySS 2.1.5 software individually. Students were told about de novo and reference-based assembly and several parameters on which the ABySS assembler runs. The first day of workshop ended after the assembly results of ABySS were obtained and discussed in details.

Day 2: April 5, 2019

The second day started with the interaction session where students asked their doubts and clarified their queries on the previous modules. This was followed by **Module 4** on Assembly Validation using Quast. First, Dr. Vipin explained the need for validating any assembled genome and the quality scores obtained. Thereafter the validation of genomic assembly using the quast1.2.0 software was performed individually by the participants. Further, the assembled and validated genome was annotated using the RAST server and Glimmer 3 gene caller. This was followed by **Module 5** on Metagenomics which began with metagenomic diversity analysis using MetaPhlAn and followed by its visualization by GraPhlAn tool. **Module 6**focused on systems biology approach for microbiome annotations and protein-protein interactome models. A demonstration of system biology tools for studying protein-protein interactions using STRING database and Cytoscape was performed. A genomic subset of proteins was mapped into STRING database and interaction analysis was performed using Cytoscape standalone tool with perfused circular layout.

A healthy discussion between the participants and resource persons for clearing all the doubts of the participants succeeded the modules. Following the enthusiasm among the students for discussing their doubts which took the workshop at the next level of interaction, students were asked to share their experience about the workshop.

This training workshop certainly helped the participants gain full knowledge of basic bioinformatics analyses and design their experiments for solving problems related to meta(genomic) data. At last, Dr. Ravi Toteja gave a vote of thanks and felicitated the resource persons with token of appreciations followed by distribution of certificates to the participants.

Welcome
to
Two Day Works 2018
On

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

Grade "A" by NAAC | DBT Star College

Organised by Department of Zoology & Botany
Under the aegis of DBT Star College Scheme

April 04-05, 2019
10:00 a.m.
Venue: Web Facilitation Centre

Workshop on Hands-on to Computational biology for (meta)genomic analysis

phiXgen

For Details visit
http://andcollege.du.ac.in/

PhiXGen Pvt. Ltd.

Acharya Narendra Dev College

Workshop on "Hands-on to computational biology for (meta)genomic analysis",

April 4-5, 2019

S. No.	Course	Roll Number	Name
1	Zoology	ABHISHEK	X-1002
2	Zoology	ASUTOSH TIWARY	X-1007
3	Zoology	AYSHNA KUKREJA	X-1008
4	Zoology	AYUSHI RATURI	X-1010
5	Zoology	DEEPAK KUMAR RAY	X-1012
6	Zoology	HIMANGI SHARMA	X-1019
7	Zoology	JITENDER	X-1022
8	Zoology	KAJAL GOYAL	X-1023
9	Zoology	MAHESH KASANA	X-1073
10	Zoology	MANISH KUMAR	X-1026
11	Zoology	NACHIKETA GOHAIN DAS	X-1033
12	Zoology	PARISHA YADAV	X-1035
13	Zoology	PARTHO PROTEEM DAS	X-1036
14	Zoology	PRIYA BATRA	X-1037
15	Zoology	PUJA SMRITI DEBBARMA	X-1038

16	Zoology	PUSHPANJALI DAS	X-1039
17	Zoology	SAKSHI SARASWAT	X-1048
18	Zoology	SHASHI YADAV	X-1052
19	Zoology	SHILPI SINGH	X-1053
20	Botany	ARUN KUMAR VERMA	XO-006
21	Botany	CHARVEE	XO-057
22	Botany	CHONGOM ALVINA AIMOL	XO-008
23	Botany	DEEPAK MEENA	XO-011
24	Botany	DEVENDRA CHOUDHARY	XO-012
25	Botany	ESHA DIWAKAR	XO-058
26	Botany	PRIYA HASIJA	XO-037
27	Botany	RITIKA TULSEJA	XO-064
28	Botany	SHIVANGI PANDEY	XO-043
29	Biomedical Sciences	DIPSHI AGGARWAL	XO-210
30	Biomedical Sciences	DONGLIANLAL SAMTE	XO-212
31	Biomedical Sciences	ELMER CHAKMA KHARKONGOR	XO-213
32	Biomedical Sciences	FATHIMATH FAIHA IBRAHIM	XO-263

33	Biomedical Sciences	GAURAV	XO-214
34	Biomedical Sciences	HARMAN PREET KAUR	XO-216
35	Life Sciences	BONTI DAS	XO-617
36	Life Sciences	DEEPAK SINGH	XO-620
37	Life Sciences	GINNI KHULLAR	XO-625

Title: "International Women's Day"

Organizing team: Dr. Seema Makhija (Department of Zoology)

Date: March 08, 2019

No of Participants: 150

Resource Persons: Dr. Rina Singh, Dr. Sheetal Gangdotra, Dr. Pranalee Thorat

Report:

Mini Symposium on "International Women's Day" The College organized a "Mini Symposium on International Women's Day" on March 8, 2019 in Collaboration with CSIR for raising awareness and highlighting women's achievements. N. Kalai Selvi, Director CSIR-Central Electrochemical Research Institute was available on line and interacted with students about Green Energy for Clean India. Dr. Rina Singh, Scientist CSIR Central Road Research Institute enlightened the gathering about Nanotechnology for Green Environment. Dr. Sheetal Gangdotra, Scientist CSIR-IGIB delivered a talk on Mycobacterium: Learning from the Best. Dr. Pranalee Thorat, Scientist CSIR-NPL very interestingly explained about the history of units of time and frequency.

Mini Symposium on International Women's Day
Organized by CSIR
Acharya Narendra Dev College
8th March 2019, 2-4.30 PM
Dr N. KalaiSelvi
Director
CSIR-Central
Electrochemical
Research Institute
Green Energy for
Clean India
Dr Rina Singh
Scientist
CSIR-Central Road
Research Institute
Nanotechnology for
Green Environment
Dr Sheetal Gandotra
Scientist
CSIR-Institute of
Genomics &
Integrative Biology
Learning from the
best: Mycobacterium
tuberculosis
Dr Pranalee Thorat
Scientist
CSIR-National
Physical Laboratory
History of Units of
Time and Frequency
#WomenScientists #ScienceOutreach #ScienceCommunication

Acharya Narendra Dev College

Mini Symposium on "International Women's Day"

8 March, 2019

S. No	Course	Name	Roll Number
1	Biomedical Sciences	HARMAN PREET KAUR	XO-216
2	Biomedical Sciences	HARSHIKA GAUTAM	XO-217
3	Biomedical Sciences	HARSHITA	XO-256
4	Biomedical Sciences	KHANGEMBAM NONGTHANGLEIMA DEVI	XO-221
5	Biomedical Sciences	KM JYOTI GAUTAM	XO-222
6	Biomedical Sciences	KOMAL	XO-223
7	Life Sciences	ARCHANA KASHYAP	1310
8	Life Sciences	ARIBAM BIKU SHARMA	XO-614
9	Life Sciences	BHAWNA	XO-616
10	Life Sciences	BONTI DAS	XO-617
11	Life Sciences	DEEPAK SINGH	XO-620
12	Life Sciences	GINNI KHULLAR	XO-625
13	Life Sciences	GULNAR PARVEEN	XO-626
14	Zoology	AYSHNA KUKREJA	X-1008
15	Zoology	AYUSHI RATURI	X-1010

S Mathur

16	Zoology	DEEPAK KUMAR RAY	X-1012
17	Zoology	DEEPANKER	X-1013
18	Zoology	DHEERAJ	X-1014
19	Zoology	DIVYA RANI	X-1015
20	Zoology	HIMANGI SHARMA	X-1019
21	Zoology	INTJAR	X-1070
22	Life Sciences	MAYANK BAJAJ	XO-642
23	Life Sciences	MILLIONAIRAE LAISHRAM	XO-644
24	Zoology	MAHESH KASANA	X-1073
25	Zoology	MANISH KUMAR	X-1026
26	Zoology	MONIKA GUPTA	X-1032
27	Zoology	NACHIKETA GOHAIN DAS	X-1033
28	Zoology	PARISHA YADAV	X-1035
29	Zoology	PARTHO PROTEEM DAS	X-1036
30	Botany	ABHIMANYU	XO-002
31	Botany	AISWARYA PATNAIK	XO-003
32	Botany	AKANKSHA YADAV	XO-004
33	Botany	ANJALI ANAND	XO-005

34	Botany	ARUN KUMAR VERMA	XO 006
35	Botany	CHARVEE	XO 057
36	Life Sciences	PRIYANSHU	XO-658
37	Life Sciences	RADHIKA SATIJA	XO-659
38	Life Sciences	SACHIN BISHT	XO-663
39	Life Sciences	SADAF SAMRA	XO-665
40	Life Sciences	SAKSHI SINGH	XO-666
41	Life Sciences	SATYAJEET GIRDHAR	XO-668
42	Biomedical Sciences	PRIYANKA CHAUHAN	XO-233
43	Biomedical Sciences	PURNENDU KUMAR	XO-234
45	Biomedical Sciences	RIDDHI BHARDWAJ	XO-235
46	Biomedical Sciences	SANDEEP GUPTA	XO-259
47	Biomedical Sciences	SHREYA VERMA	XO-240
48	Biomedical Sciences	SIBARAM SADANGI	XO-241
49	Biomedical Sciences	SONANJALI ANEJA	XO-242
50	Life Sciences	SUMRAN KARAMCHANDANI	XO-678
51	Life Sciences	SUPRIYA VERMA	XO-679
52	Life Sciences	SURAJ KUMAR SHAH	XO-680
53	Life Sciences	TANU AGRAHARI	XO-684

54	Life Sciences	VAISHALI JAISWAL	XO-689
55	Zoology	RAHUL POSWAL	X-1040
56	Zoology	RAVI KUMAR	X-1041
57	Zoology	RINKI TEWATIA	X-1043
58	Zoology	SAKSHI SARASWAT	X-1048
59	Zoology	SAKSHI VARSHNEY	X-1047
60	Zoology	SANGEETA SHARMA	X-1049
61	Zoology	SEEMA YADAV	X-1050
62	Zoology	SENJUTI SENGUPTA	X-1051
63	Botany	DEVENDRA CHOUDHARY	XO-012
64	Botany	ESHA DIWAKAR	XO-058
65	Botany	GAURAV YADAV	XO-014
66	Botany	HEMANT SINGH	XO-016
67	Life Sciences	MOHD EZAZ ALI	XO-645
68	Life Sciences	MOHIT SINGH	XO-647
69	Life Sciences	MOHIT YADAV	XO-646
70	Life Sciences	MONIKA SINGH	XO-648
71	Life Sciences	MUNENDRA KUMAR	XO-649
72	Life Sciences	NAVIN CHAND RAMOLA	XO-697

73	Life Sciences	NEHA SHARMA	XO-652
74	Life Sciences	NITISH KUMAR	XO-696
75	Life Sciences	PRACHI SINGH	XO-654
76	Life Sciences	PREETI	XO-655
77	Life Sciences	PRIYANKA	XO-656
78	Life Sciences	PRIYANKA YADAV	XO-657
79	Zoology	SOMYA SHARMA	X-1057
80	Zoology	SONAM KUMARI	X-1058
81	Zoology	SUNIL	X-1059
82	Zoology	TANYA SHARMA	X-1063
83	Zoology	UMESH RAO	X-1071
84	Chemistry	AAKRITI	XO-101
85	Chemistry	ABHINAV SINGH	XO-163
86	Chemistry	AKASH ARORA	XO-103
87	Chemistry	AMAN YADAV	XO-104
88	Life Sciences	ISHA AGGARWAL	XO-629
89	Life Sciences	JULIE DEY NAYEK	XO-632
90	Life Sciences	LAKSHITA BHATI	XO-635
91	Life Sciences	LAVANYA RAWAT	XO-636

92	Life Sciences	MAHIMA	XO-637
93	Life Sciences	MANISH KOHLI	XO-639
94	Life Sciences	MANSI YADAV	XO-640
95	Life Sciences	MARTIN CHONGTHAM	XO-641
96	Botany	MAHIMA KUWARBI	XO-062
97	Botany	MANASH KUMAR BEHERA	XO-022
98	Botany	MANJUL SINGH	XO-023
99	Botany	MANOHAR SINGH BISHT	XO-024
100	Botany	MANOJ KUMAR	XO-025
101	Botany	MANSI NEGI	XO-026
102	Botany	MEDHA JHA	XO-027
103	Chemistry	KIRTI CHUGH	XO-161
104	Chemistry	MARIYAM MANAARATH	XO-153
105	Chemistry	MEGA JAMATIA	XO-125
106	Chemistry	MEGHA TANWAR	XO-148
107	Chemistry	MONIKA	XO-127
108	Life Sciences	SHIVAM SINGH HOON	XO-669
109	Life Sciences	SHUBHI BANSAL	XO-672

110	Life Sciences	SHUCHITA MISHRA	XO-673
111	Life Sciences	SHYAM MANOHAR	XO-674
112	Life Sciences	SIMRAN AHUJA	XO-675
113	Life Sciences	SITHARA NAZAR PT	XO-676
114	Life Sciences	SONALI HANSDA	XO-699
115	Botany	RITIKA TULSEJA	XO-064
116	Botany	SHIVANGI PANDEY	XO-043
117	Botany	SHIVANI	XO-045
118	Botany	SHIVANI	XO-044
119	Botany	SHUBHANGI PANDEY	XO-049
120	Botany	SUJATA KUMARI	XO-051
121	Botany	VIJAY KUMAR	XO-055
122	Botany	VINITA SINGH	XO-053
123	Botany	YOGITA BHATT	XO-054
124	Chemistry	ANIKET VERMA	XO-106
125	Chemistry	ANTIM RANI	XO-145
126	Chemistry	ANU MALIK	XO-108
127	Chemistry	ARPAN SHARMA	XO-109
128	Chemistry	ARYAN VISHWAKARMA	XO-110

129	Chemistry	ASHISH MISHRA	XO-111
130	Chemistry	CHINMAY GUPTA	XO-112
131	Chemistry	DEEPANSHU DHIMAN	XO-113
132	Life Sciences	VRINDA JOSHI	XO-691
133	Life Sciences	YASHITA DHINGRA	XO-692
134	Life Sciences	YATIN RANA	XO-693
135	Life Sciences	YUKTI KHANNA	XO-695
136	Biomedical Sciences	AKANKSHA SHUKLA	XO-201
137	Biomedical Sciences	AYUSH LEPCHA	XO-204
138	Biomedical Sciences	BHAVYA SAINI	XO-206
139	Biomedical Sciences	DEEPAK POKHREAL	XO-207
140	Biomedical Sciences	DEEPAK SAHNI	XO-208
141	Biomedical Sciences	DIPSHI AGGARWAL	XO-210
142	Biomedical Sciences	DONGLIANLAL SAMTE	XO-212
143	Biomedical Sciences	ELMER CHAKMA KHARKONGOR	XO-213
144	Life Sciences	ADITYA KHANDELWAL	XO-605
145	Life Sciences	AKANSHA MARTOLIA	XO-698
146	Life Sciences	AKASH KUMAR	XO-606

147	Life Sciences	ALISHA YADAV	XO-607
148	Life Sciences	ANISUR RAHMAN	XO-610
149	Life Sciences	ANUJ KUMAR PANDEY	XO-612
150	Life Sciences	VIPIN KUMAR SIROHI	XO-690

Title: "Hands on Training on "ELISA Technique"

Organizing team: Dr. Ravi Toteja Dr. Seema Makhija (Department of Zoology)

Date: February 13, 2019

No of Participants: 90

Resource Person: Mr Vikas Sachdev (9868740625)

Report:

Workshop and Hands on Training on "ELISA Technique" (under the aegis of DBT Star College Scheme) The resource person was Mr. VikasSachdev from Department of Gastroenterology, All India Institute of Medical science, New Delhi. The lecture was attended by the students of B.Sc. (H) Zoology and B.Sc. Life Science. In his lectured Mr.Sachdev described various techniques like lithotripsy, radiological techniques, measurements of temperature, BP, heart rate and many others. Immediately after the lecture, students were given hands on training on ELISA (Enzyme linked immunosorbent assay), a diagnostic technique. Mr Sachdev started with the theory of ELISA technique. The kit used for doing hands on was kindly gifted by Mr. Sachdev. The kit used was for diagnosis of pancreatitis. For hands on, 6 groups of 4 students each were formed. Students were explained the various steps and principle involved in the process of carrying out ELISA.

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)

DEPARTMENT OF ZOOLOGY

Under the aegis of DBT Star College Scheme

Organizes

Talk On

"Non-Invasive Techniques as Diagnostic Tools"

&

Hands-On Training of

ELISA Technique

by

Mr. VIKAS SACHDEV

Department of Gastroenterology
All India Institute of Medical Science

DATE : February 13, 2019

Sessions	Time	Programme Details	Venue
I	11.00am	Talk	Conference Hall
II	01.00pm	Hands On	Zoology Lab

Acharya Narendra Dev College

Workshop and Hands on Training on "ELISA Technique

13th Feb, 2019

S. No.	Course	Name	Roll Number
1	Zoology	HIMANGI SHARMA	X-1019
2	Zoology	INTJAR	X-1070
3	Zoology	ISHITA GUPTA	X-1020
4	Zoology	JITENDER	X-1022
5	Zoology	KAJAL GOYAL	X-1023
6	Zoology	KHUSHBOO	X-1024
7	Zoology	MAHESH KASANA	X-1073
8	Zoology	MANISH KUMAR	X-1026
9	Zoology	MONIKA GUPTA	X-1032
10	Zoology	NACHIKETA GOHAIN DAS	X-1033
11	Zoology	PARISHA YADAV	X-1035
12	Zoology	PARTHO PROTEEM DAS	X-1036
13	Zoology	PRIYA BATRA	X-1037
14	Zoology	PUJA SMRITI DEBBARMA	X-1038
15	Zoology	PUSHPANJALI DAS	X-1039

16	Zoology	RAHUL POSWAL	X-1040
17	Zoology	RAVI KUMAR	X-1041
18	Zoology	RINKI TEWATIA	X-1043
19	Zoology	SAKSHI SARASWAT	X-1048
20	Zoology	SAKSHI VARSHNEY	X-1047
21	Zoology	SANGEETA SHARMA	X-1049
22	Zoology	SEEMA YADAV	X-1050
23	Zoology	SENJUTI SENGUPTA	X-1051
24	Zoology	SHASHI YADAV	X-1052
25	Zoology	SHILPI SINGH	X-1053
26	Zoology	SHIVANI SHARMA	X-1054
27	Zoology	SIMRAN	X-1056
28	Zoology	SOMYA SHARMA	X-1057
29	Zoology	SONAM KUMARI	X-1058
30	Zoology	SUNIL	X-1059
31	Zoology	TANYA SHARMA	X-1063
32	Zoology	UMESH RAO	X-1071
33	Zoology	ANIRBAN MOLLA	W-1032
34	Zoology	ANJALI VERMA	W-1033

35	Zoology	ARUN KUMAR	W-1074
36	Zoology	ASHUTOSH MISHRA	W-1075
37	Zoology	AYAZ AHMAD RATHER	W-1022
38	Zoology	ABHISHEK PARKASH	W-1012
39	Zoology	AMAN	W-1070
40	Zoology	AMAN ANAND	W-1006
41	Zoology	ANAND SHARMA	W-1009
42	Zoology	SHAKSHI SHAH	W-1039
43	Zoology	SONU YADAV	W-1044
45	Zoology	SUMAN DHULL	W-1020
46	Zoology	UMESH JATAV	W-1011
47	Zoology	VAISHALI SAINI	W-1072
48	Zoology	VIKASH YADAV	W-1047
49	Zoology	NAVEEN	W-1060
50	Zoology	PANKAJ KUMAR	W-1062
51	Zoology	parul thakur	W-1001
52	Zoology	PRAGYA SHARMA	W-1036
53	Zoology	PRATEEK TRIVEDI	W-1031
54	Life Sciences	NEHA SHARMA	XO-652

55	Life Sciences	NITISH KUMAR	XO-696
56	Life Sciences	PRACHI SINGH	XO-654
57	Life Sciences	PREETI	XO-655
58	Life Sciences	PRIYANKA	XO-656
59	Life Sciences	PRIYANKA YADAV	XO-657
60	Life Sciences	PRIYANSHU	XO-658
61	Life Sciences	RADHIKA SATIJA	XO-659
62	Life Sciences	SACHIN BISHT	XO-663
63	Life Sciences	SADAF SAMRA	XO-665
64	Life Sciences	SAKSHI SINGH	XO-666
65	Life Sciences	SATYAJEET GIRDHAR	XO-668
66	Life Sciences	SHIVAM SINGH HOON	XO-669
67	Life Sciences	SHUBHI BANSAL	XO-672
68	Life Sciences	BONTI DAS	XO-617
69	Life Sciences	DEEPAK SINGH	XO-620
70	Life Sciences	GINNI KHULLAR	XO-625
71	Biomedical Sciences	DEEPAK SAHNI	XO-208
72	Biomedical Sciences	DIPSHI AGGARWAL	XO-210
73	Biomedical Sciences	DONGLIANLAL SAMTE	XO-212

74	Biomedical Sciences	ELMER CHAKMA KHARKONGOR	XO-213
75	Biomedical Sciences	FATHIMATH FAIHA IBRAHIM	XO-263
76	Biomedical Sciences	GAURAV	XO-214
77	Biomedical Sciences	HARMAN PREET KAUR	XO-216
78	Biomedical Sciences	POOJA	XO-230
79	Biomedical Sciences	PRABHAT BIST	XO-231
80	Biomedical Sciences	PRIYANKA CHAUHAN	XO-233
81	Biomedical Sciences	PURNENDU KUMAR	XO-234
82	Biomedical Sciences	RIDDHI BHARDWAJ	XO-235
83	Botany	ARUN KUMAR VERMA	XO-006
84	Botany	CHARVEE	XO-057
85	Botany	CHONGOM ALVINA AIMOL	XO-008
86	Botany	DEEPAK MEENA	XO-011
87	Botany	DEVENDRA CHOUDHARY	XO-012
88	Botany	ESHA DIWAKAR	XO-058
89	Botany	GAURAV YADAV	XO-014
90	Botany	HEMANT SINGH	XO-016

Title: "Education Deconstructed: Dialogues with Experts"

Organizing team: Dr. Ravi Toteja Dr. Sarita Kumar Dr. Seema Makhija (Department of Zoology) Dr. Seema Gupta Dr. Manisha Jain (Department of Chemistry) Dr. Sharanjit Kaur (Department of Computer Science) Dr. Urmi Bajpai Dr. Rajesh Chaudhary (Department of Biomedical Sciences) Dr. Charu Khosla Gupta (Department of Botany) Dr. Arijit Chowdhuri Dr. Subhash Kumar (Department of Physics) Dr. Amit Garg (Department of Electronics) Dr. Sandeep Goel Dr. Chaman Singh (Department of Mathematics) Mr. Sanjay Vohra (Placement Coordinator)

Date: November 02, 2018

No. of Participants: 117

Resource Person: UGC Chairman, Dr Sashidhara

Report:

Education Conclave "Education Deconstructed: Dialogues with Experts" The College organized an Education Conclave "Education Deconstructed: Dialogue with Experts" on Friday November 2, 2018 in its premises. The scope of the conclave was to deliberate among academics and academic administrators the new initiatives with education and pedagogy which ANDC has adopted. The conclave was attended by a educationists, scientists, researchers and policy makers. Professor Bhusan Patwardhan, Vice-chairman, University Grants Commission (UGC) was the Chief Guest. He delivered the inaugural address. This was followed by two interactive sessions where the participants deliberated on the contemporary challenges in undergraduate education in India, while keeping in context the initiatives at ANDC. Participants also visited various research laboratories and other facilities available to students in the college.

ation Conclave 2018
onstructed: Dialogue with Experts
, 2018 | 10:00 a.m. to 2:00 p.m.
ACHARYA NARENDRA DEV COLLEGE
University of Delhi

n Conclave 2018
tructed: Dialogue with Experts
18 | 10:00 a.m. to 2:00 p.m.
ACHARYA NARENDRA DEV COLLEGE
University of Delhi

NAAC Grade "A"
cation Conclave 2018
onstructed: Dialogue
10:00 a.m. to 2:00 p.m.
ACHARYA NARENDRA DEV COLLEGE
University of Delhi

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NAAC Grade "A" with score 3.31 | DBT Star College

Education Conclave 2018

Education Deconstructed: Dialogue with Experts

November 02, 2018 | 10:00 a.m. to 2:00 p.m.

Enabling Ecosystem

Student Empowerment

Research

Social Sensitization

ACHARYA NARENDRA DEV COLLEGE
(University of Delhi)
Education Conclave "Education Deconstructed: Dialogues with Experts"
November 02, 2018

S. No.	Name
1	Mr Firoz Ahmed
2	Professor Anwar Alam
3	Professor G K Arora
4	Dr M C Arunan
5	Professor Bharat Babbar
6	Professor C R Babu
7	Mr Pallava Bagla
8	Mr Sujit Banerjee
9	Professor Vasudha Bhatnagar,
10	Professor Jatin Bhatt
11	Professor Sudhanshu Bhushan
12	Dr Anuj Bhuwania
13	Professor Vani Brahmachari
14	Professor Pradeep Burma
15	Mr Rajiv Choudhary
16	Professor Patrick Dasgupta
17	Professor Nivedita Deo
18	Professor Kiran Devendra
19	Dr H.K. Dewan,

20	Professor Mridula Gupta
21	Dr Rajiv Gupta
22	Mr Surinder Jaglan
23	Professor Sanjay K Jain
24	Professor Rita Kakkar
25	Professor Vasudha Kamat
26	Professor Avinashi Kapoor
27	Mr Mehmood Khan
28	Dr Rahul Khullar
29	Professor Kukreti
30	Professor Naveen Kumar
31	Dr Nita Kumar
32	Professor Suman Lakhanpal
33	Professor Sudeshna Majumdar Leighton
34	Mr Ajay Manchanda
35	Ms Meena Mani
36	Professor Shyam Menon
37	Subhadra Menon,
38	Professor Shibnath Mazumder
39	Justice Usha Mehra

40	Professor Salil Mishra
41	Professor Babli Moitra
42	Dr Anubha Mukherji
43	Dr Meenakshi Munshi
44	Professor G N Nagarjuna
45	Dr Anupam Pachauri
46	Professor Swati Pal
47	Professor Akshay Pradhan
48	Professor Atiqur Rahman
49	Professor Rama
50	Professor R Ramanujam
51	Dr Susmita Ramanathan
52	Professor K S Rao
53	Dr Pramesh Ratnakar
54	Professor Hemlatha Reddy
55	Professor Daman Saluja
56	Professor R K Seth
57	Professor T R Seshadri
58	Professor Enakshi K Sharma
59	Professor L S Shashidhara
60	Professor Parvin Sinclair
61	Professor Sanjeev Singh

62	Professor Neeru Sachi
63	Dr Aarti Srivastava
64	Professor Maneesh Thakur
65	Dr R Varadarajan
66	Professor Geetha Venkataraman
67	Mr Manoj Verghese
68	Professor Poonam Verma
69	Professor Madhu Vij
70	Dr. Sunita Hooda
71	Dr. Sarita Kumar
72	Dr. Pooja Bhagat
73	Dr. Sharanjit Kaur
74	Dr. Ravi Toteja
75	Dr. Seema Makhija
76	Dr. Neeti Misra
77	Dr Vandana Uberoi
78	Dr. Geetu Gambhir
79	Dr. Harita Ahuja
80	Dr. Preeti Marwaha
81	Dr. Rashmi Sharma
82	Dr Rakesh Roshan
83	Ms Anu Parveen
84	Dr Ranjeet Singh
85	Ms Namrata
86	Dr. Anita Thakur
87	Mr Sanjay
88	Dr Anjali
89	Dr. Pragati Malik
90	Ms. Priyanka Sharma
91	Dr. Joita Dhar Rakshit
92	Ms. Ankita Rasaily
93	Dr. Narayan Singh
94	Dr. Satyapal Singh
95	Dr Gauri Ghai
96	Dr. V. Bhasker Raj
97	Dr. Aparna Sharma
98	Dr. Sweety Shrimali
99	Dr. Rahul Dev
100	Dr. Neelgagan Singh

101	Mr. Vineet Girdharwal
102	Dr. Jitender Goel
103	Dr Cherita
104	Mr Satendera
105	Ms Jeeva
106	Ms Sripoorna
107	Ms Swati
108	Ms Kungreliu Panmei
109	Mr Keshav
110	Dr Sumit Sahni
111	Mr Vinit Singh
112	Dr Manoj Kumar
113	Dr. Yash Mangla
114	Dr Abhishek Kumar
115	Mr Abhay Pratap
116	Dr Kavita
117	Dr Sharnkhla

Seminars

2018-2019

Title: Connection between Environmental and Human Microbiome by Prof. Yogendra Singh Professor, Dept of Zoology University of Delhi

Organizing team: Dr Charu Khosla Gupta (Department of Botany) Dr Pooja Bhagat Dr Geetu Gambhir (Department of Chemistry) Dr Arijit Chowdhuri (Department of Physics) Dr Seema Makhija (Department of Zoology)

Date: June 18, 2019

No of Participants: 45

Resource Person: Prof. Yogendra Singh

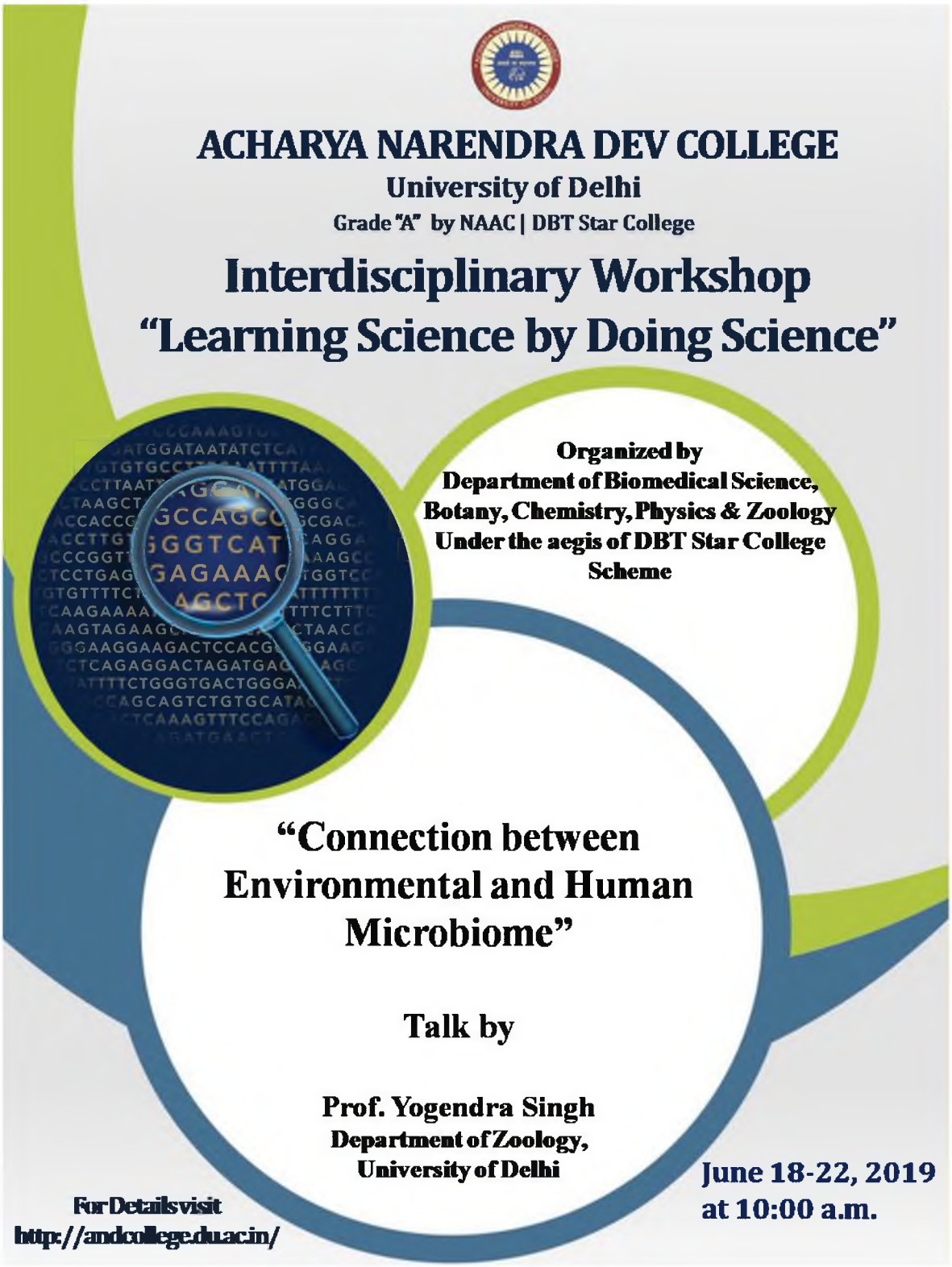
Report:

Prof. Y Singh delivered a talk on **Connection between Environmental and Human MicroBiome** in the Seminar Hall of the college. Prof. Singh began by explaining the concept of microbiome. He emphasized that microorganisms play a crucial role in maintaining human health as they help in digestion and immunity. He also discussed that human microbiome is also influenced by several environmental factors including diet. He also highlighted the potential benefits of studying the connection between the environment and human microbiome. He explained that research in this field will help us understand the impact of environmental changes on human health and develop strategies to mitigate the negative effects.

Finally, Prof. Singh concluded by calling for collaboration between microbiologists, environmental scientists, and public health experts to study the connection between the environment and human microbiome.

The talk was informative and thought provoking. The talk ignited young minds on the need for interdisciplinary research to address this critical issue. The session was concluded with a vote of thanks to Dr. Singh for delivering a very informative and engrossing talk. The principal and the

administrative staff of the department were also thanked for providing support, infrastructure and facilitating the smooth conduct of the event.



Acharya Narendra Dev College

Connection between Environmental and Human MicroBiome, June18, 2019

S. No.	Course	Name	Roll Number
1	Zoology	Sakshi Varshney	X 1047
2	Zoology	SANGEETA SHARMA	X-1049
3	Zoology	SEEMA YADAV	X-1050
4	Zoology	SENJUTI SENGUPTA	X-1051
5	Zoology	ANIRBAN MOLLA	W-1032
6	Zoology	ANJALI VERMA	W-1033
7	Zoology	ARUN KUMAR	W-1074
8	Zoology	ASHUTOSH MISHRA	W-1075
9	Zoology	AYAZ AHMAD RATHER	W-1022
10	Zoology	RITIKA KAINTURA	X-1044
11	Zoology	SAKSHI SARASWAT	X-1048
12	Zoology	PARISHA YADAV	X-1035
13	Zoology	Partho Proteem Das	X-1036
14	Zoology	PRIYA BATRA	X-1037
15	Zoology	PUJA SMRITI DEBBARMA	X-1038
16	Zoology	ABHISHEK PARKASH	W-1012
17	Zoology	AMAN	W-1070

Seema Yadav

18	Zoology	AMAN ANAND	W-1006
19	Zoology	ANAND SHARMA	W-1009
20	Zoology	SHAKSHI SHAH	W-1039
21	Zoology	SONU YADAV	W-1044
22	Zoology	SUMAN DHULL	W-1020
23	Zoology	UMESH JATAV	W-1011
24	Zoology	VAISHALI SAINI	W-1072
25	Zoology	VIKASH YADAV	W-1047
26	Zoology	TANYA SHARMA	X-1063
27	Zoology	UMESH RAO	X-1071
28	Zoology	VAASAVI SINGH	X-1065
29	Zoology	VANYA GARG	X-1067
30	Zoology	VIKAS MEENA	X-1068
31	Zoology	NAVEEN	W-1060
32	Zoology	PANKAJ KUMAR	W-1062
33	Zoology	parul thakur	W-1001
34	Zoology	PRAGYA SHARMA	W-1036
35	Zoology	PRATEEK TRIVEDI	W-1031
36	Zoology	RAHUL POSWAL	X-1040

Seema Mehta

37	Zoology	Ravi Kumar	X-1041
38	Zoology	RINKI TEWATIA	X-1043
39	Zoology	RITIKA	X-1045
40	Zoology	JITENDER	X-1022
41	Zoology	KAJAL GOYAL	X-1023
42	Zoology	KHUSHBOO	X-1024
43	Zoology	KRITIKA SHARMA	X-1025
44	Zoology	MAHESH KASANA	X-1073
45	Zoology	ASUTOSH TIWARY	X-1007

Seema May C

Title: Malaria elimination in India: Role of vector control by Dr Kamraju Raghavendra, Scientist G, ICMR, NIMR, Delhi, India

Organizing Committee: Faculty, Students and Support Staff, Department of Zoology

Date: February 19, 2019

Number of Participants: 66

Resource Person: Dr Kamraju Raghavendra

Report:

Niche, the Zoological Society of Acharya Narendra Dev College organized a talk on Malaria elimination in India: Role of vector control by Dr Kamraju Raghavendra, Scientist G, ICMR, NIMR, Delhi, India on February 19, 2019 under the aegis of DBT Star scheme. The talk begins with an introduction to the burden of malaria in India. The speaker emphasized the importance of vector control in the spread of malaria. One of the Stratagey discussed by the speaker was use of insecticide- treated bed nets (ITNs). The speaker suggested the need for government to distribute ITNs to high-risk populations. The talk was followed by a brief interactive session where Dr. Raghavendra answered the students' queries with respect to her talk and other scientific phenomena. The session was concluded with a vote of thanks to Dr. Raghavendra for delivering a very informative and engrossing talk. The principal and the administrative staff of the college were also thanked for providing support, infrastructure and facilitating the smooth conduct of the event.

Title: "Contemporary Approaches in Anti-Malarial Drug Discovery" Dr. Shailja Singh Associate Professor Special Center for Molecular Medicine, JNU

Organizing Committee: Faculty, Students and Support Staff, Department of Zoology

No of Participants: 73

Resource Person: Dr. Shailja Singh (9868512025)

Report:

Niche, the Zoological Society of Acharya Narendra Dev College organized its inaugural talk on October 10, 2018 under the aegis of DBT Star scheme. Eminent researcher Dr. Shailja Singh, Associate Professor, Special Center for Molecular Medicine, Jawaharlal Nehru University was invited as the guest speaker. The event started with the lighting of lamp of knowledge which was followed by welcome address by the Principal, Dr. Savithri Singh.

The guest speaker, Dr. Shailja Singh, delivered an enchantingtalkon '***Contemporary Approaches in Antimalarial Drug Discovery'***. She explained the mechanism of *Plasmodium* parasite infection in human beings and the phases/proteins in parasite life cycle that can be used as the target for formulating antimalarial drug. She discussed how natural chemical diversity can be explored by modernized and systematic approaches to develop novel compounds for combating malaria. The talk was concluded with motivation of students where she explained the qualities of a good researcher: interest, inquisitiveness, commitment, excelling, knowledge, recognition, scholarly approach and integration. The talk was followed by a brief interactive session where Dr. Singh answered the students' queries with respect to her talk and other scientific phenomena. The session was concluded with a vote of thanks to Dr. Shailja Singh for delivering a very informative and engrossing talk. The principal and the administrative staff of the college were also thanked for providing support, infrastructure and facilitating the smooth conduct of the event.

A few pics of the event are as follows.

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

ACCREDITED 'A' GRADE BY NAAC SCORE 3.31

NIRF RANKING-20 I DBT STAR COLLEGE

NICHE

DEPARTMENT OF ZOOLOGY

Organizes

A TALK ON CONTEMPORARY APPROACHES IN ANTI-MALARIAL DRUG DISCOVERY

GUEST SPEAKER

Dr. Shailja Singh

Associate Professor

Special Center for Molecular Medicine, JNU

DATE: October 10, 2018

TIME:10 AM

VENUE: SEMINAR HALL

Acharya Narendra Dev College
Malaria elimination in India: Role of vector control
19 February 2019

S. No.	Course	Name	Roll Number
1	Zoology	ABHISHEK	X-1002
2	Zoology	AKSHIT CHAUHAN	X-1003
3	Zoology	AMIT SINGH CHAUHAN	X-1006
4	Zoology	ASUTOSH TIWARY	X-1007
5	Zoology	AYSHNA KUKREJA	X-1008
6	Zoology	AYUSHI RATURI	X-1010
7	Zoology	DEEPAK KUMAR RAY	X-1012
8	Zoology	HIMANGI SHARMA	X-1019
9	Zoology	INTJAR	X-1070
10	Zoology	ISHITA GUPTA	X-1020
11	Zoology	JAYA YADAV	X-1069
12	Zoology	JITENDER	X-1022
13	Zoology	KAJAL GOYAL	X-1023
14	Zoology	MAHESH KASANA	X-1073
15	Zoology	MANISH KUMAR	X-1026
16	Zoology	MICHELLE JOSEPH	X-1028
17	Zoology	MONIKA GUPTA	X-1032
18	Zoology	NACHIKETA GOHAIN DAS	X-1033
19	Zoology	PARISHA YADAV	X-1035
20	Zoology	PARTHO PROTEEM DAS	X-1036
21	Zoology	PRIYA BATRA	X-1037

22	Zoology	PUJA SMRITI DEBBARMA	X-1038
23	Zoology	PUSHPANJALI DAS	X-1039
24	Zoology	RAHUL POSWAL	X-1040
25	Zoology	RAVI KUMAR	X-1041
26	Zoology	RINKI TEWATIA	X-1043
27	Zoology	RITIKA KAINTURA	X-1044
28	Zoology	SAKSHI SARASWAT	X-1048
29	Zoology	SHASHI YADAV	X-1052
30	Zoology	SHILPI SINGH	X-1053
31	Zoology	SHIVANI SHARMA	X-1054
32	Zoology	SIMRAN	X-1056
33	Zoology	SOMYA SHARMA	X-1057
34	Zoology	SONAM KUMARI	X-1058
35	Zoology	SUNIL	X-1059
36	Zoology	SUYASH PATEL	X-1072
37	Zoology	TANYA SHARMA	X-1063
38	Zoology	UMESH RAO	X-1071
39	Zoology	VAASAVI SINGH	X-1065
40	Zoology	VANYA GARG	X-1067
41	Zoology	VIKAS MEENA	X-1068
42	Zoology	ABHISHEK PARKASH	W-1012
43	Zoology	AMAN	W-1070
44	Zoology	AMAN ANAND	W-1006
45	Zoology	ANAND SHARMA	W-1009
46	Zoology	ANIRBAN MOLLA	W-1032

International Symposium on Ciliate Biology 2018 (ISCB 2018) with International Research Coordination Network – Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP)

Organizing team: Dr. Ravi Toteja and Dr. Seema Makhija

Resourse Person(s):
Dr Alan Warren, Natural HistoryMeuseum, Cromwell Road, London
Prof Alexey Potekhin, of Biology, Saint Petersburg State University, Saint Petersburg
Dr Antonietta La Terza, School of Biosciences and Veterinary Medicine, Uni Via Gentile III da VaranoCamerino 62032, Macerata, Italy
Prof Bettina Sonntag, University of Innsbruck, Department for Limnology, Mondsee
Carlos Alberto Durán-Ramírez, University of Calcutta, Facultad de Ciencias, UNAM. Circuito ext. s/n Coyoacán 04510
Prof Cristina Miceli, University of Camerino, School of Biosciences and Veterinary Medicine, Camerino
Prof Elena Sabaneyeva, Saint Petersburg State University,
Maksim Melekhin, Saint Petersburg State University, Faculty of Biology, Saint Petersburg
Dr Rosaura Mayén-Estrada, Lab. Protozoología, Depto. Biol. Comparada, Fac. Ciencias, Circuito Ext. s/núm. Av. Universidad 3000, Ciudad de México
Dr Anastasia Shatilovich, Saint Petersburg State University, Faculty of Biology, Saint Petersburg
Prof Haibo Li, Institute of Oceanology, Chinese Academy of Sciences, China.
Dr Biplob Kumar Modak, University of Kalyani.

Date: April 04-06, 2018

Number of Participants: 251

The 2nd International Symposium on Ciliate Biology (ISCB 2018) convened by Dr Komal Kamra, co-convened by Dr Renu Gupta, Dr Seema Makhija and Dr Ravi Toteja, was organized at the India Habitat Centre in New Delhi , India, from April 04 - 06, 2018. Three colleges of the University of Delhi: Acharya Narendra Dev, Maitreyi and SGTB Khalsa led by their Principals Dr Savithri Singh, Dr Haritma Chopra and Dr Jaswinder Singh respectively played a pivotal role in providing logistic support for the smooth run of the symposium. The symposium was a result of synergy with International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP). Financial support came from international agencies such as ISOP and IUBS, and Indian agencies CSIR, DBT, DRDO, DST-SERB, ICMR, IMTECH, INSA, and ZSI. The symposium was inaugurated by
Dr Mahesh Sharma, Minister of State, Union Ministry of Tourism and Ministry of Environment, Forest and Climate Change. The aim of holding of the symposium was to provide a platform to scientists in ciliate research to present their findings before the International Protistology community, and to expose undergraduate students to the subject on a bigger canvas. It was attended by over 300 Indian delegates and 9 foreign delegates.

The symposium comprised 22 oral and 57 poster presentations delivered by participants covering various aspects of ciliate research: biodiversity, ecology, evolution, role of ciliates in the food web of soil and water ecosystems, indicators of pollution and in bioremediation fields.

Three presentations mainly focused on ciliates as bioindicators of environmental quality. Dr Komal Kamra threw light on ciliates as bio-indicators of water quality collected from different locations of the River Yamuna, Delhi, India. Dr Alan Warren presented investigations on the relationships between ciliate communities and physico-chemical analysis of water samples collected from Jiazhou Bay, on the Yellow Sea Coast of NE China. Dr Antonietta La Terza gave a lecture on using ciliates as indicators of ecosystem health where the ciliated protists can be used in prognostic and diagnostic assays to detect overall ecosystem impairment.

Three presentations focused on use of ciliated protists for cytotoxicity testing. Prof Rup Lal gave an overview on the effect of pesticides on growth and DNA and protein synthesis by using *Styolonychia notophora* as the model system. This pioneer work on ciliates has helped in using bacterial system for evaluating various environmental stress conditions and helped in entering into the field of genomics and metagenomics. Prof Nageswara Rao Amanchi gave a talk on cytotoxic effects of Cypermethrin on both morphological and physiological changes in two freshwater ciliates *Paramecium caudatum* and *Blepharisma intermedium* and concluded that these two freshwater ciliates can be used as models for ecotoxicological studies. Similar deliberation by Dr Ravi Toteja delved on the effects of heavy metal toxicity on freshwater ciliates. Increase in the activities of antioxidant enzymes and in the transcriptional expression of stress genes (like hsp70 and metallothionein) were discussed concluding that these enzymes and stress genes can be used to evaluate heavy metal toxicity.

Seven oral presentations focused on ciliate biodiversity. Prof Rosaura Mayén-Estrada gave an overview on family Vorticellidae where detailed information on more than 250 free living and ectosymbiotic species of crustaceans was discussed asking for revision of the status of this family. Dr Anastasia Shatilovich delivered a talk on ciliate diversity in the permafrost sediments and in the profiles of Tundra soils. Prof Alexey Potekhin gave an overview on the hidden diversity of genus *Paramecium* where he reported revision of two subgenera of *Paramecium* and description of two new *Paramecium* morphospecies. Dr Shashi's presentation was on four hypotrichous (3 urostylids and one stichotrichid) ciliated protists isolated from Maharashtra, India. Dr Santosh Kumar gave morphological and molecular description of two different species one each of *Sterkiella*and *Fragmospina* collected from soils of Silent Valley National Park, India. Ms Harpreet Kaur gave the description of a novel freshwater oxytrichid ciliate *Gastrostyla* sp. and compared it with other reported species belonging to genus *Gastrostyla*using molecular phylogeny. Dr Jasbir Singh talked about ciliate biodiversity across Sikkim mainly focusing on hypotrichous ciliates belonging to family Oxytrichidae which were predominantly present in that region.

Ciliate ecology was the focus of three presentations. Dr Sai Elangovan S reported the interaction between the environment and diversity of tintinnids (loricate ciliates) inhabiting mangrove proximal zone waters of south Andaman. A similar talk was delivered by Dr V Ratna Bharathi who reported the correlation between physicochemical parameters and diversity of protozooplanktons at Konam reservoir, Andhra Pradesh, India. Ms Anjusha presented the diversity of a loricate and loricate ciliates in estuaries, coastal waters an open ocean waters at Kochi, India.

Two presentations focused on parasitic ciliates. Prof Probir Kumar Bandyopadhyay gave an overview of controlling the growth of fish parasitic trichodinid ciliates by using fresh garlic-bulb. Use of garlic reduced the trichodinids burden of goldfish significantly. Dr Amlan Kumar Mitra

talked about the diversity and distribution of ectoparasitic ciliated protists belonging to family Trichodinidae which are responsible for trichodiniasis disease in fishes.

Prof Cristina Miceli delivered a talk on frameshift mutation in the hsp70 gene of Antarctic ciliate, *Euplotes focardii* due to which this heat-shock chaperone did not get induced under thermal stress but was induced to normal oxidative stress, thus concluding that ciliates can act as better model systems to study environmental adaptation. Prof Elena Sabaneyeva delved on various endosymbionts detected in the ciliate *Paramecium* sp. Dr Seema Makhija gave an overview of progression of ciliate biology research at University of Delhi where different kinds of research have been and are currently being done.

Poster presentations were grouped into three themes: ciliate experimental, ciliate review and biological sciences. Fifty seven delegates (including undergraduates, post-graduates, research scholars and faculty members) actively participated. Awards were given to the three best posters in each category. Under the theme "ciliate experimental", Ms Jeeva Susan Abraham, Mr Maksim Melekhin and Ms Sheeba and Ms Anjali Yadav received the best poster awards. Ms Abraham delivered a presentation on inferring phylogenetic positioning of three spirotrich ciliates by using modern molecular techniques. Mr Melekhin explained about species divergence in genus *Paramecium* by studying micronucleus morphology, 18S rDNA and COI gene. Ms Sheeba and Ms Yadav gave a presentation on phylogenetic study of *Blepharisma* sp. using molecular markers like 18S rDNA and ITS gene. Under the theme "ciliate review", Ms Arveen Kaur, Ms Tanvi Gupta and Mr Harsh Thakur & Mr Priyank Rawat received the best presentation awards. Ms Kaur gave her presentation on symbiotic relationship of *Chlorella* sp. with the ciliate *Paramecium bursaria*. Ms Gupta delved on telomeric G-Quadruplex DNA structure in various ciliate species. Mr Thakur & Mr Rawat made a presentation on various molecular marker genes to study the phylogeny of any species. Under the theme "biological sciences" Dr Jasmine Purushothaman and Ms Akhila Anil, Mr Amit Babu& Mr Sarthak Khurana received the best poster presentation awards. Dr Purushothaman presented a paper on diversity and distribution of testate amoeba in different ecosystems in urbanized areas of Kolkata, West Bengal, India. Ms Anil, Mr Babu and Mr Khurana gave presentation on *Moina* which can be used as a new model system for studying neurodegenerative disorders.

On the last day, a workshop was conducted on "Tools and Techniques used in ciliate studies" for undergraduate and postgraduate students. The workshop was co-organized by Zoological Survey of India (ZSI) and ISCB 2018; the workshop facilitators were Dr Renu Gupta, Dr Jasmine Purushothaman, Dr Nageswara Rao Amanchi, Dr Santosh Kumar, Dr Jasbir Singh, Ms S Sripoorna and Ms Jeeva Susan Abraham. Sixty-nine students actively participated in the workshop wherein various bioinformatics tools used for analysing the ciliate biodiversity were taught to the students. The aim of the workshop was to provide networking opportunities for students wishing to take up doctoral or postdoctoral research on ciliate.

During the valedictory, Prof Chandrima Shaha, Vice President (Foreign Affairs), Indian Academy of Sciences, was the Chief Guest. Dr Jaswinder Singh, Principal, SGTB Khalsa College, complimented the organizers for the smooth conduct of the symposium, thanked the foreign protistologists and commended the holistic involvement of the students in the venture. Our special

thanks to the advisors of ISCB 2018 – Dr Alan Warren, Prof Cristina Miceli, Prof GR Sapra and Prof Rup Lal. Financial assistance by Indian and foreign agencies is greatly acknowledged.

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Delhi University Colleges host International Symposium on Ciliate Biology 2018

Abhay Anand | Apr 7, 2018 - 2:11 p.m. IST

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NEW DELHI, APRIL 7: The International Symposium on Ciliate Biology 2018 (ISCB 2018) was co-organised by Acharya Narendra Dev College, Maitreyi College and SGTB Khalsa College, University of Delhi in partnership with International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP).

Dr. Mahesh Sharma, MoS, Ministry of Environment, Forest and Climate Change, graced the inaugural and Professor Chandrima Shaha, Vice President (Foreign Affairs), Indian Academy of Sciences was the chief guest at the Valedictory.

A large contingent of national ciliate biologists was joined by 9 overseas scientists to deliver 20 oral and 57 poster presentations. The specialisations varied from biodiversity to ecology, evolution, role of ciliates in the food web of soil and water, in telomeres, their role as rumen ciliates, bio-indicators of pollution, and in bioremediation among other fields. Use of ciliates as excellent eukaryotic unicellular model systems in science teaching and research was well brought out by all presenters.

A large participation of under-graduate students was a highlight of the symposium. Their enthusiasm in presenting their work and interactions with senior scientists won everyone's heart.

Zoological survey of India (ZSI) came a big way as not only print partners but also in co-organising a workshop "Tools and Techniques used in Ciliate Studies" which was very enthusiastically attended by over 50 participants.

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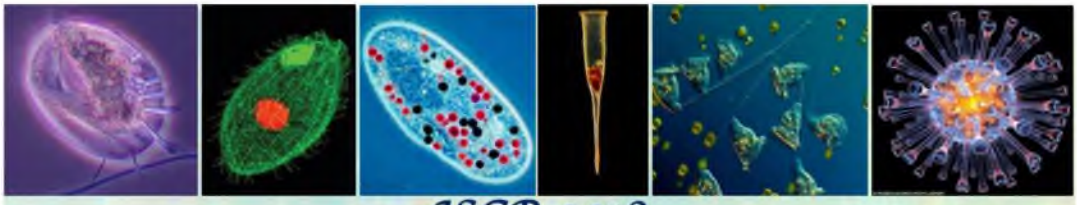

ISCB 2018

International Symposium on Ciliate Biology

with

International Research Coordination Network for Biodiversity of Ciliates

affiliated society of

International Society of Protistologists

April 04-06, 2018

at

India Habitat Centre, New Delhi, INDIA

Themes: Biodiversity, Ecology, Evolution, Genetics and Epigenetics, Genomics and Meta genomics, proteomics and DNA barcoding, Ciliates and Industry, Ciliates as model organisms in UG teaching and in research, other individual specializations in microbiology

Some of our confirmed international speakers along with Indian Ciliate Biology Fraternity

Alan Warren	Cristina Micali	Antonietta La Terza	Giulio Petroni	Bettina Sonntag	Rosaura Mayén-Estrada	Carlos A Durán-Ramírez	Hamed A Elsedfy	Saleh Al-Farraj	Saleh Alqurashi
London UK	Camerino, Italy		Pisa, Italy	Innsbruck Austria	León Area Mexico			Riyadh Saudi Arabia	

Come join the symposium, as a presenter (oral/ poster), or as a participant, and interact with the best speakers, share and collaborate

Last Date for Registration & Abstract Submission
January 15, 2018
Visit Symposium Website www.iscb2018.com for Details

Core Organizing Secretariat (from University of Delhi, India)

Convener	Organizing Secretary	Joint Secretaries
Dr Komal Kamra SGTB Khalsa College	Dr Renu Gupta Maitreyi College	Dr Seema Makhija, Dr Ravi Toteja Acharya Narendra Dev College

Our Sponsors: ISOP, Indian National Science Academy, Department of Biotechnology (Government of India) [on date]

Acharya Narendra Dev College

International Symposium on Ciliate Biology

4-6 April, 2018

List of Delegates

S.No	Name	Affiliation
1	Dr Alan Warren	Natural HistoryMeuseum, Cromwell Road, London
2	Prof Alexey Potekhin	Faculty of Biology, Saint Petersburg State University, Saint Petersburg
3	Dr Antonietta La Terza	School of Biosciences and Veterinary Medicine, Uni Via Gentile III da VaranoCamerino 62032, Macerata, Italy
4	Prof Bettina Sonntag	University of Innsbruck, Department for Limnology, Mondsee
5	Carlos Alberto Durán-Ramírez	University of Calcutta, Facultad de Ciencias, UNAM. Circuito ext. s/n Coyoacán 04510
6	Prof Cristina Miceli	University of Camerino, School of Biosciences and Veterinary Medicine, Camerino
7	Prof Elena Sabaneveva	Saint Petersburg State University,
8	Maksim Melekhin	Saint Petersburg State University, Faculty of Biology, Saint Petersburg
9	Dr Rosaura Mayén-Estrada	Lab. Protozoología, Depto. Biol. Comparada, Fac. Ciencias, Circuito Ext. s/núm. Av. Universidad 3000, Ciudad de México
10	Dr Anastasia Shatilovich	Saint Petersburg State University, Faculty of Biology, Saint Petersburg
11	Prof Haibo Li	Institute of Oceanology, Chinese Academy of Sciences, China
12	Mr Prabir Banerjee	Sidho- Kanho- Birsha University, West Bengal
13	Dr Biplob Kumar Modak	University of Kalyani
14	Dr Seema Makhija	ANDC; University of Delhi
15	Dr Ravi Toteja	ANDC; University of Delhi
16	Ms Jeeva Susan Abraham	Research scholar ANDC; University of Delhi
17	Ms Swati Maurya	Research scholar ANDC; University of Delhi
18	Dr Jasbir Singh	SGTB Khalsa college; University of Delhi
19	Dr Anshu Arora Anand	Maitreyi College; University of Delhi
20	Ms Sripoorna	ANDC; University of Delhi
21	Dr Renu Gupta	Maitreyi College; University of Delhi
22	Dr SweetyShrimali	ANDC; University of Delhi
23	Dr Jyoti Taneja	Daulat Ram College, University of Delhi
24	Mrs Harpreet Kaur	Research scholar; SGTB Khalsa college; University of

Seema Makhija

		Delhi
25	Dr Shashi	Research Associate; SGTB Khalsa college; University of Delhi
26	Dr KomalKamra	SGTB Khalsa college; University of Delhi
27	Dr Sai ElangovanS	CSIR-National Institute of Oceanography, Goa
28	Ms Aparna Bahuguna	Keral Verma Subharti College of Science, Meerut
29	Dr Archana Aggarwal	Maitreyi college; University of Delhi
30	Mr Shiv Jangra	ANDC; University of Delhi
31	Ms Bhawana Kumari	Department of zoology; University of delhi
32	Dr Rahul Dev	ANDC; University of Delhi
33	Dr Sanjay Kumar	ANDC; University of Delhi
34	Dr Aparna Sharma	ANDC; University of Delhi
35	Ms Charu Tripathi	Department of Zoology; University of delhi
36	Ms Pooja Rani	Department of Zoology; University of delhi
37	Dr Khangebam Cherita Devi	ANDC; University of Delhi
38	Dr Vineet Girdharwal	ANDC; University of Delhi
39	Dr Santosh Kumar	Zoological Survey of India; Kolkatta
40	Dr Daizy Bharti	
41	Ms Sheeba	Department of Zoology, University of Delhi
42	Dr Anjali Saxena	ANDC; University of Delhi
43	Ms Anjali Yadav	Department of Zoology, University of Delhi
44	Prof PK Bandyopadhyay	Department of Zoology, University of Kalyani, West Bengal
45	Dr Amlan Kumar Mitra	Ranaghat College, West Bengal
46	Dr Biplab Bhowmik	PanchakotMahavidyalava, West Bengal
47	Ms Sukanya Chanda	Department of Zoology,University of Kalyani, West Bengal
48	Mr Gyan Deb Barman	Department of Zoology,University of Kalyani, West Bengal
49	Ms Divya Ojha	Jamia Hamdard, New Delhi
50	Ms RanjeetaBhujbal	GGSIPU New Delhi
51	Dr Surinder Kaur	SGTB Khasa College; University of Delhi
52	Dr Harpreet Singh Raina	SGTB Khasa College; University of Delhi
53	Dr Shalini Thakur Singh	Maitreyi College; University of Delhi
54	Ms Garima Lunia	Maitreyi College; University of Delhi
55	Mr Rishabh Malhotra	SGTB Khasa College; University of Delhi
56	Mr Arvinder Singh	SGTB Khasa College; University of Delhi
57	Ms Priya Chopra	ANDC; University of Delhi
58	Mr Jatinder Pal Singh	ANDC; University of Delhi
59	Ms Kirti kajal	Panjab University, Haryana
60	Ms Vanya garg	ANDC; University of Delhi
61	Ms Khushboo	ANDC; University of Delhi
62	Ms Tanya bhayana	Banasthali University, Haryana
63	Mr Harsh Vardhan Sahu	ANDC; University of Delhi
64	Mr HritikKadian	ANDC; University of Delhi

Seema Mehta

65	Ms Anjusha A	CSIR-National Institute of Oceanography, Kerala
66	Ms Amandeep Kaur	SGTB Khalsa College, University of Delhi
67	Ms Mehakpreet Kaur Bhangu	SGTB Khalsa College, University of Delhi
68	Ms Avneetkaur	SGTB Khalsa College, University of Delhi
69	Ms Namanjot Dhillon	SGTB Khalsa College, University of Delhi
70	Ms Kajol Rani	SGTB Khalsa College, University of Delhi
71	Ms Jasleen Kaur	SGTB Khalsa College, University of Delhi
72	Ms Avleen Kaur	SGTB Khalsa College, University of Delhi
73	Ms Mansi Ahuja	SGTB Khalsa College, University of Delhi
74	Ms Arveen Kaur	SGTB Khalsa College, University of Delhi
75	Mr Jayant Malhotra	SGTB Khalsa College, University of Delhi
76	Ms Vidushi Dubey	SGTB Khalsa College, University of Delhi
77	Ms Karanjeet Kaur	SGTB Khalsa College, University of Delhi
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79	Ms Yamini Krishna	Maitreyi College, University of Delhi
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81	Ms Shivani Singh	Maitreyi College, University of Delhi
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83	Dr Jyoti Singh	Maitreyi College; University of Delhi
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85	Ms Akhila A	Acharya Narendra Dev College, University of Delhi
86	Mr Vidhu Kaushik	Maitreyi College, University of Delhi
87	Mr Anit Kumar	ANDC; University of Delhi
88	Prof C Kalavati	Dept of Zoology, Andhra University, Visakhapatnam
89	Dr B Charan Kumar	Department of Zoology, Andhra University
90	Mr Mahima Bansal	Maitreyi College, University of Delhi
91	Ms Surbhi Dharora	Maitreyi College, University of Delhi
92	Dr V Ratna Bharathi	Dr VS Krishna Govt Degree & PG College, Vishakhapatnam
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94	Ms Harjot Kaur	SGTB Khasa College; University of Delhi
95	Mr Priyank Rawat	SGTB Khasa College; University of Delhi
96	Mr Harsh Thakur	SGTB Khasa College; University of Delhi
97	Dr Meena Yadav	Maitreyi College; University of Delhi
98	Ms Diksha Sabharwal	Maitreyi College; University of Delhi
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100	Ms Tanvi Gupta	Maitreyi College, University of Delhi
101	Ms Shivani Sharma	Maitreyi College, University of Delhi
102	Ms Gouri Chopra	Maitreyi College, University of Delhi
103	Ms Nancy	SGTB Khasa College; University of Delhi
104	Ms Mansi Pant	Daulat Ram College, University of Delhi
105	Ms AbhilashaRatogi	Daulat Ram College, University of Delhi
106	Ms Gauri Sharma	Daulat Ram College, University of Delhi
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		Hyderabad
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109	Dr B Charan Kumar	Department of Zoology, Andhra University
110	Dr Kaveri Rajaraman	Ashoka University, Sonipat,Haryana
111	Ms Minal Mishra	SGTB Khasa College; University of Delhi
112	Dr Ilmas Naqvi	Zakir Hussain College; university of delhi
113	Ms Anshika Singh	SGTB Khasa College; University of Delhi
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115	Ms Eva Shukla	SGTB Khasa College; University of Delhi
116	Dr Laxmi Narula	SGTB Khasa College; University of Delhi
117	Ms Satbir Kaur	SGTB Khasa College; University of Delhi
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121	Mrs Smruthu Mohan	SGTB Khasa College; University of Delhi
122	Mr Prince Owusu Amponsah	SGTB Khasa College; University of Delhi
123	Aditya Khandelwal	ANDC; University of Delhi
124	Lakshita Bhati	ANDC; University of Delhi
125	Lavanya Rawat	ANDC; University of Delhi
126	Mansi Yadav	ANDC; University of Delhi
127	Monika Singh	ANDC; University of Delhi
128	Neha Sharma	ANDC; University of Delhi
129	Supriya Verma	ANDC; University of Delhi
130	TanuAgrahari	ANDC; University of Delhi
131	Yukti Khanna	ANDC; University of Delhi
132	Anmol	ANDC; University of Delhi
133	Deepali	ANDC; University of Delhi
134	Deepak	ANDC; University of Delhi
135	Deepika	ANDC; University of Delhi
136	Komal	ANDC; University of Delhi
137	Pranjal	ANDC; University of Delhi
138	Riya	ANDC; University of Delhi
139	Surbhi	ANDC; University of Delhi
140	Yaduvinder	ANDC; University of Delhi
141	Aman Dhiman	ANDC; University of Delhi
142	Anjali	ANDC; University of Delhi
143	Arun	ANDC; University of Delhi
144	Divya	ANDC; University of Delhi
145	Ekta	ANDC; University of Delhi
146	Harveen	ANDC; University of Delhi
147	Hritik	ANDC; University of Delhi
148	Kirti	ANDC; University of Delhi
149	Namarta	ANDC; University of Delhi
150	Naveen	ANDC; University of Delhi
151	Parul	ANDC; University of Delhi

Seema Mehly

152	Prateek	ANDC; University of Delhi
153	Priyanka	ANDC; University of Delhi
154	Rajneesh	ANDC; University of Delhi
155	Sacchidanand	ANDC; University of Delhi
156	Sher Khan	ANDC; University of Delhi
157	Umesh	ANDC; University of Delhi
158	Vikas	ANDC; University of Delhi
159	Manoj	ANDC; University of Delhi
160	Kiran	ANDC; University of Delhi
161	Dr Geetu Gambhir	ANDC; University of Delhi
162	Dr Arijit Chowdhuri	ANDC; University of Delhi
163	Dr Amit Garg	ANDC; University of Delhi
164	Dr Sarita Kumar	ANDC; University of Delhi
165	Dr Anupama Shukla	ANDC; University of Delhi
166	Anirudh Mukherjee	SGTB Khalsa college; University of Delhi
167	Sagar Dhama	SGTB Khalsa college; University of Delhi
168	Vibhav Singh	SGTB Khalsa college; University of Delhi
169	Pooja	SGTB Khalsa college; University of Delhi
170	Raghav Bhardwaj	SGTB Khalsa college; University of Delhi
171	Ishwin Kaur	SGTB Khalsa college; University of Delhi
172	Jasmine Kaur	SGTB Khalsa college; University of Delhi
173	Aarti Gupta	SGTB Khalsa college; University of Delhi
174	Neha Singh	SGTB Khalsa college; University of Delhi
175	Harsheen Kaur	SGTB Khalsa college; University of Delhi
177	Divya Bansal	SGTB Khalsa college; University of Delhi
178	Mansi Bansal	SGTB Khalsa college; University of Delhi
179	Divjot Kaur	SGTB Khalsa college; University of Delhi
180	Anu	SGTB Khalsa college; University of Delhi
181	Kirti	SGTB Khalsa college; University of Delhi
182	Taranpreet Kaur	SGTB Khalsa college; University of Delhi
183	Manheer Kaur	SGTB Khalsa college; University of Delhi
184	Avneet Kaur	SGTB Khalsa college; University of Delhi
185	Sahajdeep Singh	SGTB Khalsa college; University of Delhi
186	Prabhpreet Kaur Sidhu	SGTB Khalsa college; University of Delhi
187	Prabhjot Kaur	SGTB Khalsa college; University of Delhi
188	Sachet Koul	SGTB Khalsa college; University of Delhi
189	Gursimar Singh	SGTB Khalsa college; University of Delhi
190	Vineeta	SGTB Khalsa college; University of Delhi
191	Sharman	SGTB Khalsa college; University of Delhi
192	Ravdeep	SGTB Khalsa college; University of Delhi
193	Pragya	SGTB Khalsa college; University of Delhi
194	JasminE	SGTB Khalsa college; University of Delhi
195	Harpreet	SGTB Khalsa college; University of Delhi
196	Monika	SGTB Khalsa college; University of Delhi
197	Dilpreet	SGTB Khalsa college; University of Delhi

Seem Mehta

198	Divya	SGTB Khalsa college; University of Delhi
199	Trishi	SGTB Khalsa college; University of Delhi
200	Idheeka	SGTB Khalsa college; University of Delhi
201	Somlata	SGTB Khalsa college; University of Delhi
202	Shreya	SGTB Khalsa college; University of Delhi
203	Ashween	SGTB Khalsa college; University of Delhi
204	Harjinder	SGTB Khalsa college; University of Delhi
205	Ashwinder	SGTB Khalsa college; University of Delhi
206	Gagan	SGTB Khalsa college; University of Delhi
207	Arpit	SGTB Khalsa college; University of Delhi
208	Arshdeep	SGTB Khalsa college; University of Delhi
209	Bableen	SGTB Khalsa college; University of Delhi
210	Princy	SGTB Khalsa college; University of Delhi
211	Mili	SGTB Khalsa college; University of Delhi
212	Kajal	SGTB Khalsa college; University of Delhi
213	Parul	SGTB Khalsa college; University of Delhi
214	Savleen	SGTB Khalsa college; University of Delhi
215	HimanshiKunchhal	SGTB Khalsa college; University of Delhi
216	Rohit Awasthi	SGTB Khalsa college; University of Delhi
217	Garima Sagar	SGTB Khalsa college; University of Delhi
218	Vibhuti Gupta	SGTB Khalsa college; University of Delhi
219	Maniki Mathur	SGTB Khalsa college; University of Delhi
220	Eeshita Ghosh	SGTB Khalsa college; University of Delhi
221	Manisha Verma	SGTB Khalsa college; University of Delhi
222	Sakshi Gautam	SGTB Khalsa college; University of Delhi
223	Shivani Kamboj	SGTB Khalsa college; University of Delhi
224	Himanshi	SGTB Khalsa college; University of Delhi
225	Monalisa Sutradhar	SGTB Khalsa college; University of Delhi
226	Pranjul Sharma	SGTB Khalsa college; University of Delhi
227	Govind	SGTB Khalsa college; University of Delhi
228	Sakshi Sharda	SGTB Khalsa college; University of Delhi
229	Anshika Kaushik	SGTB Khalsa college; University of Delhi
230	Varsha Chauhan	SGTB Khalsa college; University of Delhi
231	Swati Pathak	SGTB Khalsa college; University of Delhi
232	Manoj Rawat	SGTB Khalsa college; University of Delhi
233	Pravesh Bhardwaj	SGTB Khalsa college; University of Delhi
234	Ritu	SGTB Khalsa college; University of Delhi
235	Arti Varshney	SGTB Khalsa college; University of Delhi
236	Sandeep Kumar	SGTB Khalsa college; University of Delhi
237	Monika	SGTB Khalsa college; University of Delhi
238	Rajwant Singh	SGTB Khalsa college; University of Delhi
239	Ashveen Kapoor	SGTB Khalsa college; University of Delhi
240	ShubhiVashisth	SGTB Khalsa college; University of Delhi
241	Sakshi Bisht	SGTB Khalsa college; University of Delhi
242	Dr Darshan Kaur Cheema	SGTB Khalsa college; University of Delhi

243	Dr. Surinder Kaur	SGTB Khalsa college; University of Delhi
244	Dr. Gurpreet Kaur	SGTB Khalsa college; University of Delhi
245	Dr.Gurjeet Kaur	SGTB Khalsa college; University of Delhi
246	Dr.Harmeet Kaur	SGTB Khalsa college; University of Delhi
247	Prof G R Sapra	Retired Professor; University of Delhi
248	Dr Bharati Sarkar	Retd., Maitreyi College; University of Delhi
249	Dr Soma Sarkar	Hindu College; University of Delhi
250	Dr Kamal Gupta	Deshbandhu College; University of Delhi
251	Dr Anil Bali	Bhaskaracharya College of Applied Sciences; University of Delhi

Symposium on "Safety Measures and Laboratory Ethics" (under the aegis of Star College Scheme)

Organizing Faculty Members: Dr Seema Gupta Dr Pooja Bhagat Dr Pankaj Khanna, Dr Ravi Toteja, Dr Seema Makhija Dr Aparna Sharma Dr Sweety Shrimali Dr Anjali Saxena Dr Khangembam Cherita Devi Dr Rahul Dev Dr Vineet Girdharwal

Resourse Person(s) :

Dr Rita Singh,
Dr Mrutyunjay Suar,
Dr Sanjeev Kumar Sharma

Date: February 21-22, 2018

Number of Participants:94

The Departments of Zoology and Chemistry, under the aegis of DBT Star College Scheme, organized a 2-day symposium, 'Safety Measures and Laboratory Ethics' on February 21-22, 2018 in the seminar Hall of the College. A total of 94 participants, including undergraduate students and research scholars from within and outside the College, attended the symposium. Each of the participants of the Seminar was provided with a safety kit containing a safety mask, goggles, cap and gloves. Dr Rita Singh (Professor, Department of Zoology, University of Delhi) was the first invited speaker to deliver a talk at the Symposium. Her talk introduced the participants to the ethical issues involved in performing research on human subjects. The next speaker was Dr Mrutyunjay Suar, Director, School of Biotechnology, KIIT University, Odisha. In his talk Dr Suar discussed laboratory ethics with a medical microbiology perspective. He emphasized the proper disposal measures that need to be followed while discarding microbial waste. In the post-lunch session, Dr Suar delivered an interactive lecture that discussed the journey of science from the initial stages of conception of a scientific idea to its execution on an industrial scale. The last speaker of the day was Dr Sanjeev Kumar Sharma, Senior Manager, Health & Safety, Jubilant Generics Limited. In his talk Dr Sharma discussed with the participants all the safety measures that need to be undertaken while working with potentially hazardous chemicals. On February 22, 2018, the first talk was delivered by Dr Vijay Pal Singh, Deputy Director, FSSAI. Dr Singh discussed the relevance of ethics to science students. Dr. Singh explained the concepts and methodology involved in the ethical use of animals for research. The next speaker was Dr Rup Lal, Professor, Department of Zoology, University of Delhi. In his talk Dr Lal shared with the participants his experiences related to management of a research laboratory. The post-lunch session started with an interactive talk by Dr Gagan Dhawan, Dr Dhawan's talk encompassed the various aspects of safety in a science lab. The next speaker was Dr Sanjukta Subudhi, Scientist, TERI. Dr Subudhi's talk was aimed at introducing the participants to the concept of a zero waste future and the role that scientific research will play towards that goal. The last speaker at the Symposium was Dr. Kamal Gupta, Associate Professor, Deshbandhu College, University of Delhi. In his talk, Dr Gupta discussed the importance of scientific research and the need for higher safety regulations while performing research. The Seminar was concluded with a Vote of Thanks followed by the distribution of certificates to the participants, all of whom interacted actively with the speakers. The participants were enthusiastic about the ideas and concepts presented in the Symposium.

They appreciated the need for a hazard-free and safe work environment and opined that the Seminar had made them realize the importance of ethics in the pursuit of science.

ACHARYA NARENDRA DEV COLLEGE

(UNIVERSITY OF DELHI)
DEPARTMENT OF ZOOLOGY & CHEMISTRY
(UNDER STAR COLLEGE SCHEME, DBT)

Two Day Symposium

on

Safety Measures & Laboratory Ethics

February 21-22, 2018

Patron
Dr. Savithri Singh
Principal

Star College Scheme Coordinator
Dr. Ravi Toteja

Organizing Committee
Dr. Seema Gupta
9811357733
Dr. Seema Makhija
9136563762
Dr. Pooja Bhagat
Dr. Pankaj Khanna
Dr. Sweety Shrimali
Dr. Aparna Sharma
Dr. Anjali Saxena
Dr. Pragati Mailk
Dr. K Cherita Devi

Highlights
- Biosafety management
- Risk assessment
- Work practices and safety equipment
- Handling hazardous chemicals
- Relevance of ethics to science students

Benefits
- The participants will be able to list and understand the parts of biosafety plan.
- To learn healthy & good laboratory practices.
- To develop proper waste management in the laboratory.
- Workshop Kit Material
- Certificate of Participation

For Registration:
Visit http://andcollege.du.ac.in
UG Students : Rs 200/-
Research Scholars: Rs 1000/-
Faculty: Rs 1500/-

Last Date for Registration: Feb 18, .2018

First 75 student registrations will be given free Safety Kit

Eminent Speakers

Dr. H.V. Murugkar
(Principal Scientist, Society for Biosafety)

Prof. Rup Lal
(University of Delhi)

Dr. Mryuntanjay Suar
(ASM Ambassador, India Ocean Region)

Dr. Vijay Pal Singh
(Deputy Director, FSSAI)

Dr. Sanjeev Kumar Sharma
(Senior Manager, Health & Safety, Jubilant Generics Ltd)

Dr. Sanjukta Subudhi
(Scientist, TERI)

Dr. Gagan Dhawan
(ANDC, University of Delhi)

21	B.Sc. [H] CHEMISTRY 2015-18	WO-140	Rajan Mishra
22	B.Sc. [H] CHEMISTRY 2015-18	WO-129	Omair Sultan

46	B.Sc. [H] CHEMISTRY 2017-20	YO-140	Tarun Yadav
47	B.Sc. [H] CHEMISTRY 2017-20	YO-141	Tnish Dhir
48	B.Sc. [H] CHEMISTRY 2017-20	YO-152	Vanshika
49	B.Sc. [H] ZOOLOGY 2015-18	W-1003	Harveen Kaur
50	B.Sc. [H] ZOOLOGY 2015-18	W-1073	Namarta Sharma
51	B.Sc. [H] ZOOLOGY 2015-18	W-1011	Umesh Jatav
52	B.Sc. [H] ZOOLOGY 2015-18	W-1069	Priyanka Rajpoot
53	B.Sc. [H] ZOOLOGY 2016-19	X-1048	Sakshi Saraswat
54	B.Sc. in LIFE SCIENCES 2015-18	wo-629	Aditi Sharma
55	B.Sc. in LIFE SCIENCES 2015-18	WO-619	Anupam Singla
56	B.Sc. in LIFE SCIENCES 2015-18	WO-615	Astha
57	B.Sc. in LIFE SCIENCES 2015-18	WO-641	Krishnawati Prajapati
58	B.Sc. in LIFE SCIENCES 2015-18	WO-661	Kunal Singh
59	B.Sc. in LIFE SCIENCES 2015-18	WO-655	Mahi Sharma
60	B.Sc. in LIFE SCIENCES 2015-18	WO-631	Sarthak Khurana
61	B.Sc. in LIFE SCIENCES 2015-18	WO-623	Shumeila
62	B.Sc. in LIFE SCIENCES 2016-19	XO-614	Aribam Biku Sharma
63	B.Sc. in LIFE SCIENCES 2016-19	XO-644	Millionairae Laishram
64	B.Sc. in LIFE SCIENCES 2016-19	XO-695	Yukti Khanna
65	B.Sc. in LIFE SCIENCES 2016-19	XO-641	Martin Chongtham
66	B.Sc. in LIFE SCIENCES 2017-20	YO-614	Firdaus Parveen
67	B.Sc. in LIFE SCIENCES 2017-20	YO-615	Garima
68	B.Sc. in LIFE SCIENCES 2017-20	YO-621	Kartika
69	B.Sc. in LIFE SCIENCES 2017-20	YO-622	Koyna Chatterjee
70	B.Sc. in LIFE SCIENCES 2017-20	YO-669	Krushna Chandra Barik

Seema Mathur

Bhagat

71	B.Sc. in LIFE SCIENCES 2017-20	YO-627	Nayan Katyal
72	B.Sc. in LIFE SCIENCES 2017-20	YO-628	Neenu P B
73	B.Sc. in LIFE SCIENCES 2017-20	YO-631	Nikita Chaudhary
74	B.Sc. in LIFE SCIENCES 2017-20	YO-633	Parveen Rawat
75	B.Sc. in LIFE SCIENCES 2017-20	YO-638	Rabbi Zaheer Khan
76	B.Sc. in LIFE SCIENCES 2017-20	YO-671	Radhika Verma
77	B.Sc. in LIFE SCIENCES 2017-20	YO-645	Sampad Adhikary
78	B.Sc. in LIFE SCIENCES 2017-20	YO-651	Shubhendra Kumar
79	B.Sc. in LIFE SCIENCES 2017-20	YO-652	Simran Gupta
80	B.Sc. in LIFE SCIENCES 2017-20	YO-653	Sneha
81	B.Sc. in LIFE SCIENCES 2017-20	YO-603	Afreen Husain
82	B.Sc. [H] BMS		Deepanshi Rajput
83	B.Sc. [H] BMS		Kumari Priayanka
84	B.Sc. [H] ZOOLOGY 2017-20	y-1010	Anmol Singh
85	Research Scholar		Ms. Jeeva
86	Research Scholar		Ms. S. Sripoorna
87	Research Scholar		Ms. Swati
88	Deshbandhu College		Rachna
89	Deshbandhu College		Kartik
90	Motilal Nehru College [B.Sc. (H) Chem.]		Mintu Singh
91	Motilal Nehru College [B.Sc. (H) Chem.]		Dinesh Kumar
92	Motilal Nehru College [B.Sc. (H) Chem.]		Akshay Kaushik
93	Motilal Nehru College [B.Sc. (H) Chem.]		Shivam Chaubey
94	Atma Ram Sanatan Dharam College (Research Scholar)		Amit Kumar

Registered but did not attend- Neha Gupta (WO-616)- B.Sc. in LIFE SCIENCES 2015-18

Seema Reddy

Bhagat

Workshop on "PCR & Southern Blotting"

Organizing team: Dr Ravi Toteja Dr Seema Makhija, Dr Aparna Sharma, Dr Sweety Srimali, Dr Rahul Dev, Dr Anjali Saxena (Department of Zoology)

Resource Person: Dr. Anjali (9891251148),
Dr. Cheritha (9958283418)
Dr. Sarita Kumar (9810309912),
Dr. Monica Misra (9560076661),
Dr. Seema Makhija (9136563762),
Mr. Ravinder K. Sagar (9711115176),
Dr. Aparna Sharma (9871013149),
Dr. Sweety Shrimali (9818540058),
Dr. Rahul Dev (9873087811),
Dr. Neelgagan Singh (8882006671)
Mr. Sanjay Kumar (8010550990),
Mr. Vineet Girdharwal (9456095779)
Dr. Sneh Sagar (9873515059)

Date: 26th September, 2017

Number of Participants: 79

A hands-on training workshop, 'PCR & Southern Blotting', was held on September 26, 2017. The workshop received enthusiastic participation from the students who appreciated the experience of setting up their own experiments using PCR and Southern Blotting, two techniques which are at the core of all scientific research in Biology. The Workshop received enthusiastic participation from the students of Life Science, Chemistry (H) and Physics (H) who appreciated the experience of setting up their own experiments using PCR and Southern Blotting, two techniques which are at the core of all scientific research in biology.

rya Narend

& Southern

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	gy	X	
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	gy	X	
	nces	X	
	nces	X	
	gy	W	
7	BSc (Hon.) Zoology	W-1005	MIMANSA SIDHNATH
8	BSc (Hon.) Zoology	W-1026	MOHAMMAD SHER KHAN
9	BSc (Hon.) Zoology	W-1073	NAMARTA SHARMA
10	Biomedical Sciences	XO-206	BHAVYA SAINI
11	Biomedical Sciences	XO-207	DEEPAK POKHREAL
12	BSc (Hon.) Zoology	X-1007	ASUTOSH TIWARY
13	BSc (Hon.) Zoology	X-1008	Ayshna Kukreja
14	BSc (Hon.) Zoology	X-1010	Ayushi Raturi
15	BSc (Hon.) Zoology	X-1012	DEEPAK KUMAR RAY
16	BSc (Hon.) Zoology	X-1013	Deepanker

17	BSc (Hon.) Zoology	X-1014	DHEERAJ
18	BSc (Hon.) Zoology	X-1015	DIVYA RANI
19	Biomedical Sciences	XO-230	POOJA
20	Biomedical Sciences	XO-231	Prabhat Bist
21	Biomedical Sciences	XO-233	PRIYANKA CHAUHAN
22	Biomedical Sciences	XO-234	Purnendu Kumar
23	Biomedical Sciences	XO-235	RIDDHI BHARDWAJ
24	BSc (Hon.) Zoology	X-1069	Jaya Yadav
25	BSc (Hon.) Zoology	X-1022	JITENDER
26	BSc (Hon.) Zoology	X-1023	Kajal Goyal
27	BSc (Hon.) Zoology	X-1024	khushboo
28	BSc (Hon.) Zoology	X-1025	KRITIKA SHARMA
29	BSc (Hon.) Zoology	X-1073	MAHESH KASANA
30	BSc (Hon.) Zoology	X-1026	MANISH KUMAR
31	Biomedical Sciences	XO-245	SWETA
32	Biomedical Sciences	XO-246	Talib Hussain
33	Biomedical Sciences	XO-261	TUSHAR YADAV
34	Biomedical Sciences	XO-249	UROOJ FATIMA
35	BSc (Hon.) Zoology	X-1028	Michelle Joseph

36	BSc (Hon.) Zoology	X-1031	MONIKA
37	BSc (Hon.) Zoology	X-1032	MONIKA GUPTA
38	BSc (Hon.) Zoology	X-1033	NACHIKETA GOHAIN DAS
39	BSc (Hon.) Zoology	W-1033	ANJALI VERMA
40	BSc (Hon.) Zoology	W-1074	ARUN KUMAR
41	BSc (Hon.) Zoology	W-1075	ASHUTOSH MISHRA
42	BSc (Hon.) Zoology	W-1022	AYAZ AHMAD RATHER
43	BSc (Hon.) Zoology	W-1041	DIVYA
45	BSc (Hon.) Zoology	W-1017	EKTA VERMA
46	BSc (Hon.) Zoology	W-1064	H HAUJOSEPH
47	BSc (Hon.) Zoology	W-1003	HARVEEN KAUR
48	BSc (Hon.) Zoology	W-1010	HRITIK KADIAN
49	BSc (Hon.) Zoology	W-1051	IFTIKHAR HUSSAIN ANSARY
50	BSc (Hon.) Zoology	W-1057	JUHI JAISWAL
51	BSc (Hon.) Zoology	W-1066	JYOTI MEENA
52	BSc (Hon.) Zoology	W-1025	JYOTI RUSTAGI
53	BSc (Hon.) Zoology	W-1049	KIRAN GOCHER
54	BSc (Hon.) Zoology	W-1061	KIRTI KESHRI

55	BSc (Hon.) Zoology	W-1063	KM HARSHITA YADAV
56	Life Sciences	XO-625	Ginni Khullar
57	Life Sciences	XO-626	GULNAR PARVEEN
58	Life Sciences	XO-627	HARI OM
59	Life Sciences	XO-629	ISHA AGGARWAL
60	Life Sciences	XO-631	JIGYASA PANDEY
61	Life Sciences	XO-632	JULIE DEY NAYEK
62	Life Sciences	XO-634	LAKSHAY ROHILLA
63	Life Sciences	XO-635	LAKSHITA BHATI
64	Life Sciences	XO-636	Lavanya Rawat
65	Life Sciences	XO-637	MAHIMA
66	Life Sciences	XO-639	MANISH KOHLI
67	Life Sciences	XO-640	MANSI YADAV
68	Life Sciences	XO-641	Martin Chongtham
69	Life Sciences	XO-642	mayank bajaj
70	Life Sciences	XO-643	MEGHA SHARMA
71	Life Sciences	XO-644	MILLIONAIRAE LAISHRAM
72	Life Sciences	XO-645	MOHD EZAZ ALI
73	Life Sciences	XO-647	MOHIT SINGH

74	Life Sciences	WO-660	DIVYA BHUSHAN
75	Life Sciences	WO-666	ENGEMLUNG HAU
76	Life Sciences	WO-617	HIJAM SANJEEV
77	Life Sciences	WO-633	JYOTI VERMA
78	Life Sciences	WO-622	KOMAL
79	Life Sciences	WO-641	KRISHNAWATI PRAJAPATI

'Anxiety at Workplace'

Organizing team: Dr Ravi Toteja Dr Seema Makhija (Department of Zoology)
Date: 25th August, 2017
Resource Person : Dr. S.A. Basir,
Number of Participants: 41

Workshop on "Anxiety at Workplace" Department, of Zoology organized a workshop entitled, 'Anxiety at Workplace' on August 25, 2017 at 1:00 p.m. in the Conference Hall. The Workshop was conducted by noted psychiatrist Dr S.A. Basir. In the Workshop, Dr Basir provided the participants an insight into the field of anxiety management. He started the Workshop by identifying the major causes of anxiety, particularly those which are prevalent at the Workplace. He then revealed that workplace related anxiety is escalating at an alarming rate and that 1 out of every 4 persons is suffering from an anxiety-related disorder. He concluded the workshop by discussing the small changes that each person can make in their lifestyles to lead a life devoid of stress and anxiety. The Workshop was attended by 41 participants. The participants of the Workshop participated enthusiastically in the discussions and felt that the Workshop had equipped them to handle anxiety with a much more logical and scientific approach.

Anxiety Managem

30.	Dr. Sweety Shrimali	Zoology
31.	Dr. Rahul Dev	Zoology
32.	Dr. Neelgagan Singh	Zoology
33.	Mr. Vineet Girdharwal	Zoology
34.	Dr. Jitender Goel	Commerce
35.	Dr Cherita	Zoology
36.	Mr Satendera	Library
37.	Ms Jeeva	Research Scholar
38.	Ms Sripoorna	Research Scholar
39.	Ms Swati	Research Scholar
40.	Ms Kungreliu Panmei	Research Scholar
41.	Mr Keshav	Computer Science

2017-2018
SEMINARS

Title: Awareness on IPR and Social Insects Importance of IPR and its Protection
Organizing team: Faculty Members of Zoology Department
Resource Person: Dr. Rekha Chaturvedi, Ms. Amanpreet Kaur, Mr. R. Saha
Date: September 05, 2017
Number of Participants: 76

Department of Zoology organized one day seminar on "IPR awareness & social insects on September 5, 2017, under the aegis of MHRD IPR Chair and DBT Star College Scheme. The schedule of the workshop was as follows:

Title of the Talk	Speaker
Importance of IPR and its Protection	Mr. R. Saha (Advisor CII & Former Director PFC, TIFAC, DST)
Patent, Patenting Procedure & Patent Search	Dr. Rekha Chaturvedi (IPR Chair Professor, DU)
Industrial Design & its Registration	Ms. Amanpreet Kaur (Project Assistant under IPR Chair)
Copyright	Dr. Rekha Chaturvedi (IPR Chair Professor, DU)
The Wonder World of Social Insects	Dr. Debjani De (Principal Scientist, Division of Entomology, IARI, Pusa)

In today's globalizing knowledge based economy, protecting Intellectual Property Rights (IPR) is very important. Therefore, the effective application of IPR in the creation, implementation & development in the field of education is critical. Apart from the realizing the importance of IPR on one hand, to attain more understanding on the behavior of social insects is equally important.
There was huge number of participants from all the Departments of the college. The program included two technical sessions. First session was focussed on "IPR awareness", that included discussions & importance of IPRs and their protection, Patenting procedures, searches, patentable and non-patentable inventions, copyright protection, issues of do's and don'ts in the context. The workshop was co-ordinated by Dr. Seema Makhija.
First Technical Session
Mr R. Saha, advisor CII is a master degree holder in aeronautical engineering from Cranfield University, England. He served the Govt. of India for 35 years in different capacities and handling responsibilities including technical evaluation & assessment, research, public policy matters. In the

last 15 years, he spearheaded the national efforts in capacity building by creating IPR awareness in India, through workshops, publishing a monthly magazine, writing articles, starting DU's IPR cell and helping academic institutions in designing their IPR policies. He evolved an innovative system for protecting university inventions & other original IP ensuring active participations of inventor's attorneys. He represented India in various international forums & was involved in negotiating international agreements in the scientific research and development.

Mr R. Saha, advisor CII, was keynote speaker for the session. He highlighted the importance of IPR & protection very nicely with practical examples. This created enthusiasm among the participants.

Dr. Rekha Chaturvedi, IPR Chair Professor (technical), DU: Dr. Rekha Chaturvedi, a Scientist by training, is an experienced professional in the field of Intellectual Property Management with 14 years of IP and 30 years of R&D experience. Dr Chaturvedi earned her doctorate from University of Oslo, Norway. Dr Chaturvedi has undertaken extensive training in IPR issues in India and abroad. Besides intensive training programs organized by CSIR, DST and DBT, CII and FICCI, she has undergone internships at NIH, USA, AOTS and JPO (Japan). She has put in 24 years of service with CSIR (Institute of Genomics and Integrative Biology, and National Botanical Research Institute) as Chief Scientist, Head of IPR and Planning cells and established and managed a vibrant IPR cell. She is a well-experienced professional in IP protection and management. During her career with CSIR-IGIB, she has authored several research and review articles and guided several PhD and Masters students for their theses work and trained many students in IPR who interned under her guidance. She has delivered talks in many workshops and training programs on patenting, ethics, and research planning and other IPR and WTO issues. She is also a registered Patent Agent with the Indian Patent Office and has long experience of handling Biotech, Pharma and New Chemical entity patents. She is also experienced in copyright, trademark and design registrations. Her key skills are imparting IP education, Planning & Policy, IP management including IP analysis and IP licensing. Dr Rekha Chaturvedi joined DU as the IPR Chair Professor (Technical). In her talk she illustrated the importance of IPR in the course of study and research. She delivered two talks on Patent procedures, searches and on Copyrights respectively. She emphasized on the trends of patent filing in India and abroad and cited success stories on capitalizing of IP.

Ms. Amanpreet Kaur, Research Assistant under IPR Chair, delivered a talk on Industrial designs and registration.

Second Technical Session

The second Technical session was dedicated to "Wonder world of Social Insects" by Dr Debjani Dey, Principal Scientist, IARI. Currently working as a Principal Scientist in the Biosystematic Section of the Division of Entomology, IARI and involved in biosystematics research and teaching for the past 25 years. She has been trained in insect taxonomy with Commonwealth funding at The International Institute of Entomology, London and British Museum of Natural History, London. Incharge of the 110-year-old National Pusa Collection she is involved in maintenance and curation of nearly 0.9 million insect specimens many of which are more than 100 year old. Currently she is Principal Investigator of the IARI Institute Taxonomy project, "Biosystematics of insects, fungi, bacteria and nematodes of economic importance" and also Principal Investigator of the "ICAR

Network project on insect biosystematics". Till date she has published more than 90 research papers, authored 30 book chapters, one book and has delivered more than 30 invited lectures on various aspects of Taxonomy / Hymenoptera in various training programmes talked about the behaviour of social insects in depth. The session was appreciated by the students.

The seminar was a huge success...!!

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)
NAAC Accredited: 'A' Grade

Department of Zoology

(Under the aegis of DBT Star College Scheme)

Organizes One Day Seminar

on

Awareness on IPR

&

Social Insects

Date: September 05, 2017
Time: 09.30 AM
Venue: Conference Hall

Title of the Talk	Speaker
Importance of IPR and its Protection	Mr. R. Saha (Advisor CII & Former Director PFC, TIFAC, DST)
Patent, Patenting Procedure & Patent Search	Dr. Rekha Chaturvedi (IPR Chair Professor, DU)
Industrial Design & its Registration	Ms. Amanpreet Kaur (Project Assistant under IPR Chair)
Copyright	Dr. Rekha Chaturvedi (IPR Chair Professor, DU)
The Wonder World of Social Insects	Dr. Debjani De (Principal Scientist, Division of Entomology, IARI, Pusa)

Dr. Savithri Singh
Principal

Dr. Seema Makhija
Coordinator

17	Zoology	RAJNEESH KUMAR PANDEY	W-1058
18	Zoology	RASHID FAROOQ GANAI	W-1023
19	Zoology	ROHIT TRIPATHI	W-1046
20	Zoology	SACHCHIDA NAND SHUKLA	W-1013
21	Zoology	SAKSHI SINGH	W-1056
22	Zoology	SHAKSHI SHAH	W-1039
23	Zoology	SHIVAM AGRAHARI	W-1024
24	Zoology	SONU YADAV	W-1044
25	Zoology	ANIL CHAUHAN	V-1065
26	Zoology	ANIT KUMAR	V-1029
27	Zoology	KM. SAJEDA ZUBAIR	U-1061
28	Zoology	KM. SHIVANI SHARMA	V-1010
29	Zoology	KOMAL MEWARI	V-1012
30	Zoology	KRITIKA SHARMA	V-1013
31	Zoology	MAHIMA KUMARI	V-1046
32	Zoology	JYOTI DAGAR	V-1054
33	Zoology	KANIKA ARORA	V-1053
34	Zoology	KHUSHI	V-1035

35	Zoology	KM ASHA KC	V-1020
36	Zoology	JITENDER	X-1022
37	Zoology	Kajal Goyal	X-1023
38	Zoology	khushboo	X-1024
39	Zoology	KRITIKA SHARMA	X-1025
40	Zoology	Partho Proteem Das	X-1036
41	Zoology	MUKESH KUMAR GUPTA	V-1040
42	Zoology	NEETI	V-1055
43	Zoology	NIKITA KUMARI	V-1031
45	Zoology	NITIN MITTAL	V-1011
46	Zoology	PRINCE UPADHAY	V-1037
47	Zoology	PRIYA	V-1017
48	Zoology	PRIYA	V-1022
49	Zoology	RAM ASHISH PATHAK	U-1032
50	Zoology	RITIKA SINGH	V-1038
51	Zoology	RUHI ZAREEN	V-1026
52	Zoology	SADIQUE ALI	V-1034
53	Zoology	SANDEEP	V-1001
54	Zoology	SEHAR USMAN	V-1030

55	Zoology	SHIV KUMAR	V-1018
56	Zoology	SIDHANTH ZUTSHI	V-1063
57	Zoology	SIMRAN	V-1043
58	Zoology	SOHIT	V-1009
59	Zoology	VIJAYTA YADAV	V-1036
60	Zoology	VIKAS KUMAR	V-1048
61	Zoology	VIKRANT	V-1045
62	Zoology	Ayshna Kukreja	X-1008
63	Zoology	Ayushi Raturi	X-1010
64	Zoology	DEEPAK KUMAR RAY	X-1012
65	Zoology	Deepanker	X-1013
66	Zoology	DHEERAJ	X-1014
67	Zoology	DIVYA RANI	X-1015
68	Zoology	HIMANGI SHARMA	X-1019
69	Zoology	INTJAR	X-1070
70	Zoology	Ishita Gupta	X-1020
71	Zoology	Jaya Yadav	X-1069
72	Zoology	JYOTI MEENA	W-1066
73	Zoology	JYOTI RUSTAGI	W-1025

74	Zoology	NAVEEN	W-1060
75	Zoology	PANKAJ KUMAR	W-1062
76	Zoology	parul thakur	W-1001

DEPARTMENT OF BIOMEDICAL SCIENCE

Conferences/Workshops/Seminars for the year 2021-22

DEPARTMENT OF BIOMEDICAL SCIENCE

Event:Webinar on "Designing of a Novel Vector for Rapid One-Step Cloning and Expression in *E. Coli*"

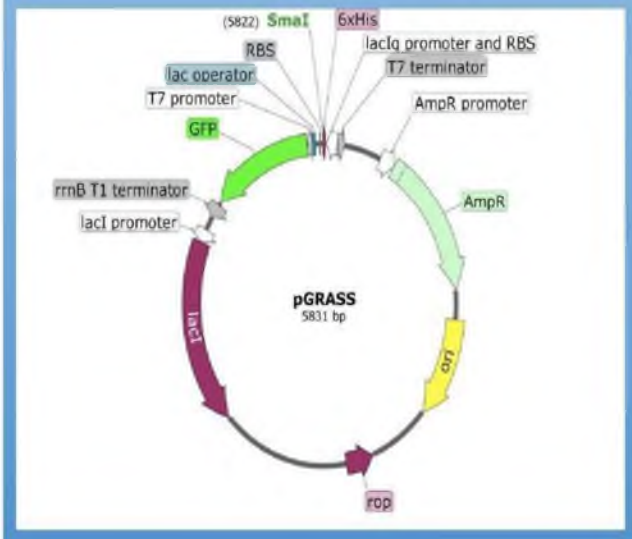
DATE: JANUARY 28, 2022

The Department of Biomedical Science, Acharya Narendra Dev College (ANDC), University of Delhi under the aegis of DBT-STAR College scheme organized a webinar on the topic "Designing of a Novel Vector for Rapid One-Step Cloning and Expression in E. Coli". Mr. Shinto James, Research Scholar, IISER, Bhopal was the resource person. The talk was on the introduction of a novel selection strategy for the insertion of protein coding genes in vector backbones via an engineered plasmid pGRASS (GFP reporter from anti-sense promoter- based screening system). The webinar initiated with introduction to vectors in molecular biology and their development. Later, the audience was introduced to the novel pGRASS vector along withits applications in transformation and cloning practices. The webinar was held under the patronage of Prof. Ravi Toteja, Officiating Principal, ANDC. The convenor for the event was Prof. Urmi Bajpai and the faculty coordinator were Dr. Archna Pandey and Dr. Sunita Jetly. Mr. Pulkit Singh, B.Sc (H) Zoology, Sem VI was the student coordinator.

DEPARTMENT OF BIOMEDICAL SCIENCE
ACHARYA NARENDRA DEV COLLEGE
(University of Delhi, New Delhi)
(Under the Aegis of DBT-STAR College Scheme)

Presents

Designing of a novel vector for rapid one-step cloning in *E. coli*



- Development of an *E. coli* vector pGRASS, based on a novel genetic design for selection and expression

- Easier and more convenient screening of recombinants based on GFP fluorescence

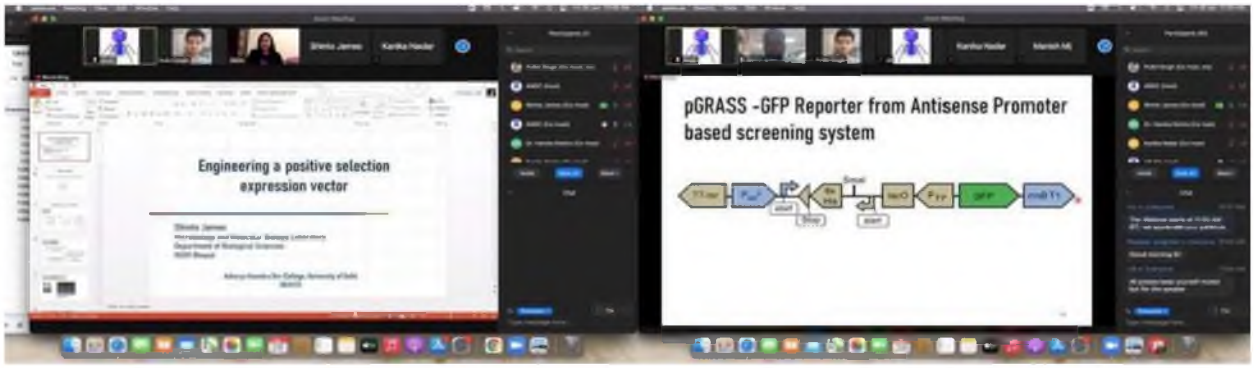
SHINTO JAMES
Research Scholar,
Prof Vikas Jain Lab
IISER, Bhopal

When? *January 28, 2022*
Friday
11:00 AM (IST)

Where? *Google Meet*
(Online)

Register here: https://forms.gle/UxnPYWNTW4yvuBTa7
Google Meet Link: https://meet.google.com/jqr-mxai-qhc
***Registration is mandatory for attending the event*

Pictures: Screenshots from the event



Total no. of participants: 75

Attendance list of

participants:

Students: 67

S. No.	Name	Course	Year
1	Chandan Kumar	Biomedical Science	III
2	Aastha	Biomedical Science	III
3	Rohit Rajesh Gokhale	Biomedical Science	III
4	Harshvardhan Gupta	Biomedical Science	III
5	Riya Sargiari	Biomedical Science	II
6	Akshaya Gupta	Biomedical Science	I
7	Jayashree Mallick	Biomedical Science	III
8	Lalita Yadav	Biomedical Science	II
9	Vaishna	Biomedical Science	II
10	Mansi Arora	Biomedical Science	III
11	Mrittika Adhikary	Biomedical Science	III
12	Muskan Gupta	Biomedical Science	III
13	Suravi Bhaya	Biomedical Science	II
14	Tripti	Biomedical Science	II
15	Nisha Kesari	Biomedical Science	III
16	Anshika Bansal	Biomedical Science	I
17	Arpita Singh	Biomedical Science	I

18	Asmita Nayak	Biomedical Science	I
19	Sudeepta Singh	Biomedical Science	III
20	Tamanna	Biomedical Science	III
21	Khushi Rani	Biomedical Science	I
22	Riya Rajput	Biomedical Science	I
23	Anamika	Biomedical Science	II
24	Indu	Biomedical Science	II
25	Himanshi	Biomedical Science	II
26	Kalyani	Biomedical Science	II
27	Sonam	Biomedical Science	I
28	Ekta	Biomedical Science	II
29	Hrriday	Biomedical Science	II
30	Akanksha	Biomedical Science	II
31	Saarthak	Biomedical Science	I
32	Aastha	Biomedical Science	II
33	Harinandna	Biomedical Science	II
34	Shimukh	Biomedical Science	I
35	Harsh Dalal	Biomedical Science	I
36	harshit parwal	Biomedical Science	I
37	Hirtik Singh Rathore	Biomedical Science	I
38	Prince	Biomedical Science	I
39	Bhavna	Biomedical Science	II
40	Renu	Biomedical Science	II
41	Ankita	Biomedical Science	II
42	Manas	Biomedical Science	II
43	Bhaskar Paul	Biomedical Science	III
44	Harshit Jindal	Biomedical Science	III
45	Yash Goel	Biomedical Science	II
46	Nidhi	Biomedical Science	II
47	Reema Sahu	Biomedical Science	III
48	Somak Nandy	Biomedical Science	III

49	Yashwant Meena	Biomedical Science	III
50	Suprobh Ahna Borah	Biomedical Science	I
51	Srishti	Biomedical Science	I
52	Sukanya Bordoloi	Biomedical Science	I
53	Tamanna Saini	Biomedical Science	I
54	Vipasha	Biomedical Science	I
55	Najjam	Biomedical Science	I
56	Anirudh	Biomedical Science	II
57	Ritu Papney	Biomedical Science	I
58	Mehak	Biomedical Science	II
59	Anshita Deo	Biomedical Science	I
60	Shrishti	Biomedical Science	II
61	Shreya Roy	Biomedical Science	III
62	Jasman Singh	Biomedical Science	I
63	Shivam	Biomedical Science	II
64	Jassi Goyal	Biomedical Science	I
65	Jaismeet Kaur	Biomedical Science	I
66	Siddharth Mehdiratta	Biomedical Science	III
67	Mamta Chetri	Biomedical Science	III

Faculty: 8

S. No.	Name
1	Prof. Urmi Bajpai
2	Dr. Sunita Jetly
3	Dr. Archna Pandey
4	Dr. Gagan Dhawan
5	Dr. Rajesh Chaudhary
6	Dr. Satendra Singh
7	Dr. Rimpy Kaur Chowhan
8	Dr. Ritu Khosla

SIgnature of Convenor

(Prof. Urmi Bajpai)

EVENT: NATIONAL WEBINAR ON "INTRODUCTION TO BIONEST-UDSC & BIO-ENTREPRENEURSHIP" DATE: FEBRUARY 15, 2022

The Department of Biomedical Science, Acharya Narendra Dev College (ANDC), University of Delhi under the aegis of DBT-STAR College scheme organized a webinar on the topic "Introduction to BioNEST-UDSC & Bio-Entrepreneurship". Mr. Vijay Kantharia, CEO, BioNEST, University of Delhi, South Campus was the resource person. The talk was on the introduction of a BioNEST Facility operating at the department of Microbiology, South Campus, University of Delhi. It provides infrastructural support, mentorship, and space to startups in facilitating their R&D work. Besides, several high-end equipment are available. Mr. VijayKantharia, CEO BioNEST explained the prospects of Bio Entrepreneurship and the available facilities that can be used for the respective requirements of researchers and faculty members. The webinar was held under the patronage of Prof. Ravi Toteja, Officiating Principal, ANDC. The convenor for the event was Prof. Urmi Bajpai. Ms Ritu Arora, PhD Scholar, Department of Biomedical Science, ANDC was the student coordinator.

Acharya Narendra Dev College
University of Delhi

DBT STAR College, NAAC Grade "A"
(Score-3.31); NIRF Ranking-20

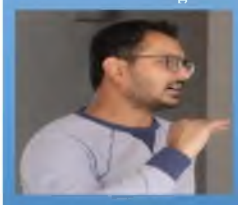
Presents a

National Webinar on

Introduction to BioNEST-UDSC & Bio-Entrepreneurship

in association with

BioNEST-UDSC (University of Delhi, South Campus) and under the aegis of DBT STAR & IQAC, ANDC



SPEAKER

Vijay Kantharia,
CEO, Bio-NEST UDSC

TIME & DATE

February 15, 2022 ; Tuesday 4:00 PM

Organizers

BioNEST-UDSC

Prof Swati Saha (*Coordinator*
Prof Rani Gupta (*Nodal Officer*)
Prof Rajeev Kaul (*Joint Nodal Officer*)
Prof YP Khasa (*Joint Nodal Officer*)

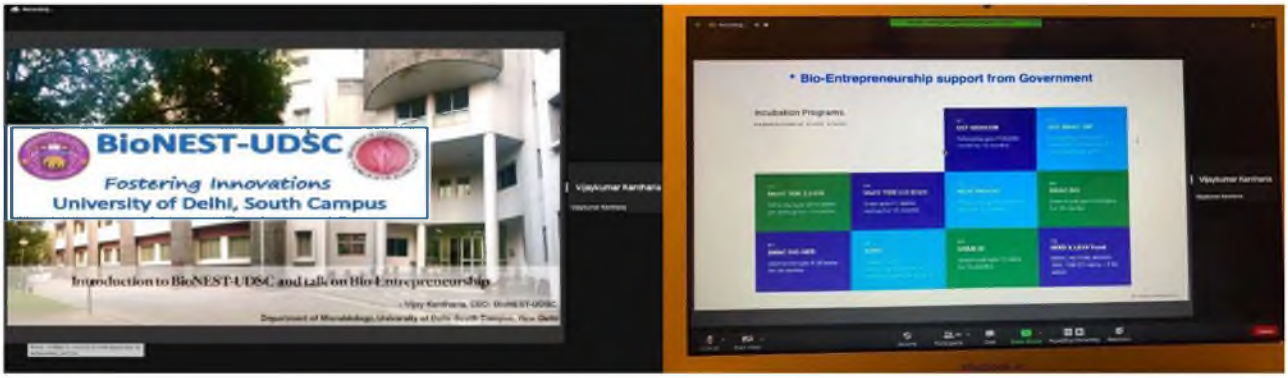
ANDC

Prof Ravi Toteja, *Officiating Principal & Patron*
Prof Urmi Bajpai, *Convener*

Zoom Link for: https://us06web.zoom.us/j/83510500034

Prior registration is requested. Link to register: shorturl.at/hEU29

Photographs: Screenshot from the event



Attendance List of Participants:

Total no. of participants: 64

S. No.	Name
1	Vijay Kumar Kantharia
2	Urmi Bajpai
3	Harsha Rohira
4	Lalit
5	Nitin Joshi
6	Sarita Nanda
7	Rakhi Srivastava
8	Wokso Mahung
9	Prerna Rajoria
10	Mansi Arora
11	Reema

12	Mohd Afham

13	Parveen Chaprana
14	Kavita Dixit
15	Surabhi Gupta
16	Seema Makhija
17	Sandhyayani Murmu
18	Kanchan
19	Pratham Singh
20	Suprobh
21	Shabna Khatoon
22	Shrishti
23	Tamanna
24	Rohit
25	Siddharth
26	Nidhi
27	Mhimma Negi
28	Dr. Archna Pandey
29	Sakshi Sharma
30	Akanksha
31	Dr. Ritu Khosla
32	Sonam
33	Dr. Satendra Singh
34	Nisha
35	Saarthak
36	Subhanshu
37	Yash Goel
38	Akanksha Singh
39	Ashish Arora
40	Dr Rimpy
41	Chandan Kumar
42	Mrittika
43	Shreya Singh

44	Harshit Jindal
45	Hriday
46	Swati
47	Divya
48	Shivam
49	Mehak
50	Divya
51	Lalita
52	Prakash Jha
53	Pooja
54	Chanchal
55	Nawab Jiya Khan
56	Meenakshi Sharma
57	Neelam Bhola
58	Neha Panwar
59	Manas
60	Deepali
61	Rahul Dev
62	Pratap
63	Ankit Mathor
64	Pulkit Singh

Signature of

Convenor(Prof.

Urmi Bajpai)

Event: Workshop on “Tools in Modern Biology”

Date: April 21, 2022

Hands-on Training on Tools in Modern Biology was organized for the support staff to familiarize them with the new equipment purchased under the STAR Scheme on 21st April, 2020. The laboratory staff were trained about the basic operation and maintenance of pH meter, PCR and electrophoresis unit. The training was attended by 10 staff members.

Poster:

Pictures:

No. of participants: 10

Attendance list of participants:

S. No.	Name	Department
1	Mr. Vinesh	Biomedical Science
2	Mr. Nitesh	Biomedical Science
3	Mr. Ajay Gupta	Biomedical Science
4	Mr. Surendra	Biomedical Science
5	Mr. Ashutosh	Biomedical Science
6	Mr. Dharmendra	Biomedical Science
7	Mr. Jayant	Biomedical Science
8	Mr. Sagar	Zoology
9	Mr. Vikas	Zoology
10	Mr Rajveer	Botany

Signature of Convenor

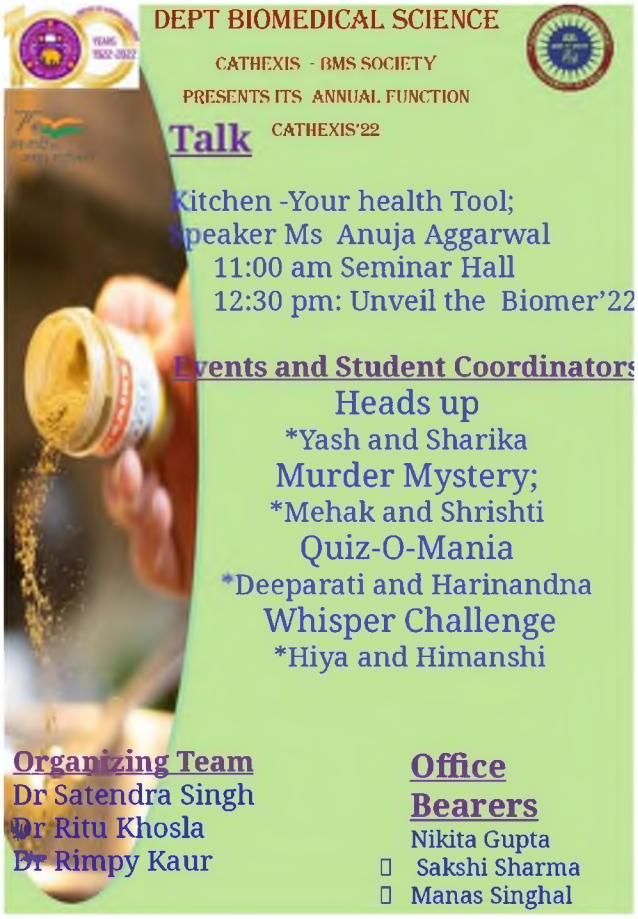
(Dr. Archna Pandey)

Report:

Event: Cathexis-22: Kitchen is your health tool
Date: April 22, 2022

The Department of Biomedical Science, Acharya Narendra Dev College organized its annual festival, Cathexis'22, on April 22, 2022 in the seminar hall of the college. Ms. Anuja Aggarwal, Senior Dietitian, AIIMS delivered a talk on the topic "Kitchen is your health tool". During the event, the editorial Society of the department also released its annual magazine, Biomer'22 'Kitchen is our health tool'.The undergraduate students from the department enthusiastically participated in various activities held viz. Heads up, Murder Mystery, Quiz-O-Mania and Whisperchallenge.

Poster:



Pictures:

BIOMER'22
Kitchen Is Our Health Tool
DIFFERENT TAKES ON COOKING
HECTIC LIFESTYLE VS HEALTHY LIFESTYLE
CUMIN BEING THE ELIXIR
RIGHT WAY TO DIET

Acharya Narendra Dev College
CATHEXIS 2022
"KITCHEN IS YOUR HEALTH TOOL"
ANNUAL FESTIVAL OF BIOMEDICAL SCIENCE
Certificate of Achievement

REDMI NOTE 8
AI QUAD CAMERA

REDMI NOTE 8
AI QUAD CAMERA

Total no. of participants: 66

Attendance list of

participants:

Faculty: 8 Faculty Members from the Department of Biomedical Science attended the event

S.No.	Name
1	Prof. Urmi Bajpai
2	Dr. Sunita Jetly
3	Dr. Archna Pandey
4	Dr. Gagan Dhawan
5	Dr. Rajesh Chaudhary
6	Dr. Satendra Singh
7	Dr. Rimpy Kaur Chowhan
8	Dr. Ritu Khosla

Students: 58 students from the Department of Biomedical Science attended the event.

S. No.	Name	Year
1	Tamanna	III
2	Nidhi Rai	II
3	Yash Goel	II
4	Shivam	II
5	Ankit Abhishek Kerketta	III
6	Akshaya Gupta	I
7	Mohd Tabish	II
8	Jassi Goyal	I
9	Alisha Ansari	III
10	Anshita Deo	I
11	Yash Kumar	I
12	Manas Singhal	II
13	Tushar Pathak	I
14	Hirday Sehgal	II

15	Aastha	III
16	Ankita Malakar	II
17	Suprobh Ahna Borah	I
18	Aastha Gupta	II
19	Prince	I
20	Mukul Pal	I
21	Anamika Binu	II
22	Deeparatti Dutta	II
23	Alarmelumangai	I
24	Chandan Kumar Rajak	III
25	Anushka	I
26	himanshi jain	II
27	Rishi Dev	III
28	Jasmin Singh	I
29	Hirtik Singh	I
30	Mehak sharma	II
31	Riya Sargiari	II
32	Shrishti Singh	II
33	Nahid	III
34	Deeptarun Roy	II
35	Harshit Parwal	I
36	Arpit Sharma	I
37	Harsh Dalal	I
38	Harinandna B	III
39	Nisha	II
40	Somak Nandy	III
41	Anirudh Kumar	II
42	Saarthak Kumar	I
43	Kalyani Kumari	II
44	Ruchika	I

45	Tripti	II
46	Sachin Sharma	III
47	Tamanna Saini	I
48	Harshelle Bhatt	II
49	Ajay Kumar Singhmar	II
50	Ritu Papney	I
51	Arpit Sharma	III
52	Suravi Bhaya	II
53	Khushi Bhatt	I
54	Asmita Nayak	I
55	Reema Sahu	III
56	Khushi Rani	I
57	Khushi Rani	I
58	Maushmi P T	I

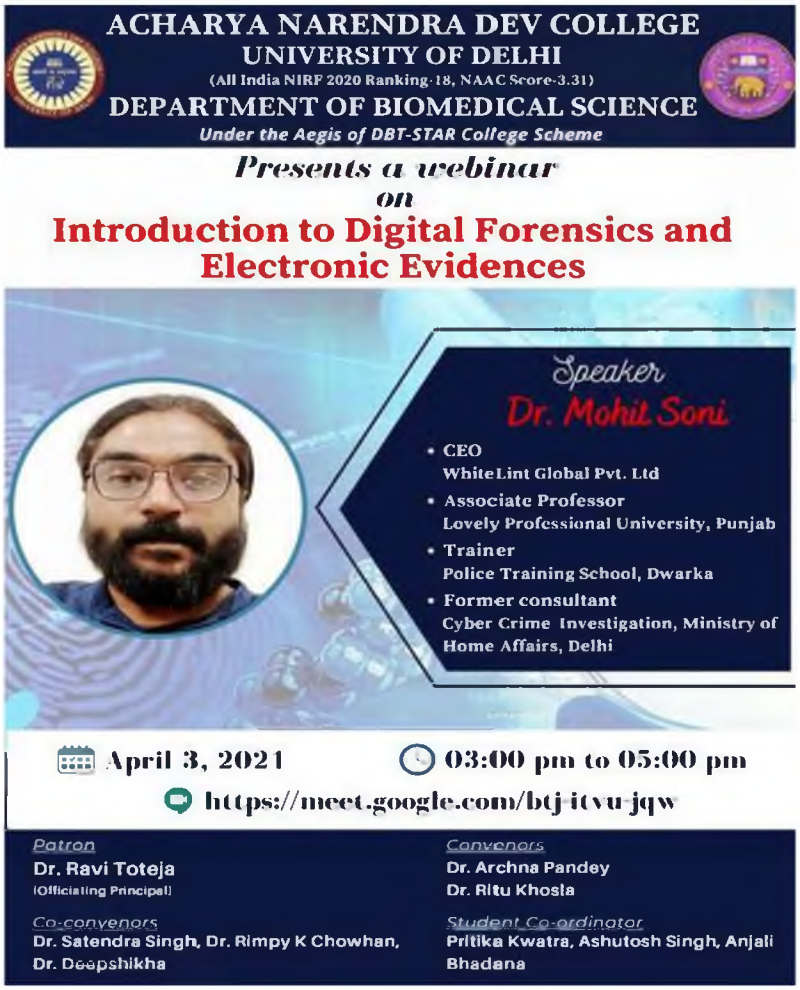
Signature of the Convenor

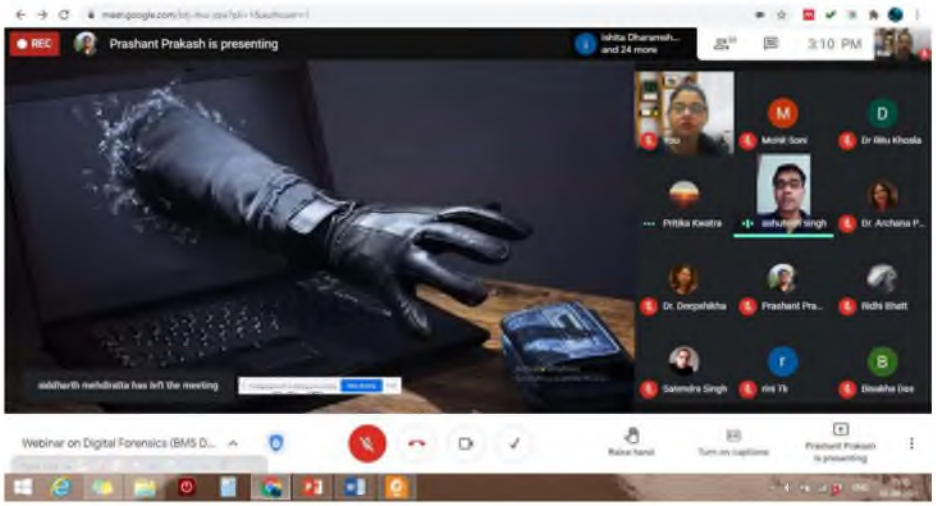
(Dr. Sunita Jetly)

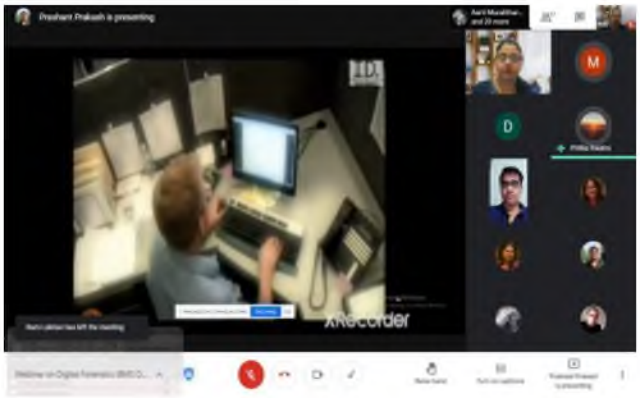
Event: 'Introduction to digital forensics and electronic evidences'

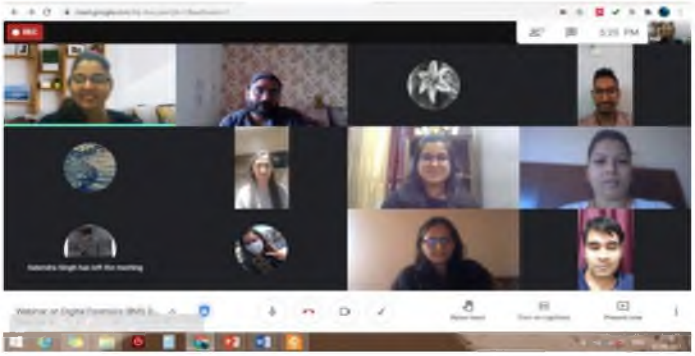
Date: April 21, 2022

Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi underthe patronage of Prof. Ravi Toteja (Officiating Principal, ANDC) organized a webinar on thetopic "Introduction to Digital Forensics and Electronic Evidences" under the aegis of DBT-STARCollege Scheme on 3rd April 2021 on google meet. The organizing team comprised of theconvenors - Dr Archna Pandey (Department of Biomedical Science) and Dr Ritu Khosla(Department of Biomedical Science). The resource person for the webinar was Dr. Mohit Soni,CEO WhiteLintGlobal Pvt Ltd. and Associate Professor, Lovely Professional University, Punjab.The webinar was attended by over 50 participants. The webinar was an introductory lecturedelving into the various aspects of digital forensics. Dr Soni discussed several types ofcomputer crime investigation scenarios and the eventual processing of different electronicevidence collected from them. This session took the participants through all classes of digitalforensics. It also threw light on different career options in digital forensics as well as forensic sciences in general.


ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
(All India NIRF 2020 Ranking-18, NAAC Score-3.31)
DEPARTMENT OF BIOMEDICAL SCIENCE
Under the Aegis of DBT-STAR College Scheme
Presents a webinar
on
Introduction to Digital Forensics and Electronic Evidences
Speaker
Dr. Mohit Soni
• CEO
WhiteLint Global Pvt. Ltd
• Associate Professor
Lovely Professional University, Punjab
• Trainer
Police Training School, Dwarka
• Former consultant
Cyber Crime Investigation, Ministry of Home Affairs, Delhi
April 3, 2021
03:00 pm to 05:00 pm
https://meet.google.com/btj-itvu-jqw
Patron
Dr. Ravi Toteja
(Officiating Principal)
Convenors
Dr. Archna Pandey
Dr. Ritu Khosla
Co-convenors
Dr. Satendra Singh, Dr. Rimpy K Chowhan, Dr. Deepshikha
Student Co-ordinator
Pritika Kwatra, Ashutosh Singh, Anjali Bhadana


REC
Prashant Prakash is presenting
3:10 PM





Total No. of participants: 78

Attendance list of participants:

Total No. of participants: 78

Attendance list of participants:

S. No.	Name	Year
2	AASTHA	III
3	SHARIKA MATTOO	I
4	AASTHA GUPTA	I
5	SHRISHTI	I
6	SHREYA ROY CHOWDHURY	II
7	SHIVAM	I
8	ASHUTOSH SINGH	III
9	RIYA XAVIER	I
10	BISAKHA DAS	III
11	ANIRUDH	I
12	HRIDAY SEHGAL	I
13	VIVEK GARGEY	III
14	SUDIPTA	II
15	KAJAL MANGLA	III
16	SAKSHI SHARMA	II
17	SUBHANGI PRIYA	II
18	SUPRIYA KUMARI	II
19	MANAS	I
20	NIDHI	I
21	SUBHANGI PRIYA	III
22	REEMA SAHU	II
23	T K RINI	III
24	ROHIT RAJESH GOKHALE	II
25	SOMAK	II
26	SUPRIYA KUMARI	III
27	NAHID	II

28	TAMANNA	II
29	NIKITA CHAUHAN	III
30	PRIYANJANA GHOSH	III
31	RIDHI BHATT	II
32	DIPESH TALUKDAR	II
33	SHUBHAM SHUKLA	II
34	NIRANJAN KUMAR SINGH	II
35	T K RINI	III
36	NISHA KESARI	III
37	ANAMIKA BINU	I
38	MEHAK SHARMA	I
39	NIHARIKA UPADHYAY	II
40	SRIJA MAJUMDER	II
41	NIKITA CHAUHAN	II
42	ANNIE SINGH BATRA	II
43	BHASHKAR PAUL	II
44	HARSHIT JINDAL	II
45	KAUSTAV GAUTHAMAN	II
46	KUMUD KAUL	II
47	NAIN RUHELA	II
48	RISHI DEV	II
49	YASHWANT MEENA	II
50	PRASHANT PRAKASH	III
51	PRITIKA KWATRA	III
52	TARUNPREET KAUR	III
53	ANKITA MALAKAR	I
54	DEEPARATI DATTA	I
55	HIMANSHI JAIN	I
56	KALYANI KUMARI	I
57	KM KANIKA	II
58	SACHIN SHARMA	II

lPandey

59	ANKIT ABHISHEK KERKETTA	II
60	RIYA SARGIARI	I
61	SOHAM ANGMO	III
62	KRITIKA GARG	III
63	SURAVI BHAYA	I
64	AJAY KUMAR SINGHMAR	I
65	ISHITA DHARAMSHAKTU	III
66	DEEPTARUN ROY	I
67	DIPESH TALUKDAR	II
68	MOHD. TABISH	I
69	ALISHAD	I

Faculty

S. No	Name
1	Prof. Urmi Bajpai
2	Dr. Sunita Jelly
3	Dr. Archna Pandey
4	Dr. Gagan Dhawan
5	Dr. Rajesh Chaudhary
6	Dr. Satendra Singh
7	Dr. Rimpy Kaur Chowhan
8	Dr. Ritu Khosla
9	Dr. Deepshikha

Signature of Convenor

(Dr. Archna Pandey)

Conferences/Workshops/Seminars for the year 2020-21

DEPARTMENT OF BIOMEDICAL SCIENCE

Event: Symposium on "Phage Lysins: Promising alternatives to antibiotics"

DATE: JULY 09, 2021

Department of Biomedical Science organized IBRC Online Symposium on "Phage Lysins:
Promising alternatives to antibiotics". Resource persons for the symposium were Dr T.S. Balganesh, President Ganga Jain Biotechnology Pvt. Ltd., Mr Sukumar Hariharan, Head of Development, GBPL, India, Dr Vincent A. Fischetti, Prof. and Head, Laboratory of Bacterial Pathogenesis, Rockefeller University, USA. The symposium was attended by 150 participants.

Total no. of participants: 150

Attendance List:

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Signature of Convenor

(Prof. Urmi Bajpai)

EVENT: SCIENCE SETU ON "VIRUSES & IMMUNITY"DATE: MARCH 17, 2021

Acharya Narendra Dev College, University of Delhi along with Translational Health Science andTechnology Institute, Department of Biotechnology, Ministry of Science and Technology, Govt. of India organized a Science Setu Program on March 17,2021. This year Virtual Science Setu event was organized on "Viruses & Immunity".
The following scientists from THSTI gave a talk on the theme: Dr Milan Surjit: Virology: Importance in human health management, scope & prospects; Dr. Sweety Samal: VaccineDevelopment For Respiratory Viruses:Past & Future Complexity Of; Dr. Amit Awasthi: Immuneresponse In Covid 19 & Flow Cytometric Approach To Understanding Disease Biology.
The event was attended by 79 participants.

thsti ट्रांसलेशनल स्वास्थ्य विज्ञान एवं प्रौद्योगिकी संस्थान
TRANSLATIONAL HEALTH SCIENCE AND TECHNOLOGY INSTITUTE

VIRTUAL SCIENCE SETU

VIRUSES & IMMUNITY

PROGRAMME SCHEDULE

11:00 AM WELCOME NOTE
DR. SOMA PATNAIK

11:03 AM VIROLOGY: IMPORTANCE IN HUMAN HEALTH MANAGEMENT, SCOPE & PROSPECTS
DR. MILAN SURJIT

11:30 AM VACCINE DEVELOPMENT FOR RESPIRATORY VIRUSES: PAST & FUTURE
DR. SWEETY SAMAL

11:55 AM COMPLEXITY OF IMMUNE RESPONSE IN COVID19
DR. AMIT AWASTHI

12:20 AM FLOW CYTOMETRIC APPROACH TO UNDERSTANDING DISEASE BIOLOGY
DR. DEEPAK RATHORE

12:45 AM Q & A SESSION

No. of participants: 79
List of participants:

Faculty

S. No.	Name	Affiliation
1	Prof. Urmi Bajpai	Acharya Narendra Dev College
2	Dr. Satendra Singh	Acharya Narendra Dev College
3	Dr. Rimpy Kaur Chowhan	Acharya Narendra Dev College
4	Dr. Ritu Khosla	Acharya Narendra Dev College
5	Dr. Deepshikha	Acharya Narendra Dev College

Students

S.No.	Name	Course	Year
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2	Manish Kumar	Biomedical Science	III
3	Srija Majumdar	Biomedical Science	III
4	Sakshi Sharma	Biomedical Science	III
5	Ashustosh Singh	Biomedical Science	III
6	Prachi Singh	Biomedical Science	III
7	Than Dar Aung	Biomedical Science	III
8	Sushant Yadav	Biomedical Science	III
9	Ramesh Niraula	Biomedical Science	III
10	Ankita Paty	Biomedical Science	III
11	Alisha Ansari	Biomedical Science	II
12	Annie Singh	Biomedical Science	II
1	Bhaskar Paul	Biomedical Science	II
3	Chandan Kumar	Biomedical Science	II

14	Harshvardhan Gupta	Biomedical Science	II
15	Kaustabh	Biomedical Science	II
16	Harshit Jindal	Biomedical Science	II
17	KM Kanika	Biomedical Science	II
18	Anjali Bhadana	Biomedical Science	II
19	Dipesh	Biomedical Science	II
20	Navodita Seth	Biomedical Science	II
21	Mamta Chetri	Biomedical Science	II
22	Rohit Gokhale	Biomedical Science	II
23	Somak Nandy	Biomedical Science	II
24	Kajal Pandey	Biomedical Science	II
25	Mritika Adhikary	Biomedical Science	II
26	Arpit Sharma	Biomedical Science	II
27	Amit Kumar	Biomedical Science	II
28	Niharika Upadhyay	Biomedical Science	II
29	Nikita Chauhan	Biomedical Science	II
30	Afnitha	Biomedical Science	II
31	Nahid	Biomedical Science	II
32	Aastha	Biomedical Science	II
33	Mansi Arora	Biomedical Science	II
34	Nain Ruhela	Biomedical Science	II
35	Nisha Kesari	Biomedical Science	II
36	Anirudh	Biomedical Science	I
37	Bhavna	Biomedical Science	I
38	Mohd. Tabish	Biomedical Science	I
39	Nisha	Biomedical Science	I
40	Kalyani	Biomedical Science	I

41	Pallavi	Biomedical Science	I
42	Archana	Biomedical Science	I
43	Shivam	Biomedical Science	I
44	Nidhi Rai	Biomedical Science	I
45	Mehak Sharma	Biomedical Science	I
46	Shristi	Biomedical Science	I
47	Suravi	Biomedical Science	I
48	Tripti	Biomedical Science	I
49	Yash	Biomedical Science	I
50	Vaishna	Biomedical Science	I
51	Harinandna	Biomedical Science	I
52	Harshelle	Biomedical Science	I
53	Manas	Biomedical Science	I
54	Aastha	Biomedical Science	I
55	Mohd. Ali	Biomedical Science	I
56	Alshad	Biomedical Science	I
57	Ram Lakhan	Biomedical Science	I
58	Bhupender	Biomedical Science	I
59	Anandhu	Biomedical Science	I
60	Hirday	Biomedical Science	I
61	Deeparatti	Biomedical Science	I
62	Anamika	Biomedical Science	I
63	Akanksha	Biomedical Science	I
64	Ankita	Biomedical Science	I
65	Riya Xavier	Biomedical Science	I
66	Himanshi Jain	Biomedical Science	I
67	Indu	Biomedical Science	I

68	Riya Sargiari	Biomedical Science	I
69	Lalita	Biomedical Science	I
70	Renu	Biomedical Science	I
71	Pooja	Biomedical Science	I
72	Deeptarun	Biomedical Science	I
73	Ajay Kumar	Biomedical Science	I
74	Hiya	Biomedical Science	I

Signature of the Convenor

(Prof. Urmi Bajpai)

Event: IBRC-Phage Directory webinar series on Phage Bioinformatics: Phage genome annotation: the right way and/or the easy way

Date: March 02, 2021

With an aim to develop a community of bacteriophage researchers, 'International Bacteriophage Research Consortium' (IBRC) was established as a collaboration between Acharya Narendra Dev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL), USA in 2018. A webinar was organized on 2nd March, 2021 under IBRC-Phage Directory webinar series on the topic "Phage genome annotation: the right way and/or the easy way". Katelyn McNair, Research Scholar, University of California, USA was the resource person. The webinar was attended by 59 participants.

OHSL Phage Directory IBRC

Phage Bioinformatics Lecture Series

Hosted by

IBRC-Phage Directory

Katelyn McNair

Phage genome annotation: the right way and/or the easy way!

Katelyn McNair, Research Scholar, University of California, Irvine and San Diego State University, USA. Developer of the first gene finder software PHANOTATE, specifically designed for phage genome annotation & PHACTS for the prediction of temperate/virulent phages.

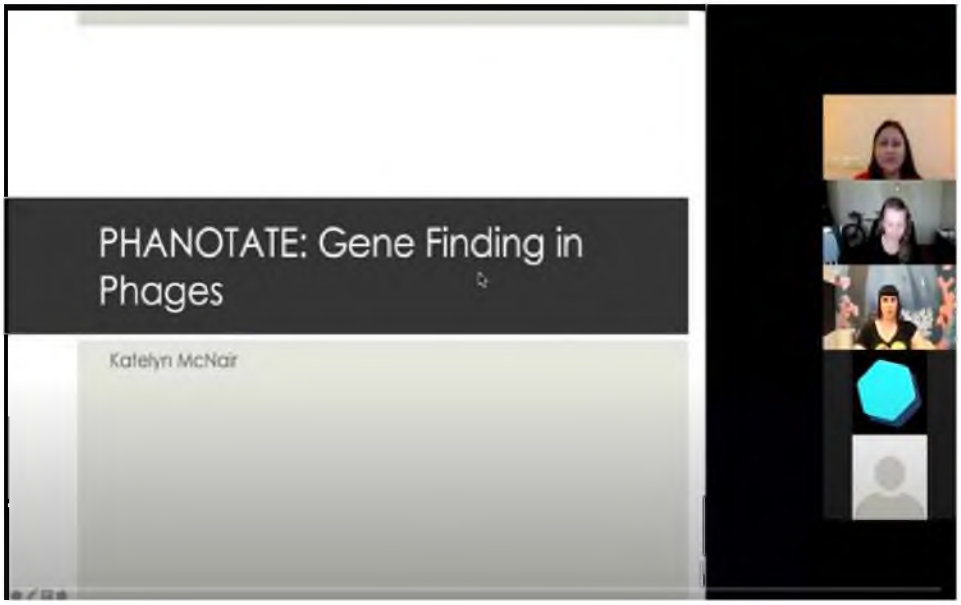
March 2, 2021

9:00 pm IST

7:30 am PST

@phageconsortium
@phagedirectory

Scan to Register OR
https://rb.gy/9as5bo



IBRC-Phage Directory: Ms Katelyn McNair, University of California Irvine & San Diego State University, USA. Topic: "Phage genome annotation: the right way and/or the easy way". 02 March, 2021

No. of participants: 59
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varunr@iiserb.ac.in	Varun	Bavda	IISER Bhopal	India	Student/Research Scholar
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jessica@phage.directory	Jessica	Sacher	Phage Directory	Canada	Industry
ananunes.azevedo05@g	Joana	Azevedo	USP	Brasil	Student/Rese a

mail.com					rch Scholar
bharatjj@gmail.com	Bharat		Jhunjhunwala	India	Scientist
karthik.l@salemmicrobes .com	Karthik	L	Salem microbes	India	Industry
salau12@gmail.com	Dr Salauddin	Qureshi	ICAR-Indian veterinary Research Institute	India	Scientist

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jrclark@bcm.edu	Justin	Clark	Baylor College of Medicine	United States	Scientist
sun27sri@gmail.com	Dr Sunil	Srivastava	SSN College,University of Delhi	India	Faculty
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aishu.nair.602@gmail.com	Aishwarya	R. Nair	Bhaskaracharya College of Applied Sciences, Delhi University	India	Student/Research Scholar
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vidhivashishtha02@gmail.com	Vidhi	Vashishtha	University of Delhi	India	Student/Research Scholar
gopalnath@gmail.com	Gopal	Nath	IMS	India	Faculty
dramit.icmr@gmail.com	Amit	Singh	NJILOMD, Agra	India	Scientist
deepshikha@andc.du.ac.in	Deepshikha		ANDC	India	Faculty

EVENT: IBRC-PHAGE DIRECTORY WEBINAR SERIES ON PHAGE BIOINFORMATICS: TAILORED MEDICINE: BIOINFORMATIC ANALYSIS OF BACTERIOPHAGES FOR THERAPEUTIC USE LESSONS LEARNED FROM SINGLE PATIENT CASES

Date: March 30, 2021

With an aim to develop a community of bacteriophage researchers, 'International Bacteriophage Research Consortium' (IBRC) was established as a collaboration between Acharya NarendraDev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL), USA in 2018. A webinar was organized on 30th March, 2021 under IBRC-Phage Directory webinar series on the topic "Tailored Medicine: Bioinformatic analysis of bacteriophages for therapeutic use lessons learned from single patient cases". Dr. Justin Clark, Lead Data Scientist adn Co-Founder of TAILOR, a Baylor College of Medicine bacteriophage initiative, Houston, Texas, USA was the resource person. The webinar was attended by 55 participants.

IBRC-Phage Directory: Dr Justin Clark, Lead Data Scientist and Co-founder of TAILΦR, a
Baylor College of Medicine bacteriophage initiative at Houston, Texas, USA. Topic:
"Therapeutic use of bacteriophages and comparative genomics of ESKAPE pathogens". 30

March, 2021

No. of participants: 55
Attendance list of participants:

First Name	Last Name	School/College/University/Institute/Company	Country	Current Role
Camille	Kolenda	HCL	France	Student/Research Scholar
Tanu	Yadav	University of Lucknow	India	Student/Research Scholar
Shivani	Panchal	ACBR	India	Scientist
Mansura	Mulani	Savitribai Phule Pune University	India	Student/Research Scholar
Ghadeer	Jdeed	Institute of Chemical Biology andFundamental Medicine	Russia	Student/Research Scholar
Rohit	Gokhale	ANDC	India	Student/Research Scholar
Kriti	Gupta	Banasthali vidyapith	India	Student/Research Scholar
Camilo	Ramirez	University of Antioquia	Colombia	Faculty
Shanmuga	Sozhamannan	Logistics Management Institute	United States of America	Government Biodefense Technical Coordinator
Daniel	Nelson	University of Maryland	USA	Faculty
Thomas	Hutchinson	George Mason University	United States	Student/Research Scholar
Anirudh	Kumar	Acharya Narendra Dev College	India	Student/Research Scholar
Vaishnavi	P	University of Delhi	India	Student/Research Scholar
NITISH	MALHOTRA	NATIONAL CENTER FOR BIOLOGICALSCIENCES	INDIA	Student/Research Scholar
Vandan	Nagar	Bhabha Atomic Research Centre	India	Scientist

Nayomi	John	Mar Athanasius College (Autonomous),Kothamangalam, Kerala	India	Faculty
Shruti		Acharya Narendra Dev college,University of Delhi	India	Student/Research Scholar
Jessica	Sacher	Phage Directory	Canada	Industry
Syed	Ahmed	Techinvention Lifecare Pvt ltd	India	Industry
Guillaume	L'HOSTIS	PHERECYDES PHARMA	France	Industry
Mani	Gupta	ACBR, DU	India	Student/Research Scholar
Iris	George	Agharkar research institute	India	Student/Research Scholar
Shivi	Srivastava	Dr RML Avadh University Ayodhya	India	Faculty
Archana	L	VIT	India	Student/Research Scholar
Swati	Dahiya	LUVAS, Hisar, Haryana	India	Scientist
Atif	Khan	Bhabha Atomic Research Center	India	Scientist
Bhakti		Techinvention lifecare Pvt ltd	India	Industry
Shafa.	Contractor	Karnatak University	India	Student/Research Scholar
Ruqaiyah	Khan	IIT BOMBAY	India	Student/Research Scholar
Revathy		UoL, UK	UK	Faculty
Sandhya	Rai	Deshbandhu College, University ofDelhi	India	Faculty
Hari	Kotturi	University of Central Oklahoma	USA	Faculty
Yogesh	Sharma	Retired	India	Scientist
Kanika	Nadar	ANDC	India	Student/Research Scholar
Varun	Bavda	IISER Bhopal	India	Student/Research Scholar

Shital	Kumkar	Department of Microbiology, SavitribaiPhule Pune University, Pune-411007, Maharashtra	India	Student/Research Scholar
Adel	Abouhmad	Lund University	Sweden	Scientist
Sangeetha	P	Vellore institute of Technology	India	Student/Research Scholar
Madhav	Madurantakam Royam	University of Warwick	United Kingdom	Student/Research Scholar
Peter	Montso	North-West University	South Africa	Student/Research Scholar
PRAVEEN	P	VTU	India	Student/Research Scholar
SK TOUSIF	AHAMED	A.P.C College	India	Student/Research Scholar
Salauddin	Qureshi	ICAR-Indian Veterinary ResearchInstitute	India	Scientist
Ramesh	Nachimuthu	Vellore Institute of Technology	India	Faculty
Yoga Aji	Handoko	Satya Wacana Christian University	Indonesia	Faculty
Vishawjeet	Barik	Translational Health Science and Technology Institute (THSTI), Faridabad	India	Student/Research Scholar
Amrita	Salim	Amrita School of Biotechnology	India	Student/Research Scholar
Shrishti	Singh	ACHARYA NARENDRA DEV COLLEGE	India	Student/Research Scholar
Edison	Cano	Mayo Clinic	United States	Faculty
Safia	Syeda	NMIMS	India	Student/Research Scholar
Pulkit	Singh	ANDC, DU	India	Student/Research Scholar
Julia	Gendre	Aix-Marseille UniversitÃ©	France	Student/Research Scholar
Aastha		acharya narendra dev college	india	Student/Research Scholar

Ritam	Das	ACHARYA NARENDRA DEV COLLEGE	india	Student/Research Scholar
Anil	Srivastava	ACHARYA NARENDRA DEV COLLEGE	india	Student/Research Scholar

Event: BRC-Phage Directory webinar series on 'Phage Bioinformatics: Phage genome annotation pipelines in CPT Galaxy and WebApollo'

Date: April 07, 2021

With an aim to develop a community of bacteriophage researchers, 'International BacteriophageResearch Consortium' (IBRC) was established as a collaboration between Acharya Narendra Dev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL), USA in 2018. A webinar was organized on 7th April, 2021 under IBRC-Phage Directory webinarseries on the topic "Phage Bioinformatics: Phage genome annotation pipelines in CPT Galaxy and WebApollo". Dr. Jason Gill, Department of Animal Science, Texas A&M University, USA was the resource person. The webinar was attended by 63 participants.

Poster:

OHSL Phage Directory IBRC

Phage Bioinformatics Lecture Series

Hosted by

IBRC-Phage Directory

Dr. Jason Gill

Phage genome annotation pipelines in CPT Galaxy and WebApollo

Dr. Jason Gill: Associate Professor, Department of Animal Science, Associate Director, Center for Phage Technology (CPT), Texas A&M University, Holds joint appointment with the Faculty of Genetics & the Department of Microbial Pathogenesis and Immunology in the College of Medicine, Current chair of Division M of the American Society for Microbiology.

Research focus: phage genomics, basic phage biology, and the applications of phages in real-world settings against bacterial pathogens including *E. coli Salmonella, S. aureus, K. pneumoniae*, and *A.baumannii*

April 7, 2021

8:30 pm IST | 10:00 am CT

@phageconsortium
@phagedirectory

Scan to Register OR
https://bit.ly/3cx2EK5

Pictures:

IBRC-Phage Directory: Dr. Jason Gill, Associate Director of the Center for Phage Technology (CPT), Texas A&M University. Topic: "Phage genome annotation pipelines in CPT Galaxy and WebApollo". April 7, 2021

No. of participants: 63
Attendance list of participants:

Email Address	First Name	Institute	Country	Current Role
ssozhamannan@lmi.org	Shanmuga Sozhamannan	Logistics Management Institute	USA	Government
mahanaba@yahoo.co.uk	Mahananda	Central Muga EriResearch and Training Institute	India	Scientist
n19phdbs205@nitte.edu.in	Pallavi Bhat	Nitte University	India	Student/Research Scholar
sutharsan.g@srmap.edu.in	Sutharsan Govindaraja n	SRM University -AP	India	Faculty
syed@techinvention.biz	Syed Ahmed	Techinventio n Lifecare Pvt ltd	India	Industry
suresh.unigoa@gmail.com	Suresh Kumar Mendem	ICAR-NIVEDI	India	Student/Research Scholar

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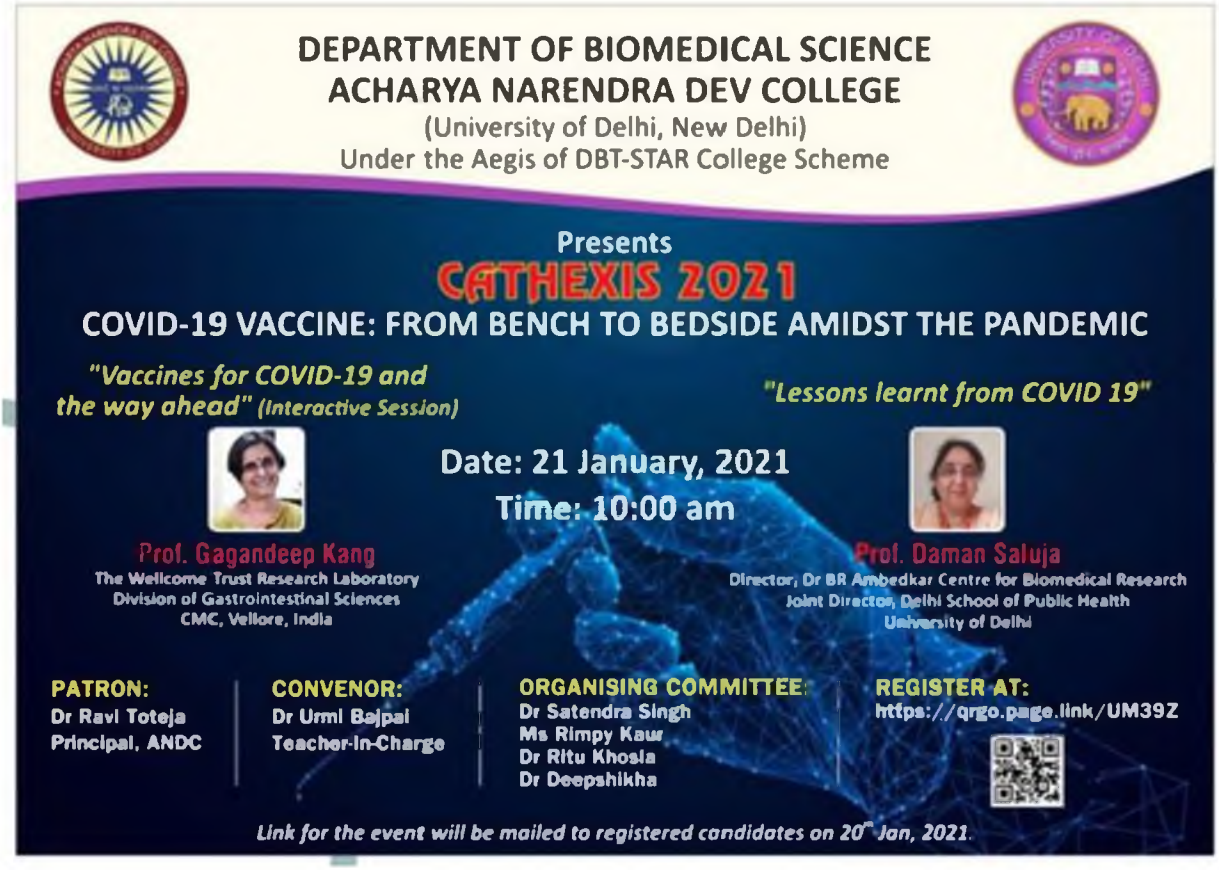
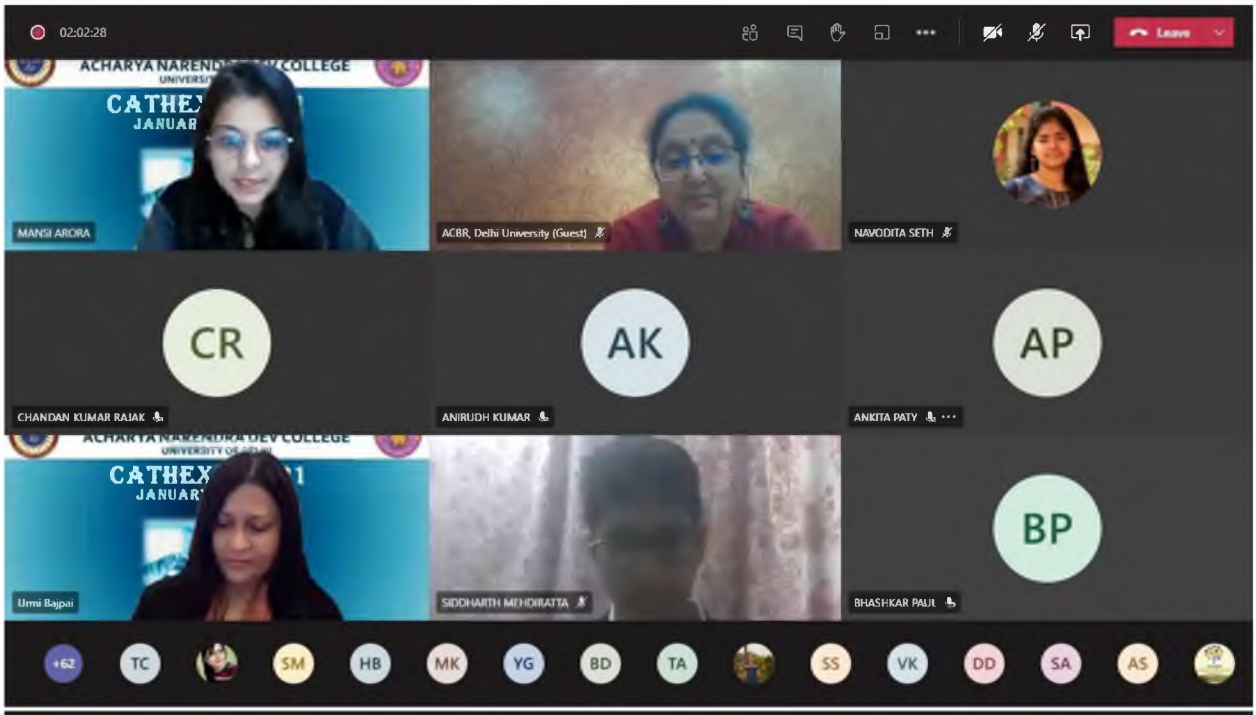
Event: Covid-19 vaccines: From bench to bedside; amidst a pandemic
Date: January 21, 2021

Department organized its annual festival, Cathexis'21, in the online mode on January 21, 2021. Prof. Daman Saluja (Director, B. R. Ambedkar Center For Biomedical Research and Joint Director, Delhi School of Public Health, University of Delhi) and Prof. Gagandeep Kang (Wellcome Trust Research Laboratory Division of Gastrointestinal Sciences, Christian Medical College, Vellore) were the distinguished guest speakers. The topic of Prof. Saluja's talk was: 'Lessons learned around the pandemic' and discussed all the ways we, as a country, society and individual have evolved post-Covid-19 to face such pandemics in the future. Prof. Kang gave a short talk which summarized the different types of vaccines being developed against SARS-CoV-2, and explained their working mechanism and limitations. During the event, the editorial Society of the department also released its annual magazine, Biomer'21 'Covid19 vaccines: From bench to bedside; amidst a pandemic'.


DEPARTMENT OF BIOMEDICAL SCIENCE
ACHARYA NARENDRA DEV COLLEGE
(University of Delhi, New Delhi)
Under the Aegis of DBT-STAR College Scheme
Presents
CATHEXIS 2021
COVID-19 VACCINE: FROM BENCH TO BEDSIDE AMIDST THE PANDEMIC
"Vaccines for COVID-19 and the way ahead" (Interactive Session)
"Lessons learnt from COVID 19"
Date: 21 January, 2021
Time: 10:00 am
Prof. Gagandeep Kang
The Wellcome Trust Research Laboratory
Division of Gastrointestinal Sciences
CMC, Vellore, India
Prof. Daman Saluja
Director, Dr BR Ambedkar Centre for Biomedical Research
Joint Director, Delhi School of Public Health
University of Delhi
PATRON:
Dr Ravi Toteja
Principal, ANDC
CONVENOR:
Dr Urmi Bajpai
Teacher-in-Charge
ORGANISING COMMITTEE:
Dr Satendra Singh
Ms Rimpy Kaur
Dr Ritu Khosla
Dr Deepshikha
REGISTER AT:
https://qrgo.page.link/UM39Z
Link for the event will be mailed to registered candidates on 20th Jan, 2021.


02:02:28
Leave
MANSI ARORA
ACBR, Delhi University (Guest)
NAVODITA SETH
CR
CHANDAN KUMAR RAJAK
AK
ANIRUDH KUMAR
AP
ANKITA PATY
Urmi Bajpai
SIDDHARTH MEHDIRATTA
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BHASHKAR PAUL
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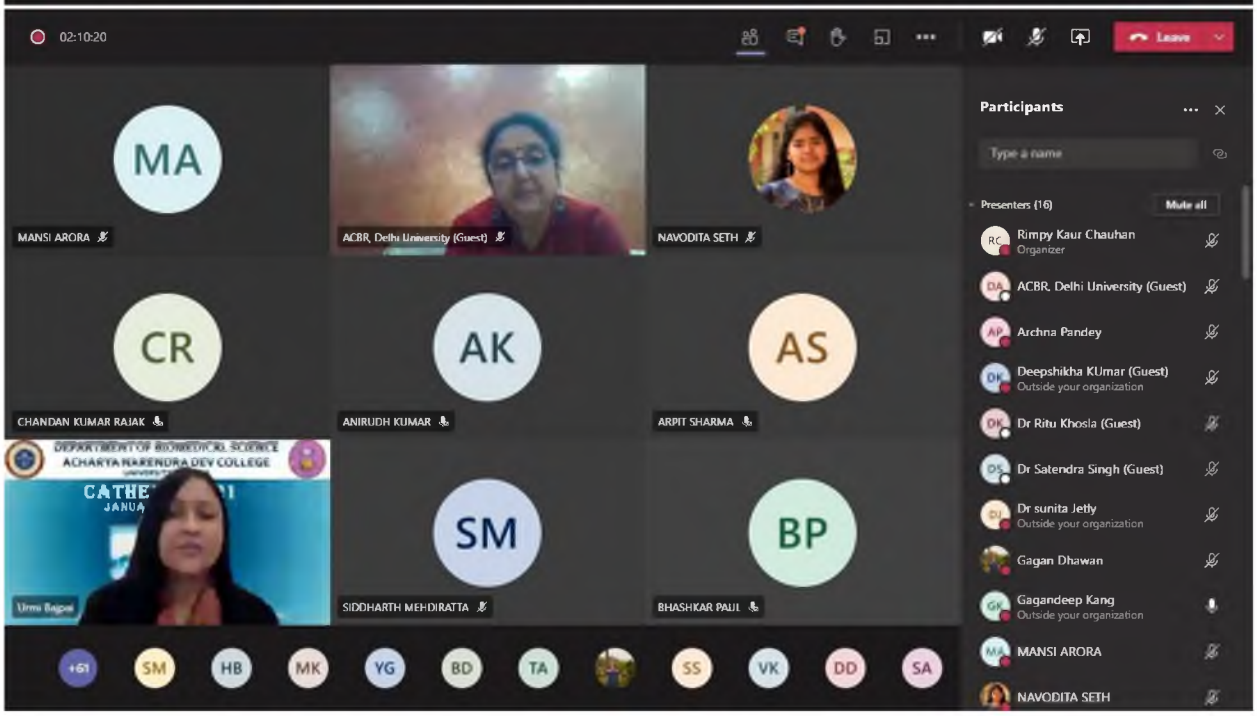
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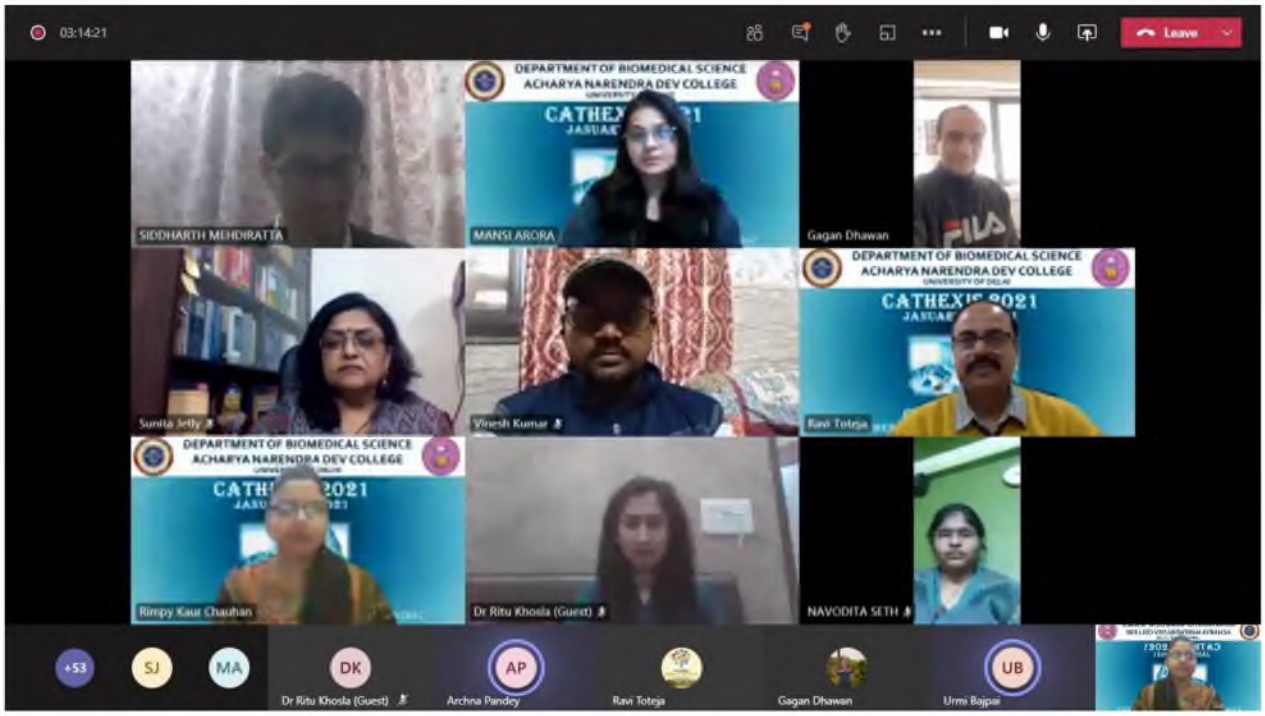
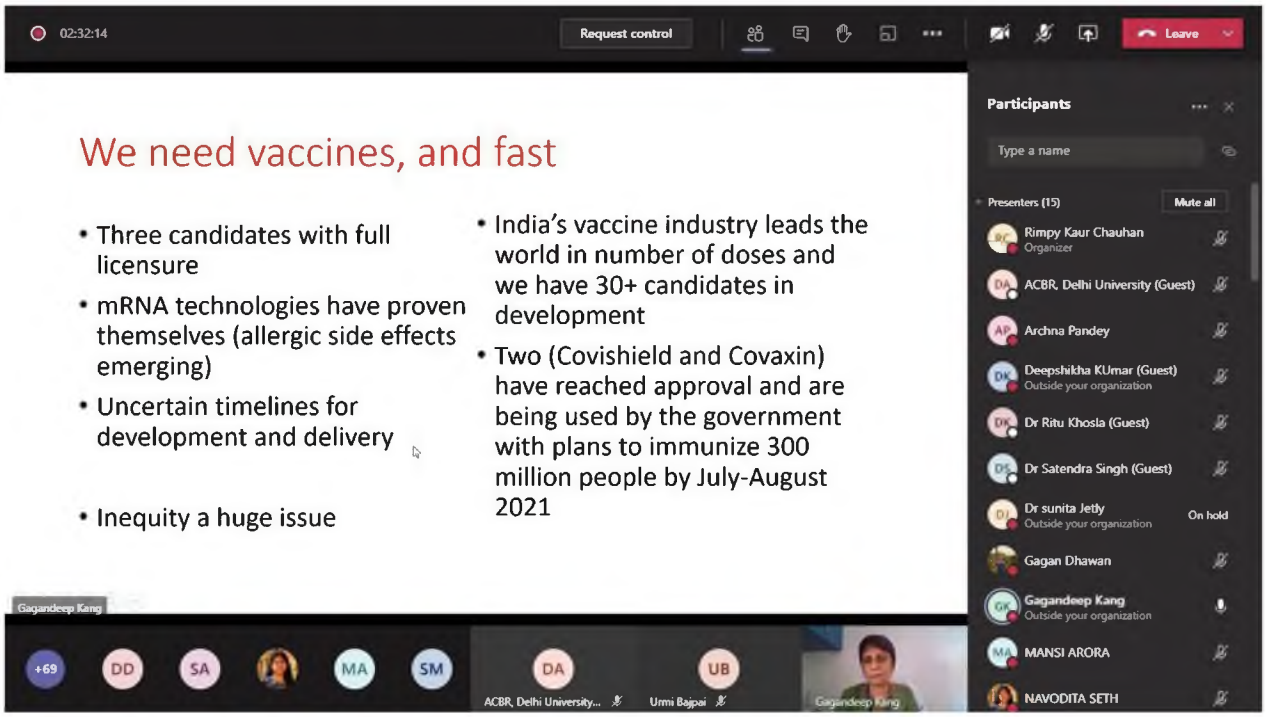
MA
MANSI ARORA
ACBR, Delhi University (Guest)
NAVODITA SETH
CR
CHANDAN KUMAR RAJAK
AK
ANIRUDH KUMAR
AS
ARPIT SHARMA
ACHARYA NARENDRA DEV COLLEGE
Urmi Bajpai
SM
SIDDHARTH MEHDIRATTA
BP
BHASHKAR PAUL
+61
Participants
Type a name
Presenters (16)
Mute all
Rimpy Kaur Chauhan
Organizer
ACBR, Delhi University (Guest)
Archna Pandey
Deepshikha KUmar (Guest)
Outside your organization
Dr Ritu Khosla (Guest)
Dr Satendra Singh (Guest)
Dr sunita Jetly
Outside your organization
Gagan Dhawan
Gagandeep Kang
Outside your organization
MANSI ARORA
NAVODITA SETH





Total no. of participants: 76

Attendance list of participants:

Faculty: 9 Faculty Members from the Department of Biomedical Science attended the event

S.No.	Name
1	Prof. Urmi Bajpai
2	Dr. Sunita Jetly
3	Dr. Archna Pandey
4	Dr. Gagan Dhawan
5	Dr. Rajesh Chaudhary
6	Dr. Satendra Singh
7	Dr. Rimpy Kaur Chowhan
8	Dr. Ritu Khosla
9	Dr. Deepshikha

Students: 67 students from the Department of Biomedical Science attended the event.

S. No.	Name	Year
1	Aastha	II
2	Aastha Gupta	I
3	Afnitha A V	III
4	Akash Tyagi	I
5	Alisha Ansari	II
6	Alshad . S	I
7	Anamika Binu	I
8	Anirudh Kumar	I
9	Anjali Bhadana	III
10	Ankita Malakar	I
11	Ankita Paty	III
12	Arpit Sharma	II
13	Ashutosh Singh	III
14	Bhashkar Paul	II

15	Bisakha Das	III
16	Chandan Kumar Rajak	II
17	Deeparati Datta	I
18	Ekta	I
19	Harinandana B	I
20	Harshelle Bhatt	I
21	Harshit Jindal	II
22	Harshvardhan Gupta	II
23	Himanshi	I
24	Hirday Sehgal	I
25	Indu M	I
26	Mamta Chhetri	II
27	Manas Singhal	I
28	Manish Kumar	III
29	Mansi Anand	III
30	Mansi Arora	II
31	Mehak Sharma	I
32	Mohammed Ali Hossain	I
33	Mohd Shahbaz Ali	III
34	Mrittika Adhikary	II
35	Muskan Gupta	II
36	Nahid	II
37	Navodita Seth	II
38	Nikita Chauhan	III
39	Pallavi Saini	I
40	Prashant Prakash	III
41	Pritika Kwatra	III
42	Priyanjana Ghosh	III
43	R Eloni Koren	III
44	Ramesh Niraula	III

45	Ridhi Bhatt	III
46	Rini Tk	III
47	Riya Sargiari	I
48	Riya Xavier	I
49	Rohit Rajesh Gokhale	II
50	Sarita	I
51	Sharika Mattoo	I
52	Shivam	I
53	Shrishti Singh	I
54	Siddharth Mehdiratta	II
55	Sonam Angmo	III
56	Sreedevi	I
57	Srija Majumder	III
58	Subhangi Priya	III
59	Sudeepta	II
60	Suravi Bhaya	I
61	Sushant Yadav	III
62	Tamanna	II
63	Tripti	I
64	Than Dar Aung	III
65	Vaishna S P	I
66	Yash Goel	I
67	Tejaswini C	III

Signature of the Convenor

(Prof. Urmi Bajpai)

Event: IBRC-Phage Directory webinar series on Phage Bioinformatics: Challenges in commercially developing phage therapy to target drug-resistant bacteria

Date: January 27, 2021

With an aim to develop a community of bacteriophage researchers, 'International Bacteriophage Research Consortium' (IBRC) was established as a collaboration between Acharya Narendra Dev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL),

USA in 2018. A webinar was organized on 27 January, 2021 under IBRC-Phage Directory webinar series on the topic "Challenges in commercially developing phage herapy to target drug-resistant bacteria". Prof. Paul E Turner, Yale University, USA was the resource person.The webinar was attended by 67 participants.

No. of participants: 67
Attendance list of participants:

Email address	Name	Institute and Country	Current Role
chiragpulwani@gmail.com	Chirag Pulwani	Acharya Narendra DevCollege, University of Delhi , India	Student/Research Scholar
harshalichaudhari1@gmail.com	Harshali Chaudhari	IIT Bombay	Student/Research Scholar
annesha@students.iisertirupati.ac.in	Annesh a Adhikar i	IISER, Tirupati	Student/Research Scholar
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sunitajetly@andc.du.ac.in	Sunita Jetly	ANDC, India	Faculty
deepshikha@andc.du.ac.in	Deepshikha	ANDC, India	Faculty

IBRC Webinar_27th January 2021

IBRC: Prof Paul Turner, Rachel Carson Professor of Ecology & Evolutionary Biology & Microbiology, Yale University; Faculty member at Yale School of Medicine, USA on "Challenges in commercially developing phage therapy to target drug-resistant bacteria." 27 January, 2021.

EVENT: IBRC-PHAGE DIRECTORY WEBINAR SERIES ON PHAGE BIOINFORMATICS: GENOMIC ANNOTATION AND COMPARATIVE BIOINFORMATIC ANALYSIS OF ACTINOBACTERIOPHAGES

Date: February 16, 2021

With an aim to develop a community of bacteriophage researchers, 'International Bacteriophage
Research Consortium' (IBRC) was established as a collaboration between Acharya Narendra
Dev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL), USA in 2018. A webinar was organized on 16th February, 2021 under IBRC-Phage Directory webinar series on the topic "Genomic annotation and comparative bioinformatic analysis of actinobacteriophages". Dr. Deborah Jacobs-Sera

Department of Biological Sciences, University of Pittsburgh, USA was the resource person. The webinar was attended by 60 participants.

OHSL Phage Directory IBRC

Phage Bioinformatics Lecture Series

Hosted by

IBRC-Phage Directory

Deborah Jacobs-Sera

Genomic Annotation and Comparative Bioinformatic Analysis of Actinobacteriophages

Deborah Jacobs-Sera, Senior Researcher, Hatfull Lab; Coordinator of PHIRE & SEA-PHAGES Project Materials, Department of Biological Sciences, University of Pittsburgh, USA

February 16, 2021

6:30 pm IST
8:00 am EST

@phageconsortium
@phagedirectory

Scan to Register OR
https://bit.ly/3tOlbrO

IBRC-Phage Directory webinar series on 'Phage Bioinformatics':

Dr. Deborah Jacobs-Sera, Department of Biological Sciences, University of Pittsburgh, USA. Topic: "Genomic annotation and comparative bioinformatic analysis of actinobacteriophages". 16 February, 2021.

No. of participants: 60
Attendance list of participants:

Last Name	Institute	Country Name	Current Role
Sacher	Phage Directory	Canada	Industry
Michele	Hebrew University	Israel	Student/Research Scholar
Neubauer	University of Vienna	Austria	Student/Research Scholar
Mehak	ANDC	India	Student/Research Scholar
KORATKAR	Symbiosis School of Biological Sciences, SIU	India	Faculty
Bhat	Nitte University	India	Student/Research Scholar
Madurantakam Royam	University of Warwick	United Kingdom	Student/Research Scholar
Khan	Wuhan Institute of Virology China	China	Student/Research Scholar
Pandey	SRM University Delhi-NCR, Sonepat	India	Faculty
syeda	NMIMS	India	Student/Research Scholar
Ranjan	PG Dept of Studies in Botany, Karnatak University Dharwad	India	Student/Research Scholar
Baranwal	Ram Lal Anand College, University of Delhi	India	Student/Research Scholar
Singla	A.S.B.A.S.J.S. Memorial College, Bela	India	Faculty
Kotturi	University of Central Oklahoma	USA	Faculty

Paniker	Vellore Institute of Technology	India	Student/Research Scholar
Pal	School of Biotechnology, Amrita Vishwa Vidyapeetham, Kolla, Kerala	India	Faculty
John	Mar Athanasius College (Autonomous), Kothamangalam	India	Faculty
Abouhmad	Lund University	Sweden	Scientist
Abdelrahman	Zewail City of science and technology	Egypt	Student/Research Scholar

Ullah	UAF	Pakistan	Student/Research Scholar
Salim	School of Biotechnology, Amrita Vishwa Vidyapeetham	India	Student/Research Scholar
Gangakhedkar	IISER Bhopal	India	Student/Research Scholar
Srivastava	IGNOU	India	Faculty
Dhungana	Tribhuvan university	Nepal	Student/Research Scholar
Biswas	National Institute of Cholera and Enteric Diseases	India	Student/Research Scholar
Abdelkader	Bsu	Egypt	Scientist
Collins	University of Minnesota	United States	Faculty
Sozhamannan	Logistics Management Institute	USA	Scientist
Sharma	University of Delhi	India	Student/Research Scholar
Gu Liu	Baylor College of Medicine	USA	Student/Research Scholar
Srivastava	SSN College,University of Delhi	India	Faculty
Raman	CSIR-CDRI	India	Student/Research Scholar
Handoko	Satya Wacana Christian University	Indonesia	Faculty
Anand	ICAR- NRCE	India	Scientist
Sameer Lal	Salem microbes	India	Industry
Nelson	University of Maryland	United States	Faculty
Bahuguna	Ram Lal Anand College	India	Student/Research Scholar
Khanna	Stanford	USA	Scientist
Easwaran	Sethu Institute of Technology	India	Faculty
Latika	VIT	India	Student/Research Scholar
Gutierrez Tapia	Laboratorio Lister & Janssen	MÃ©xico	Scientist
Gatedee	Rangsit university	Thailand	Faculty
Ramadoss	Carnegie Mellon University-Qatar	Qatar	Other
Kaur	A. S. B. A. S. J. S Memorial College Bela, Ropar (Punjab)	India	Faculty

Ullah	University of the Punjab	Pakistan	Student/Research Scholar
James	IISER Bhopal	India	Student/Research Scholar
MALHOTRA	NCBS	India	Student/Research Scholar
Gondil	PGIMER Chandigarh	India	Student/Research

			Scholar
Khan	IIT Bombay	India	Student/Research Scholar
Nagar	Bhabha Atomic Research Centre	India	Scientist
Bavda	IISER Bhopal	India	Student/Research Scholar
Gupta	Acharya Narendra Dev College ,University of Delhi	India	Scientist
Jhunjhunwala	Self-employed	India	Other
Kumar	Acharya Narendra dev college	India	Student/Research Scholar
Singh	ACHARYA NARENDRA DEV COLLEGE	India	Student/Research Scholar
Contractor	Karnatak University	India	Student/Research Scholar
Singh	Amity University, Lucknow	India	Faculty
Nakavuma	College of Veterinary Medicine Animal Resources and Biosecurity Makerere University	Uganda	Faculty
Madhu	AMRITA SCHOOL OF BIOTECHNOLOGY	India	Student/Research Scholar
Ritu Arora	Acharya Narendra Dev College	India	Student/Research Scholar

Conferences/Workshops/Seminars for the year 2020-21

DEPARTMENT OF BIOMEDICAL SCIENCE

Science Setu: Typhoid Diagnostics and Innovation in Diagnostics (25, Feb, 2020)

Science Setu: A talk was presented on Typhoid diagnostics by Dr. Chandresh Sharma, Research Scientist, THSTI and Innovation in Diagnostics by Dr. Tarun Kumar Sharma, Research Scientist,THSTI amongst 78 participants. The talk was proceeded by a panel discussion.

List of Participants:

S. No.	Name	Dept	Year
1	Amisha	BMS	II
2	Aditi	Botany	I
3	Ajita Ojha	Botany	I
4	Aniket Ranjan	Zoology	I
5	Anjali	Zoology	I
6	Devangna Sharma	Botany	I
7	Nikhil Chauhan	Botany	I
8	Ashutosh Maurya	Zoology	I
9	Suhani Sharma	Botany	I
10	Anjali Bhadana	BMS	I
11			
12	Kajal Mangla	BMS	I
13	Md Badruddin	BMS	I
14	Mohd Shahbaz Ali	BMS	I
15	Harshita	Zoology	I
16	Jyoti Sharma	Zoology	I
17	Khushi Goyal	Zoology	I
18	Pratiksha	Botany	I
19	Preeti Maurya	Botany	I
20	Nikita Gupta	BMS	I
21	Pawan Kumar	Zoology	I
22	Prachi	Zoology	I
23	Mohini Kumari	Botany	I
24	Pulkit Singh	Zoology	I
25	Othman Adeel	BMS	I
26	Rakesh Sarkar	Zoology	I
27	Ritika Chandel	Zoology	I
28	Priyanjana Ghosh	BMS	I
29	Ronak Verma	Zoology	I
30	Sahil Kaushik	Zoology	I

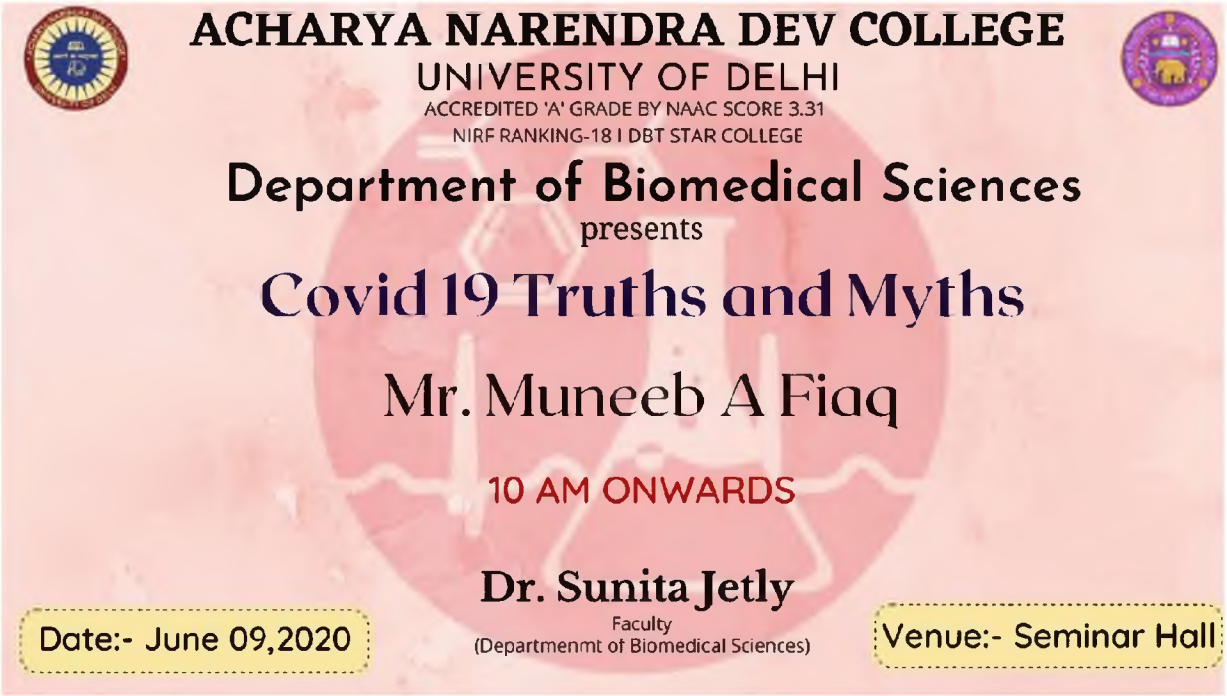
31	Sakshi Srivastava	BMS	I
32	Sejal Arora	Zoology	I
33	Shalini	Zoology	I
34	Sakshi Sharma	BMS	I
35	Trisha Nair	Zoology	I
36	Kirti Pandey	Botany	I
37	Sushant Yadav	BMS	I
38	T K Rini	BMS	I
39	Nahid	BMS II	
40	Alisha Ansari	BMS	II
41	Shubham Shukla	BMS II	
42	Tarunpreet Kaur	BMS	I
43	Tejaswini C	BMS	I
44	Than Dar Aung	BMS	I
45	Shivani Kumari	BMS	II
46	Muskan Gupta	BMS	II
47	Kamakshi Tomar	BMS	II
48	Pragya Muni	Botany	I
49	Tanuj Malik	Botany	I
50	Vishal Kumar	Botany	I
51	Tamanna	BMS	II
52	Somak Nandy	BMS	II
53	Harshit Jindal	BMS	II
54	Harshvardhan Gupta	BMS	II
55	Bisakha Das	BMS	I
56	Bms	BMS	I
57	Afnitha A V	BMS	I
58	Reema Sahu	BMS	II
59	Siddharth Mehdiratta	BMS	II
60	Jayashree Mallick	BMS	II
61	Annie Singh Batra	BMS	II
62	Sarang Saini	BMS	III
63	Shipra Yadav	BMS	III
64	Yashwant Meena	BMS	II

65	Muskaan Jindal	BMS	III
66	Harshita	BMS	III
67	Amit Babu	BMS	III
68	Varun Kapoor	BMS	II
69	Rohit Rajesh Gokhale	BMS	II
70	Gaurav Kumar	BMS	III
71	Abhijit Nayek	BMS	III
72	Dr Suita Jetly	BMS	Faculty
73	Dr Urmi Bajpai	BMS	Faculty
74	Dr Prashant Pradhan	BMS	Faculty
75	Dr Rimpy Chowhan	BMS	Faculty
76	Dr Rahul	Zoology	Faculty
77	Dr Seema Makhija	Zoology	Faculty

COVID 19- Truths and Myths (9-June-2020)

Dr. Sunita Jetly

A webinar on Covid 19 was held among a scientific gathering of 99 participants in an onlinemode. The speaker for the webinar was Mr. Muneeb A Fiaq.



Acharya Narendra Dev College

University of Delhi

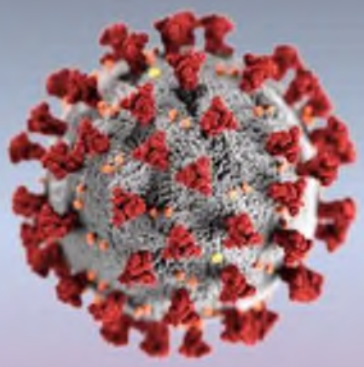
NACC Accreditation Grade 'A' /Mentor under UGC Paramarsh Scheme

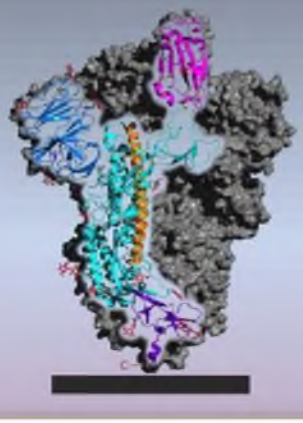
INTERNAL QUALITY ASSURANCE CELL (IQAC)

International Webinar on

COVID-19: Truths and Myths

9th June 2020, 12.30 pm - 1.30 pm





Dr Muneeb A. Faiq

PhD, MGEGC, MAACGC, FEEDRN

Department of Ophthalmology,

New York University (NYU) Grossman School of Medicine

New York, NY, USA

Registration is free: 250 participants first come first serve.

E-certificates will be send to registered participants.

Registration Link:

Patron	Convenor	IQAC coordinator
Dr. Ravi Toteja	Dr. Sunita Jetly	Dr. Yasheshwar
Acting Principal	Dept. BMS	Dept. Botany

Contact

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5	Siddharth Mehdiratta
6	Muskan Gupta
7	Mansi Arora
8	Amit Kumar
9	Shreya Roy Chowdhary
10	Sudeepta Singh
11	Vivek Gargay
12	Mansvini
13	Dr. Ankur Maheshwari
14	Aastha Jaluthria
15	Anila Nashier
16	Anoushka Hooda
17	Anu Parveen
18	Anupama Razdan tiku
19	Anupama Shukla
20	Anuradha Yadav
21	Bhawna Saxena
22	Dharmendra K. Mallick

23	DInakaran J
24	Divpreet Kaur
25	T K Rini
26	Dr. Anita Narang
27	Dr. Anju Aggarwal
28	Dr. Bharti Chaudhary
29	Dr. Jitendra Kumar
30	Dr. Meenu Mohil
31	Dr. Rahul Dev
32	Dr. Preeti Nain
33	Dr. Sunita Hooda
34	Dr. Seema Gupta
35	Dr. Sandeep Kumar Goel
36	Dr. Ravneet Kaur
37	Dr. Rashmi Panwar
38	Gaurav Kumar
39	Geeta
40	Janaki Subramanyan
41	Jasleen Kaur
42	Jitender Goyal

43	Kirti Gahalyan
44	Mamta Kaushik
45	Tarunpreet Kaur
46	Manoj Kumar Garg
47	Sonam Angmo
48	Monika Ram
49	Gauri Ghai
50	Gunjan Rani
51	Ashutosh Singh
52	Priyanka Sharma
53	Ms. Rupali Pabreja
54	Nazir Ahmed Najar
55	Neeru Bhandari
56	Niharika Bharti
57	Niru Magotra
58	Nitin Kumar
59	Nain Ruhela
60	Parul Antil
61	Pradeep Gupta
62	Pragya Muni

63	Prateek Kumar
64	Ranjana Koul
65	Rashmi Goel
66	Renuka Aggarwal
67	Harshit Jindal
68	Salam Sonia
69	Samina Mazahar
70	Sanjay Kumar
71	Dr. Sarita Agarwal
72	Dr. Satendra Singh
73	Shalini
74	Shispal Nain
75	Shivi Srivastava
76	Shikha Srivastava
77	Sudesh Bharadwaj
78	Shubhra Barwa
79	Shukla Saluja
80	Srija Majumdar
81	Sunita George
82	Sunita Narang

83	Than Dar Aung
84	Prof. Urmi Bajpai
85	Vandita Grover
86	Vanita Bhat
87	Vridhi Choudhary
88	Yogesh Kumari
89	Zeeshan Mazhar
90	Ruchitra Gupta
91	Pallavi Singh
92	Reem Sahu
93	Mansi Anand
94	Nishu Singh
95	Prachi Singh
96	Monika Hei
97	Divya Mohanty
98	Mandeep Kaur
99	Sunainaa Zutshi

Signature of the

Convenor(Dr. Sunita

Jetly)

IBRC Mycobacteriophages: Diversity, Dynamics and Therapy (17 Jun, 2020)

Dr Urmi Bajpai

In collaboration with International Bacteriophage Research Consortium, ANDC organised a lecture on "Diversity, Dynamics and Therapy of Mycobacteriophages". The presenter of the lecture was Prof. Graham Hatfull, Eberly Family Professor of Biotechnology and HHMI, Professor in the Department of Biological Sciences at the University of Pittsburgh, USA. The lecture was attended by 67 participants.

OHSL

International Bacteriophage Research Consortium

Presents lecture by

Professor Graham Hatfull

Mycobacteriophages: Diversity, Dynamics and Therapy

Graham Hatfull is an Eberly Family Professor of Biotechnology and HHMI Professor in the Department of Biological Sciences in the Kenneth P. Dietrich School of Arts and Sciences at the University of Pittsburgh, USA. He has recently been elected as the member of the American Academy of Arts and Sciences.

June 17, 2020

6:30 pm IST 9:00 am EDT

@phageconsortium

Scan the QR Code to register

- IBRC Prof Graham Hatfull, Eberly Family Professor of Biotechnology and HHMI Professor in the Department of Biological Sciences at the University of Pittsburgh, USA on "Mycobacteriophages: Diversity, Dynamics and Therapy". 17 June, 2020

LIST OF PARTICIPANTS:

S. No.	Email	Name	Institute
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Signature of

Convenor(Prof.

Urmi Bajpai)

EVENT: SOCIETY FOR BACTERIOPHAGE RESEARCH AND THERAPY (SBRT): PHAGE DIRECTORY:MAKING THE WORLD'S PHAGES MORE ACCESSIBLE, MANAGEABLE AND SHAREABLE.

Date: September 03, 2020

With an aim to develop a community of bacteriophage researchers, 'International Bacteriophage Research Consortium' (IBRC) was established as a collaboration between Acharya NarendraDev College (Dr Urmi Bajpai is the co-founder) with Open Source Health Laboratory (OHSL), USA in 2018. A webinar was organized on 3rd September, 2020 under IBRC-Phage Directory webinar series on the topic "Phage Directory: Making the world's phages more accessible, manageable and shareable". Dr Jessica Sacher and Mr Jan Jhang, Co-Founders, Phage Directory USA were the resource persons. The webinar was attended by 69 participants.

No. of participants: 69

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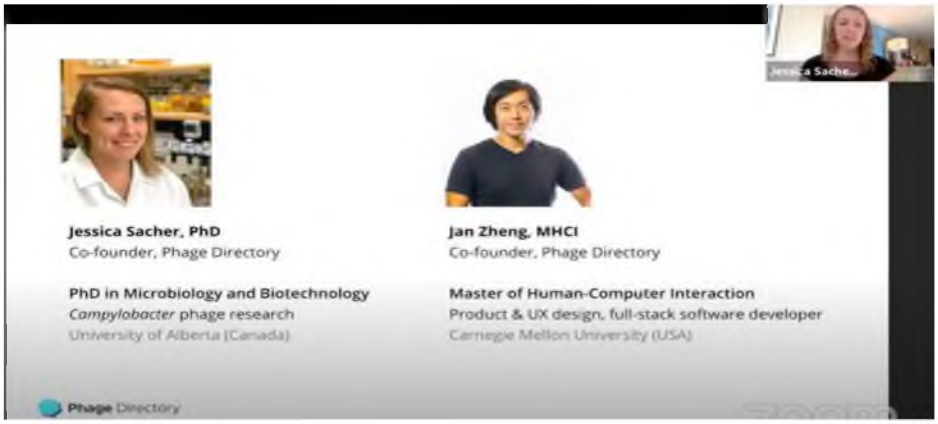
Pictures:



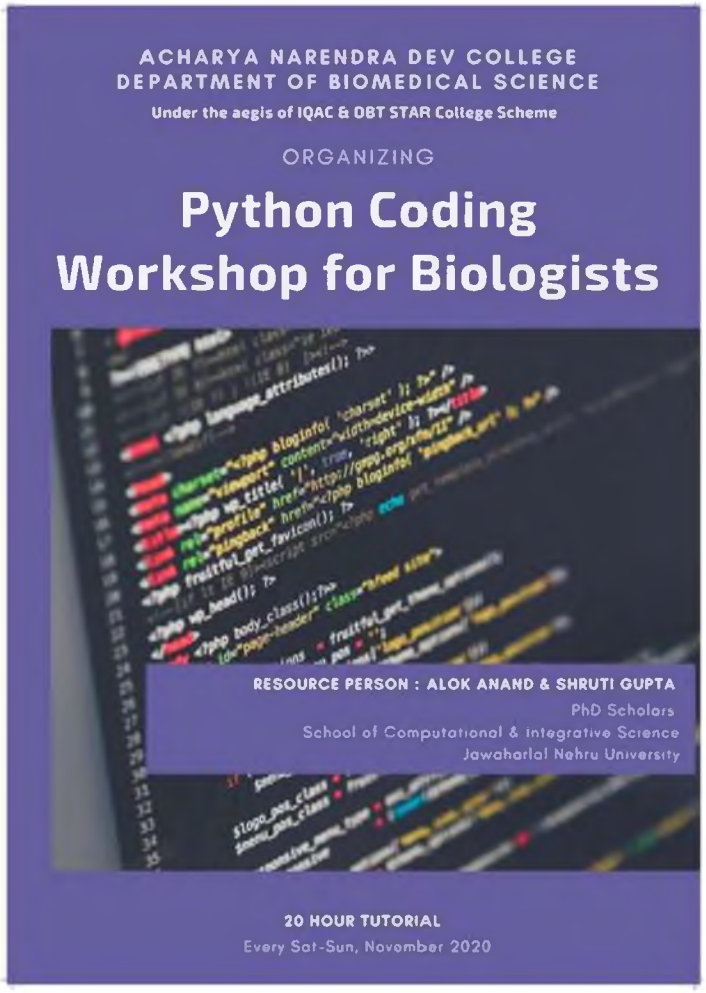
SBRT: Dr Jessica Sacher and Mr Jan Jhang, Co-Founders, Phage Directory USA on "Phage
Directory: Making the world's phages more accessible, manageable and shareable". 3 September2020.

Event: Workshop on "Python coding workshop for biologists"

Date: November 20, 2020

A python-based programming online workshop was conducted by the Biomedical Science Department alumni, Ms Shruti Gupta and Mr Alok Anand, pursuing PhD from School of Computational & Integrative Science, Jawaharlal Nehru University. The workshop, designed as a 20 hour tutorial, was conducted on weekends in November 2020 and was attended by 14 students from the B.Sc (H) Biomedical Science, IIIrd year with keen interest in computer programming. The workshop was organized by faculties of Biomedical Science department- Prof Urmi Bajpai (convenor) and Dr Rimpy Kaur Chowhan. Data analysis and programming skills are at the core of any research area, and with the vast data generated in biological research, learning a programming language has become a necessity. The workshop taught the fundamental concepts of computer programming and ways to develop algorithmic approach to solve problems. Study material and assignments were given to participants with

writing complete programs solve problems related to introductory molecular biology and tophysical science.



Total no. of participants: 14

Attendance list of

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2	Muskan	B.Sc. (H) Biomedical Science	III
3	Shreya	B.Sc. (H) Biomedical Science	III
4	Nisha	B.Sc. (H) Biomedical Science	III
5	Tamanna	B.Sc. (H) Biomedical Science	III
6	mansi	B.Sc. (H) Biomedical Science	III

7	Shagufta	B.Sc. (H) Biomedical Science	III
8	Somak	B.Sc. (H) Biomedical Science	III
9	Dipesh	B.Sc. (H) Biomedical Science	III
10	Navodita	B.Sc. (H) Biomedical Science	III
11	Nahid	B.Sc. (H) Biomedical Science	III
12	Aastha	B.Sc. (H) Biomedical Science	III
13	Mrittika	B.Sc. (H) Biomedical Science	III
14	Rohit	B.Sc. (H) Biomedical Science	III

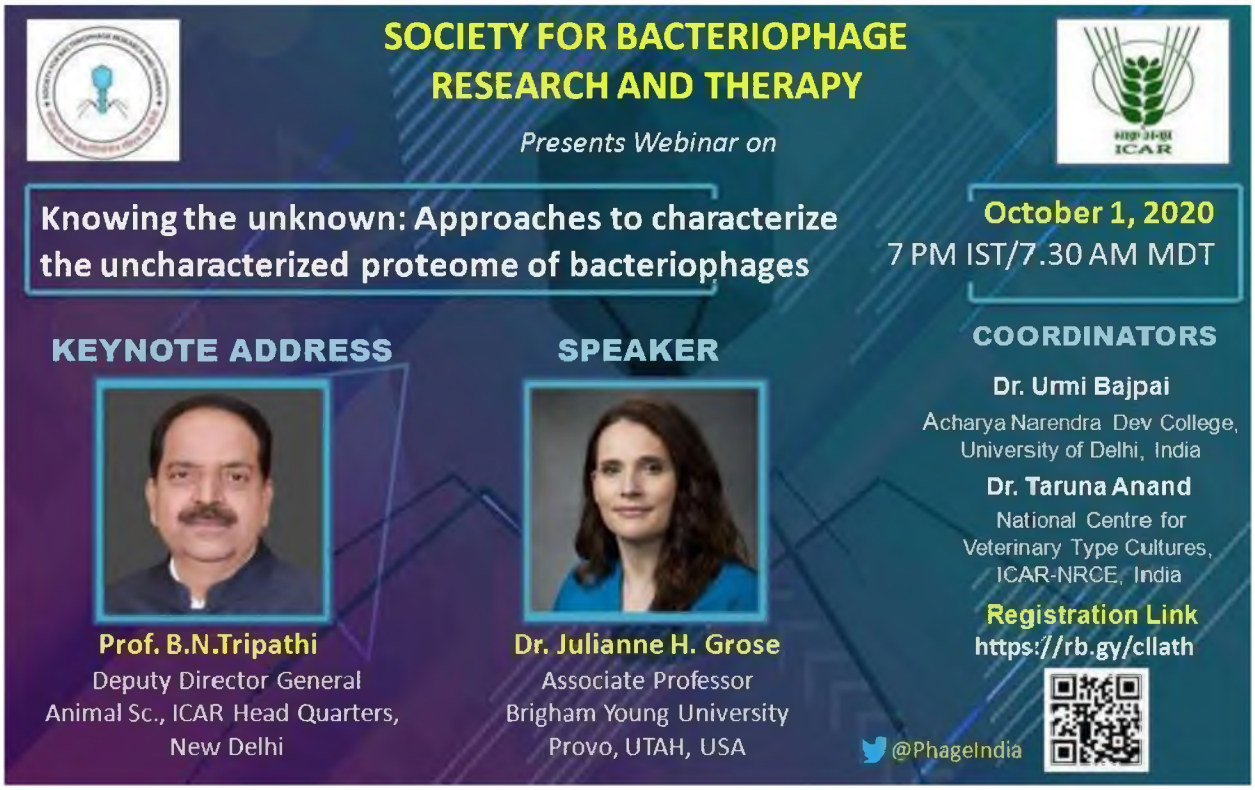
Signature of the Convenor

(Prof. Urmi Bajpai)

Event: Society for Bacteriophage Research and Therapy (SBRT): Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages

Date: October 01, 2020

Prof. Urmi Bajpai, co-founder, International Bacteriophage Research Consortium and faculty, Department of Biomedical Science, Acharya Narendra Dev College organized a webinar on the topic "Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages" in collaboration with Society for Bacteriophage Research and Therapy. The event was held on 1st October, 2020. Prof. B.N. Tripathi, Deputy Director General, Animal Science, ICAR Headquarters, New Delhi and Dr. Julianne H. Grose, Associate Professor, Birgham Young University Provo, Utah, USA were the resource persons. The webinar was attended by 65 participants.


SOCIETY FOR BACTERIOPHAGE RESEARCH AND THERAPY
Presents Webinar on
Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages
October 1, 2020
7 PM IST/7.30 AM MDT
KEYNOTE ADDRESS
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Deputy Director General
Animal Sc., ICAR Head Quarters,
New Delhi
SPEAKER
Dr. Julianne H. Grose
Associate Professor
Brigham Young University
Provo, UTAH, USA
COORDINATORS
Dr. Urmi Bajpai
Acharya Narendra Dev College,
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Dr. Taruna Anand
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Registration Link
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zoom

Indian Society for Bacteriophage Research and Therapy (SBRT): Prof B.N.Tripathi, Deputy Director-General, Animal Science, ICAR HQ, New Delhi and Dr Juliannae H. Grose, Associate Professor, Brigham Young University, USA on "Knowing the unknown: Approaches to characterize the uncharacterized proteome of bacteriophages. 1 October, 2020.

No. of participants: 65
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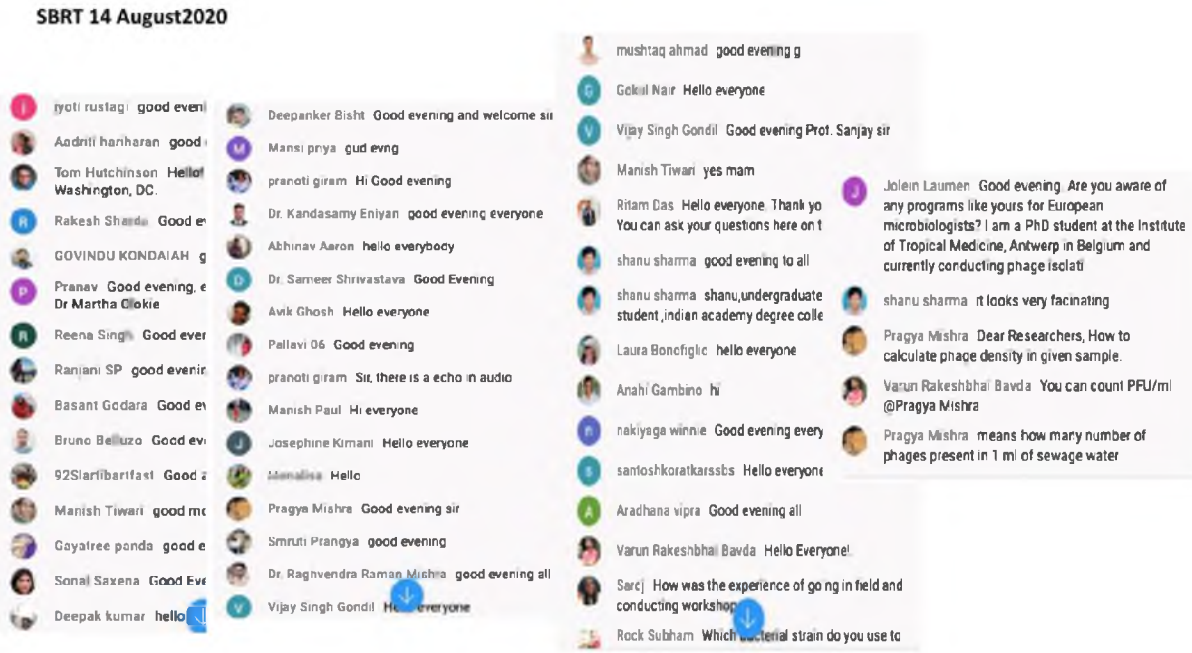
Using phages to combat AMR: Scientific capacity building through laboratory training workshops (14-Aug-20)

Dr Urmi Bajpai

In collaboration with Society for Bacteriophage Research and Therapy, ANDC organised a **webinar on "Using phages to combat AMR: Scientific capacity building through laboratorytraining workshops"**. The keynote speakers in the webinar were Dr Tobi Nagel, Founder & President of Phages for Global Health, USA, Prof. Martha Clokie, Professor of Microbiology, University of Leicester, UK and Dr. Janet Nale, Research Associate, Department of Infection, Immunity and Inflammation, University of Leicester, UK. The webinar was attended by 63 participants.

Indian Society for Bacteriophage Research and Therapy (SBRT): Dr. Tobi Nagel, Founder & President of Phages for Global Health, USA and Dr. Janet Nale, Research Associate, Department of Infection, Immunity and Inflammation, University of Leicester, UK on "Using phages to combat AMR: Scientific capacity building through laboratory training workshops". 14 August, 2020



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62	LALITA YADAV
63	Indu M

Signature of

Convenor(Prof

Urmi Bajpai)

Event: Facts and Myths of COVID-

19Date: August 17, 2020

The Department of Biomedical Science, Acharya Narendra Dev College (ANDC) and Delhi School of Public health jointly organized an online interactive webinar on "Facts and Myths of

COVID-19". Padma Shri Awardee, Dr. K.K. Agarwal, President, HCFI and CMAAO, Editor-in-

chief, IJCP Group and Medtalks was the distinguished guest speaker. He talked about the various myths about COVID 19 and clearly explained the facts to break those myths. The event was organized under the patronage of Prof. P.C. Joshi, Pro-Vice-Chancellor, University of Delhi and Prof. R.N.K. Bamezai, Hon. Director, Delhi School of Public Health (DSPH), IoE, University of Delhi. Prof. Daman Saluja, Director, Dr. B. R. Ambedkar Center for Biomedical Research and

Joint Director, DSPH was the coordinator for the event. The event was very well organized under the able guidance of Dr. Sunita Jetly and Dr. Archna Pandey from ANDC and Dr. Uma Chaudhary from Bhaskaracharya College of Applied Sciences.

Total no. of participants: 67

Attendance list of

participants:

Faculty: 8 Faculty Members from the Department of Biomedical Science attended the event

S.No.	Name
1	Prof. Urmi Bajpai
2	Dr. Sunita Jetly
3	Dr. Archna Pandey
4	Dr. Gagan Dhawan
5	Dr. Rajesh Chaudhary
6	Dr. Satendra Singh
7	Dr. Rimpy Kaur Chowhan
8	Mr. Prashant Prakash
9	Dr. Abhijeet Mishra

Students: 58 students from the Department of Biomedical Science attended the event.

S. No.	Name	Year
1	Than Dar Aung	III
2	Vivek Gargay	III
3	Sonam Angmo	III
4	Sakshi Srivastva	III
5	Ankit Abhishek Kerketta	II
6	Aatha	III
7	Mohd Tabish	II
8	Ankita Paty	III
9	Alisha Ansari	II
10	Nidhi Rai	I
11	Kajal Mangla	III
12	Tamanna	II
13	Nisha	I
14	Mansi Anand	III
15	Aastha	II
16	Nikita Chauhan	III
17	Hirday Sehgal	I

18	Ashutosh Singh	III
19	Yash Goel	I
20	Aastha Gupta	I
21	Prachi Singh	III
22	Bisakha Das	III
23	Ankita Malakar	I
24	Chandan Kumar Rajak	II
25	Ajay Kumar Singhmar	I
26	Manish Kumar	III
27	Rishi Dev	II
28	Deeparatti Dutta	I
29	himanshi jain	I
30	Pritika Kwatra	III
31	Ridhi Bhatt	III
32	Nikita Gupta	III
33	Nahid	II
34	Ashutosh Kumar rai	III
35	Mehak sharma	I
36	Riya Sargiari	I
37	Shrishti Singh	I
38	Harinandna B	II
39	Afnitha	III
40	Somak Nandy	II
41	Prashant	III
42	Anirudh Kumar	I
43	Sushant Yadav	III
44	Manas Singhal	I
45	Sakshi Sharma	III
46	Sachin Sharma	II
47	Suravi Bhaya	I

48	R Eloni Koren	III
49	Srija Majumdar	III
50	Shivam	I
51	Arpit Sharma	II
52	Niharika Upadhyay	III
53	Deeptarun Roy	I
54	Anamika Binu	I
55	Reema Sahu	II
56	Kalyani Kumari	I
57	Harshelle Bhatt	I
58	Tripti	I

Signature of the Convenor

(Dr. Sunita Jetly)

From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria (09 Jul, 2020)

Dr Urmi Bajpai

In collaboration with International Bacteriophage Research Consortium, ANDC organised a IBRC-Phage Directory webinar series on Phage Bioinformatics titled "From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria". The presenter of the lecture was Prof. Yves Briers, Associate Professor, Department of Biotechnology, Ghent University, Belgium. The lecture was attended by 57 participants.

OHSL

International Bacteriophage Research Consortium

Presents lecture by

Professor Yves Briers

From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria

Prof. Yves Briers is Associate Professor at the Laboratory of Applied Biotechnology at Ghent University, Belgium. His research focus is on synthetic biology of modular proteins with a keen interest in bacteriophage-encoded lysins for biocontrol of multi-drug resistant pathogens. Recently, they have developed an ingenious platform that gives turbo boost to the development of new antibiotics.

July 09, 2020

5:00 pm IST 1:30 pm CEST

@phageconsortium

https://bit.ly/3dWKrD4

IBRC Prof Yves Briers, Associate Professor at the Department of Biotechnology at Ghent University, Belgium on "From discovery to high-throughput engineering of phage lysins targeting Gram-negative bacteria". 9 July 2020.

LIST OF PARTICIPANTS:

S. No.	Email Address	First Name	Last name	Institute	Country Name	CurrentRole
1	dr.alishaansari@gmail.com	ALISHA	ANSARI	Acharya Narendra DevCollege, University of Delhi	India	Student/Research Scholar
2	bhavanis1993@gmail.com	S	Bhavani	Annauniversity	Tamil nadu	Graduate
3	juhitad8@gmail.com	Ms. JUHITA	DHAR	JIS UNIVERSITY	INDIA	Student/Research Scholar
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						Scholar
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55	jijisanthosh7@gmail.com	Jiji	Jacob	St.Berchmans College, Changanacher ry	Kerala	Faculty
56	rachna.gowlikar@gmail.co m	Rachna	Gowlikar	St. Ann's College for Women Mehdipatna m, Hyderabad.	India	Student/Re search Scholar
57	dharanirelangi2001@gmail. com	DURGA DHARANI	RELANGI	SRI.Y.N COLLEGE (A)	India	Student/Re search Scholar

Signature of

Convenor(Prof.

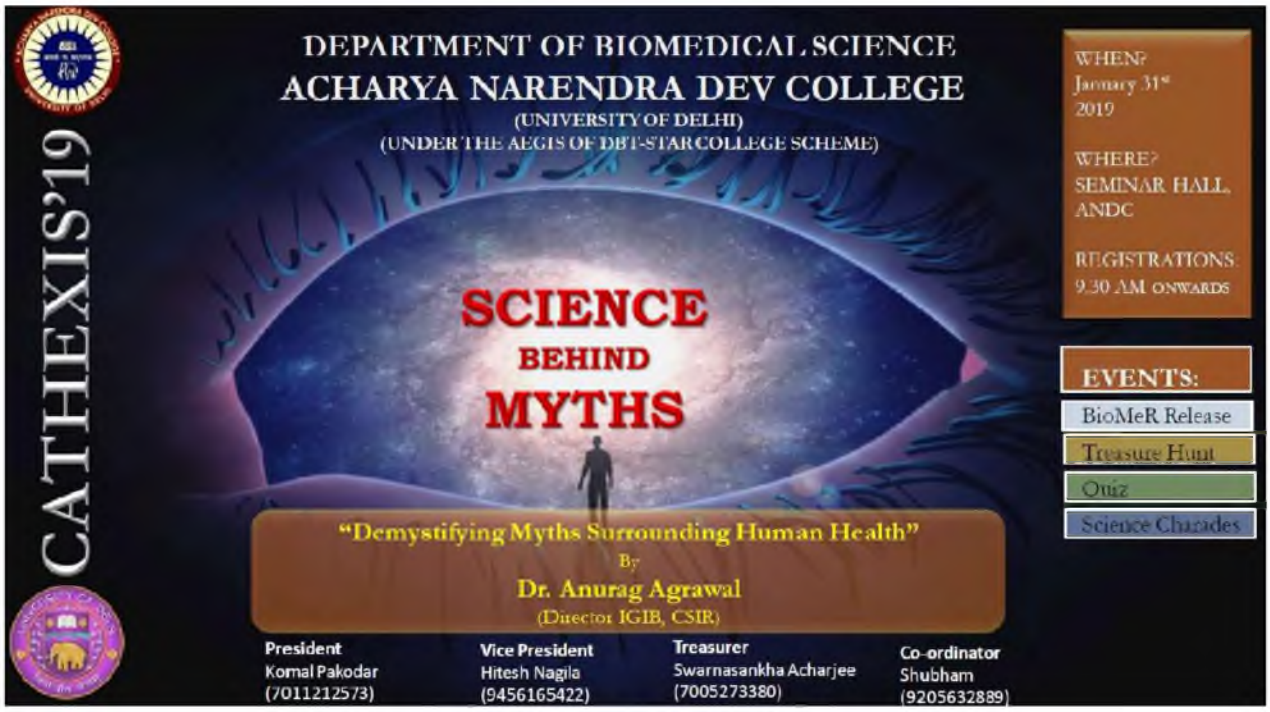
Urmi Bajpai)

Conferences/Workshops/Seminars for the year 2019-20

DEPARTMENT OF BIOMEDICAL SCIENCE

Cathexis'19: Science behind myths (31-Jan-2019)

Demystifying Myths surrounding Human Health by Science Behind Myths was the topic of
presentation by Dr. Anurag Agarwal, Director, IGIB, CSIR among a gathering of 67 participants.



ATTENDANCE LIST OF PARTICIPANTS:

S.No.	Name	Year
1	ANNIE SINGH BATRA	I
2	AKANKSHA SHUKLA	III
3	AKHILA A	II

4	AMIT SHARMA	II
5	ANUSHEEL VERMA	I
6	ARUNDHATI CHAUDHARY	II
7	BHASHKAR PAUL	I
8	BHAVYA SAINI	III
9	CHANDAN KUMAR RAJAK	I

10	DEEPAK POKHREAL	III
11	Dr Archna Pandey	Faculty
12	Dr Namita Singh	Faculty
13	Dr Rimpy Chowhan	Faculty
14	Dr Seema Makhija	Faculty
15	Dr Suita Jetly	Faculty
16	Dr Urmi Bajpai	Faculty
17	GAURAV KUMAR	II
18	HARMAN PREET KAUR	III
19	HARSHIKA GAUTAM	III
20	HARSHIT JINDAL	I
21	HARSHITA	II
22	HARSHVARDHAN GUPTA	I
23	HITESH NAGILA	II
24	INDU	II
25	KAMAKSHI TOMAR	I
26	KAUSTAV GAUTHAMAN	I
27	KOMAL	III
28	MAITRAYEE MITHI	II
29	MAMTA CHHETRI	I
30	MANI GUPTA	III
31	MANSI ARORA	I
32	MAYANK KUMAR GUPTA	II
33	MINTA THOMAS	II
34	MOUSUMI CHAKRABORTY	II
35	MRITTIKA ADHIKARY	I
36	MUSKAAN JINDAL	II
37	MUSKAN GUPTA	I
38	NAHID	I
39	NAMAN SAINI	II
40	NAVODITA SETH	I
41	PRACHI KHATTAR	II
42	Prashant Pradhan	Faculty
43	PREETI SINGHAL	II
44	PRIYANKA CHAUHAN	III
45	PURNENDU KUMAR	III

46	PURVA	II
47	RAMAN KUMAR	II
48	REEMA SAHU	I

49	RIDDHI BHARDWAJ	III
50	RISHI DEV	I
51	RIYA SRIVASTAVA	II
52	ROHINI BHATT	II
53	ROHIT RAJESH GOKHALE	I
54	SACHIN SHARMA	I
55	SAMRIDDHI	II
56	SHAGUFTA ALI	I
57	SHIPRA YADAV	II
58	SHREYA ROY CHOWDHURY	I
59	SHREYA VERMA	III
60	SHRISTI	II
61	SIDDHARTH MEHDIRATTA	I
62	SOMAK NANDY	I
63	SUDEEPTA SINGH	I
64	TAMANNA	I
65	USHA YADAV	III
66	VARUN KAPOOR	I
67	VIKAS SHUKLA	III

Event: Workshop on foldoscope

Date: February 02, 2019

The Department of Biomedical Science, Acharya Narendra Dev College organized a one day workshop on 'FOLDSCOPE', under the aegis of DBT-STAR college scheme. The event took place in the seminar hall of AND college on Saturday 2 February 2019. The workshop was inaugurated by Dr. Sunita Jetly, HOD, Biomedical Science department. She welcomed the participants and anticipated the role of foldscope in the coming time could play an important rolein day to day life work as well as scientific research. Dr. Uma Choudhary, BMS, BCAS, University of Delhi delivered a talk about the need and importance of foldscope for field microbiologist, veterinarians, and researchers posted in remote areas. She also explained about the novel approach of foldscope since it combines the internet of cell phone and the paper microscope that can be carried in a pocket. The aim of this workshop was to identify learning

points regarding handling and implication of foldscope. Foldscope can also magnify several folds of these young minds' curiosity and ignite their creativity and imagination. Further, the workshop has sparked the interest of these graduate students so that they continue to observe surroundings and try to question wonderful things within our amazing world. The organizing team was grateful to Dr. Ravi Toteja, Acting Principal for his constant support, enthusiasm and making this workshop flow smoothly and also acknowledged the non- teaching staff from AND college, volunteers from Acharya Narendra Dev college and Bhaskaracharya college of Applied Sciences for their efforts and contribution.

Total no. of participants: 40

Attendance list of

participants:

S. No.	Name	Course
1	AASTHA	B.Sc(H) BMS I
2	CHANDAN KUMAR RAJAK	B.Sc(H) BMS I
3	ABHIJIT NAYEK	B.Sc(H) BMS II
4	BENSON RIANG	B.Sc(H) BMS II
5	ABHISEK PANI	B.Sc(H) BMS II
6	GAUTAM	B.Sc(H) BMS II
7	HARSHIT	B.Sc(H) BMS I
8	DEEPAK SAHNI	B.Sc(H) BMS III
9	AMISHA	B.Sc(H) BMS I
10	MINTA THOMAS	B.Sc(H) BMS II
11	JAYASHREE MALLICK	B.Sc(H) BMS I
12	KOMAL	B.Sc(H) BMS III
13	MAYANK KUMAR GUPTA	B.Sc(H) BMS II
14	AKANKSHA SHUKLA	B.Sc(H) BMS III
15	HARSHIKA GAUTAM	B.Sc(H) BMS III
16	HARSHVARDHAN GUPTA	B.Sc(H) BMS II
17	INDU	B.Sc(H) BMS II
18	MRITTIKA	B.Sc(H) BMS I
19	NAIN RUHELA	B.Sc(H) BMS I
20	ASAD ALI	B.Sc(H) BMS II
21	DIPESH TALUKDAR	B.Sc(H) BMS I

22	FATHIMATH FAIHA	B.Sc(H) BMS III
23	AYUSH	B.Sc(H) BMS III
24	SHAGUFTA ALI	B.Sc(H) BMS I
25	KM KANIKA	B.Sc(H) BMS II
26	LUCKY SANGAHI	B.Sc(H) BMS II
27	MANI GUPTA	B.Sc(H) BMS III
28	ALISHA ANSARI	B.Sc(H) BMS I
29	JYOTI GAUTAM	B.Sc(H) BMS III
30	KANIKA BHATIA	B.Sc(H) BMS II
31	AATIRUDDIN KHAN	B.Sc(H) BMS I
32	MUSKAN GUPTA	B.Sc(H) BMS I
33	MAMTA CHHETRI	B.Sc(H) BMS I
34	AKHILA A	B.Sc(H) BMS II
35	PREETI SINGHAL	B.Sc(H) BMS II
36	PURVA	B.Sc(H) BMS II
37	RHYTHEM KAUSHAL	B.Sc(H) BMS II
38	SARANG SAINI	B.Sc(H) BMS II
39	SHIPRA YADAV	B.Sc(H) BMS II
40	ABHISEK PANI	B.Sc(H) BMS II

Signature of Convenor

(Dr. Sunita Jetly)

CATHEXIS'19: DRUG DISCOVERY AGAINST MDR MICROBES (14-AUG-2019)

Dr Urmi Bajpai, Dr Rimpy Kaur, Dr Satendra Singh

Dr. Sidharth Chopra, Sr. Scientist Division of Microbiology, CSIR(CDRI), Lucknow delivered an inaugural lecture on drug discovery against multi-drug resistant microbes to a gathering of 84 participants.

LIST OF PARTICIPANTS:

S. No.	Name	Year	Course
1	Afnitha	Year I	BMS
2	Ankita Paty	Year I	BMS
3	Bisakha Das	Year I	BMS
4	Mansi Anand	Year I	BMS
5	Md. Shuhaib	Year I	BMS
6	Niharika Upadhyay	Year I	BMS
7	Nikita Chauhan	Year I	BMS
8	Nikita Gupta	Year I	BMS
9	Prachi Singh	Year I	BMS
10	Prachi Arora	Year I	BMS
11	Pritika Kwatra	Year I	BMS
12	Priyanjana Ghosh	Year I	BMS
13	Eloni	Year I	BMS
14	Radey Hiffo	Year I	BMS
15	Riya Chauhan	Year I	BMS
16	Sonam Angmo	Year I	BMS
17	Srija	Year I	BMS
18	Subhangi Majumder	Year I	BMS
19	Sushant Yadav	Year I	BMS
20	T K Rini	Year I	BMS
21	Tarunpreet Kaur	Year I	BMS
22	Tejaswini C	Year I	BMS
23	Than Dar Aung	Year I	BMS
24	Alisha Ansari	Year II	BMS
25	Amisha	Year II	BMS
26	Amit Kumar	Year II	BMS
27	Bhaskar Paul	Year II	BMS
28	Chandan Kumar Rajak	Year II	BMS
29	Dipesh Talukdar	Year II	BMS
30	Harshvardhan Gupta	Year II	BMS
31	Kamakshi	Year II	BMS
32	Kanika	Year II	BMS

33	Mansi Arora	Year II	BMS
34	Mrittika Adhikary	Year II	BMS
35	Muskan Gupta	Year II	BMS
36	Nahid	Year II	BMS
37	Navodita Seth	Year II	BMS

38	Nisha Kesari	Year II	BMS
39	Rohit Rajesh Gokhale	Year II	BMS
40	Sachin Sharma	Year II	BMS
41	Shagufta Ali	Year II	BMS
42	Siddharth Mehdiratta	Year II	BMS
43	Sudeepta Singh	Year II	BMS
44	Tamanna	Year II	BMS
45	Reuben Caudell	Year II	BMS
46	Anas Akhtar	Year II	BMS
47	Annie singh	Year II	BMS
48	Somak Nandy	Year II	BMS
49	Anjum	Year III	BMS
50	Abhijit Nayek	Year III	BMS
51	Amit sharma	Year III	BMS
52	Arundhati Chaudhary	Year III	BMS
53	Asad Ali	Year III	BMS
54	Ashwin Uday	Year III	BMS
55	Benson Riang	Year III	BMS
56	Bhawna Saini	Year III	BMS
57	Hitesh Nagila	Year III	BMS
58	Indu	Year III	BMS
59	K Gautam	Year III	BMS
60	Kanika Bhatia	Year III	BMS
61	Koyel Ray	Year III	BMS
62	Minta Thomas	Year III	BMS
63	Maitrayee Mithi	Year III	BMS
64	Mousumi Chakraborty	Year III	BMS
65	Muskaan Jindal	Year III	BMS
66	Naman Saini	Year III	BMS
67	Prachi Singhal	Year III	BMS
68	Purva	Year III	BMS
69	Rhythem Kaushal	Year III	BMS
70	Priya Srivastava	Year III	BMS
71	Rohini Bhatt	Year III	BMS
72	Sansi	Year III	BMS
73	Tenzin	Year III	BMS
74	Srishti	Year III	BMS
75	Samridhi	Year III	BMS
76	Vivek	Year III	BMS
77	Akhila A	Year III	BMS
78	Amit Babu	Year III	BMS

79	Dr Urmi Bajpai	Faculty	BMS
80	Dr Namita Singh	Faculty	BMS
81	Dr Gagan Dhawan	Faculty	BMS
82	Dr Sunita Jetly	Faculty	BMS
83	Dr Satendra Singh	Faculty	BMS
84	Dr Archna Pandey	Faculty	BMS

Signature of Convenor

"BMS Alumni Lecture Series: Transition from a Cancer Researcher to an Engineer andFinally a Manufacturer – Salesman" (14-Aug-2019)

Dr. Pawan Mahrotra (BMS 2002-05) and his team has developed and launched products thataims at post-surgical rehabilitation of breast cancer patients supported by BIRAC and other
institutions of eminence. He shared his journey at the BMS series among 78 alumni lectureparticipants.

DEPARTMENT OF BIOMEDICAL SCIENCE
ACHARYA NARENDRA DEV COLLEGE
(University of Delhi, New Delhi)

(Under the Aegis of DBT-STAR College Scheme)

Presents

BMS 'Alumni' Lecture Series

by

Dr. Pawan Mehrotra
Batch: (BMS: 2002-2005)
Founder, Aarna Biomedical Products

Transition from a "Cancer Researcher" to an "Engineer" and finally a "Manufacturer-Salesman"

Dr. Mehrotra's team has successfully developed & launched their nascent social enterprise's first two products – Sampoorti and Poorti, which aims at post-surgical rehabilitation of breast cancer patients supported by BIRAC, Tata Trusts, IIT-Kanpur and Translational Health Science and Technology Institute – DBT. He has the unique experience of having publications, patents and products to his credit in the field of oncology.

Date & Time: August 14, 2019, 10:00 AM onwards; Venue: Seminar Hall

Patron
Dr. Ravi Toteja
Principal, ANDC

Convenor
Dr. Urmi Bajpai
Teacher-In-Charge

Organizing Committee
Dr. Satendra Singh
Dr. Namita Singh
Ms. Rimpy Kaur
Mr. Prashant Pradhan

LIST OF PARTICIPANTS:

S. No.	Name	Year	Course
1	Afnitha	Year I	BMS
2	Ankita Paty	Year I	BMS
3	Bisakha Das	Year I	BMS
4	Mansi Anand	Year I	BMS
5	Md. Shuhaib	Year I	BMS
6	Niharika Upadhyay	Year I	BMS
7	Nikita Chauhan	Year I	BMS
8	Nikita Gupta	Year I	BMS
9	Prachi Singh	Year I	BMS
10	Prachi Arora	Year I	BMS
11	Pritika Kwatra	Year I	BMS
12	Priyanjana Ghosh	Year I	BMS
13	Eloni	Year I	BMS
14	Radey Hiffo	Year I	BMS
15	Riya Chauhan	Year I	BMS
16	Sonam Angmo	Year I	BMS
17	Srija	Year I	BMS
18	Subhangi Majumder	Year I	BMS
19	Sushant Yadav	Year I	BMS
20	T K Rini	Year I	BMS
21	Tarunpreet Kaur	Year I	BMS
22	Tejaswini C	Year I	BMS
23	Than Dar Aung	Year I	BMS
24	Alisha Ansari	Year II	BMS
25	Amisha	Year II	BMS
26	Amit Kumar	Year II	BMS
27	Bhaskar Paul	Year II	BMS
28	Chandan Kumar Rajak	Year II	BMS
29	Dipesh Talukdar	Year II	BMS
30	Harshvardhan Gupta	Year II	BMS
31	Kamakshi	Year II	BMS
32	Kanika	Year II	BMS
33	Mansi Arora	Year II	BMS
34	Mrittika Adhikary	Year II	BMS
35	Muskan Gupta	Year II	BMS
36	Nahid	Year II	BMS

37	Navodita Seth	Year II	BMS
38	Nisha Kesari	Year II	BMS
39	Rohit Rajesh Gokhale	Year II	BMS
40	Sachin Sharma	Year II	BMS
41	Shagufta Ali	Year II	BMS
42	Siddharth Mehdiratta	Year II	BMS
43	Sudeepta Singh	Year II	BMS
44	Tamanna	Year II	BMS
45	Reuben Caudell	Year II	BMS
46	Anas Akhtar	Year II	BMS
47	Annie singh	Year II	BMS
48	Somak Nandy	Year II	BMS
49	Anjum	Year III	BMS
50	Abhijit Nayek	Year III	BMS
51	Amit sharma	Year III	BMS
52	Arundhati Chaudhary	Year III	BMS
53	Asad Ali	Year III	BMS
54	Ashwin Uday	Year III	BMS
55	Benson Riang	Year III	BMS
56	Bhawna Saini	Year III	BMS
57	Hitesh Nagila	Year III	BMS
58	Indu	Year III	BMS
59	K Gautam	Year III	BMS
60	Kanika Bhatia	Year III	BMS
61	Koyel Ray	Year III	BMS
62	Minta Thomas	Year III	BMS
63	Maitrayee Mithi	Year III	BMS
64	Mousumi Chakraborty	Year III	BMS

65	Muskaan Jindal	Year III	BMS
66	Naman Saini	Year III	BMS
67	Prachi Singhal	Year III	BMS
68	Purva	Year III	BMS
69	Rhythem Kaushal	Year III	BMS
70	Priya Srivastava	Year III	BMS
71	Rohini Bhatt	Year III	BMS
72	Sansi	Year III	BMS
73	Tenzin	Year III	BMS
74	Srishti	Year III	BMS
75	Samridhi	Year III	BMS
76	Vivek	Year III	BMS
77	Akhila A	Year III	BMS
78	Amit Babu	Year III	BMS

Signature of Convenor

BMS Alumni Lecture Series: An Interactive Session on Science Communication (28-Aug-19)

(Dr Urmi Bajpai, Dr Rimpy Kaur, Dr Satendra Singh)

As part of the Alumni Lecture Series, Biomedical Science Department invited their alumni Dr Shruti Murlidhar and Dr Abhishek Chari to have an "**Interactive Session on Science Communication**". Apart from the faculty member, around 26 participants attended the lecture.

ATTENDANCE LIST OF THE PARTICIPANTS

S. No.	Name	Year	Course
1	Afnitha	Year I	BMS
2	Ankita Paty	Year I	BMS

3	Bisakha Das	Year I	BMS

4	Kajal Mangla	Year I	BMS
5	Kritika Garg	Year I	BMS
6	Ridhi Bhatt	Year I	BMS
7	Sakshi Sharma	Year I	BMS
8	Mansi Anand	Year I	BMS
9	Md. Shuhaib	Year I	BMS
10	Niharika Upadhyay	Year I	BMS
11	Prachi Singh	Year I	BMS
12	Prachi Arora	Year I	BMS
13	Pritika Kwatra	Year I	BMS
14	Priyanjana Ghosh	Year I	BMS
15	Eloni	Year I	BMS
16	Radey Hiffo	Year I	BMS
17	Riya Chauhan	Year I	BMS
18	Sonam Angmo	Year I	BMS
19	Srija	Year I	BMS
20	Subhangi Majumder	Year I	BMS
21	Tejaswini C	Year I	BMS
22	Than Dar Aung	Year I	BMS
23	Nikita gupta	Year I	BMS
24	Md. Shahbaj	Year I	BMS
25	Alisha Ansari	Year II	BMS
26	Amisha	Year II	BMS
27	Amit Kumar	Year II	BMS
28	Bhaskar Paul	Year II	BMS
29	Chandan Kumar Rajak	Year II	BMS
30	Dipesh Talukdar	Year II	BMS
31	Harshvardhan Gupta	Year II	BMS
32	Kamakshi	Year II	BMS
33	Kanika	Year II	BMS
34	Mansi Arora	Year II	BMS
35	Mrittika Adhikary	Year II	BMS
36	Muskan Gupta	Year II	BMS
37	Nahid	Year II	BMS
38	Sachin Sharma	Year II	BMS
39	Shagufta Ali	Year II	BMS
40	Anas Akhtar	Year II	BMS
41	Annie singh	Year II	BMS
42	Somak Nandy	Year II	BMS
43	Anjum	Year III	BMS

44	Abhijit Nayek	Year III	BMS
45	Amit sharma	Year III	BMS
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51	Hitesh Nagila	Year III	BMS
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53	K Gautam	Year III	BMS
54	Kanika Bhatia	Year III	BMS
55	Maitrayee Mithi	Year III	BMS
56	Mousumi Chakraborty	Year III	BMS
57	Muskaan Jindal	Year III	BMS
58	Naman Saini	Year III	BMS
59	Prachi Singhal	Year III	BMS
60	Purva	Year III	BMS
61	Rhythem Kaushal	Year III	BMS
62	Priya Srivastava	Year III	BMS
63	Srishti	Year III	BMS
64	Samridhi	Year III	BMS
65	Vivek	Year III	BMS
66	Akhila A	Year III	BMS
67	Amit Babu	Year III	BMS

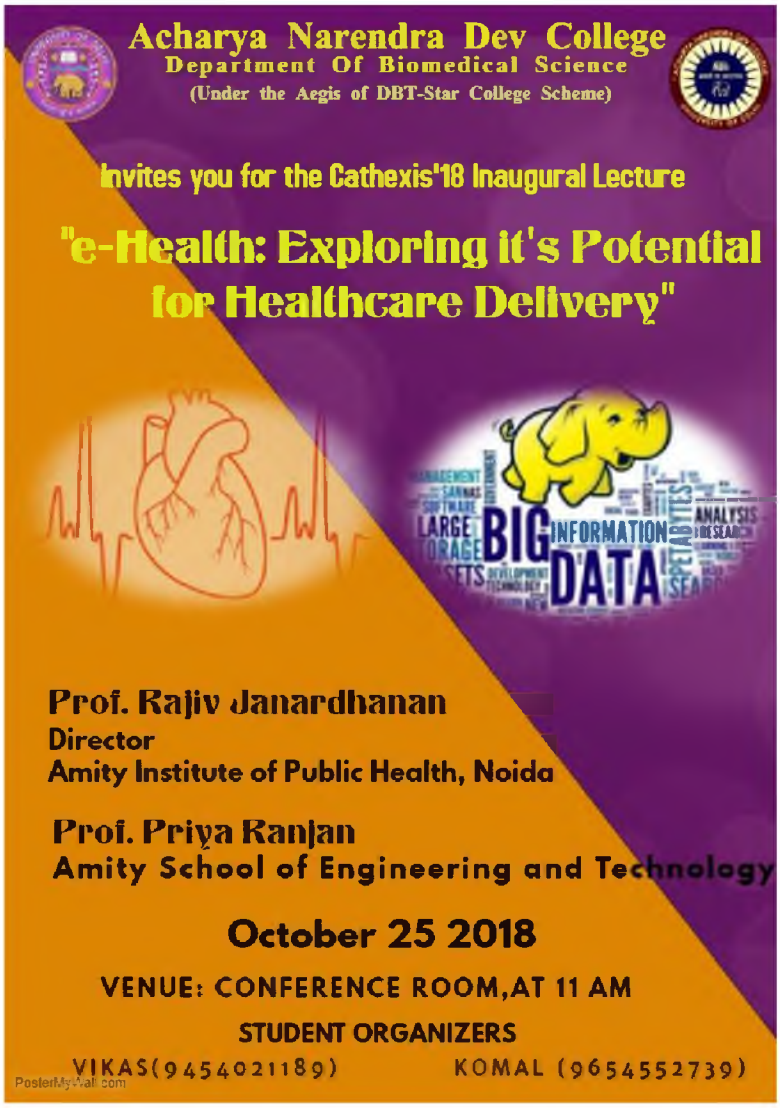
Signature of Convenor

Conferences/Workshops/Seminars for the year 2018-19

DEPARTMENT OF BIOMEDICAL SCIENCE

Cathexis'18 Inaugural lecture: 25 Oct, 2018

Department of Biomedical Science, Acharya Narendra Dev College, students society 'CATHEXIS', organized an inaugural lecture on **"e-Health: Exploring its potential for Healthcare Delivery"** on 25th October 2018 in the Conference Hall at 11:00 am. Professor RajivJanardhanan, Director, Amity Institute of Public Health and Professor Priya Ranjan, Amity School of Engineering and Technology, Noida, Utter Pradesh delivered the keynote lectures. Thelecture was attended by 56 participants including students from various departments of the college along with many faculty members. The speakers gave a very informative talk on digital data gathering and analysis of various health disorders. They showed various methods of digital data collection. Student interacted with speakers very enthusiastically and speakers gave answersof their query in very friendly manner. At the end of lecture, speakers and students gathered for agroup photographs in the college front lawn followed by a lunch in the committee room. The lecture was highly appreciated by all the participants.



Attendance List of Participants:

S.No.	Name	Year
1	Annie Singh Batra	I
2	Akhila A	II
3	Hitesh Nagila	II
4	Bhashkar Paul	I
5	Chandan Kumar Rajak	I
6	Harshita	II
7	Deepak Pokhreal	iii
8	Mrittika Adhikary	I

9	Muskan Gupta	I
10	Pooja	iii
11	Prabhat Bist	iii
12	Shreya Verma	iii
13	Harshvardhan Gupta	I
14	Mayank Kumar Gupta	II
15	Minta Thomas	II
16	Kamakshi Tomar	I
17	Kaustav Gauthaman	I
18	Naman Saini	II
19	Mamta Chhetri	I
20	Mansi Arora	I
21	Prachi Khattar	II
22	Preeti Singhal	II
23	Rohit Rajesh Gokhale	I
24	Harshit Jindal	I
25	Sachin Sharma	I
26	Priyanka Chauhan	iii
27	Purnendu Kumar	iii
28	Usha Yadav	iii
29	Mousumi Chakraborty	II
30	Muskaan Jindal	II
31	Nahid	I
32	Riddhi Bhardwaj	iii
33	Navodita Seth	I
34	Amit Sharma	II
35	Vikas Shukla	iii
36	Arundhati Chaudhary	II
37	Shipra Yadav	II
38	Shristi	II
39	Shagufta Ali	I
40	Rohini Bhatt	II
41	Shreya Roy Chowdhury	I
42	Riya Srivastava	II
43	Siddharth Mehdiratta	I
44	Sudeepta Singh	I

45	Tamanna	I
46	Dr Namita Singh	Faculty
47	Dr Seema Makhija	Faculty
48	Dr Archna Pandey	Faculty
49	Dr Urmi Bajpai	Faculty
50	Dr Suita Jetly	Faculty
51	Dr Rimpy Chowhan	Faculty
52	Anusheel Verma	I
53	Varun Kapoor	I
54	Somak Nandy	I
55	Gaurav Kumar	II
56	Indu	II

DEPARTMENT OF COMPUTER SCIENCE

Conferences/Workshops/Seminars for the year 2021-22

REPORT

Acharya Narendra Dev College is an educational and research oriented hub of

eminence of India under University of Delhi. It envisage proffering quality education to its students while emboldening them with diverse exposure and hands-on research. We adhere to the ideology of 'preparing for the future' by exploring and innovating 'beyond the classroom'.

Under the FOSS and the aegis of DBT Star College Scheme of Computer Science Department, organized a Two Day online workshop on *Effective Presentation and Image Management for Success*. This workshop was organized on 24 -25 August 2021 for the students of Computer Science.

Mrinal Gupta Virmani, Confidence Coach & Softskills Trainer, Image Consultant & Chartered Accountant, was the resource person of the workshop. This workshop was organized to familiarize the students with the effective ways to give better presentation and to enhance and upgrade self image through image management. The day wise session details are described in the following:

Day 1: "Effective Presentation" covered the topics such as: Presentation preparation (Research your audience and check the settings/technology. Structuring the presentation in opening, body, and the closing. Making power point slides). Delivery of Presentation (Verbal Delivery, voice modulation, body Language - eye contact, appear confident, face the audience not the screen). The art of storytelling etc. During the session there were few activities like tongue twisters, voice modulation, good presentation vs. bad preparation, in which most of the students participated actively. A video was also presented on body language for presentations.

Day 2: "Image Management" covered the topics such as: Why is having an image important? How to improve self image? The ABC...D of image management(Appearance, Behaviour, Communication, and Digital Foot-Print) . What is perfect handshake? Self-Introduction, mobile etiquette, enhance your communication skills. Image quotient test was conducted consisting of 16 questions. How to dress for virtual interviews.

On the second day Prof. Ravi Toteja, esteemed Principal of the college, appreciated the efforts put in by the organizers and the resource person for successful completion of the workshop.

Principal sir also expressed his desire to conduct such events in future in the offline mode, so that maximum number of students of the college can get the benefit from such type of workshops.

At the end Senior Faculty, Dr. Sharanjit Kaur delivered a vote of thanks. The enthusiasm and passion of the students was commendable all through the workshop. Participants were interactive and showed keen interest in the workshop. The workshop was a great success.

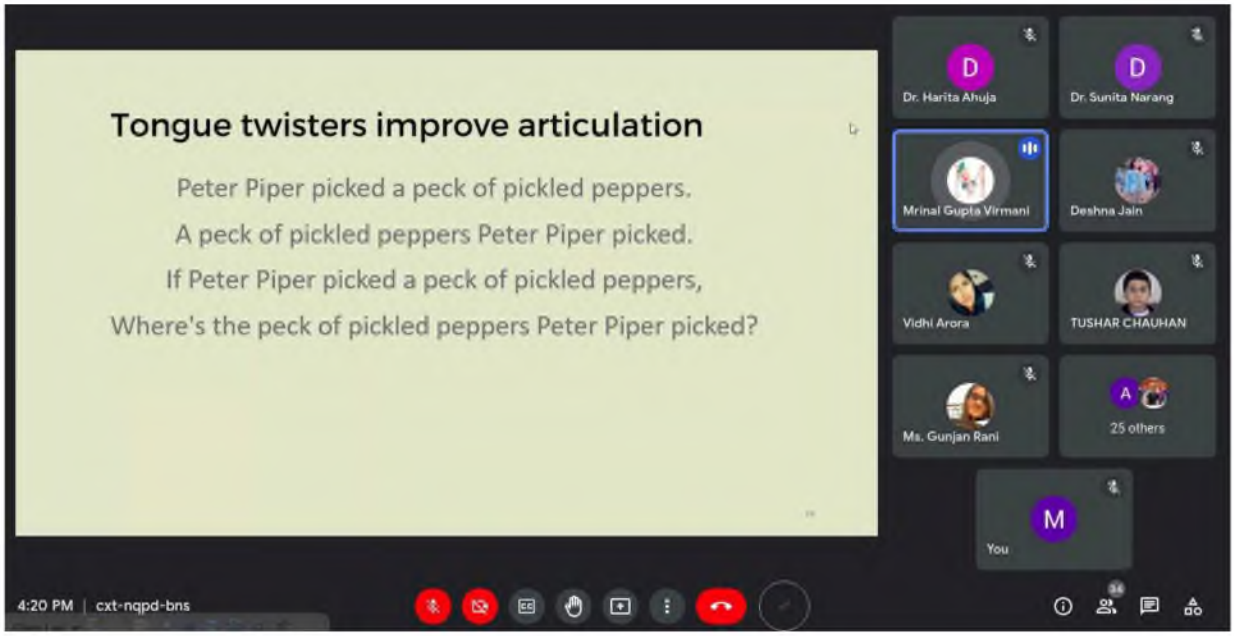
Photo 1: Welcome Address by Prof. Ravi Toteja, Principal, ANDC

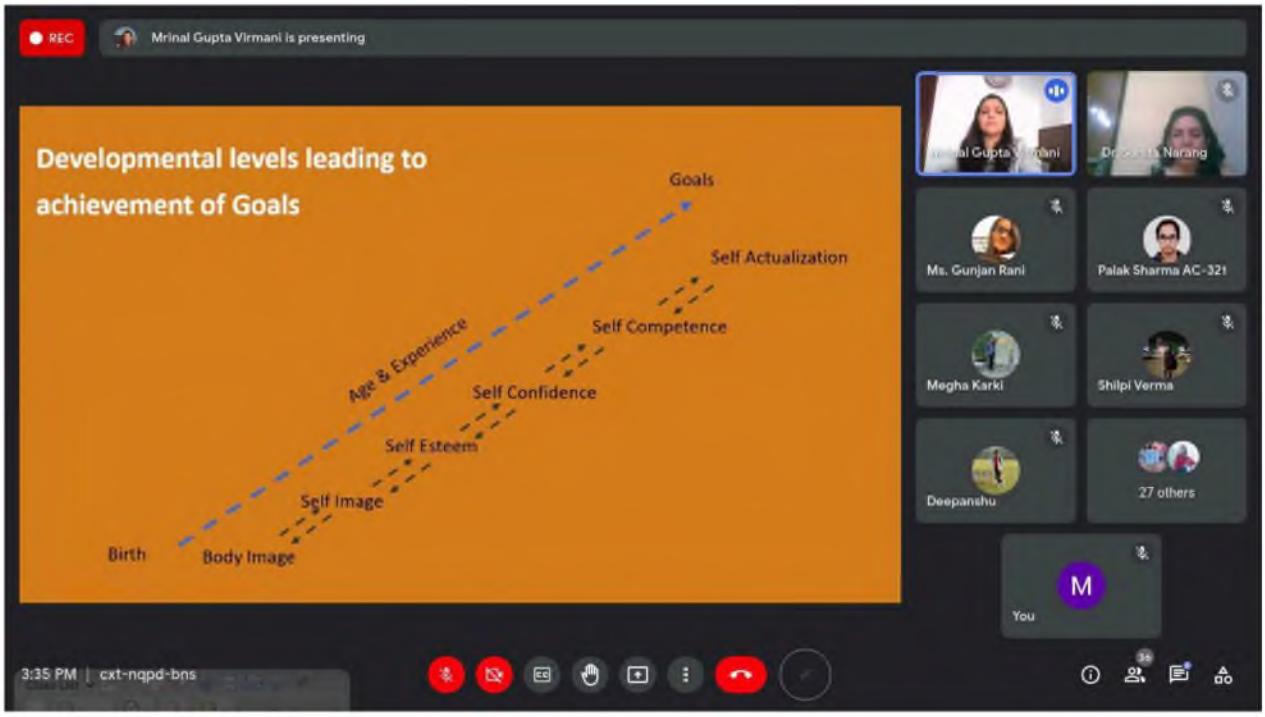
Photo 2: Dr. Sunita Narang, Teacher-in-Charge, CS Department welcoming the Resource Person

Photo 4: Dr. Harita Ahuja, Star Coordinator, CS Department addressing the participants

Photo 5: Intoduction by Ms. Mrinal Gupta Virmani, Resource Person

Some Photos from the session:




REC
Mrinal Gupta Virmani is presenting
Developmental levels leading to achievement of Goals
Goals
Self Actualization
Self Competence
Self Confidence
Self Esteem
Self Image
Body Image
Birth
Age & Experience
Ms. Gunjan Rani
Palak Sharma AC-321
Megha Karki
Shilpi Verma
Deepanshu
27 others
You
3:35 PM | cxt-nqpd-bns

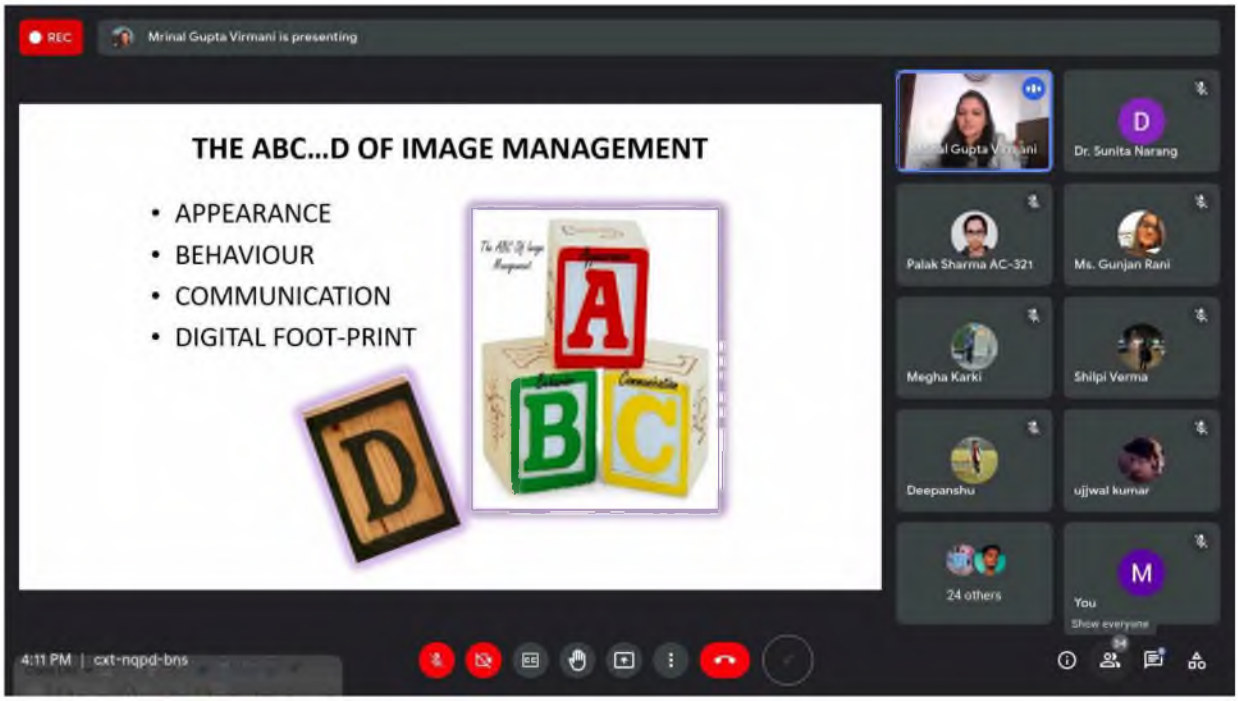

REC
Mrinal Gupta Virmani is presenting
THE ABC...D OF IMAGE MANAGEMENT
• APPEARANCE
• BEHAVIOUR
• COMMUNICATION
• DIGITAL FOOT-PRINT
Dr. Sunita Narang
Palak Sharma AC-321
Ms. Gunjan Rani
Megha Karki
Shilpi Verma
Deepanshu
ujjwal kumar
24 others
You
Show everyone
4:11 PM | cxt-nqpd-bns

Photo 10: Appreciation by Principal sir

Photo 11: Vote of Thanks by Dr. Sharanjit Kaur, Senior Faculty, CS Department

Participants

Attendance "Effective Presentation & Image Management for Success

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
5	DIPANKAR DEBNATH	AC-311
6	HARSHWARDHAN AGARWAL	AC-312
7	HIMANSHU	AC-313
8	KANHAIYA SINGH	AC-316
9	PALAK SHARMA	AC-321
10	PANKAJ	AC-322
11	PIYUSH KUMAR	AC-324
12	PIYUSH SHARMA	AC-325
13	PRASHANT BAISOYA	AC-326
14	PRIYANSHU DHASMANA	AC-327
15	PRIYANSHU SENGUPTA	AC-328
16	RAGHAV	AC-329
17	RAHUL	AC-330
18	RAHUL KUMAR SHARMA	AC-331
19	RITIK	AC-334
20	SOMESH	AC-339
21	SURAJ KUMAR	AC-340
22	VAIDIK THAKRE	AC-341
23	VISHAL BHARDWAJ	AC-343
24	YASHWARDHAN SINGH	AC-344
25	AMIT PRAJAPATI	AC-346
26	PANKAJ SAHU	AC-348
27	RAHUL ARYAN TIWARI	AC-349
28	ROHIT	AC-351
29	VIVEK SHARMA	AC-354
30	AYUSH SINGH	AC-356
31	AKANCHHA KUMARI	AC-358
32	AKASH NAIN	AC-361
33	ABHILAV CHOUDHARY	AC-301
34	ABHISHEK KUMAR YADAV	AC-303
35	ALIYA	AC-304
36	BHAWNA KUMARI	AC-307
37	DHRUV SINGH	AC-310
38	RAJEEV KAPOOR	AC-332
39	SAKSHI GARG	AC-337
40	SAWAN BAGLE	AC-353
41	NIKITA	AC-320
42	RAVI SINGH CHAUHAN	AC-333
43	ABHISHEK BHANGALIA	AB-1201
44	ABHISHEK KUMAR PRAJAPATI	AB-1202
45	ADITYA RAJ	AB-1203

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46	ANIKET ROY	AB-1260
47	ANINDITA PANDA	AB-1207
48	ANKIT SHARMA	AB-1208
49	ANURAG SONI	AB-1211
50	ANUSHKA JAIN	AB-1212
51	AYUSHI SHARMA	AB-1266
52	BHARAT ADHIKARI	AB-1214
53	DEEPANSHU	AB-1216
54	DESHNA JAIN	AB-1252
55	DEVANSH SHARMA	AB-1258
56	GULSHAN KUMAR	AB-1217
57	HARSH KUMAR	AB-1218
58	HIMANSHU	AB-1219
59	MANISH KUMAR	AB-1262
60	MANSI SANWAL	AB-1269
61	MEGHA KARKI	AB-1223
62	NIAMATULLAH AZIZI	AB-1267
63	NITESH KUMAR	AB-1225
64	PRAJWAL SONI	AB-1265
65	PRIYA SINGH	AB-1226
66	R J SAMRAT	AB-1227
67	RACHIT CHAUDHARY	AB-1228
68	RAHUL BASU	AB-1263
69	RAVINDER KUMAR	AB-1230
70	RISHI SARBOBHOUM	AB-1232
71	ROBIN SINGH	AB-1270
72	SAMBIT BASU	AB-1264
73	SANT KUMAR	AB-1234
74	SARVESH SHARMA	AB-1271
75	SHILPI VERMA	AB-1235
76	SHIVAM ORAON	AB-1236
77	SHIVAM SAINI	AB-1237
78	SHIVANSH TYAGI	AB-1273
79	SHREY SINGHAL	AB-1239
80	SHRUTI JAIN	AB-1240
81	SHUBHAM KUMAR DAS	AB-1241
82	SUPRIYA KUMARI	AB-1272
83	SURUCHI VERMA	AB-1243
84	TABASSUM RANA	AB-1254
85	TANU	AB-1244
86	TISHYA THUKRAL	AB-1245
87	TUSHAR CHAUHAN	AB-1259
88	TUSHAR GAURAV	AB-1253
89	UJJWAL	AB-1257
90	UJJWAL KUMAR	AB-1246
91	USHNA KHAN	AB-1247

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92	UTKARSH AGRAWAL	AB-1248
93	VIDHI ARORA	AB-1249
94	Abhishek Kumar	AC-1201
95	ADITI KUMARI	AC-1202
96	ADITYA AMLESH JHA	AC-1203
97	ADITYA KUMAR	AC-1204
98	ADITYA RAJ SAH	AC-1205
99	AMAN RAJPUT	AC-1206
100	Amartya Sinha	AC-1207
101	AMIT	AC-1208
102	AMIT KUMAR	AC-1209
103	Amitesh Kumar Singh	AC-1210
104	ANAM KHAN	AC-1211
105	Ananya Shukla	AC-1212
106	Ankit	AC-1213
107	ASADULLAH MURADI	AC-1271
108	Avinash Singh	AC-1255
109	CHANDAN KUMAR SHAH	AC-1274
110	Deepanshu Kumar	AC-1215

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ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
ACCREDITED 'A' GRADE BY NAAC- SCORE 3.31
NIRF 2021 ALL INDIA RANKING 20 | DBT STAR COLLEGE

Department of Computer Science
& Internal Quality Assurance Cell
(Under the aegis of DBT Star College Scheme 2021-22)

Organizes

Two-Day Online Workshop | **October 2-3, 2021**

ON

"FRONT-END WEB UI FRAMEWORKS OVERVIEW: BOOTSTRAP"

Prof. Ravi Toteja
(Institution DBT Star Scheme Coordinator, Officiating Principal)

Dr. Harita Ahuja
(Department DBT Star Scheme Coordinator)

Dr. Sharanjit Kaur
(FOSS Club Convener)

Dr. Sunita Narang
(Teacher-In-Charge)

Ms. Anu Preveen
(Convener)

Ms. Shiva Saini
(Co-Convener)

E-Certification on successful completion of Workshop.

Resource Person

MR. ASHWANI BHATIA

Web Designer / Developer

Schedule

	DAY 1 OCTOBER 2, 2021	DAY 2 OCTOBER 3, 2021
10 AM - 11.30 AM SESSION 1	Quick Recap of HTML, Basics of CSS	Typography of Bootstrap
BREAK		
12 Noon - 1 PM SESSION 2	Introduction of Bootstrap	Assignment

MS Teams Link :
http://shorturl.at/rEOQ3

REPORT

FOSS Club, Department of Computer Science in collaboration with Internal Quality Assurance Cell, Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 are organised **Two Days online Workshop on the topic of "Front-End Web UI Frameworks Overview: Bootstrap" on** October 01, 2021 to October 02, 2021 at 10:00 AM - 01:30 PM on Microsoft Teams. The workshop was convened by Ms. Anu Preveen. It was attended by faculty, students, and non-teaching staff of our college. We had Mr. Ashwani Bhatia as our eminent guest speaker. He is working as a Web Designer/ Developer. In this Faculty Development Program, the participants got to know about the importance of Bootstrap. It emphasized on front-end framework used to create modern websites and web apps.

DAY 1: The Day one concentrated on the responsive web designing and viewport portability. He discussed how to divide the content section into different parts by adding viewport compatible options and bootstrap inbuilt classes and how we can create catchy header and footers.

DAY 2: The Day two concentrated on how to create attractive carousels for the home page. It also develops the understanding of color coding concepts and constraints of flexible display and vertical content manipulation. He also discussed how we can add navigation bars, Modals, Absolute-Fixed scrollable backgrounds, accordion, Cards, Toast notification, pop-overs and tool- tips.

Overall, the workshop was aimed at enhancing the professional skill set of participants. The Session was very interactive as the participants were given at the end an assignment test.

At the end of the program, participants were awarded with the E-certificates. Session ended with the vote of thanks by Teacher-In-Charge, Dr. Sunita Narang. The workshop proved to be extremely informative and was a great success with participation of around 50 students and 30 teaching, and Non-Teaching staff from our college.

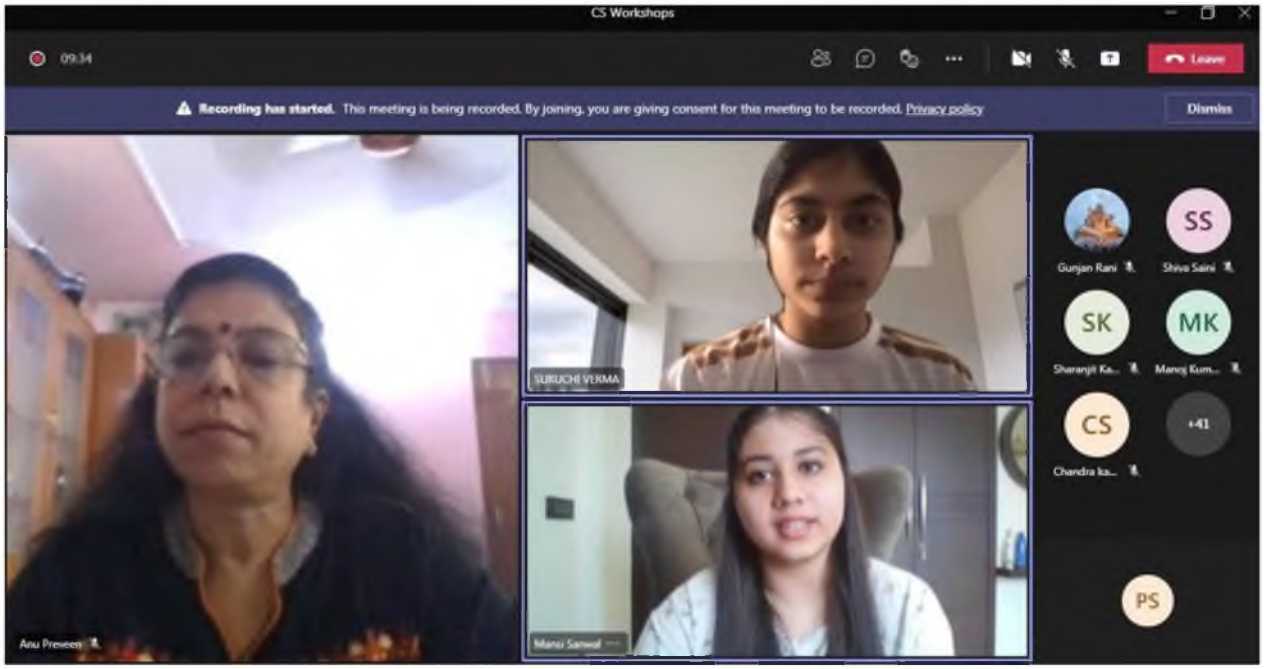

Photo 1

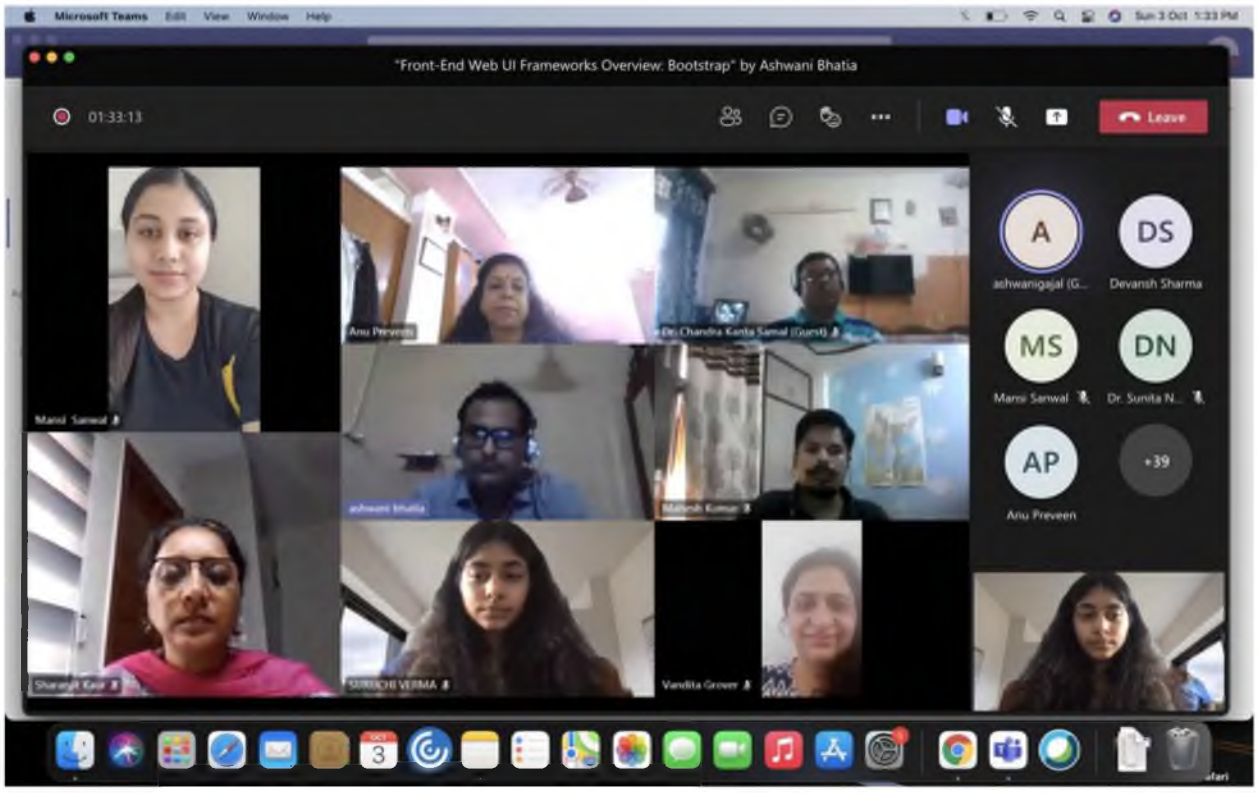

Photo 2

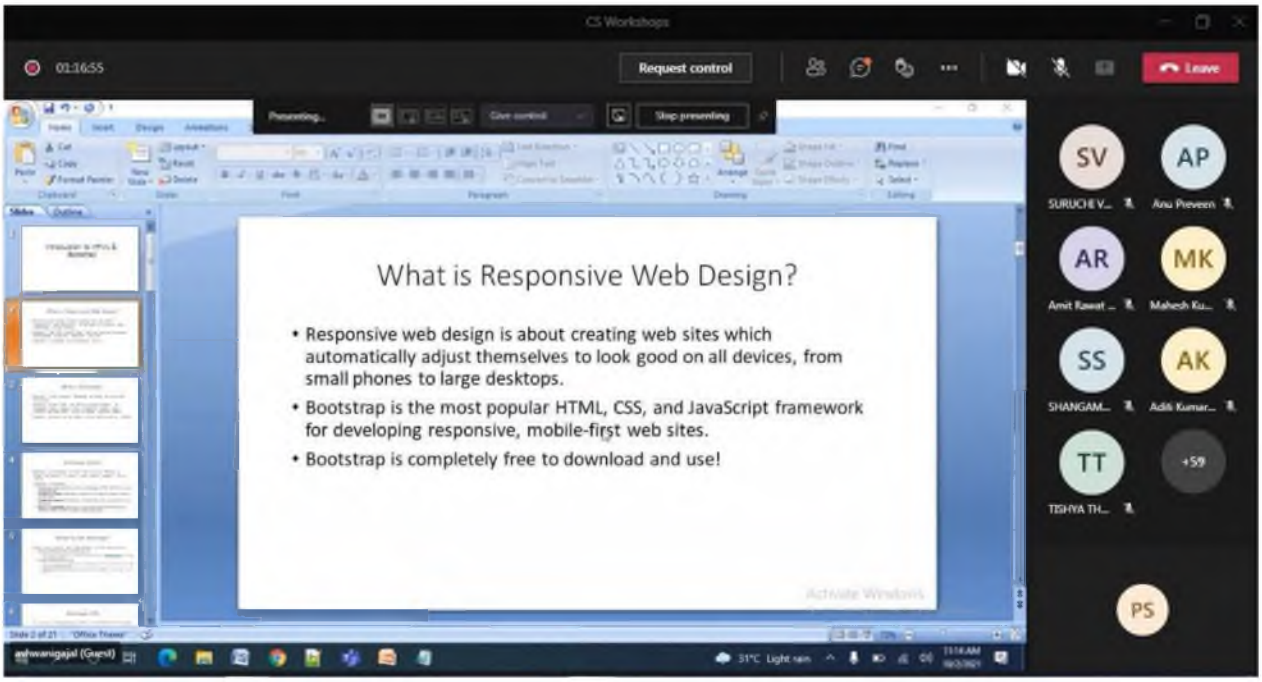

Photo 3

Photo 4

Attendance "Front End Web UI Frameworks Overview Bootstrap"		
SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
5	DIPANKAR DEBNATH	AC-311
6	HARSHWARDHAN AGARWAL	AC-312
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13	PRASHANT BAISOYA	AC-326
14	PRIYANSHU DHASMANA	AC-327
15	PRIYANSHU SENGUPTA	AC-328
16	RAGHAV	AC-329
17	RAHUL	AC-330
18	RAHUL KUMAR SHARMA	AC-331
19	RITIK	AC-334
20	SOMESH	AC-339
21	SURAJ KUMAR	AC-340
22	VAIDIK THAKRE	AC-341
23	VISHAL BHARDWAJ	AC-343
24	YASHWARDHAN SINGH	AC-344
25	AMIT PRAJAPATI	AC-346
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45	ADITYA RAJ	AB-1203

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90	UJJWAL KUMAR	AB-1246
91	USHNA KHAN	AB-1247

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93	VIDHI ARORA	AB-1249
94	Abhishek Kumar	AC-1201
95	ADITI KUMARI	AC-1202
96	ADITYA AMLESH JHA	AC-1203
97	ADITYA KUMAR	AC-1204
98	ADITYA RAJ SAH	AC-1205
99	AMAN RAJPUT	AC-1206
100	Amartya Sinha	AC-1207
101	AMIT	AC-1208
102	AMIT KUMAR	AC-1209
103	Amitesh Kumar Singh	AC-1210
104	ANAM KHAN	AC-1211
105	Ananya Shukla	AC-1212

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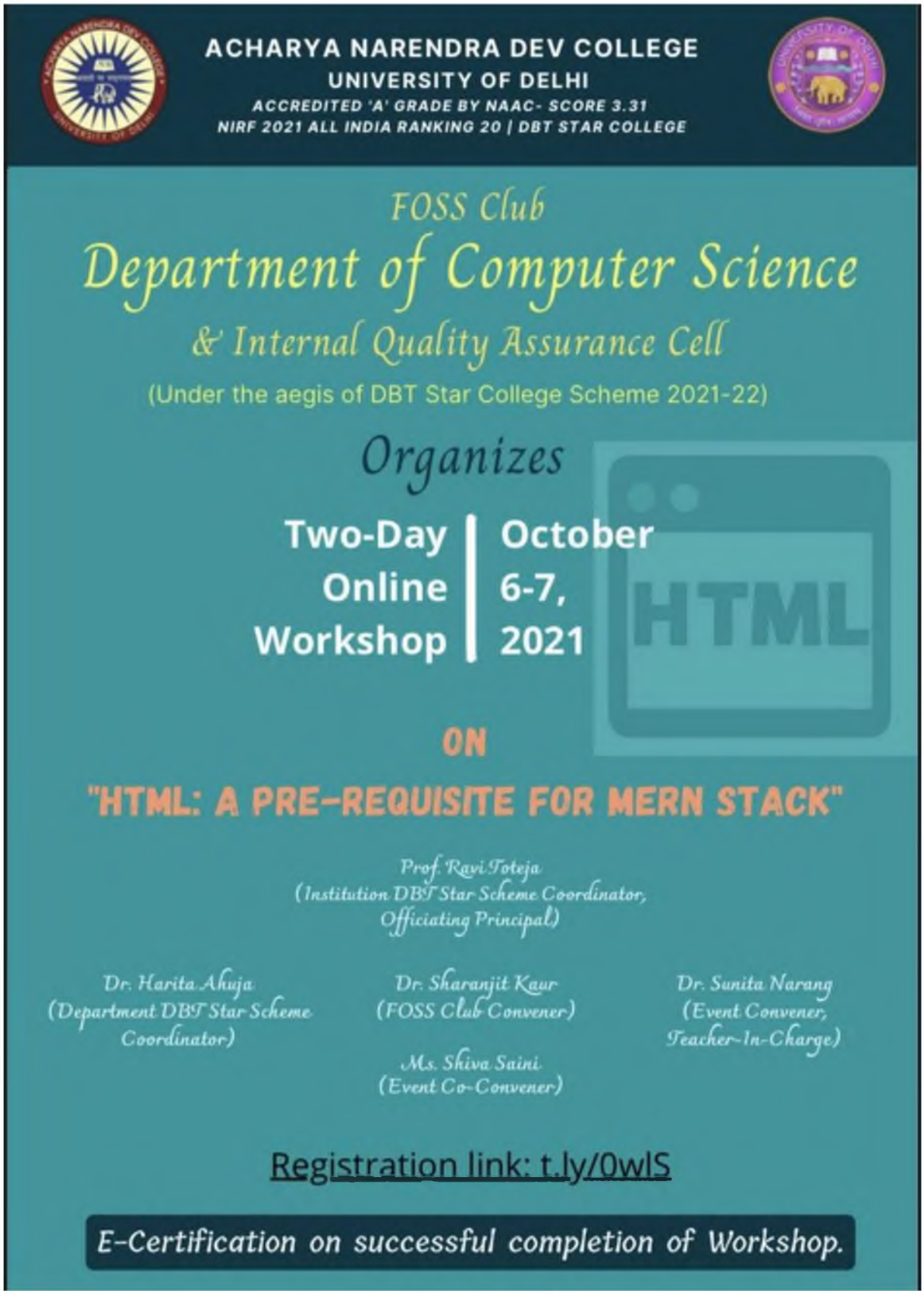
ACHARYA NARENDRA DEV COLLEGE
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NIRF 2021 ALL INDIA RANKING 20 | DBT STAR COLLEGE
FOSS Club
Department of Computer Science
& Internal Quality Assurance Cell
(Under the aegis of DBT Star College Scheme 2021-22)
Organizes
Two-Day Online Workshop
October 6-7, 2021
HTML
ON
"HTML: A PRE-REQUISITE FOR MERN STACK"
Prof. Ravi Toteja
(Institution DBT Star Scheme Coordinator, Officiating Principal)
Dr. Harita Ahuja
(Department DBT Star Scheme Coordinator)
Dr. Sharanjit Kaur
(FOSS Club Convener)
Dr. Sunita Narang
(Event Convener, Teacher-In-Charge)
Ms. Shiva Saini
(Event Co-Convener)
Registration link: t.ly/0wlS
E-Certification on successful completion of Workshop.

Workshop Schedule

SPEAKERS

Name : Rishi Sarbobhoum
Course : B. Sc. (H.) Computer Science
Semester : 5th
Topic : Introduction to HTML, HTML Tags & Elements and Formatting

Oct. 6, 2021
3PM-4PM

Name : Aditya Goyal
Course : B. Sc. Physical Sciences with Computer Science
Semester : 5th
Topic : Forms and related functions

Oct. 6, 2021
4PM-5PM

Name : Devesh Yadav
Course : B. Sc. Physical Sciences with Computer Science
Semester : 5th
Topic : HTML Tables & Lists

Oct. 7, 2021
3PM-4PM

Name : Sushant Sharma
Course : B. Sc. Physical Sciences with Computer Science
Semester : 5th
Topic : CSS Iframes

Oct. 7, 2021
4PM-5PM

MS Teams Link :
http://shorturl.at/ejuIY

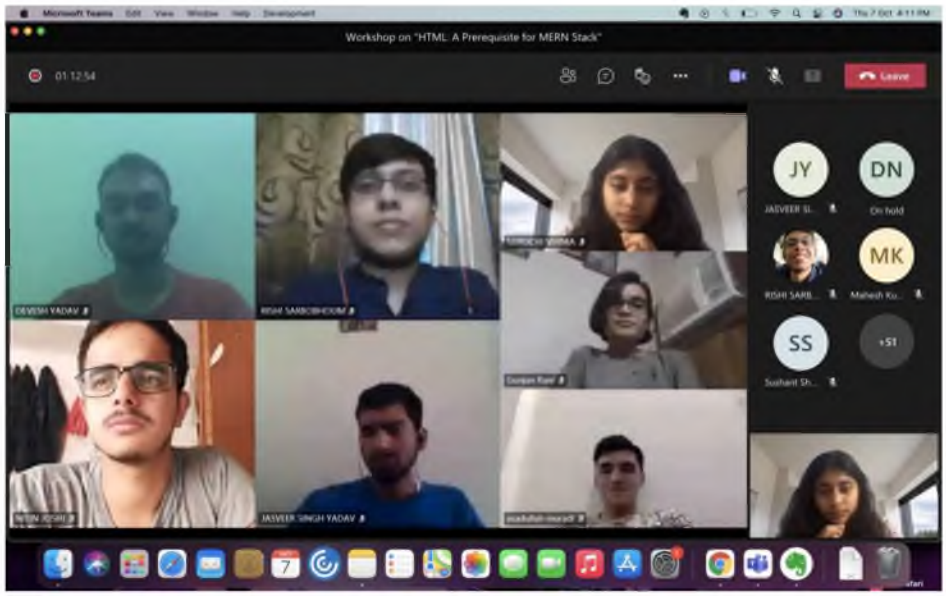
REPORT

FOSS Club, Department of Computer Science in collaboration with Internal Quality Assurance Cell, Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 are organised Two Days online Workshop on the topic of "HTML: A Prerequisite for MERN Stack" by students on October 06, 2021 to October 07, 2021 at 3:00 PM - 05:00 PM on Microsoft Teams. The workshop was convened by Dr. Sunita Narang. It was attended by students of our college. We had Mr. Rishi Sarbobhoum, Mr. Aditya Goel, Mr. Devesh Yadav and Mr. Sushant Sharma as our guest speakers. They are the students of Computer Science Department. In this Workshop, the participants got to know about the importance of Hyper Text Markup Language.

DAY 1: Mr. Rishi Sarbobhoum discussed the introduction of HTML, its tags, elements and formatting functions. After one hour session, Mr. Aditya Goel discussed how users can create forms using HTML. He also discussed forms related attributes and its functions.

DAY 2: Mr. Devesh Yadav concentrated on how users can create Tables and Lists using HTML in Web Application. After one hour session Mr. Sushant Sharma discussed importance of cascading style Sheets and how users can use CSS functions in HTML. He also discussed the Frames, its Types and where it is used.

The Workshop was aimed at enhancing the professional skill set of participants. The Session was very interactive as the participants were given at the end a Quiz test. At the end of the program, participants were awarded with the E-certificates. Session ended with the vote of thanks by Ms. Vandita Grover. The workshop proved to be extremely informative and was a great success with participation of around 100 students from our college.


Workshop on "HTML: A Prerequisite for MERN Stack"
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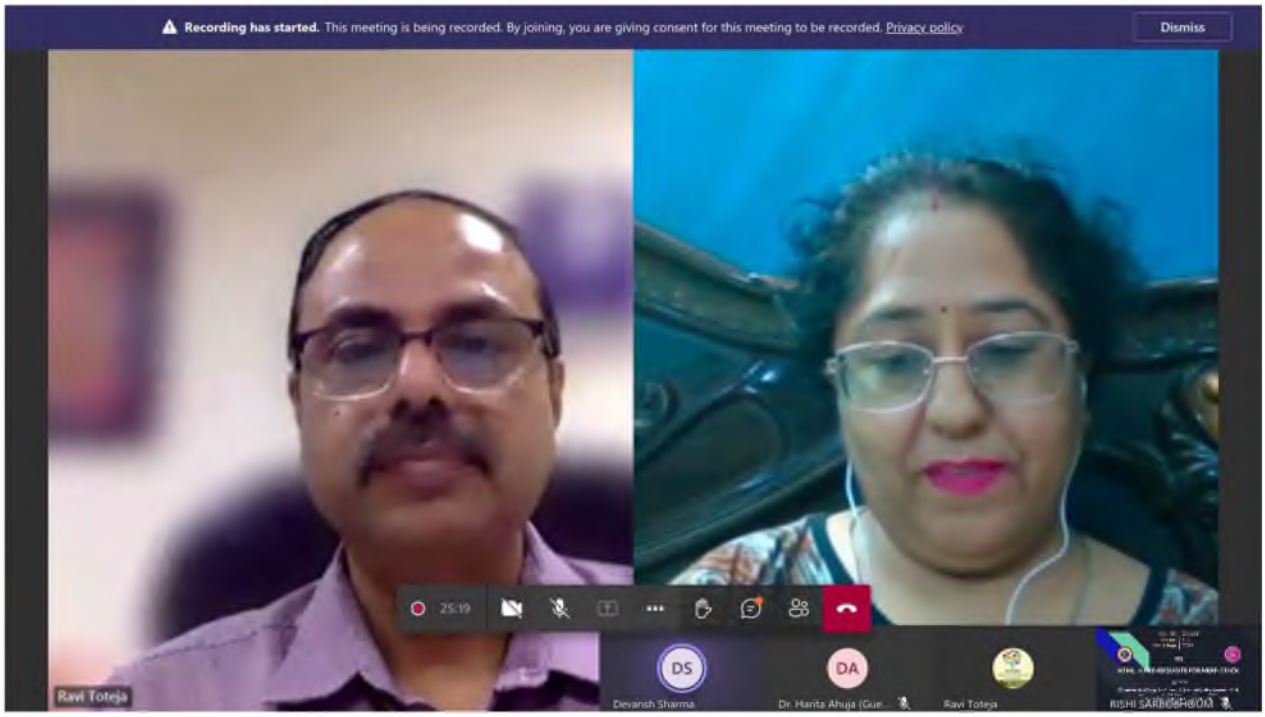
JASVEER SINGH YADAV

Photo 1



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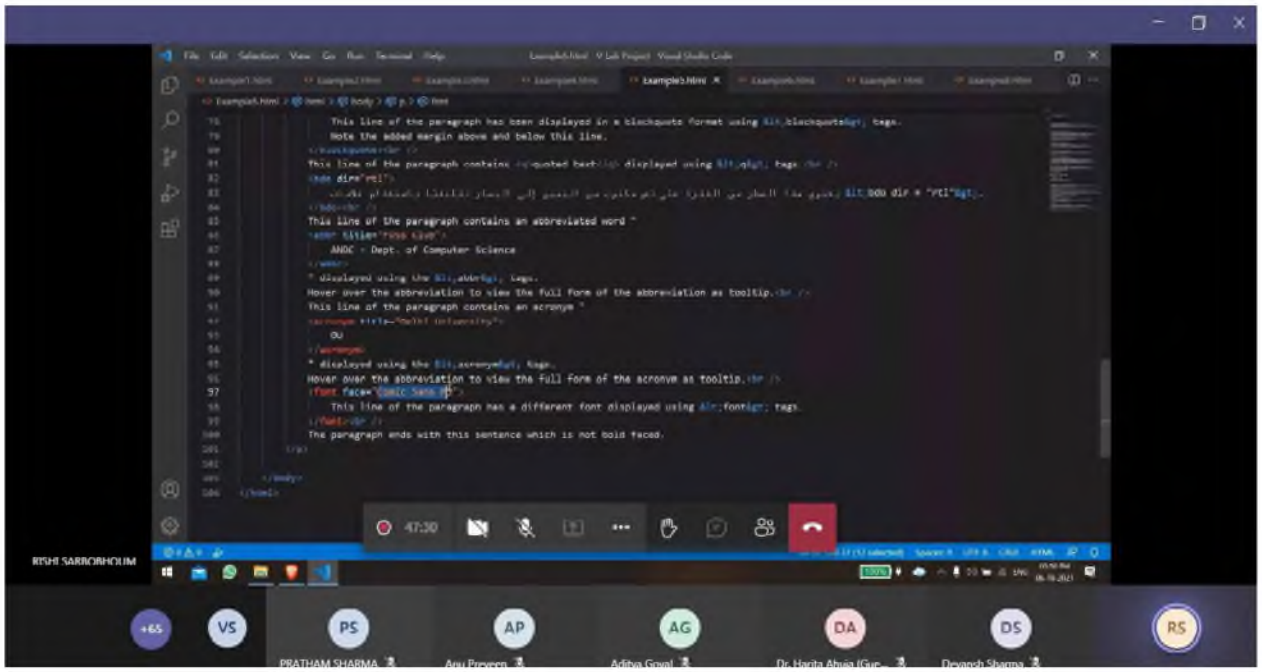

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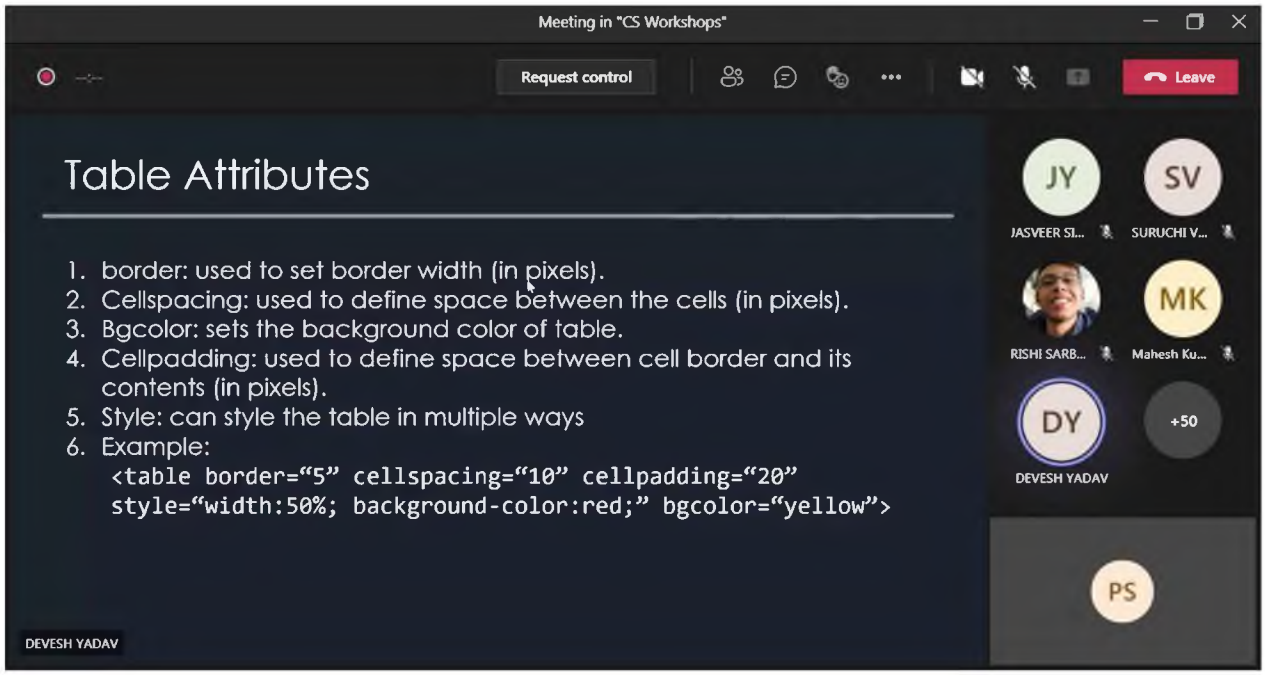

Photo 5

Attendance Prerequisite MERN Stack

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
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17	RAHUL	AC-330
18	RAHUL KUMAR SHARMA	AC-331
19	RITIK	AC-334
20	SOMESH	AC-339
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74	SARVESH SHARMA	AB-1271

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FOSS Club

Department of Computer Science

& Internal Quality Assurance Cell

(Under the aegis of DBT Star College Scheme 2021-22)

Organizes

An Online Workshop from October 9-24, 2021
(on weekends from 10AM to 12PM)

TITLE:

A FIRST STEP TOWARDS DEVELOPING VIRTUAL LAB USING MERN STACK

TRAINER:

MR. PRABHAT CHANDRA
FREELANCE TRAINER/DEVELOPER

Registration Link:http://shorturl.at/rvl34

Prof. Ravi Toteja
(Institution DBT Star Scheme Coordinator, Officiating Principal)

Dr. Harita Ahuja
(Department DBT Star Scheme Coordinator)

Dr. Sunita Narang
(Teacher-In-Charge)

Prof. Vibha Gaur
(Convener)

Ms. Vandita Grover
(Co-Convener)

WORKSHOP SCHEDULE

Day 1 Oct. 9, 2021 10AM - 12PM	Introduction to JavaScript and ES6
Day 2 Oct. 10, 2021 10AM - 12PM	Typescript
Day 3 Oct. 16, 2021 10AM - 12PM	Introduction to NodeJS
Day 4 Oct. 17, 2021 10AM - 12PM	Fundamentals of ReactJS
Day 5 Oct. 23, 2021 10AM - 12PM	ReactJS various features
Day 6 Oct. 24, 2021 10AM - 12PM	Connecting MongoDB with ReactJS apps. and it's deployment

MS Teams Link:
http://shorturl.at/envPY

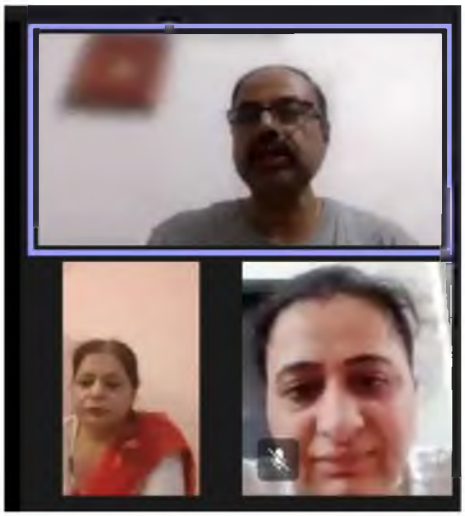
REPORT

Turing Society of Department of Computer Science of the Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 organized a 6 day online workshop titled **"A First Step Towards Developing Virtual Lab Using MERN Stack" from 9th-24th October 2021 (on Weekends).** This workshop was planned to train the students in creating Virtual Labs. Virtual Labs is an initiative by the Ministry of Education in collaboration with the IITs. Acharya Narendra Dev College is now a nodal center for setting up Virtual Labs and is committed to train students and faculty as an outreach activity for Virtual Labs. This workshop was convened by **Prof. Vibha Gaur** along with Co-Convener **Ms. Vandita Grover.** The workshop was attended by the students and faculty members of Acharya Narendra Dev College. Mr. Prabhat Chandra a Freelance Trainer (since 9 years) and also a Software Developer for the past 16 years was the resource person for this workshop.

The session started with the encouraging words of the respected Officiating Principal; Prof Ravi Toteja. Prof Toteja highlighted that Virtual Labs are the need of the hour, especially in the wake of the COVID-19 situation. He also talked about how Virtual Labs will make scientific education accessible to all. Prof Vibha Gaur, event convener welcomed the speaker and the participants for 3 weekends full of learning and hands-on training.

9th October and 10th October, 2021 (Day 1 and Day 2): The first two days of the workshop covered Javascript and Typescript. Javascript syntaxing and typography serve as pre-requisite for Node JS and React JS. Node JS framework is a runtime environment which enables executing JS code outside a browser and helps build back-end for web or mobile apps. While React framework can enable building interactive user-interfaces. Learning these frameworks will enable Virtual Labs developers create interactive virtual practicals (in different fields) which students can experiment with from a browser or an app.

Photo 1



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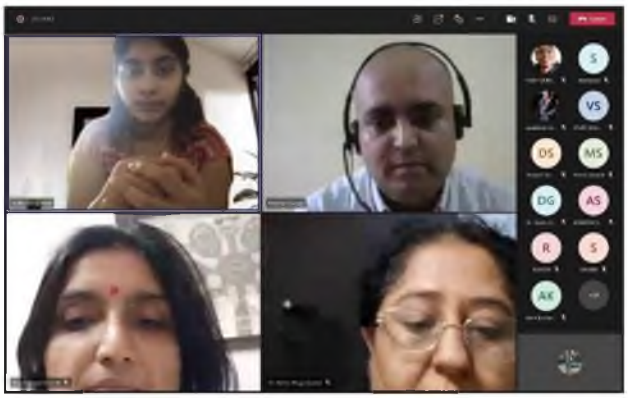


Photo 5

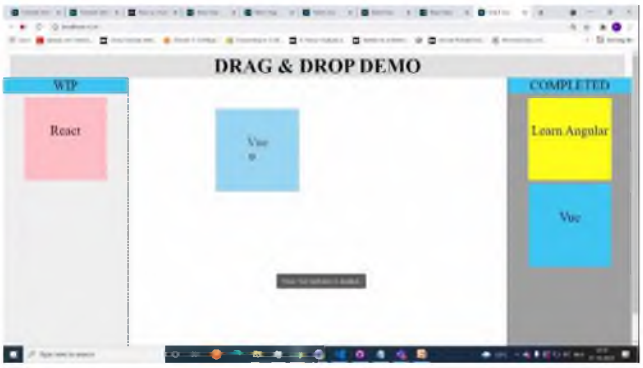
Photo 6

16TH OCTOBER AND 17TH OCTOBER, 2021 (DAY 3 AND DAY 4):

On Day 3, the participants were given a walkthrough of NodeJS. They learnt how to create Javascript files for HTTP requests of string and url type in NodeJS using command line arguments. This was followed by installation of YARN, introduction to NPX and the difference between YARN and NPX. The participants also learnt to create a React demo website was created using NPX and how to run the React app. The resource person also explained the difference between vanilla Javascript, ECMA script and JSX. Then he demonstrated how to use JS variables in React JSX code, variable tinkering and how to obtain the output on node server. The participants were asked to make Tic-Tac-Toe as an assignment.

Day 4 continued with the Tic-Tac-Toe game and learning about react hooks, useState, class components. Then the resource person introduced how to create components, states, props inside a React framework. A brief introduction to reactDOM was given, and how different variables can be used inside JSX's HTML. Participants could now create the Tic-Tac-Toe game project using the official react documentations available online. The resources person fielded many doubts to enable participants understand more about react hooks, hot reloading, and difference between creating react app using NPM vs NPX.

Photo 7



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23RD OCTOBER AND 24TH OCTOBER, 2021 (DAY 5 AND DAY 6):

On Day 5 participants learnt about Drag and Drop demo using React JS and vanilla javascript by involving CSS. A demonstration of bootstrap for the same was also given and how rendering can be done in React. The resource person also showed how the chess game can be created.

Participants demonstrated their assignments on Day 6. Followed by a detailed discussion on viewports, responsiveness, react router dom, devops, devops processes, etc. Speaker also discussed how to manage code so that it is not dependent on a single person, demonstration of react-router-dom, demonstration of react-kanban, and how to hide source code. A brief overview on Trello and JIRA was also given. During the doubt sessions, participants discussed their queries about Rest API, @media queries using JS etc.

Towards the end the officiating Principal and Institute DBT Star Head Prof. Ravi Toteja congratulated the Computer Science Department on organizing this workshop and pinned his hopes that the Acharya Narendra Dev College would be able to create Virtual Labs in future. The workshop concluded with a vote of thanks from the Department DBT Star Coordinator Dr. Harita Ahuja who expressed her gratitude towards the resource person Mr. Chandra and also all the participants who sincerely participated in all the sessions.

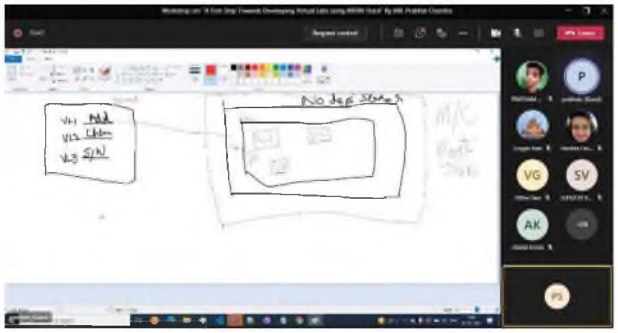

Photo 9

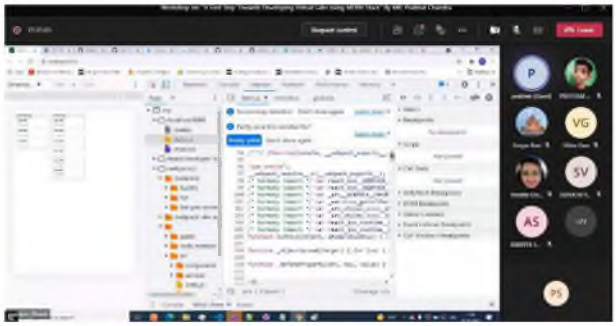

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Attendance MERN Stack

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77	SHIVAM SAINI	AB-1237
78	SHIVANSH TYAGI	AB-1273

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UNIVERSITY OF DELHI

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FOSS Club

Department of Computer Science
& Internal Quality Assurance Cell
(Under the aegis of DBT star college scheme 2021-22)
Organizes
A 5-Day Online
Workshop On

Face Recognition

Using Python
Part I

Dr. Xavier Chelladurai
(Director and Professor, Christ Human Resource Center)

Prof. Ravi Toteja
(Institution DBT Star Scheme Co-ordinator, Officiating Principal)

Dr. Harita Ahuja
(Department DBT Star Scheme Co-ordinator)

Dr. Sunita Narang
(Teacher-In-Charge)

Dr. Sharanjit Kaur
(Event Convener and Convener of FOSS Club)

Ms. Gunjan Rani
(Event Co-Convener and Member of FOSS Club)

26 - 30 October
2:00 - 4:00 PM

Click here to Register: t.ly/Wn6C

Workshop Schedule

2.00 PM to 3.00 (Theory)		3.00 PM to 4.00 PM (Hands-on Lab)
Introduction to Face Recognition, Mathematical Techniques used, Face Recognition Algorithms	**Tuesday 26 Oct 2021**	Download and Installation of Anaconda, Spyder, Face Recognition Python Library. Test if it is working.
Load a Face photo, Size of matrix, Python Image Library (PIL), Display Face using PIL	**Wednesday 27 Oct 2021**	Lab 1: Load a photo and display Lab 2. Load your family Group photo and display
Face Detection and Face Locations.	**Thursday 28 Oct 2021**	Lab 3: In a Group photo, locate the Faces and mark with Rectangle Lab 4: Write a label on the faces detected in a group photo
Face Signature/ Face Encodings	**Friday 29 Oct 2021**	Lab 5: Resemblance of Faces for a sample set of photos
Face Distance Function, Find the Resemblance of Faces	**Saturday 30 Oct 2021**	Lab 6: Daughter and Mother Resemblance detection program

Meeting Link- shorturl.at/empD0

REPORT

FOSS Club, Department of Computer Science in collaboration with Internal Quality Assurance Cell, Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 are organised **Five Days online Faculty Development Program on the topic of "Face Recognition using Python (Part-I)"** on October 26, 2021 to October 30, 2021 at 02:00 PM - 04:00 PM on Microsoft Teams. The workshop was convened by Dr. Sharanjit Kaur along with Co-Convener Ms. Gunjan Rani. It was attended by the faculty and students of various colleges. We had **Dr. Xavier Chelladurai** as our eminent guest speaker. He is Director of the Human Resource Development Centre at Christ University, Bangalore as well as a Professor, Computer Science and Engineering at the same university. In this Faculty Development Program, the participants got to know about that Facial recognition is becoming a reality in the coming days which is used at many places for various applications.

DAY 1: On the day one He explained basic fundamental of face recognition and its algorithms and also discussed about the download, installation of Anaconda and Spyder as well as various libraries used in face recognition. He discussed how can anyone changed a particular image to Numpy array and vice-versa.

DAY 2: The Day two concentrated on how to load an image, locate faces in an image and how to locate multiple faces in an image and count them, and also discussed put rectangle around face, or in an image, put line and text in an image, change filter of image.

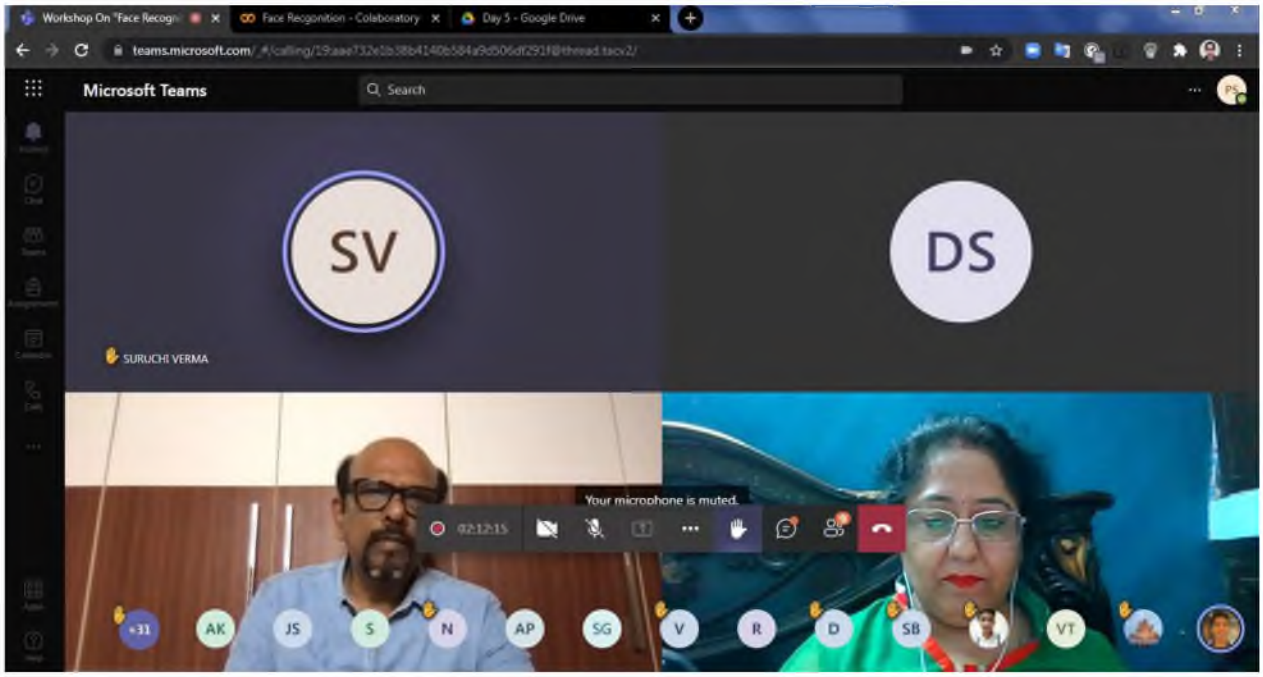
DAY 3: The Day 3 concentrated on Face Detection and Locations as well as in a group photo, detect the face and mark with rectangle. He discussed about PIL (Python Image Library) and continued the drawing of rectangles and writing text over multiple faces in an image.

DAY 4: The Day 4 concentrated on face encodings techniques where we could find the signature of a face. He also discussed about how two faces are compared to find the resemblance.

DAY 5: The Day 5 concentrated on the Face Distance Function which would compare signatures of two faces which will tell us whether the two faces are of the same person or not.

Overall, the FDP was aimed at enhancing the professional skill set of participants. The Session was very interactive as the participants were given at the end an assignment test.

At the end of the program, participants were awarded with the E-certificates. Session ended with the vote of thanks by Department DBT Star Coordinator Dr. Harita Ahuja who expressed her gratitude towards the resource person Dr. Xavier Chelladurai and also all the participants who sincerely participated in all the sessions. The workshop proved to be extremely informative and was a great success with participation of around 80 faculty and students of various colleges.


Microsoft Teams
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SURUCHI VERMA
Your microphone is muted.

Photo 1

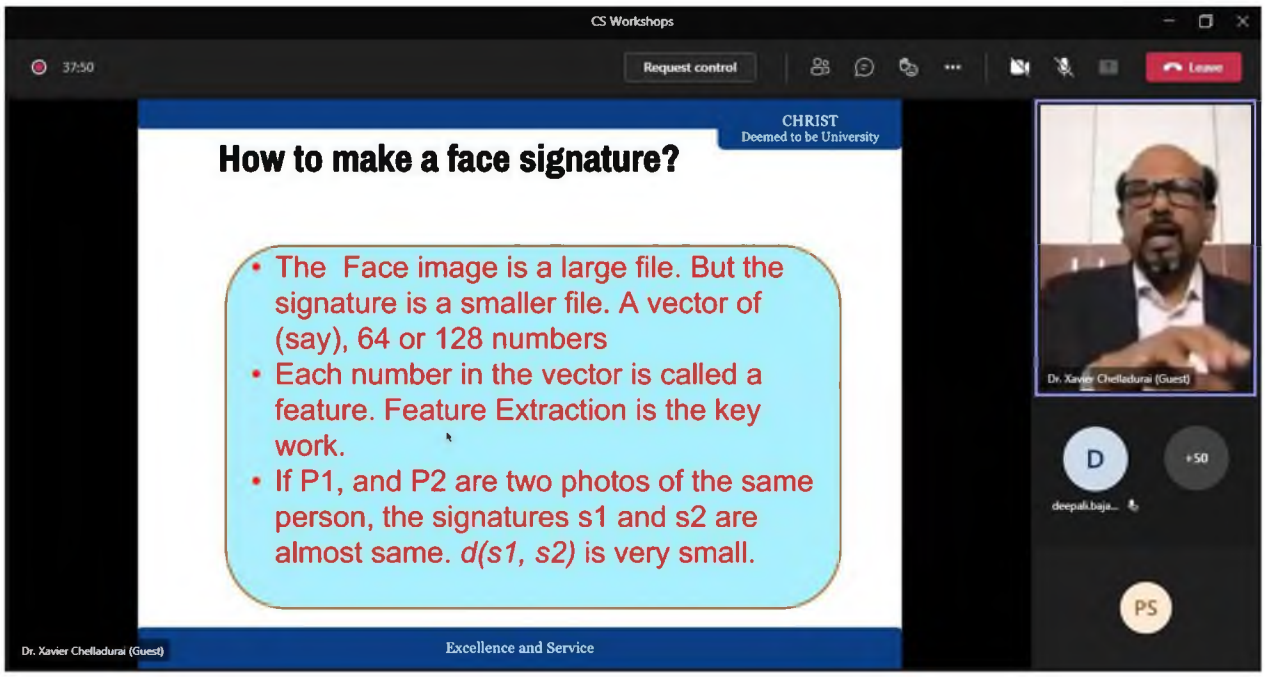
CS Workshops
Request control
Leave
CHRIST
Deemed to be University
How to make a face signature?
• The Face image is a large file. But the signature is a smaller file. A vector of (say), 64 or 128 numbers
• Each number in the vector is called a feature. Feature Extraction is the key work.
• If P1, and P2 are two photos of the same person, the signatures s1 and s2 are almost same. d(s1, s2) is very small.
Dr. Xavier Chelladurai (Guest)
Excellence and Service

Photo 2

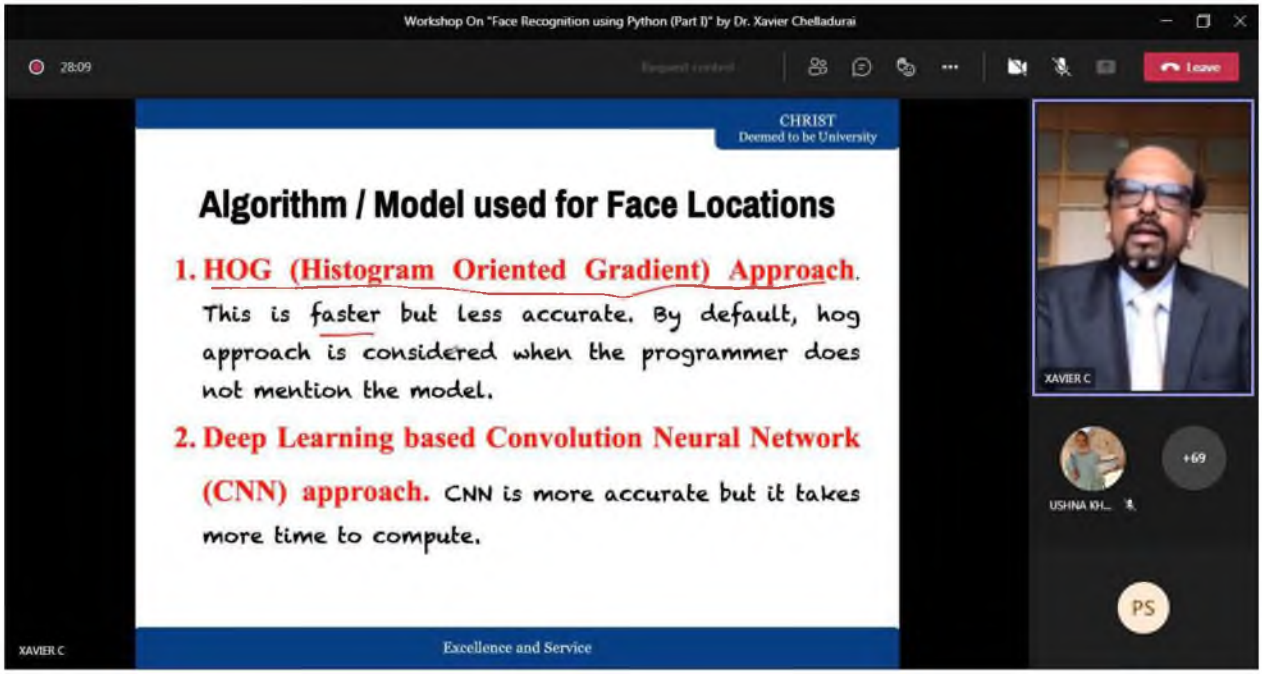

Photo 3

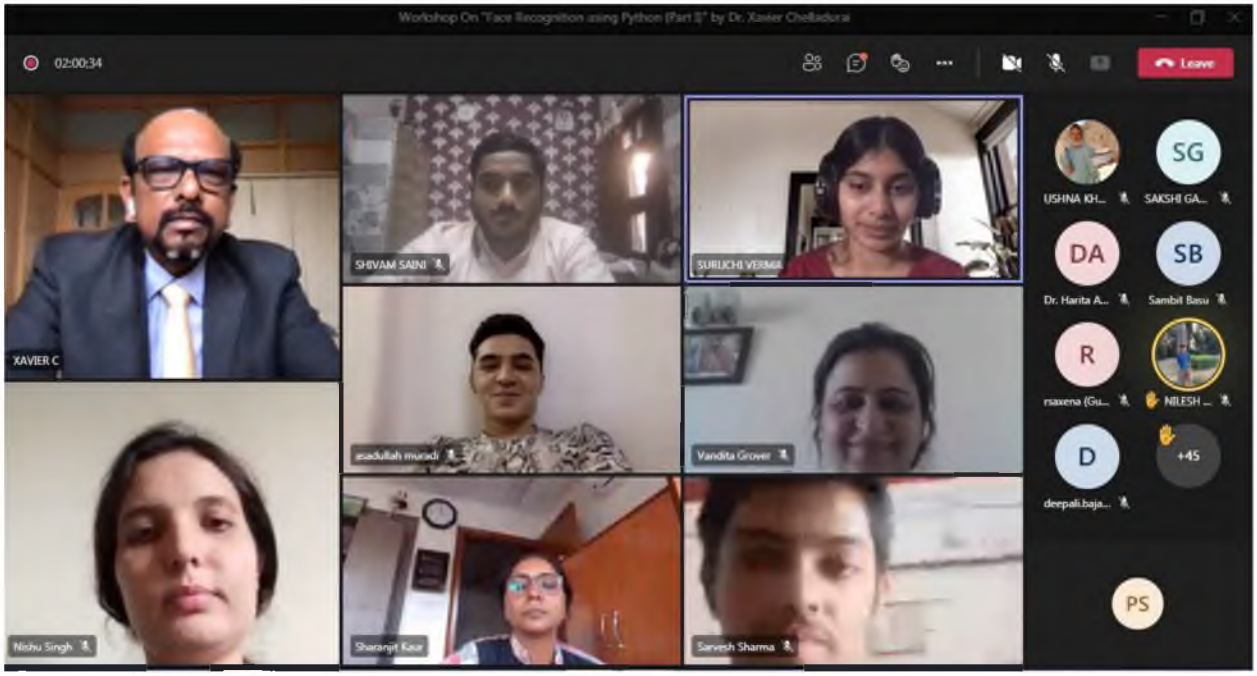

Photo 4

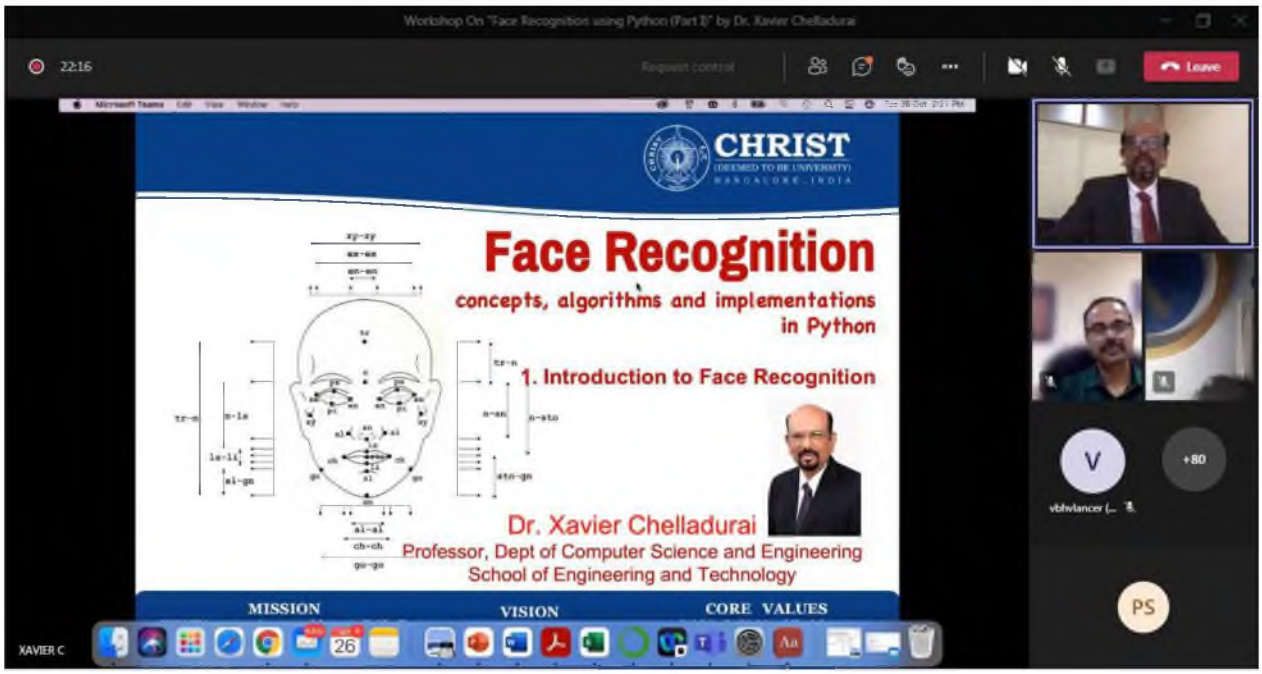
Workshop On "Face Recognition using Python (Part I)" by Dr. Xavier Chelladurai
22:16
Leave
CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE, INDIA
Face Recognition
concepts, algorithms and implementations in Python
1. Introduction to Face Recognition
Dr. Xavier Chelladurai
Professor, Dept of Computer Science and Engineering
School of Engineering and Technology
MISSION
VISION
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Photo 5

Attendance Face Recognition using Python

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
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78	SHIVANSH TYAGI	AB-1273
79	SHREY SINGHAL	AB-1239
80	SHRUTI JAIN	AB-1240
81	SHUBHAM KUMAR DAS	AB-1241
82	SUPRIYA KUMARI	AB-1272
83	SURUCHI VERMA	AB-1243
84	TABASSUM RANA	AB-1254
85	TANU	AB-1244
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88	TUSHAR GAURAV	AB-1253
89	UJJWAL	AB-1257
90	UJJWAL KUMAR	AB-1246
91	USHNA KHAN	AB-1247

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92	UTKARSH AGRAWAL	AB-1248
93	VIDHI ARORA	AB-1249
94	Abhishek Kumar	AC-1201
95	ADITI KUMARI	AC-1202
96	ADITYA AMLESH JHA	AC-1203
97	ADITYA KUMAR	AC-1204
98	ADITYA RAJ SAH	AC-1205
99	AMAN RAJPUT	AC-1206
100	Amartya Sinha	AC-1207
101	AMIT	AC-1208
102	AMIT KUMAR	AC-1209

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Acharya Narendra Dev College
University of Delhi

ACCREDITED 'A' GRADE BY NAAC -- Score 3.31

NIRF 2021 RANKING-20 | DBT STAR COLLEGE

https://www.andcollege.du.ac.in/

FOSS Club

Department of Computer Science

& Internal Quality Assurance Cell

(Under the ageis of DBT Star College Scheme 2021-22)

Organize

A Workshop On

Let's Talk DevOps

11th, 12th, & 13th March 2022

10:00 AM - 12:00 PM

Link to Register!

Mr. Shailesh Thakur

(Sr. DevOps Engineer,

o9 Solutions Inc)

Prof. Ravi Toteja
(Institution DBT Star Scheme Coordinator, Oficiating Principal)

Dr. Harita Ahuja
(Department DBT Star Scheme Coordinator)

Dr. Sharanjit Kaur
(Foss Club Convener)

Dr. Sunita Narang
(Teacher-In-Charge)

Ms. Priyanka Sharma
(Event Convener)

Mr. Mahesh Kumar
(Event Co-Convener)

Workshop Schedule

11th March (Friday)

1. DevOps Overview
2. Linux Fundamentals
3. Virtual Machines
4. Cloud Overview
5. SCM Fundamentals
6. Setting up playing Environment
7. Create your first project
8. Containers Overview
9. Virtual Machines and Containers
10. Introduction to Linux Containers

12th March (Saturday)

1. Demo on Linux Containers
2. Setting up play with Docker
3. Getting used to Docker
4. Create a sample app in any language
5. Host your application in Docker
6. Introduction to Configuration Management
7. Ansible Overview
8. Create a sample play in Ansible

13th March (Sunday)

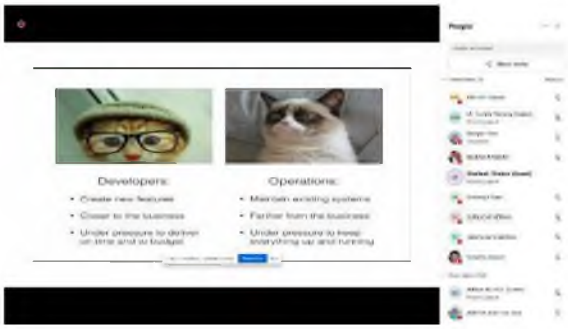
1. CI/CD
2. Jenkins Overview
3. Monitoring Overview
4. Logging Overview
5. Kubernetes Intro
6. Intro to k3s
7. Create Pods and Deployments
8. Introduction to Iaac
9. Wrap up the talk !!!!

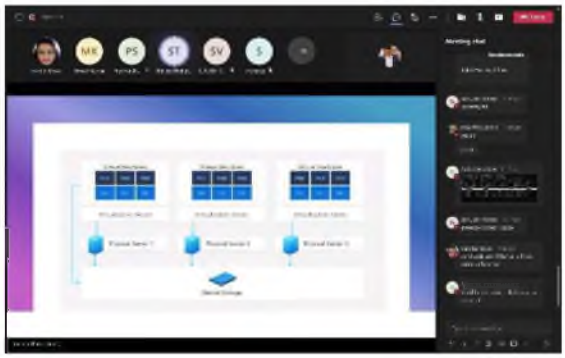
click to register

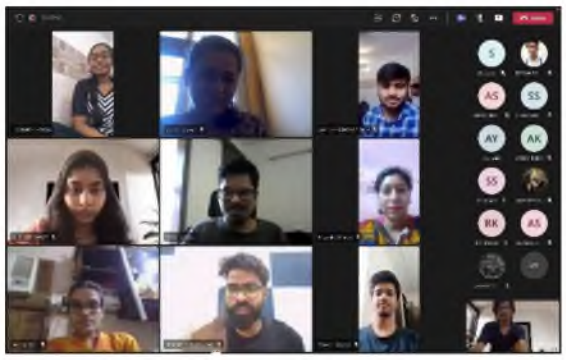
REPORT

FOSS Club of Department of Computer Science with Internal Quality Assurance Cell, Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 organized a 3-day workshop titled "Let's Talk DevOps" from 11th-13th March 2022. This workshop was planned to introduce the students to practices and tools that enable Software Development, IT Operations and Deployment in the Software Industry. This gentle introduction can pave way for students to explore tools and technology used in DevOps environment. With the support of Prof. Ravi Toteja (Officiating Principal and Coordinator DBT Star Scheme), Dr Harita Ahuja (Department DBT Star Coodinator) and Dr Sharanjit Kaur (FOSS Club Convener), this workshop was convened by Ms Priyanka Sharma along with Co-Convener Mr. Mahesh Kumar. The workshop was attended by the students and faculty members of Acharya Narendra Dev College. Mr. Shailesh Thakur, a Senior DevOps Engineer at o9 Solutions Inc. was the resource person for this workshop. The workshop started with the encouraging words and warm welcome by the Teacher-in-Charge; Dr. Sunita Narang and FOSS Club convener Dr. Sharanijt Kaur.

11th March, 2022 (Day 1): The first day was an interactive session which covered a review of various Linux commands, like to find IP address, OS version, set paths and directories, etc. An introduction to Virtual Machines, Clouds and Cloud computing, source control management was covered next. The importance of VMs and Clouds in SCM was highlighted in depth. The speaker then introduced the students to git(hub) and how it can be used SCM. A task to create github accounts and creat git projects was assigned to the participants.

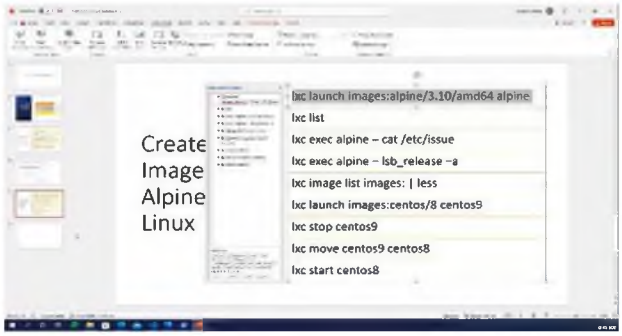


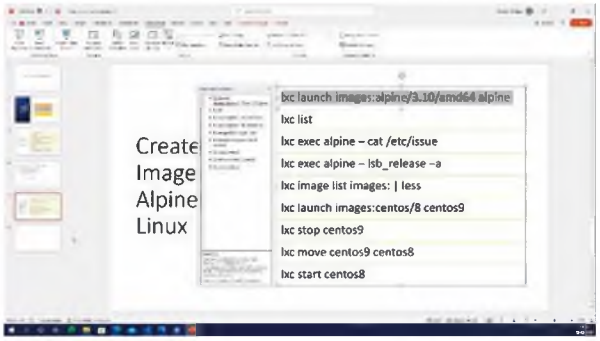




12TH MARCH, 2022 (DAY 2):

Day 2 was a hands-on session where the participants presented their work and discussed issues encountered. The resource person then talked about Containers and Virtual Machines. The session then moved to a discussion on usage of Docker Containers. Live walk-through of creating image on Alpine Linux, installation and set-up of LXD, installation of ngix was conducted by the resource person. Participants also demonstrated the experiments they conducted on the system alongwith the basics of LXD.



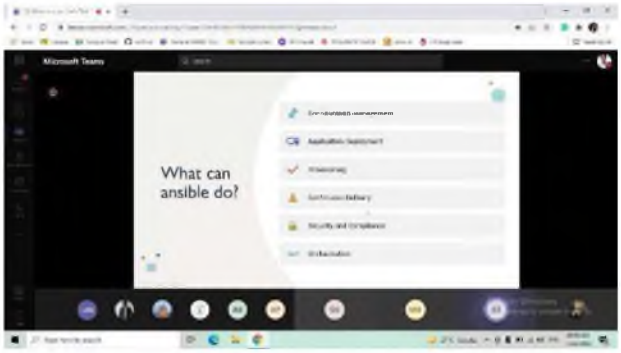


13TH MARCH, 2022 (DAY 3):

Day 3 continued to be a hands-on session with students presenting their experiments and discussing the issues faced. Docker installation and usage was also completed. Demonstrations on how to connect other machines using LXD docker, creating docker repositories were conducted. The speaker delved into Configuration and related Management followed by discussion on Ansible and its advantages. A walkthrough of how to run commands on other machines using Ansible was also

conducted. The session also covered a broad overview of Kubernetes, K3S setup and deployment.

The workshop concluded with a vote of thanks from the event Convener **Ms. Priyanka Sharma** who expressed her gratitude towards the resource person **Mr. Shailesh Thakur** and the entire team for the smooth conduct of the workshop. She also thanked the participants for energetically participating in the workshop and discussing their queries.


What can
ansible do?

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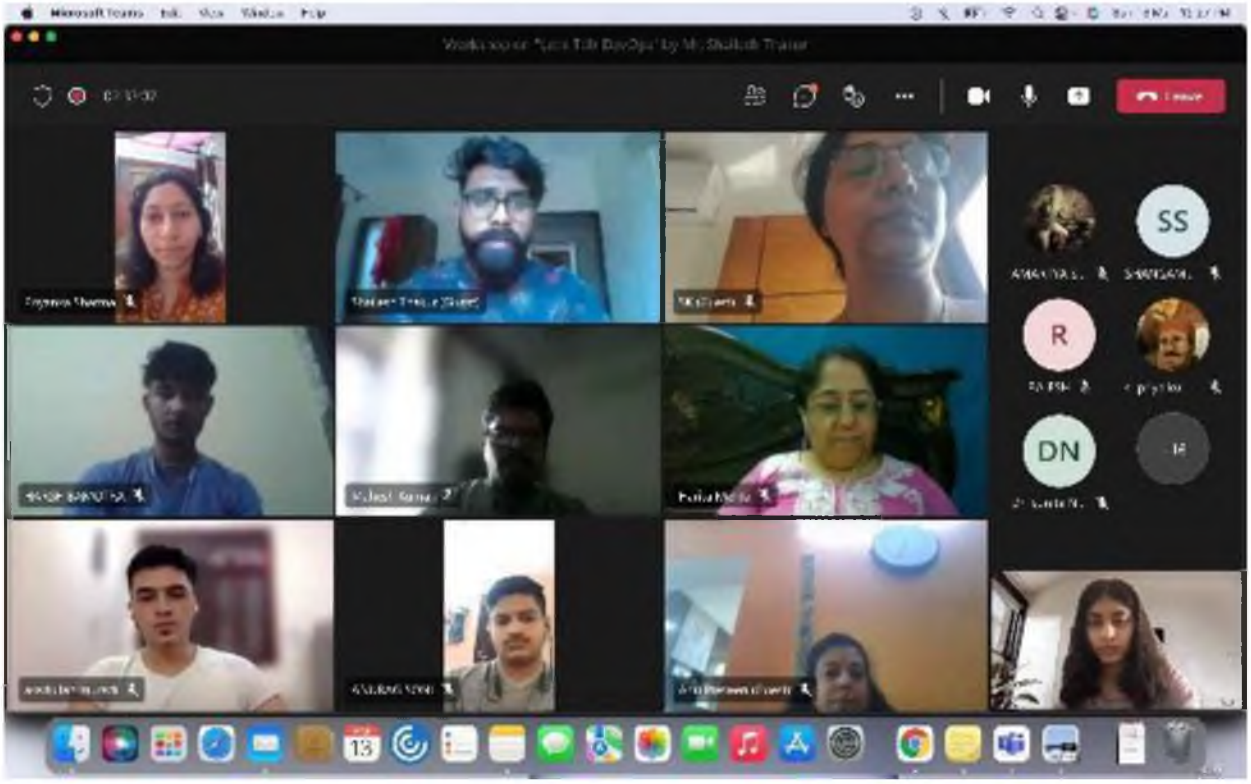
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Attendance "Let's Talk DevOps"		
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77	SHIVAM SAINI	AB-1237
78	SHIVANSH TYAGI	AB-1273

MK Kanheri

REPORT

The Department of computer science in collaboration with Department of Commerce organised a webinar on the topic 'Role of IT in Indian Banking system' on July 14, 2021

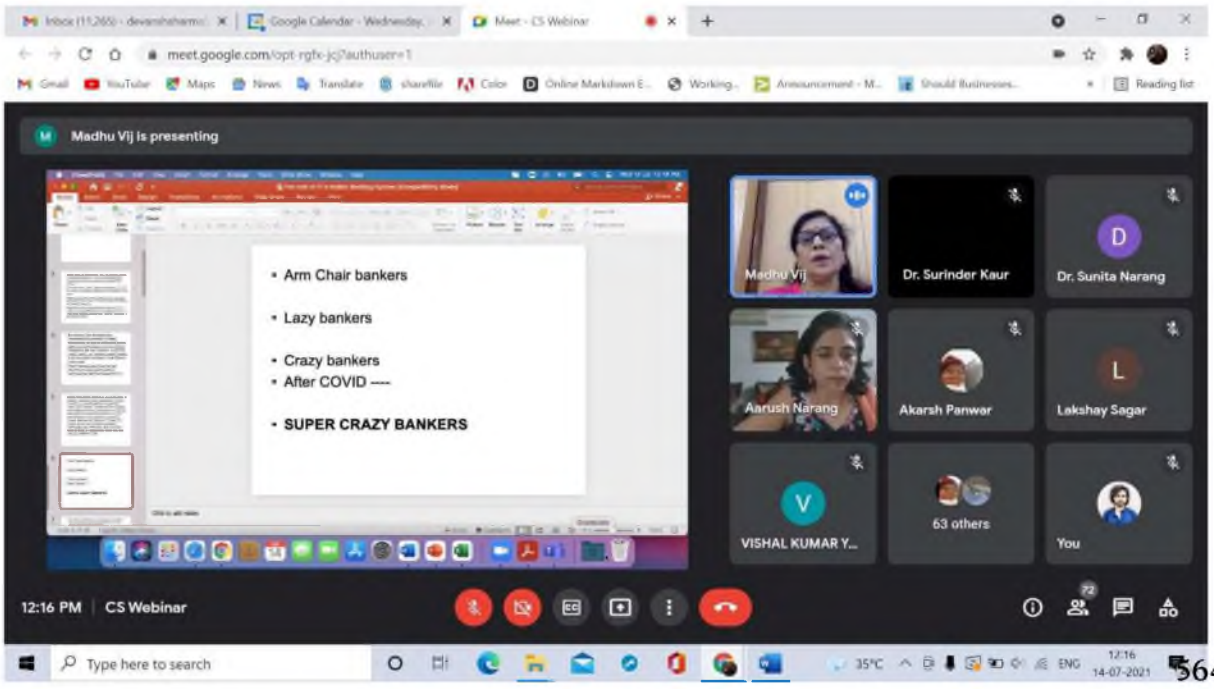
under the DBT star scheme. The speaker was Professor Madhu Vij, Former Professor in Finance, Faculty of

Management Studies, University of Delhi. She is a well known academician with a corporate vision and an expert in the area of International Finance, Risk Management, Banking and Financial Services and Corporate finance and accounting. Currently she is Academic Council Chair and President at Global Risk Managment Institute, Gurugram.

The Webinar was well attended by faculty as well as students. Dr. Sunita Narang welcomed the guest and introduced her to the participants.

Prof. Vij delivered a very informative and enlightening talk on the topic. She talked about the growth of Indian banking sector in depth and described how banks have evolved from Arm chair banking to lazy and then crazy banking and post Covid, it is going to be super crazy banking. Whereas traditional banking ensure close connect between bank and customers, the modern era is about faceless banking. She also talked about the transformation, reinvention and future of Indian Banking. Infact it is important for banks to innovate or else they will perish keeping in mind the dynamic environment. The growing NPAs are posing a biggest challenge for the Indian Banking system. She suggested that future of Indian Banking is about artificial Intelligence, Big data analytics and cyber security for solving problems pertaining to banks. She tried her best to answer all the queries asked by the inquisitive students.

Prof. Ravi toteja thanked Prof Madhu vij and both computer Science as well as Commerce Department for organising the webinar. Finally, Dr. Shalu Mahajan delivered the Vote of Thanks.



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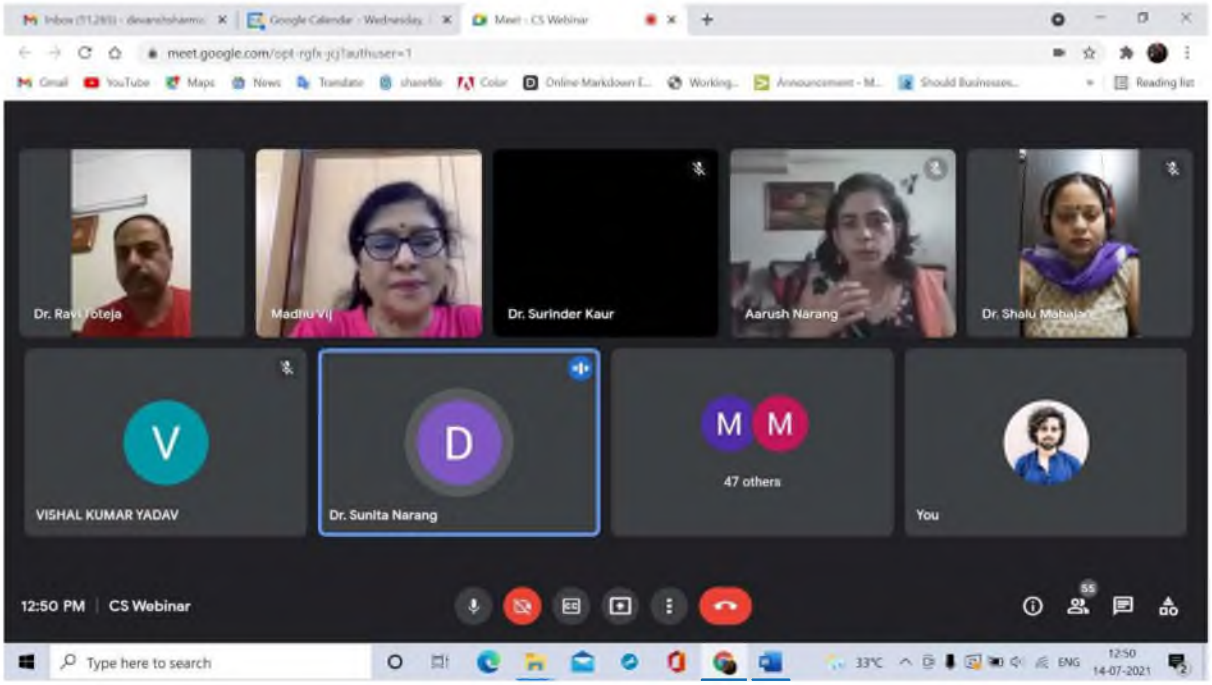

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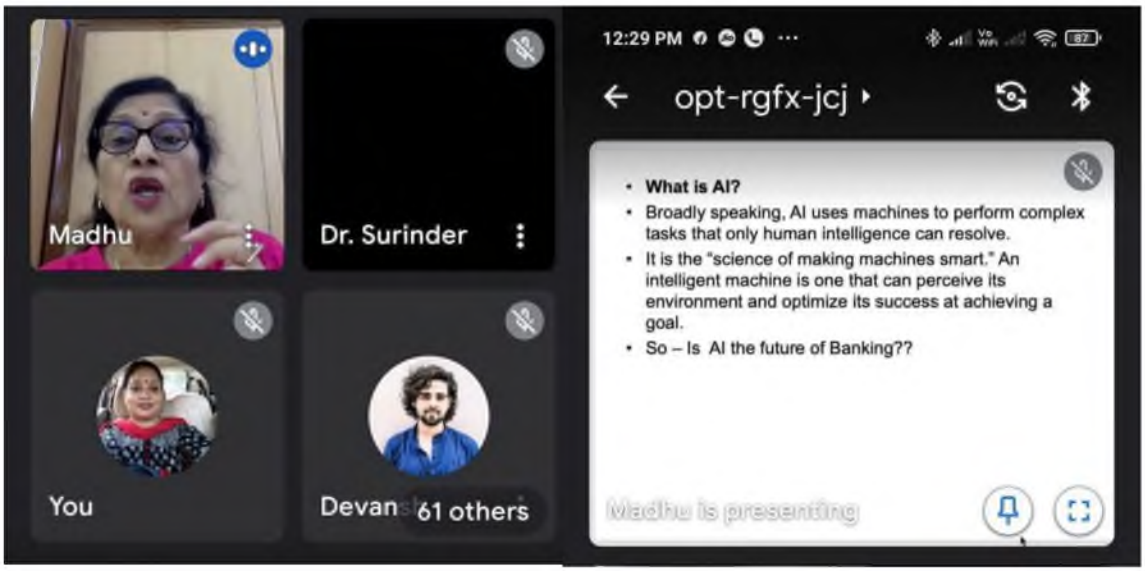

Photo 3

Attendance Role of IT in Indian Banking System

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
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63	NITESH KUMAR	AB-1225
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72	SAMBIT BASU	AB-1264
73	SANT KUMAR	AB-1234
74	SARVESH SHARMA	AB-1271
75	SHILPI VERMA	AB-1235
76	SHIVAM ORAON	AB-1236
77	SHIVAM SAINI	AB-1237
78	SHIVANSH TYAGI	AB-1273

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI

ACCREDITED 'A' GRADE BY NAAC- Score 3.31
NIRF 2021 Ranking-20 | DBT Star College
https://www.andcollege.du.ac.in/ +91-(0)11-26294540

TURING SOCIETY

DEPARTMENT OF COMPUTER SCIENCE
& INTERNAL QUALITY ASSURANCE CELL
(UNDER THE AEGIS OF DBT STAR COLLEGE SCHEME 2021-22)

ORGANIZES

An Online Talk On

Explainable AI

Mr. Pranjal Mishra
Lead Data Scientist
CIMB Bank

Prof. Ravi Toteja
(Institution DBT Star Scheme Coordinator, Officiating Principal)

Dr. Harita Ahuja
(Department DBT Star Scheme Coordinator)

Dr. Preeti Marwaha
(Turing Society Convener)

Dr. Sunita Narang
(Teacher-In-Charge)

Ms. Vandita Grover
(Event Convener)

04 OCTOBER 2021 | 4PM TO 5PM

MS Teams Link- http://shorturl.at/cBH16

REPORT

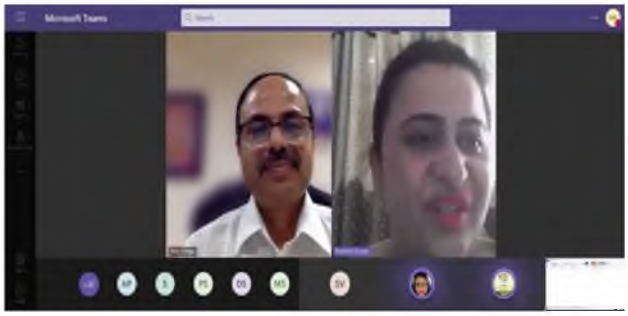
Turing Society of Department of Computer Science of the Acharya Narendra Dev College under the aegis of DBT Star College Scheme 2021-22 organized an online technical talk on the topic **"Explainable AI" on 4th October 2021**. The Talk was convened by **Ms. Vandita Grover** along with Co-Convener **Ms. Priyanka Sharma**. It was attended by the students of the Computer Science Department. We had **Mr. Pranjal Mishra** as our eminent guest speaker. He is working as a Lead Data Scientist at CIMB Bank, a leading global bank. Mr. Mishra is also a Data Science Trainer since 2019.

The session started with the encouraging words of the respected Officiating Principal; Prof Ravi Toteja followed by a welcome note by the convener.

The session started with a discussion on what is AI and how various sub-fields like Machine Learning, Neural Networks, Deep Networks etc. use different features and determine mathematical combinations to enable computers (machines) to make intelligent decisions. The speaker highlighted the present challenges in AI - performance and interpretability. And stressed on the need to make AI more explainable in order to justify why a decision was made. For instance, which feature had the most impact, the order of importance of different features while predicting the results.

As machines are trained on various examples, some inherent bias may get introduced based on the kind of examples it is trained on, thus explain-ability is crucial to ensure transparency, build trust for the design of interpretable AI. The students were also introduced to to Root-Cause analysis, What-if tools and LIME for better understanding of interpretable AI.

Towards the end, Dr. Harita Ahuja, the Department DBT-Star Scheme coordinator delivered a vote of thanks to Speaker and concluded the session. The participants were interactive and the talk was successful in piquing interest in the field of Explainable AI.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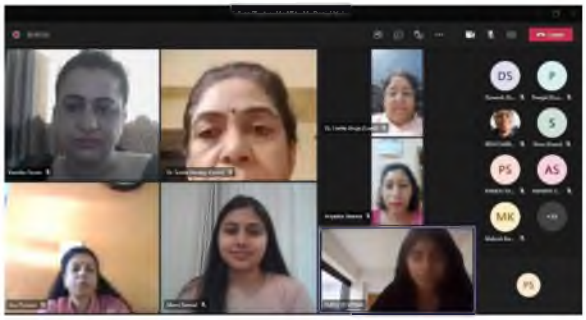
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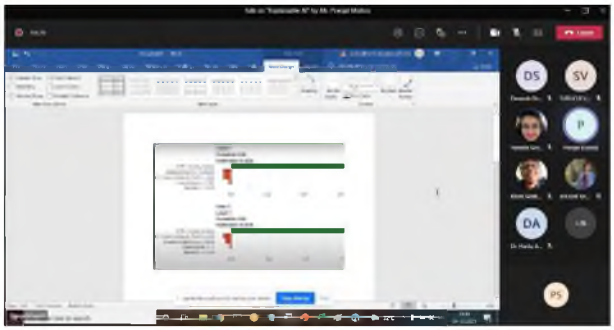

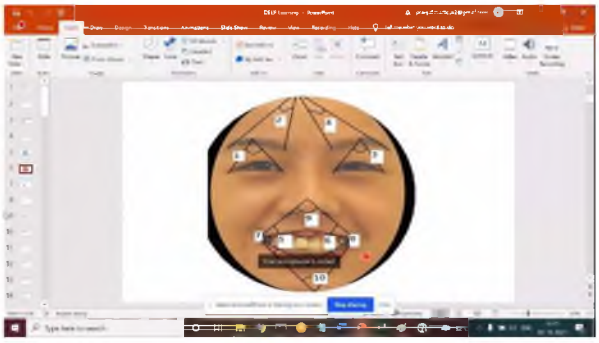

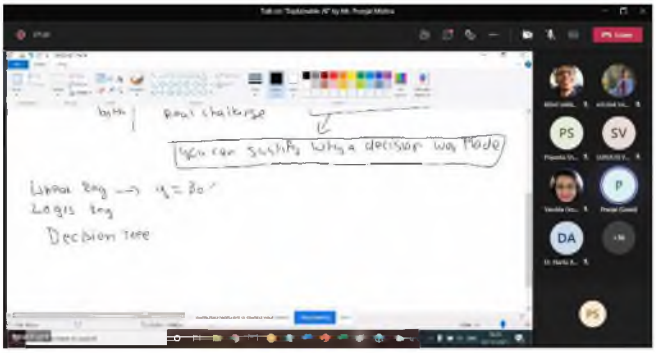

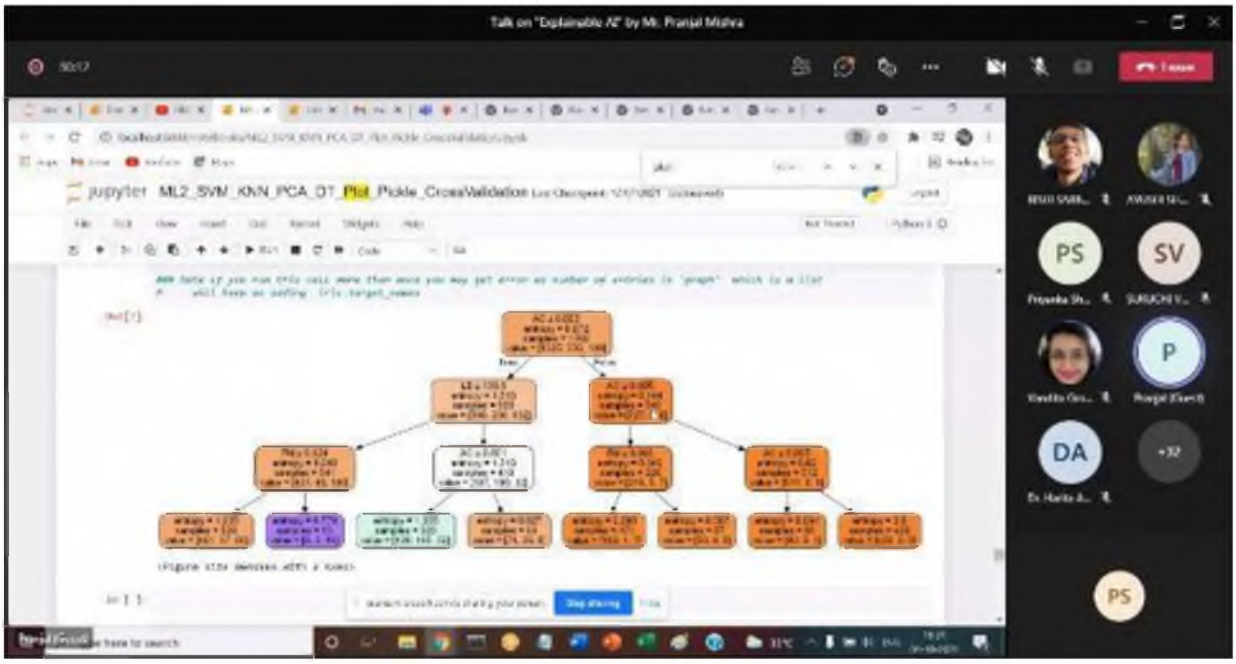
Talk on "Explainable AI" by Mr. Pranjal Mishra
jupyter ML2_SVM_KNN_PCA_DT_Plot_Pickle_CrossValidation
PS
SV
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DA
PS

Attendance Explainable AI

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
5	DIPANKAR DEBNATH	AC-311
6	HARSHWARDHAN AGARWAL	AC-312
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15	PRIYANSHU SENGUPTA	AC-328
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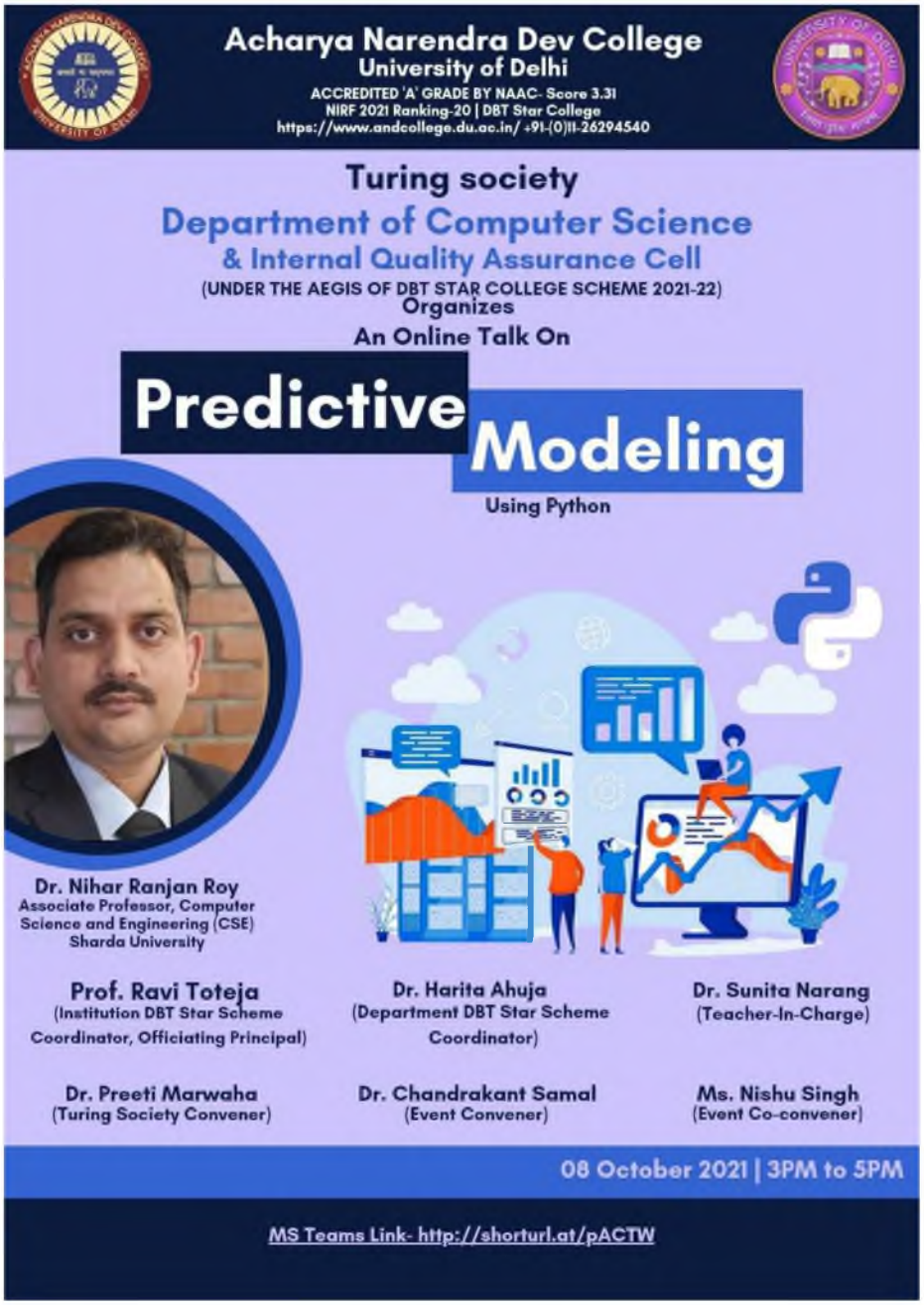


REPORT

Turing society of Department of Computer Science in collaboration with Internal Quality Assurance cell under the aegis of DBT Star College Scheme 2021-22 of the Acharya Narendra Dev College organized an on-line technical talk on the topic of "Predictive Modelling using Python" on 8th October 2021 at 3:00 PM - 5:00 PM on Microsoft Teams. The Talk was convened by Dr. ChandraKanta Samal. It was

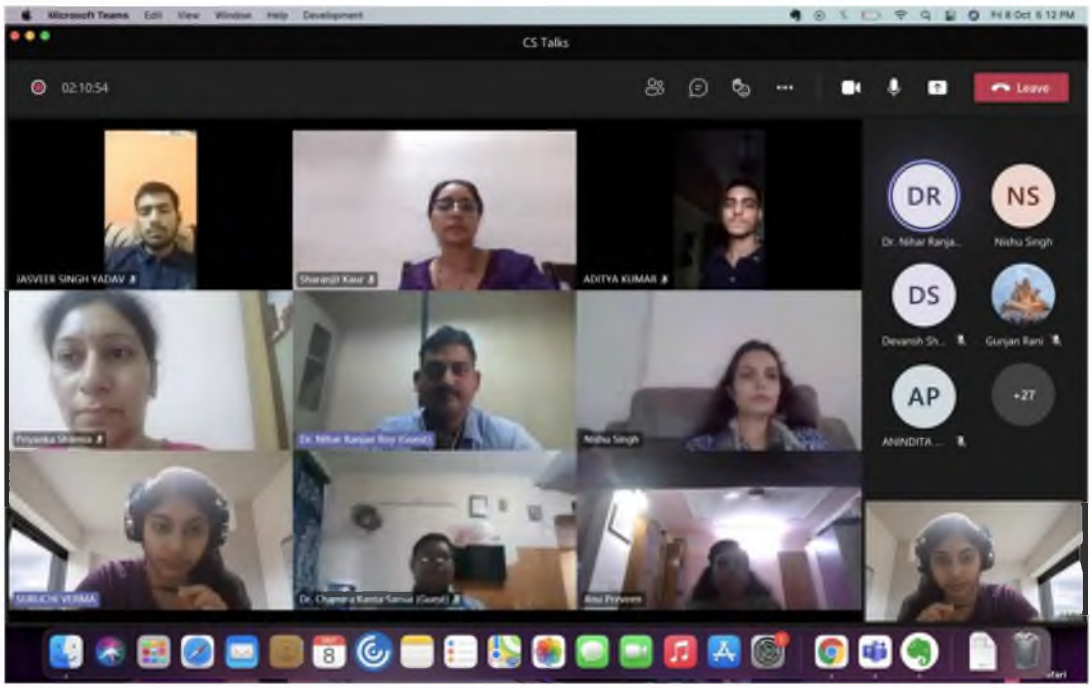
attended by the students and faculty. We had Dr. Nihar Ranjan Roy as our eminent guest speaker. He is working as an

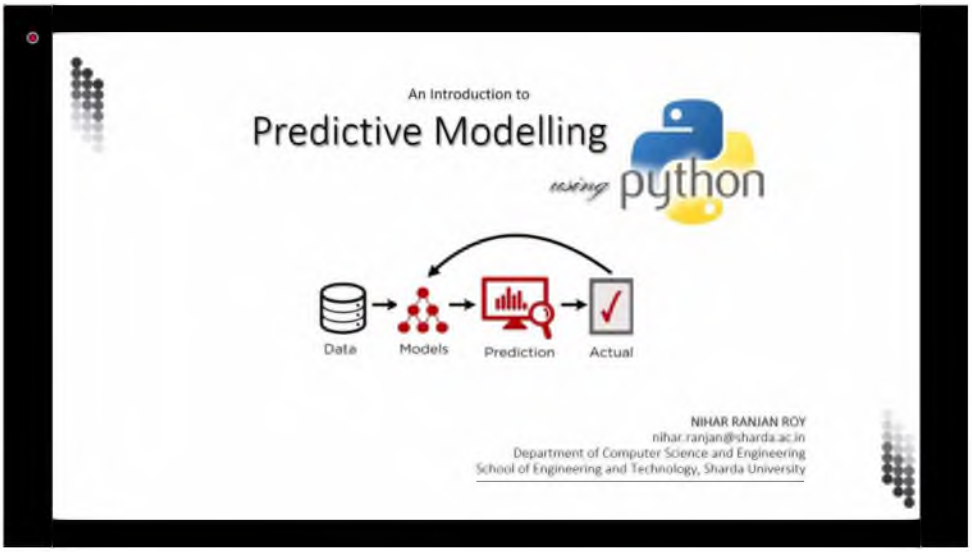
Associate Professor in Department of Computer Science & Engineering, Sharda University, Greater Noida, UP.

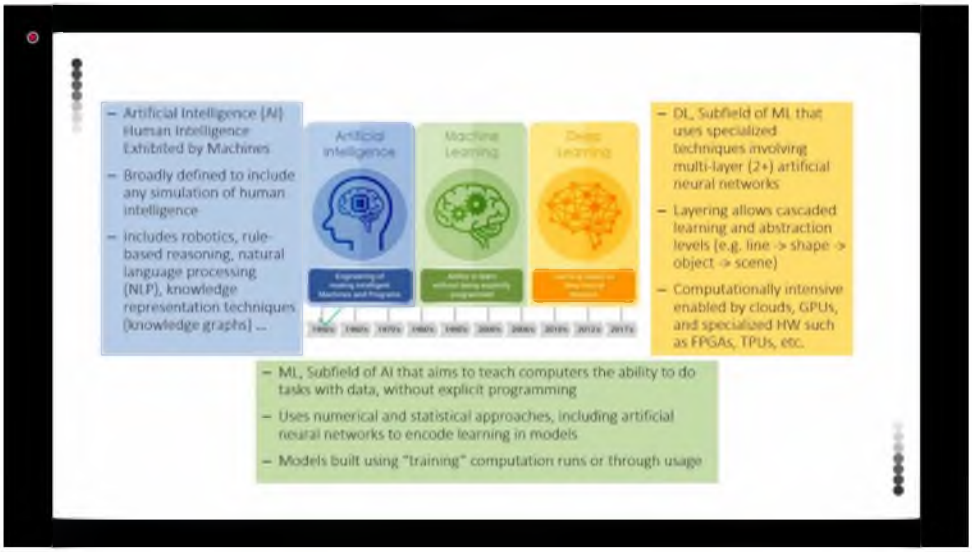
He had started the session with a talk on **Predictive Modelling, an application of Data Science.** It is a mathematical process that seeks to predict future events or outcomes by analyzing patterns that are likely to forecast future results. This is also known as predictive analytics. Data analysts do modelling with statistics and other historical data. It tries to help you understand why the models gave different weighted scores.

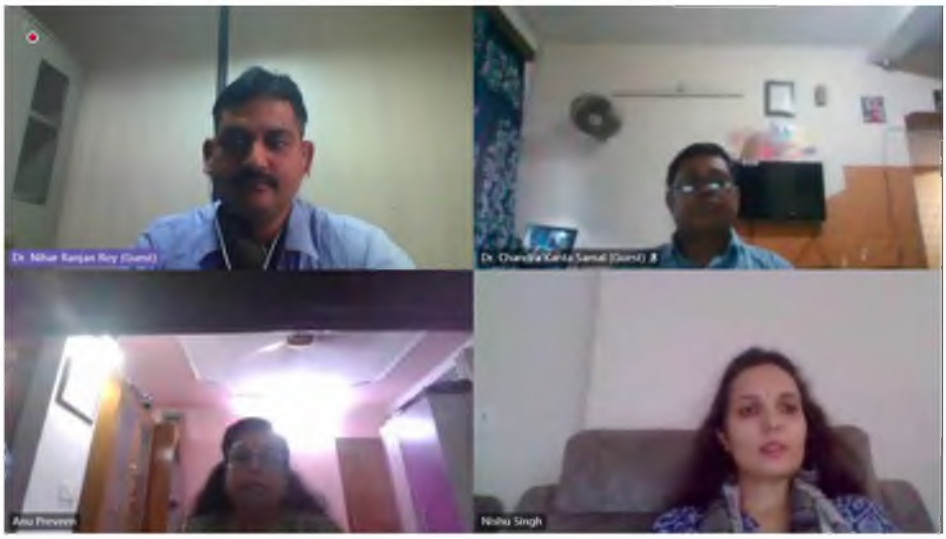
He discussed why we should use Python Language as well as clears the confusion between Artificial Intelligence, Machine Language and Deep Learning. He also discussed the various types of Machine Learning algorithms e.g. supervised, unsupervised and Reinforcement Learning. He discussed the difference between Correlation and Causation. He discussed the Linear Regression and its two types e.g. Simple Linear Regression and Multiple Linear Regression.

At the end, Ms. Anu Preveen delivered a vote of thanks to Speaker and concluded the session. All Participants were interactive and shown keen interest in the topic of the talk. The talk was a great success.




An Introduction to
Predictive Modelling
using python
Data
Models
Prediction
Actual
NIHAR RANJAN ROY
nihar.ranjan@sharda.ac.in
Department of Computer Science and Engineering
School of Engineering and Technology, Sharda University


– Artificial Intelligence (AI) Human Intelligence Exhibited by Machines
– Broadly defined to include any simulation of human intelligence
– Includes robotics, rule-based reasoning, natural language processing (NLP), knowledge representation techniques (knowledge graphs) ...
Artificial Intelligence
Machine Learning
Deep Learning
– DL, Subfield of ML that uses specialized techniques involving multi-layer (2+) artificial neural networks
– Layering allows cascaded learning and abstraction levels (e.g. line -> shape -> object -> scene)
– Computationally intensive enabled by clouds, GPUs, and specialized HW such as FPGAs, TPUs, etc.
– ML, Subfield of AI that aims to teach computers the ability to do tasks with data, without explicit programming
– Uses numerical and statistical approaches, including artificial neural networks to encode learning in models
– Models built using "training" computation runs or through usage


Dr. Nihar Ranjan Roy (Guest)
Dr. Chandra Kanta Samal (Guest)
Anu Preveen
Nishu Singh

Attendance Predictive Modeling using Python

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
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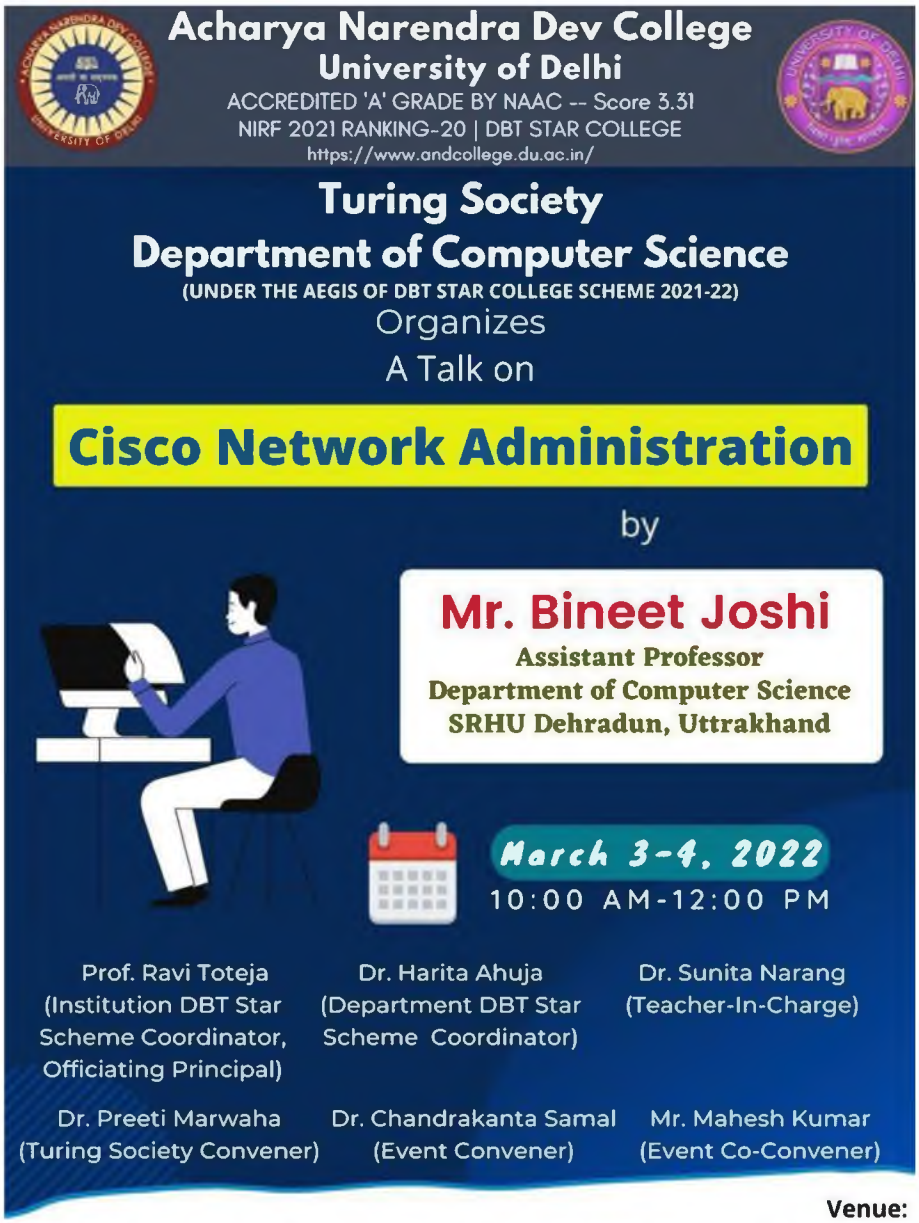

REPORT

Turing society of Department of Computer Science in collaboration with Internal Quality Assurance cell under the aegis of DBT Star College Scheme 2021-22 of the Acharya Narendra Dev College organized a technical talk on the topic of "Cisco Network Administration" on 3rd & 4th March 2022 at 10:00 AM-12:00 PM in Seminar Hall. The Talk was convened by Dr. ChandraKanta Samal. It was attended by the students and faculty. We had Mr. Bineet Kumar Joshi as our eminent guest speaker. He is working as an Assistant Professor in Department of Computer Science, Swami Rama Himalayan University.

Day 1: Mr. Bineet Joshi gave an overview of Cisco Network and Company. He taught students the importance of CCNA and CCNP certification. He then taught various topics related to Computer Networks like types of Networks etc. Important topics like what are Switches, Hubs, and Routers were covered in detail. The basics of Networks were covered on first day.

Day 2: On day 2 Sir presented how networks can be created by online simulation using Cisco Packet Tracer. He created various networks using first only Hubs, then Switches, then Routers. He gave a contrast of how connecting devices like PC and Laptop using Switches differ from Routers or Hubs. Sir, enunciated how various network devices are configured. He also explained the advantages and disadvantages of Hubs, Switches, and Routers. The simulation was highly interactive and by the end we had a doubt session.

At the end, Dr. Chandrakanta Samal delivered a vote of thanks to Speaker and concluded the session. All Participants were interactive and shown keen interest in the topic of the talk. The talk was a great success.

DEBATE COMPETITION

DEBATE CON
Debate Competition

Attendance Cisco Network Administration

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
5	DIPANKAR DEBNATH	AC-311
6	HARSHWARDHAN AGARWAL	AC-312
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17	RAHUL	AC-330
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19	RITIK	AC-334
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21	SURAJ KUMAR	AC-340
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27	RAHUL ARYAN TIWARI	AC-349
28	ROHIT	AC-351
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30	AYUSH SINGH	AC-356
31	AKANCHHA KUMARI	AC-358
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33	ABHILAV CHOUDHARY	AC-301
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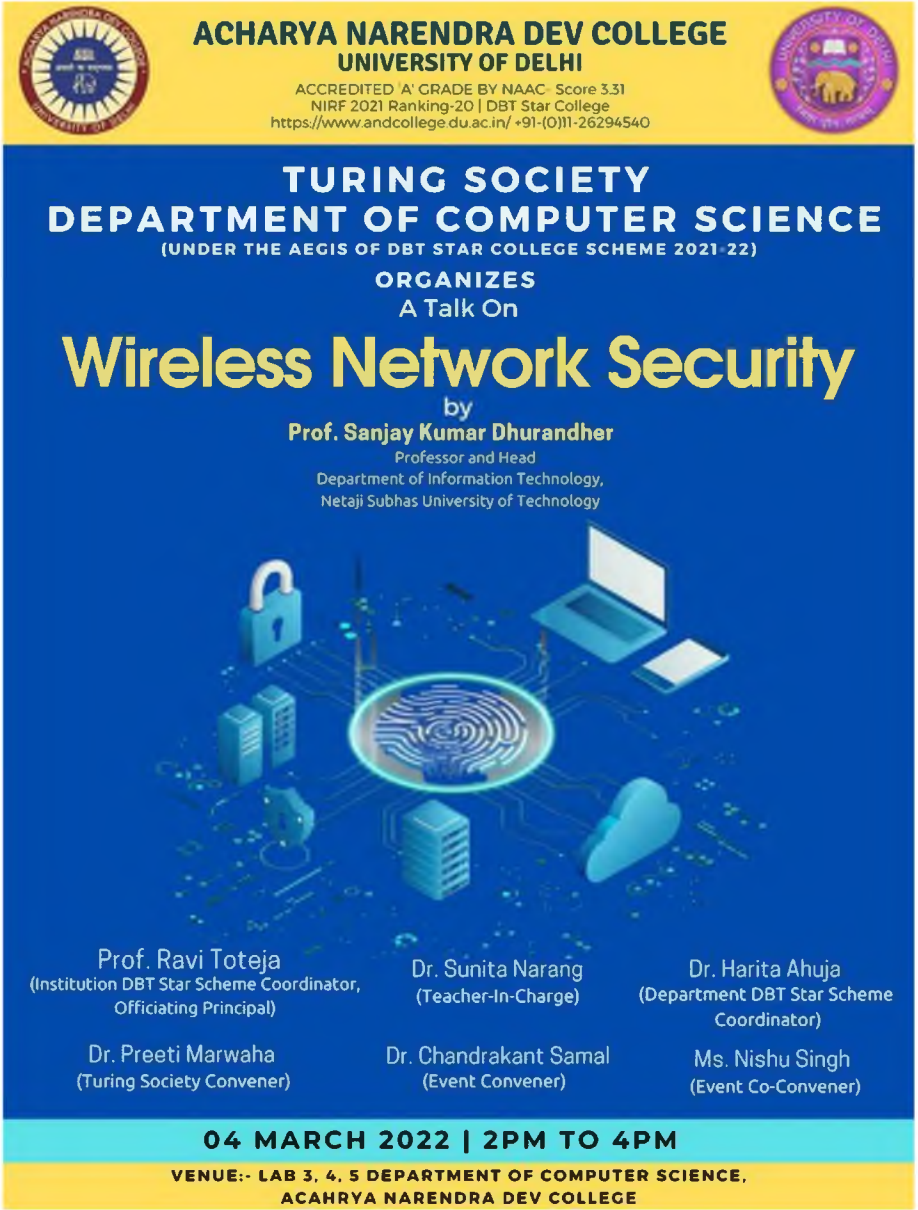

REPORT

Turing society of Department of Computer Science in collaboration with Internal Quality Assurance cell under the aegis of DBT Star College Scheme 2021-22 of the Acharya Narendra Dev College organized a technical talk on the topic of "Wireless Security Network " on 4th March 2022 at 02:00 PM-04:00 PM in Seminar Hall. The Talk was convened by Dr. ChandraKanta Samal. It was attended by the students and faculty. We had Prof. Sanjay Kumar Dhurandher as our eminent guest speaker. He is working as an as Professor and Head in the Division of Information

Technology, Netaji Subhas Institute of Technology (NSIT), University of Delhi, India.

Prof. Sanjya Stated the talk with brief introduction about Opportunistic networks and explained the concept of Opportunistic networks and how they are different from normal ones. He explained various advantages and disadvantages of the same. He also explained about all the areas the Opportunistic Networks are in widely use. He taught about 6 models based on Opportunistic Networks and explained their strengths and weaknesses. He also explained algorithms of all models. He also taught students the various research area for future related to Opportunistic Networks and how students who are interested in this field can proceed in future. In the end he took doubts of students.

At the end, Dr. Chandrakanta Samal delivered a vote of thanks to Speaker and concluded the session. All Participants were interactive and shown keen interest in the topic of the talk. The talk was a great success.

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DEBATE COMPETITION

DEBATE COMPETITION
Inter-College
DEBATE

Attendance Wireless Network Security

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
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46	ANIKET ROY	AB-1260
47	ANINDITA PANDA	AB-1207
48	ANKIT SHARMA	AB-1208
49	ANURAG SONI	AB-1211
50	ANUSHKA JAIN	AB-1212
51	AYUSHI SHARMA	AB-1266
52	BHARAT ADHIKARI	AB-1214
53	DEEPANSHU	AB-1216
54	DESHNA JAIN	AB-1252
55	DEVANSH SHARMA	AB-1258
56	GULSHAN KUMAR	AB-1217
57	HARSH KUMAR	AB-1218
58	HIMANSHU	AB-1219
59	MANISH KUMAR	AB-1262
60	MANSI SANWAL	AB-1269
61	MEGHA KARKI	AB-1223
62	NIAMATULLAH AZIZI	AB-1267
63	NITESH KUMAR	AB-1225
64	PRAJWAL SONI	AB-1265
65	PRIYA SINGH	AB-1226
66	R J SAMRAT	AB-1227
67	RACHIT CHAUDHARY	AB-1228
68	RAHUL BASU	AB-1263
69	RAVINDER KUMAR	AB-1230
70	RISHI SARBOBHOUM	AB-1232
71	ROBIN SINGH	AB-1270
72	SAMBIT BASU	AB-1264
73	SANT KUMAR	AB-1234
74	SARVESH SHARMA	AB-1271
75	SHILPI VERMA	AB-1235
76	SHIVAM ORAON	AB-1236
77	SHIVAM SAINI	AB-1237
78	SHIVANSH TYAGI	AB-1273

REPORT

FOSS Club of Department of Computer Science, Acharya Narendra Dev College organized a one day workshop on Google Classroom for first year students of Acharya Narendra Dev College. The workshop was of 4 hours duration, it started at 1:00 PM and ended at 4:00 PM.

The workshop was organized keeping in mind the need of making new students familiar with the ongoing means of online teaching. The workshop was conducted under FOSS Club convener Dr. Sharanjit Kaur, and Members, Dr. Harita Ahuja and Ms. Gunjan Rani where Dr. Sharanjit Kaur and Ms. Gunjan Rani were the resource persons for the same. The workshop was attended by more than 50 students.

The workshop introduced various functions of the Google Classroom to the students like how can they join a Google Classroom, how can they view and submit any assignment assigned to them by their teacher, how can they post any query, or how they can check the notes posted on the Classroom. The teachers also demonstrated

the students how their attendances and assignments will be tracked throughout the semester. They were also shown how late submission of assignments will be tracked and thus motivated them to be on time on their assignment submissions. In the end students were asked to share their doubts which were further solved by the teachers.

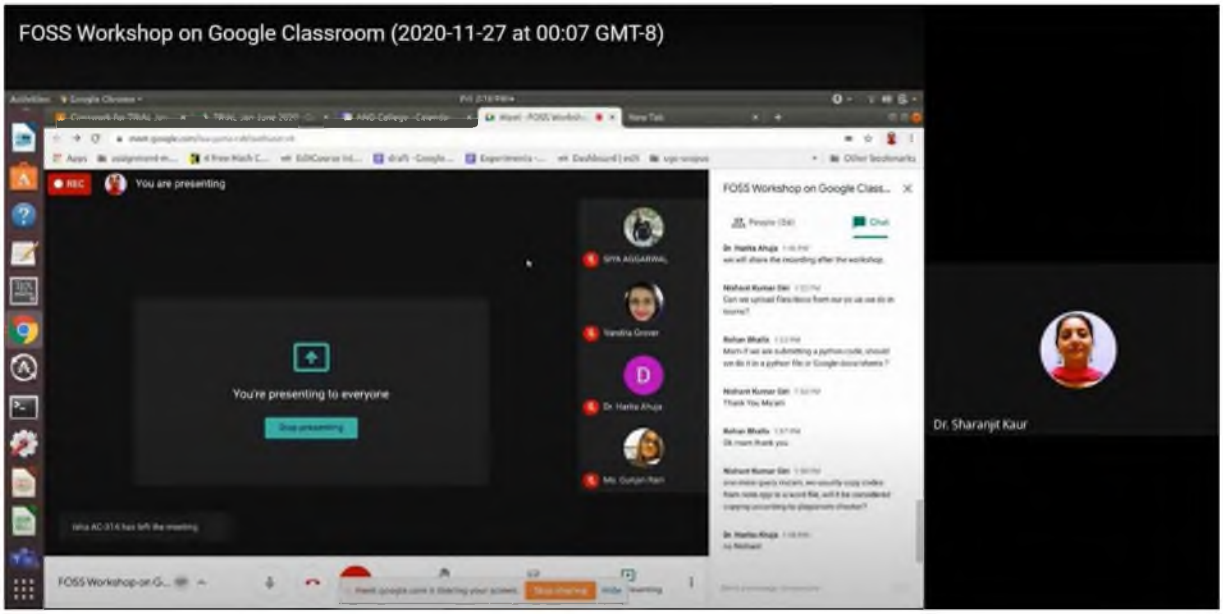

Photo 1

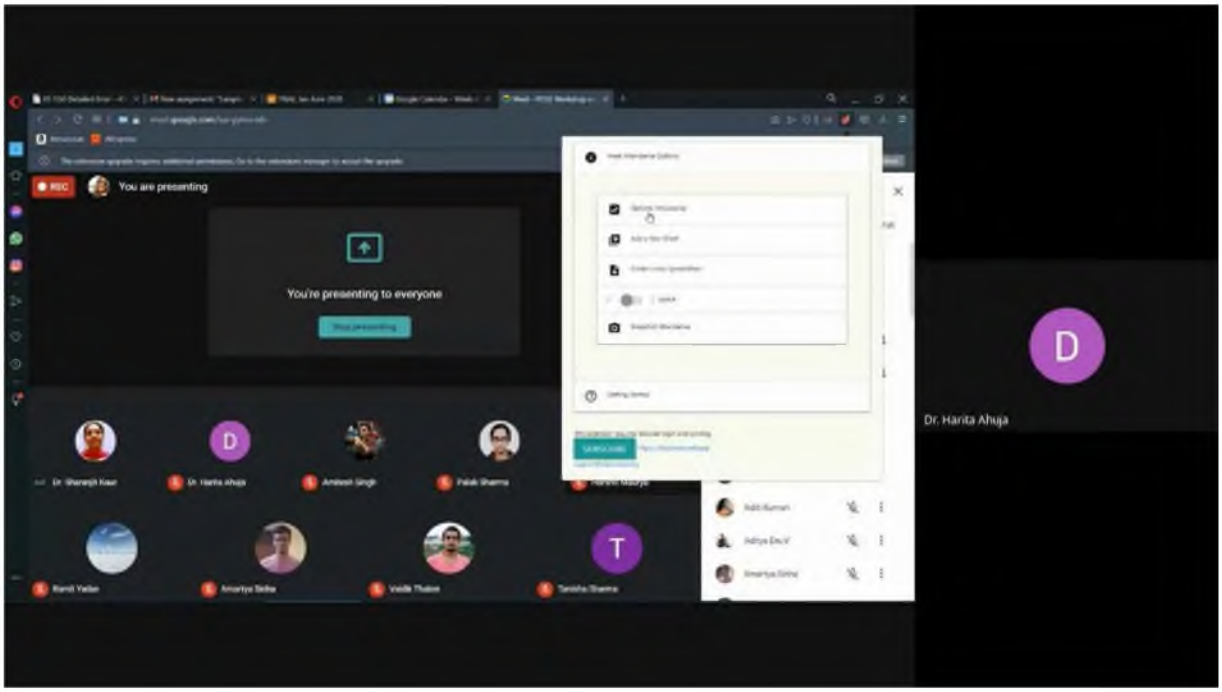

Photo 2

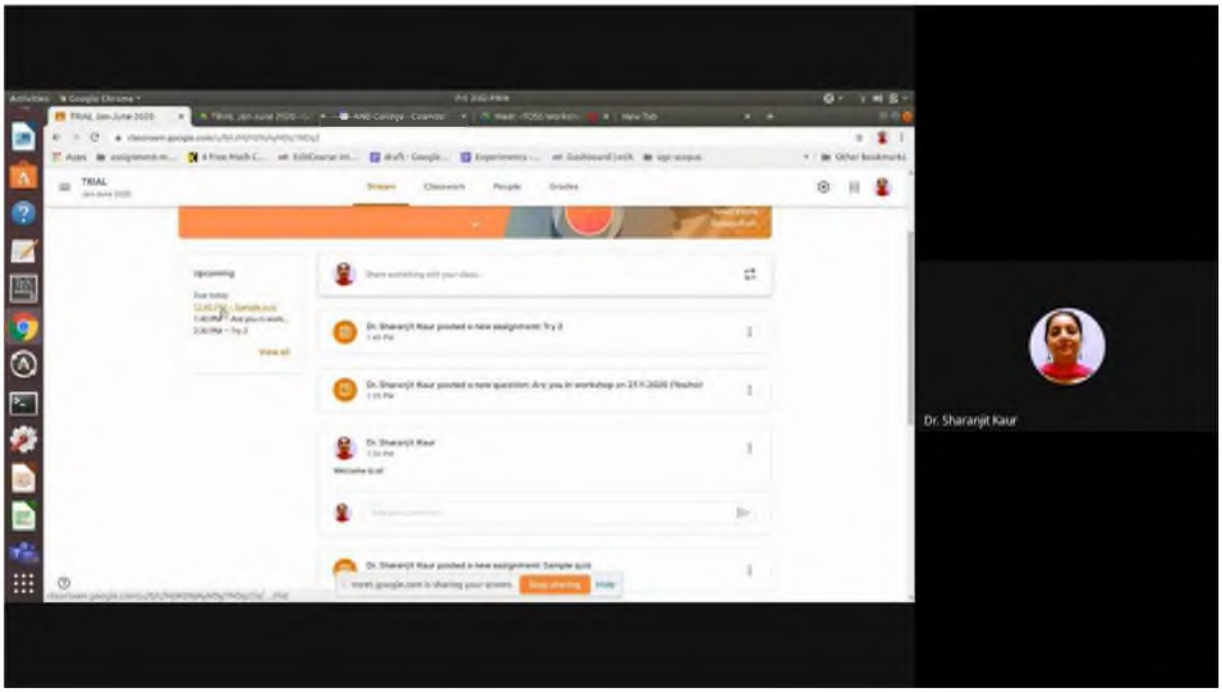

Photo 3

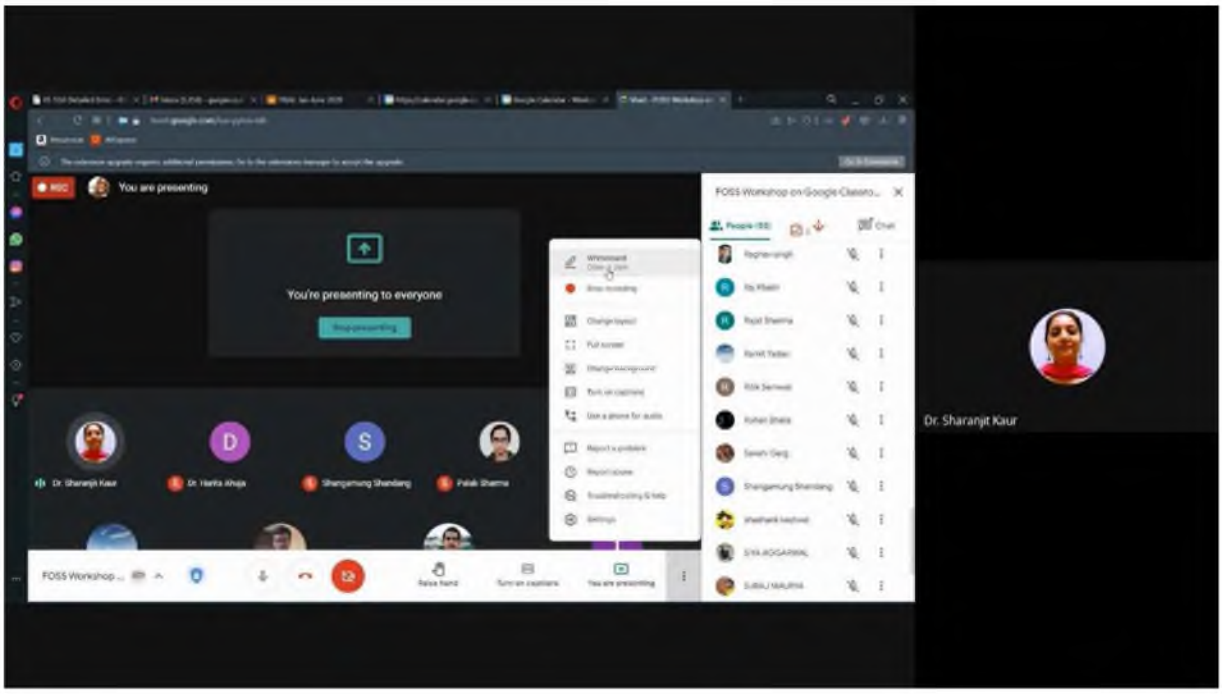

Photo 4

Attendance Workshop on "Google classroom" (under the aegis of DBT Star Scheme)

SNO	Name	Roll No
1	ABHINAV JADOUN	AC-302
2	ANSHUL YADAV	AC-305
3	DEVADITYA PUSHKAR	AC-308
4	DEVENDER KUMAR	AC-309
5	DIPANKAR DEBNATH	AC-311
6	HARSHWARDHAN AGARWAL	AC-312
7	HIMANSHU	AC-313
8	KANHAIYA SINGH	AC-316
9	PALAK SHARMA	AC-321
10	PANKAJ	AC-322
11	PIYUSH KUMAR	AC-324
12	PIYUSH SHARMA	AC-325
13	PRASHANT BAISOYA	AC-326
14	PRIYANSHU DHASMANA	AC-327
15	PRIYANSHU SENGUPTA	AC-328
16	RAGHAV	AC-329
17	RAHUL	AC-330
18	RAHUL KUMAR SHARMA	AC-331
19	RITIK	AC-334
20	SOMESH	AC-339
21	SURAJ KUMAR	AC-340
22	VAIDIK THAKRE	AC-341
23	VISHAL BHARDWAJ	AC-343
24	YASHWARDHAN SINGH	AC-344
25	AMIT PRAJAPATI	AC-346
26	PANKAJ SAHU	AC-348
27	RAHUL ARYAN TIWARI	AC-349
28	ROHIT	AC-351
29	VIVEK SHARMA	AC-354
30	AYUSH SINGH	AC-356
31	AKANCHHA KUMARI	AC-358
32	AKASH NAIN	AC-361
33	ABHILAV CHOUDHARY	AC-301
34	ABHISHEK KUMAR YADAV	AC-303
35	ALIYA	AC-304
36	BHAWNA KUMARI	AC-307
37	DHRUV SINGH	AC-310
38	RAJEEV KAPOOR	AC-332
39	SAKSHI GARG	AC-337
40	SAWAN BAGLE	AC-353
41	NIKITA	AC-320
42	RAVI SINGH CHAUHAN	AC-333
43	ABHISHEK BHANGALIA	AB-1201
44	ABHISHEK KUMAR PRAJAPATI	AB-1202
45	ADITYA RAJ	AB-1203

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46	ANIKET ROY	AB-1260
47	ANINDITA PANDA	AB-1207
48	ANKIT SHARMA	AB-1208
49	ANURAG SONI	AB-1211
50	ANUSHKA JAIN	AB-1212
51	AYUSHI SHARMA	AB-1266
52	BHARAT ADHIKARI	AB-1214
53	DEEPANSHU	AB-1216

Conferences/Workshops/Seminars for the year 2019-20

e

REPORT

Acharya Narendra Dev College is a pioneer within the University in exclusive use of Linux Operating System and other Free & Open Source Software (FOSS) on its PCs. It adopted FOSS in the year 2007 to provide great learning and sharing opportunities to its students. Under this initiative Department of Computer Science of the college organizes an Introductory workshop every year to welcome freshers into the world of FOSS. It is mandatory for all the freshers of the thirteen courses, that college offers, to attend the workshop whether they have taken computer science course or not, as Linux is the only operating system available on its laptop and desktop machines unless other proprietary software is dictated by the syllabus. This year too a four day workshop was organized from 16th Sept., 2019 to 19th Sept., 2019 to familiarize the incumbents of various courses with FOSS concepts

Senior students of B.Sc. (H) Computer Science and B.Sc. Physical Science (Computer Science) were roped in as volunteers for the workshop. They are the ideal candidate for this purpose as they attended this workshop as freshers and then they have been extensively trained through the year on various Linux platforms. Each session was divided into three parts. The first part covered introduction to FOSS and salient features of Linux operating system including why it comes under the category of open source software. Second part gave a contrast between Linux & Windows operating system. And third part introduced Libre Office which included LibreOffice Writer for writing text, LibreOffice Calc for working on spread sheets and LibreOffice Impress for preparing presentations. To impart functional knowledge a practice session was also given to the students. The workshop was a great success. Most of the students of each course could attend it and it turned out to be a great learning experience for all the participants as well as volunteers. The enthusiasm and passion of the new students and volunteers was commendable all through the workshop. Participants were interactive and showed keen interest in the hands-on sessions of the workshop.

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.Physical Science (Computer Science)

Sl.No.	Student's Name	Roll Number								
1	ABHISHEK NAGAR	AB-301								
2	Aditya Goyal	AB-302								
3	AMAN JHARIA	AB-303								
4	AMIT KUMAR	AB-304								
5	ANIKET DUBEY	AB-305								
6	ANISH DALAL	AB-306								
7	ANJALI SHARMA	AB-307								
8	ANUSHKA RATHORE	AB-308								
9	ARYAN RATHI	AB-309								
10	ATUL TRIPATHI	AB-310								
11	DEEPANSHI SAINI	AB-311								
12	DEVESH YADAV	AB-312								
13	DIKSHA	AB-313								
14	GAURAV GUPTA	AB-314								
15	GHANSHYAM VERMA	AB-315								
16	HIMANSHU CHAUDHARY	AB-316								
17	HIMANSHU SINGH	AB-317								
18	HITESH KUMAR	AB-318								
19	Hrithik Kaul	AB-319								
20	JASVEER SINGH YADAV	AB-320								
21	JITESH	AB-321								
22	KHUSHI KHANNA	AB-322								
23	KM PARUL AGARWAL	AB-323								
24	KOSHAL	AB-324								
25	KRITI SINGH	AB-325								
26	MADHU YADAV	AB-326								
27	MAHIPAL SINGH	AB-327								
28	MILAN GAUTAM	AB-328								
29	NEERDHI GOSWAMI	AB-329								
30	NIRMAL MOR	AB-330								
31	PRASHANT TOMER	AB-331								
32	RAHUL RAJ	AB-332								

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33	RIYA CHAUDHARY	AB-333								
34	SAHIL	AB-334	Sahil							
35	SHASHANK SRIVASTAVA	AB-335								
36	SHIKHA ARYA	AB-336								
37	SHIVAM	AB-337								
38	SHUBHAM AGGARWAL	AB-338								
39	SUDHANSHU KUMAR SINGH	AB-339								
40	SUMIT KUMAR	AB-340								
41	TARUN PANDEY	AB-341								
42	VIKASH TIWARI	AB-342								
43	VISHAL	AB-343								
44	VIVEK BHARDWAJ	AB-344								

45 Ashutosh Kumar AB-349 Ashutosh

46 Harsh Vishwai AB-353 Harsh

47 Sugandh AB-345 Su

48 - Saurabh Kumar AB-347 Saurabh

49 - Sahdev AB-348 Sahdev

50 - Saniya Shamsi AB-346 Saniya

51 - Sandeep Kumar AB-350 Sandeep

52 - Sushant Shu AB-354 Sushant

53 - Akash Sharma AB-356 Akash Sharma

54 - Rajkumar AB-355 Rajkumar

55 - Prashant AB-351 Prashant

Total → 37

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Total - 35

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.(Hons.) Zoology

Sl.No.	Student's Name	Roll Number									
1	ADITYA ARORA	AB-1001									
2	ADITYA SINGH	AB-1002									
3	ADITYA SONI	AB-1003									
4	AKSHAT KAUSHIK	AB-1004									
5	AMAN GAUTAM	AB-1005									
6	ANJALI	AB-1006									
7	ANKIT PANDEY	AB-1007									
8	AVANIJA TYAGI	AB-1008									
9	BAKUL DALAL	AB-1009									
10	BHAWNA	AB-1010									
11	DIVYA DEEP	AB-1011									
12	GAURAV BANSAL	AB-1012									
13	GUNJAN GROVER	AB-1013									
14	HAFIZA	AB-1014									
15	HARSHITA	AB-1015									
16	HRITHIK K P	AB-1016									
17	JANVI BATRA	AB-1017									
18	KALPANA RAUTELA	AB-1018									
19	KHUSHI GOYAL	AB-1019									
20	KOMAL GOYAL	AB-1020									
21	MANISH KUMAR	AB-1021									
22	MILAN YADAV	AB-1022									
23	MONIKA	AB-1023									
24	MUSKAN	AB-1024									
25	NAKUL MEHTA	AB-1025									
26	NILESH KUMAR SONKAR	AB-1026									
27	NISHTHA MAHAJAN	AB-1027									
28	PRIYA YADAV	AB-1028									
29	PULKIT SINGH	AB-1029									
30	RADHIKA GARG	AB-1030									
31	RAKESH KERKETTA	AB-1031									
32	RAKESH SARKAR	AB-1032									
33	RIDDHIMA GHOSH ROY	AB-1033									
34	ROHIT KUMAR	AB-1034									

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35	SAHIL KAUSHIK	AB-1035									
36	SEJAL ARORA	AB-1036									
37	SHALINI	AB-1037									
38	SONAM MEENA	AB-1038									
39	SWATI MAHESHWARI	AB-1039									
40	TRISHA NAIR	AB-1040									
41	UJJWAL KUMAR GUPTA	AB-1041									
42	VARSHA ROY	AB-1042									
43	YOGESH RAWAT	AB-1043									
44	ZAFRUDDIN AHMAD	AB-1044									

45) VIRENDER NEHRA AB-1049

46) MANISHA SHARMA AB-1057

47) Pawan Kumar

48) Anket Kumar Gond AB-1063

49) Samiksha Mehta (AB-1046)

50) Jyoti sharma (AB-1059)

51) Ronak Verma (AB-1045)

52) Ashutosh Maurya (AB-1054)

53) ANIKET RANJAN (AB-1053)

54) Donyi Padu (AB-1062)

55) Manshder Saini (AB-1056)

Total - 22

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Com [Honours] **Section "B"**

Sl.No.	Student's Name	Roll Number								
1	ABHAY SONI	AB-1302								
2	AMAN GUSAIN	AB-1304								
3	ANCHAL SINGH	AB-1306								
4	ARYA GUPTA	AB-1310								
5	BHARTI	AB-1312	Bharti							
6	CHANDAN KUMAR	AB-1314								
7	DEEPAK KUMAR	AB-1316								
8	DIKSHANT SHARMA	AB-1318								
9	GAGAN JAIN	AB-1320								
10	HARPREET KAUR	AB-1322								
11	HEMANG DHAMIJA	AB-1324								
12	HIMANSHU SHARMA	AB-1326								
13	ISHAN GOEL	AB-1328								
14	JANAVI SETH	AB-1330								
15	JATIN AHUJA	AB-1332								
16	KANCHAN TOMAR	AB-1334	Kanchan							
17	KIRTIKA CHOUDHARY	AB-1336								
18	KSHITIJ SHARMA	AB-1338	Kshitij							
19	KUSHAL KHURANA	AB-1340								
20	LOKESH GARG	AB-1342								
21	MANISHA	AB-1344	Manisha							
22	NEHA	AB-1346	Neha							
23	NISHESH DEEP	AB-1348								
24	POOJA	AB-1350	Pooja							
25	PRADEEP ROY	AB-1352	Pradeep							
26	PRIYANSHU	AB-1354								
27	RACHIT BAID	AB-1356								
28	RAHUL YADAV	AB-1358	Rahul							
29	RITIK GOYAL	AB-1360	Ritik							
30	ROHIT DUA	AB-1362								
31	RUDRA GOYAL	AB-1364								
32	SAHIL ALI	AB-1366								
33	SANSKRITI SHARMA	AB-1368								
34	SHOBHIT SRIVASTAVA	AB-1370								

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35	SONAM	AB-1372	Sonam							
36	SUDHA SAROJ	AB-1374								
37	TANYA BANSAL	AB-1376								
38	TUSHAR TANWAR	AB-1378								
39	UZMA	AB-1380	Uzma							
40	VIPLAV BHANDARI	AB-1382								
41	YASH GUPTA	AB-1384								

42 TARUSH AB-1442 ✓
43 Chandni AB-1388
44 Rishav AB-1438 Rishav
45. Parth singh AB-1434 ✓
46. Faizan Nezami AB-1420
47. GAUTAM KUMAR AB-1422
48. Bibin Joseph AB-1392
49 Manish AB-1432
50 Shivam Sowut AB-1440. [signature]
51 Isha Jain AB-1426 Isha Jain
52. Dinesh kumari AB-1404

total - 34

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.(Hons.) Chemistry

Sl.No.	Student's Name	Roll Number							
1	ABHIMANYU KUMAR	AB-101	Abhinav						
2	ABHINANDINI HALDHAR	AB-102							
3	ABHISHEK KUMAR SINGH	AB-103	Abhishek						
4	AMARENDRA SINGH	AB-104							
5	ANJALI SINGH	AB-105	Anjali						
6	ARJUN TYAGI	AB-106							
7	ASTHA PARGAI	AB-107	Astha						
8	BHAVNA BHATIA	AB-108							
9	BINWANT KAUR	AB-109							
10	DEEPAK KUMAR	AB-110							
11	GURJANT SINGH	AB-111	Gurjant singh						
12	JATIN KUMAR	AB-112							
13	KAJAL SINGH	AB-113	Kajal						
14	KAMAL KUMAR	AB-114							
15	KAPIL JANGIR	AB-115	Kapil						
16	KETAN KANISHT	AB-116							
17	KHUSHI MEENA	AB-117	Khushi						
18	MOHD HAROON	AB-118							
19	NAKUL AWASTHI	AB-119							
20	NITESH YADAV	AB-120							
21	NUPUR GOEL	AB-121							
22	PUSHPA SHARMA	AB-122	Pushpa						
23	RAKSHA GOEL	AB-123							
24	RANIYA SAHOO	AB-124							
25	ROHIT KUMAR	AB-125							
26	SAKSHI PAL	AB-126	Sakshi						
27	SALONI KASHYAP	AB-127	Saloni Kashyap						
28	SANDEEP KUMAR	AB-128	Sandeep						
29	SHIWANI KASHYAP	AB-129	Shiwani Kashyap						
30	SHRUTI SINGLA	AB-130	Shruti						
31	SNEHA KHURANA	AB-131	Sneha						
32	VAMAKSHI SHARMA	AB-132							
33	VANDANA SINGH	AB-133	Vandana						
34	VANSH BHARDWAJ	AB-134	Vansh						
35	VISHAL KUMAR	AB-135	Vishal						

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Name of the student	Roll no.	Signature
Chanchal Vaishnav	AB-151	Chanchal
Mohini Sharma	AB-149	Mohini
Dhruv Khandelwal	AB-138	Dhruv Khandelwal
Prajjwal Akash	AB-155	Prajjwal Akash
HRITHIK. KP	AB-157	
Khushi Khanna	AB-156	
Priyashree Padhi	AB-143	
Abuzar Zafar	AB-159	Abuzar
Ravi Kumar	AB-148	
Ankit Kumar	AB-154	Ankit
Ankit	AB-158	
Yughal Kishor	AB-152	yughal
Shruti Sharma	AB-146	

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.(Hons.) Mathematics

Sl.No.	Student's Name	Roll Number							
1	AAKASH YADAV	AB-701							
2	ABHISHEK KUMAR	AB-702							
3	ABHISHEK YADAV	AB-703							
4	AMIT KUMAR SINGH	AB-704							
5	ANKITA	AB-705							
6	ANSHUMAN DUTTA	AB-706	A. Dutta						
7	ANTIMA KUMARI	AB-707							
8	DEEPAK KUMAR	AB-708							
9	DEVANSH GANDHI	AB-709							
10	DHRUV SINGH KACHHWAHA	AB-710							
11	EESHA ARYA	AB-711							
12	GAURAV	AB-712							
13	HANEEN MANSOOR	AB-713							
14	HIMANSHU	AB-714							
15	JAIDEEP	AB-715							
16	KHUSHI GUPTA	AB-716							
17	Kunal Gautam	AB-717							
18	KUSHAL SINGH	AB-718							
19	MANISH KUMAR	AB-719							
20	MAYANK GAUR	AB-720							
21	MEENAKSHI	AB-721							
22	NARESH KUMAR SAHU	AB-722							
23	NIKHIL KUMAR SAHU	AB-723							
24	Prasanna Ojha	AB-724							
25	PRATEEK KHUTELA	AB-725							
26	PRIYA	AB-726							
27	RAJAT GUPTA	AB-727							
28	RAJESH KUMAR ROLANIYA	AB-728							
29	RISHABH KUMAR GUPTA	AB-729							
30	ROHITASH KUMAR	AB-730							
31	SACHIN KUMAR	AB-731							
32	SACHIN PATEL	AB-732							

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33	SAHIL SAKLANI	AB-733							
34	SANJEEV KUMAR MEENA	AB-734							
35	SAURAV AWASTHI	AB-735							
36	SAURAV KUMAR	AB-736							
37	SHRUTI KHANDUJA	AB-737							
38	SHUBHAM SHRIVASTAV	AB-738							
39	SIDDHARTH YADAV	AB-739							
40	SRISHTI AGGARWAL	AB-740							
41	SUNIL KUMAR	AB-741							
42	SUNIL KUMAR	AB-742							
43	SURDEEP KUMAR	AB-743							
44	TARUN KUMAR	AB-744							
45	TOFIK	AB-745							
46	VARTIKA SRIVASTAVA	AB-746							
47	VIVEK SEMWAL	AB-747							
48	VIVEK SHUKLA	AB-748							
49	VIVEK SINGH	AB-749							
50	VIVEK TEWARI	AB-750							
51	YASH SHARMA	AB-751							

2

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.(Hons.) Computer Science

Sl.No.	Student's Name	Roll Number									
1	ABHISHEK BHANGALIA	AB-1201									
2	ABHISHEK KUMAR PRAJAPATI	AB-1202									
3	ADITYA RAJ	AB-1203									
4	AKSHIT SHARMA	AB-1204									
5	AMAN SHARMA	AB-1205									
6	ANEEL AHIRWAR	AB-1206									
7	ANINDITA PANDA	AB-1207									
8	ANKIT SHARMA	AB-1208									
9	ANSH GERA	AB-1209									
10	ANSHUL VATS	AB-1210									
11	ANURAG SONI	AB-1211									
12	ANUSHKA JAIN	AB-1212									
13	ARPIT GUPTA	AB-1213									
14	BHARAT ADHIKARI	AB-1214									
15	BIKASH KUMAR PASWAN	AB-1215									
16	DEEPANSHU	AB-1216									
17	GULSHAN KUMAR	AB-1217									
18	HARSH KUMAR	AB-1218									
19	HIMANSHU	AB-1219									
20	HITESH KHATANA	AB-1220									
21	LAKHAN LAL	AB-1221									
22	MANAN PRUTHI	AB-1222									
23	MEGHA KARKI	AB-1223									
24	NIDHI BHATIA	AB-1224									
25	NITESH KUMAR	AB-1225									
26	PRIYA SINGH	AB-1226									
27	R J SAMRAT	AB-1227									
28	RACHIT CHAUDHARY	AB-1228									
29	RAMAN KUMAR	AB-1229									
30	RAVINDER KUMAR	AB-1230									
31	RISHABH DUBEY	AB-1231									
32	RISHI SARBOBHOUM	AB-1232									
33	RITIK YADAV	AB-1233									
34	SANT KUMAR	AB-1234									
35	SHILPI VERMA	AB-1235									
36	SHIVAM ORAON	AB-1236									

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37	SHIVAM SAINI	AB-1237	
38	SHRADHA VERMA	AB-1238	
39	SHREY SINGHAL	AB-1239	
40	SHRUTI JAIN	AB-1240	
41	SHUBHAM KUMAR DAS	AB-1241	
42	SNIGDHA TYAGI	AB-1242	
43	SURUCHI VERMA	AB-1243	
44	TANU	AB-1244	
45	TISHYA THUKRAL	AB-1245	
46	UJJWAL KUMAR	AB-1246	
47	USHNA KHAN	AB-1247	
48	UTKARSH AGRAWAL	AB-1248	
49	VIDHI ARORA	AB-1249	
50	VIKAS KUMAR GUPTA	AB-1250	
51	VINEET SHARMA	AB-1251	

52. Pragnal Soni AB-1265 Soni
53. Ujjwal AB-1257 Ujjwal
54. Tabassum Rana AB-1254
55. Deshna Jain AB-1232
56. Sarvesh Sharma AB-1271 Sarvesh
57. Rahul Basu AB-1263 Rahul
58. Devansh Sharma AB-1258 Devansh
59. Aniket Roy AB-1260 Roy
60. Tushar Chauhan AB-1259
61. Robin Singh AB-1270 Robin
62. Ayushi Sharma AB-1266 Ayushi
63. Supriya kumari AB-1272 Supriya
64. NIAMATULLAH AZIZI AB-1267

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Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.Physical Science (Chemistry)

Sl.No.	Student's Name	Roll Number	Dhwani	Sashakt	Elite	Instart	Saksham	Explore	
1	ABHISHEK	AB-501	Abhishek	✓					
2	AKASH TIWARI	AB-502	Akash	✓					
3	AKSHAY KHARE	AB-503	Akshay	✓					
4	ANAND KUMAR JHA	AB-504	Anand	A					
5	ANKIT KUMAR	AB-505	Ankit	✓					
6	ARUN GANGWAR	AB-506	Arun	✓					
7	ARYAN YADAV	AB-507							
8	CHARU GUPTA	AB-508		AP	✓				
9	DEEPAK	AB-509	Deepak	✓					
10	DEVANSH SINGH PARMAR	AB-510							
11	INDERJEET	AB-511	Inderjeet	✓					
12	JHILMIL GUPTA	AB-512							
13	KANIKA	AB-513	Kanika	✓					
14	KAPIL	AB-514							
15	KARAN SINGH	AB-515							
16	LALIT KUMAR	AB-516							
17	MAIBAM WANGOLSANA KHUMAN	AB-517							
18	MANISH DESHWAL	AB-518	Deshwal	✓					
19	NIDHI	AB-519							
20	NIGLESH KUMAR	AB-520							
21	NIKHIL KUMAR	AB-521	Kumar	✓					
22	PALENDER SINGH	AB-522							
23	PANKAJ GOTHWAL	AB-523	Gothwal	✓					
24	PANKAJ KUMAR	AB-524	Pankaj Kumar	✓					
25	PARITOSH SINGH	AB-525							
26	PAWAN	AB-526	Pawan	✓					
27	PRASHASTI TIWARI	AB-527							
28	PRIYANSHU SHARMA	AB-528	Priyanshu	✓					
29	RAMANDEEP SINGH	AB-529							
30	RITU	AB-530							
31	ROHIT	AB-531							
32	ROHIT KUMAR	AB-532							
33	SONALI SINGH	AB-533	Sonali	✓					
34	SUMIT AWASTHI	AB-534							
35	SURYA DEV SINGH	AB-535							
36	SUSHMA	AB-536	Sushma	✓					
37	VAIBHAV KUMAR SINGH	AB-537							

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38	VIPUL YADAV	AB-538	Yadav						
39	VISHAL VERMA	AB-539	विशाल वर्मा						
40	VIVEK GOSWAMI	AB-540							
41	VIVEK KUMAR	AB-541	Vivek						

42. Jigyasa Nandwana AB-554 Jigyasa Nandwana
43. Akanksha AB-549 Akanksha
44 Sunny Kumar AB-545 सन्नी कुमार
45 AKHIL KUMAR AB-543 Akhil
46. Anuj Bhardwaj. AB-551 Anuj
47. Prashant Goyal AB-552 Goyal
~~48. Vansh Bhimsaria AB-1301 Vansh~~
48. Mahesh AB-544 Mahesh.
49. MADHUVENDRA SINGH AB-550 Madhu
~~50. Sahil Soni AB-546 Sahil~~
~~51. Sahil Soni AB-546 Sahil~~

P = 28
A = 21
Total = 49

31

30

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Com. [Honours] Section "A"

Sl.No.	Student's Name	Roll Number								
1	AASHISH	AB-1301								
2	AKSHIT GOEL	AB-1303								
3	AMISHA AMBARDAR	AB-1305								
4	ANKIT KUMAR	AB-1307		A						
5	ARSHITA DUA	AB-1309								
6	BHARAT	AB-1311		A						
7	BHARTI SAINI	AB-1313								
8	CHIRAYU MITTAL	AB-1315		A						
9	DEEPAK KUSHWAHA	AB-1317		A						
10	ESHAAN PATHAK	AB-1319								
11	GUNJAN	AB-1321								
12	HARSHITA CHUGH	AB-1323								
13	HIMANSHI JAISWAL	AB-1325								
14	HITIKA KOHLI	AB-1327								
15	JAGRITI	AB-1329								
16	JATIN	AB-1331								
17	KALPIK MISHRA	AB-1333								
18	KETAN PATAWARI	AB-1335								
19	KRITIKA AGARWAL	AB-1337								
20	KUNAL GARG	AB-1339								
21	LAVISH YADAV	AB-1341								
22	MADHAV AGARWAL	AB-1343								
23	MEENAKSHI	AB-1345								
24	NIKITA SAGAR	AB-1347								
25	NITIN NEGI	AB-1349								
26	PRABHAV SAWHNEY	AB-1351								
27	PRIYA ARORA	AB-1353								
28	PUNEET	AB-1355		A						
29	RADHIKA SETIA	AB-1357								
30	RISHU SINGH	AB-1359		A						
31	RITIKA RAWAT	AB-1361								
32	RUCHI	AB-1363								
33	SAHIL	AB-1365								
34	SAMIKSHA THAGURATHI	AB-1367								
35	SAURAV RAJ	AB-1369								

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36	SIMRAN GUPTA	AB-1371								
37	SONAM PRAJAPATI	AB-1373								
38	SUJAL VERMA	AB-1375								
39	TANYA GUPTA	AB-1377		A						
40	UTSAV GUGNANI	AB-1379								
41	VANSH BHIMSARIA	AB-1381								
42	YASH JAIN	AB-1383								
43	YASHIKA LOHIA	AB-1385								

44. ANUSHRUTI SINGH AB-1401 A

45. Mohit Pandey AB-1433 Mohit ✓

46. Amit kumar AB-1415 ✓

47. NEERAJ PATEL AB-1399 Neerajpatel ✓

48. Hemraj meena AB-1425 ✓

49. Ritik Gupta AB-1439 Ritik ✓

50. RUPESH AB-1407 Rupesh ✓

51 manish Bainsla AB-1393 manish ✓

52 AMAN PANDEY AB-1403 Pandey ✓

P=10
A=42
Total=52

18

Total-37

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.(Hons.) Electronics

Sl.No.	Student's Name	Roll Number								
1	AASHU KUMAR	AB-401								
2	ADITI	AB-402								
3	ADITYA	AB-403								
5	AKASH GUPTA	AB-405								
6	ANJALI BHADANA	AB-406								
7	ANURAG RAJPUT	AB-407								
8	APOORV SINGH	AB-408								
9	ASHISH	AB-409								
10	ASHUTOSH KUMAR CHOUDHARY	AB-410								
11	AVIJIT MOHAN	AB-411								
12	AYUSH RAWAT	AB-412								
13	CHETAN	AB-413								
14	DEEPAK KUMAR	AB-414								
15	DEEPALI	AB-415								
16	FAIZ AHMAD	AB-416								
17	GAURAV SINGH RAWAT	AB-417								
18	HARI SHANKAR	AB-418								
19	HARSH KUMAR MAHOUR	AB-419								
20	HARSHIT RAJPUT	AB-420								
21	HARSHITA MANSINGHKA	AB-421								
22	KARTIK SHARMA	AB-422								
23	Kunika Goyal	AB-423								
24	Mayank Chaudhary	AB-424								
25	NAVEEN RAWAT	AB-425								
26	NISHANT KUMAR	AB-426								
27	PAYAL	AB-427								
28	PRATIMA	AB-428								
29	RADHESHYAM KUMAR	AB-429								
30	RAHUL ARGAL	AB-430								
31	RAHUL SINGH BIST	AB-431								
32	RITESH KUMAR	AB-432								
33	ROHIT BUNGLA	AB-433								
34	RUDRA ABHISHEK	AB-434								

35	SACCHI SINGH	AB-435	Sacchi							
36	SACHIN	AB-436	Sachin							
37	SAGAR BISHT	AB-437	Sagar							
38	SATYAVEER	AB-438	satyaveer							
39	SHAMA	AB-439								
40	SHASHANK	AB-440	Sashank							
41	SHIVANGI SINGH	AB-441								
42	SHIWANSHU KUMAR KHARW	AB-442	Shiwansh							
43	SHRUTI BHARDWAJ	AB-443								
44	SHRUTI YADAV	AB-444	Shruti							
45	SHUBHAM PAL	AB-445								
46	SONU KUMAR	AB-446	Sonu							
47	STUTI THAKUR	AB-447								
48	SUKHVINDER SINGH	AB-448								
49	SUMIT	AB-449								
50	UJJWAL SINGH	AB-450								
51	UTKARSH TYAGI	AB-451								

52. Sudhir Kumar AB-458 Sudhir

53. MOHD MUKHTAR ANSARI AB-457 Mukhtar

54. Aditya Kumar AB-404

55. Vikash Kumar AB-455 Vikash

56: Obaidullah AB-461

57 Aditya Rana. AB-452 Ad

58 Ridhima Suri AB-460 Ridhima

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course :B.Sc.(Hons.)Physics

Sl.No.	Student's Name	Roll Number								
1	ABHISHEK	AB-801								
2	AJAY KUMAR	AB-802	Ajay							
3	AJEET KUMAR	AB-803								
4	AMAN VATS	AB-804	Aman							
5	ANKIT MISHRA	AB-805								
6	ANSHITA JHAJJARWAL	AB-806								
7	ARADHIKA PAUL	AB-807								
8	ASHISH ` KUMAR	AB-808	Ashish							
9	BINDU	AB-809	Bindu							
10	BISHWA RANJAN DAS	AB-810								
11	DEEPAK RAO	AB-811	Deepak rao							
12	DHEERAJ KUMAR	AB-812	[illegible]							
13	DIVYANSH KANDPAL	AB-813								
14	GAURAV	AB-814	[illegible]							
15	HITENDER KUMAR	AB-815								
16	KAJAL	AB-816								
17	KUNAL KUMAR	AB-817	Kunal							
18	KUSHAL SHARMA	AB-818	Kushal							
19	MANISH	AB-819								
20	MANISH KUMAR	AB-820	Manish							
21	MANISHA GOND	AB-821								
22	MEENAKSHI KUMARI	AB-822								
23	MOHD ALAM	AB-823								
24	NEHA NEGI	AB-824								
25	NIDHA HIND K	AB-825								
26	NIKHIL SHARMA	AB-826								
27	PALLVI	AB-827	Pallvi							
28	PRANSHU MAHALA	AB-828	[illegible]							
29	PRATHAM PACHAURI	AB-829	Pratham							
30	PRAYASH BHUYAN	AB-830	Prayash							
31	SACHIN GUPTA	AB-831								
32	SHIVANSH TIWARI	AB-832								
33	SHWETA RATHORE	AB-833								
34	SOMSUVRA DAS	AB-834								

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35	SUNEEL KUMAR	AB-835								
36	SURBHI KHAJURIA	AB-836								
37	TUSHAR RATRA	AB-837								
38	VIKAS	AB-838								
39	YASHIKA SARASWAT	AB-839								

40 Pratham Makhija AB-846

41 Prajjwal Goel AB-853

42. Ankit Yadav AB-848

43. Rishabh Pal AB-844

44. Dinesh Singh AB-850

45 Jom Surra Das AB-834

46 Shivangi Pandey AB-856

47 Aliya Siddiqui AB-840

48 Aeul Bagga AB-849

49 Rakhshanda AB-855

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ACHARYA NARENDRA DEV COLLEGE- Part-I (Semester-I) 2019-2020

Course- B.Sc. (Hons.) Biomedical Sciences

S. No.	Name	Roll No						
1	AASTHA	AB-201						
2	AFNITHA A V	AB-203						
3	Anjali Bhadana	AB-249	P					
4	ANKITA PATY	AB-204						
5	ASHUTOSH KUMAR RAI	AB-248						
6	ASHUTOSH SINGH	AB-206						
7	BISAKHA DAS	AB-207						
8	ISHITA DHARAMSHAKTU	AB-253						
9	KAJAL MANGLA	AB-210						
10	KRITIKA GARG	AB-244						
11	MAHIKAA KAUL	AB-212						
12	Manish Kumar	AB-241	P					
13	MANSI ANAND	AB-213						
14	MD BADRUDDIN	AB-247	P					
15	MOHD SHAHBAZ ALI	AB-242						
16	MUHAMMED SHUHAIB P	AB-214						
17	NALLIBOINA DURGA PRASAD YADAV	AB-246						
18	NIHARIKA UPADHYAY	AB-215						
19	NIKITA CHAUHAN	AB-216						
20	NIKITA GUPTA	AB-217						
21	Othman adeel	AB-255						
22	PRACHI ARORA	AB-220						
23	PRACHI SINGH	AB-219						
24	PRAPTI PALIT	AB-221						
25	Prashant Prakash	AB-239						
26	PRITIKA KWATRA	AB-222						
27	PRIYANJANA GHOSH	AB-223						
28	PRIYANSHU KUMAR SHRIVASTAVA	AB-224						
29	R ELONI KOREN	AB-225						
30	RADEY HIFFO	AB-226						
31	Ridhi Bhatt	AB-245	P					
32	RITIK SINGHAL	AB-256						
33	RIYA CHAUHAN	AB-227						
34	Sachin Bajaj	AB-250						
35	Sakshi Srivastava	AB-251						
36	SAKSHI SHARMA	AB-243						
37	SONAM ANGMO	AB-229	P					
38	SRIJA MAJUMDER	AB-230						

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ACHARYA NARENDRA DEV COLLEGE- Part-I (Semester-I) 2019-2020

Course- B.Sc. (Hons.) Biomedical Sciences

39	SUBHANGI PRIYA	AB-231						
40	SUBRATA PAL	AB-232						
41	SUSHANT YADAV	AB-233						
42	T K RINI	AB-234						
43	TARUNPREET KAUR	AB-235						
44	TEJASWINI C	AB-236						
45	THAN DAR AUNG	AB-237						

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course : B.Sc.Physical Science (Electronics)

Sl.No.	Student's Name	Roll Number	Dhwani	Sashakt	Elite	Instart	Saksham	Explore		
1	ABHISHEK DUBEY	AB-901								
2	AJIT PRASAD	AB-902								
3	AMAN THOLIA	AB-903								
4	ARVIND KUMAR	AB-904								
5	ASHUTOSH GAIROLA	AB-905								
6	BHARAT	AB-906								
7	DHRUV PRATAP KUSHWAH	AB-907								
8	DIKSHA GUPTA	AB-908								
9	DINANSH BHARDWAJ	AB-909								
10	GARVIT VERMA	AB-910								
11	GOVIND	AB-911								
12	GOVINDA VERMA	AB-912								
13	HANSHA KANWAR	AB-913								
14	HARSH DEV KANGOTRA	AB-914								
15	HARSHA SAGAR	AB-915								
16	JHILMIL BINDAL	AB-916								
17	JUBAIR EA ALAM	AB-917								
18	JYOTI MINA	AB-918								
19	KAMLENDRA PRATAP SINGH	AB-919								
20	KARTAVYA BANSAL	AB-920								
21	KRISHAN	AB-921								
22	KUSHAL	AB-922				Kushal				
23	LATIKA GAUTAM	AB-923								
24	MAMTA	AB-924								
25	MANJEET SINGH	AB-925								
26	MD AZAD	AB-926								
27	MD SAQUIB BAKHSHI	AB-927								
28	MUSKAN	AB-928								
29	NISHA	AB-929								
30	PARAG TYAGI	AB-930								
31	PIYUSH AGARWAL	AB-931								
32	PRAGATI	AB-932								
33	PRASHANT	AB-933								
34	PROBIN KUMAR	AB-934								
35	RAHUL YADAV	AB-935								
36	RISHABH GUPTA	AB-936								
37	SAKSHI GUPTA	AB-937								
38	SARITA KUMARI	AB-938								

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39	SAUMYA SHARMA	AB-939							
40	SHIVAM TIWARI	AB-940							
41	SUNNY	AB-941							
42	UDIT SOLANKI	AB-942							
43	VARSHA SINGH	AB-943							

44. Tamanna Bhardwaj AB-945 Tamanna.

45. Rahul gautam AB-944 Rahul

(3)

ACHARYA NARENDRA DEV COLLEGE- Part-I (Semester-I) 2019-20

Course- B.Sc. (H) Botany

S. No.	Name	Roll No						
1	ADITI	AB-001	P					
2	AJITA OJHA	AB-050						
3	Amit Kumar	AB-045	P					
4	ANJALI SONI	AB-003						
5	Ankit	AB-044	P					
6	ANUSHIKA KALOO	AB-004						
7	DEVANGNA SHARMA	AB-048	P					
8	FARRAH NAZ	AB-010						
9	HEFAZ RAHMAT	AB-011						
10	HITESH KALA	AB-012	P					
11	JATIN	AB-014	P					
12	KIRTI PANDEY	AB-047						
13	KOMAL SINGH NETAM	AB-016	P					
14	MOHINI KUMARI	AB-018	P					
15	N KHACHUK DEBBARMA	AB-019	P					
16	NIKHIL CHAUHAN	AB-046						
17	NITESH	AB-021	P					
18	PARAM KUMAR	AB-022	P					
19	PRAGYA MUNI	AB-023	P					
20	PRATIKSHA	AB-024	P					
21	PREETI MAURYA	AB-025	P					
22	SHIVANGI DEV	AB-034	P					
23	SHWETA YADAV	AB-036	P					
24	SUHANI SHARMA	AB-037	P					
25	SUMAN	AB-038						
26	TANUJ MALIK	AB-049	P					
27	VISHAL KUMAR	AB-040	P					

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Total → 1

Acharya Narendra Dev College, Part-I (Semester-I) 2019-20

Course :B.Sc.Life Science

Sl.No.	Student's Name	Roll Number								
1	AANCHAL BHASKAR AGGARWAL	AB-601								
2	ABHISHEK SIHOTE	AB-602								
3	AMIT KUMAR	AB-603								
4	AMIT KUMAR	AB-604								
5	ANISH NAGAR	AB-605								
6	ANKUSH PANWAR	AB-606								
7	ASTHA YADAV	AB-607								
8	ATHIRA SHENO	AB-608								
9	CHANDRIKA CHAUDHARY	AB-609								
10	DANISH SIRAJ	AB-610								
11	DEBRAJ SINGHA	AB-611								
12	DIVYA PAL	AB-612								
13	JIGYASA NANDWANA	AB-613								
14	KAVYA K R	AB-614								
15	KHUSHI SAXENA	AB-615								
16	KRITH UNNI KRISHNAN	AB-616								
17	LALIT KUMAR	AB-617								
18	MAHAK	AB-618								
19	MANSI WADHERA	AB-619								
20	MARIYAM ALI	AB-620								
21	MUSKAN	AB-621								
22	NANCY VISHWAKARMA	AB-622								
23	NAVEEN	AB-623								
24	NIKHIL CHAUHAN	AB-624								
25	NIKHIL KUMAR	AB-625								
26	NISHANT KUMAR	AB-626								
27	POOJA KACHAWAHA	AB-627								
28	PRACHI	AB-628								
29	PREETI	AB-629								
30	PRIYANSH PREET	AB-630								
31	RAJU SHARMA	AB-631								
32	RINCHEN DOLKER	AB-632								
33	RINKI	AB-633								
34	SAYANTAN CHATTERJEE	AB-634								
35	SHUBHANGI	AB-635								
36	SOHIT	AB-636								
37	SUMITRA SHAH	AB-637								
38	SUPRIYA KUMARI	AB-638								
39	YASHI RATHI	AB-639								

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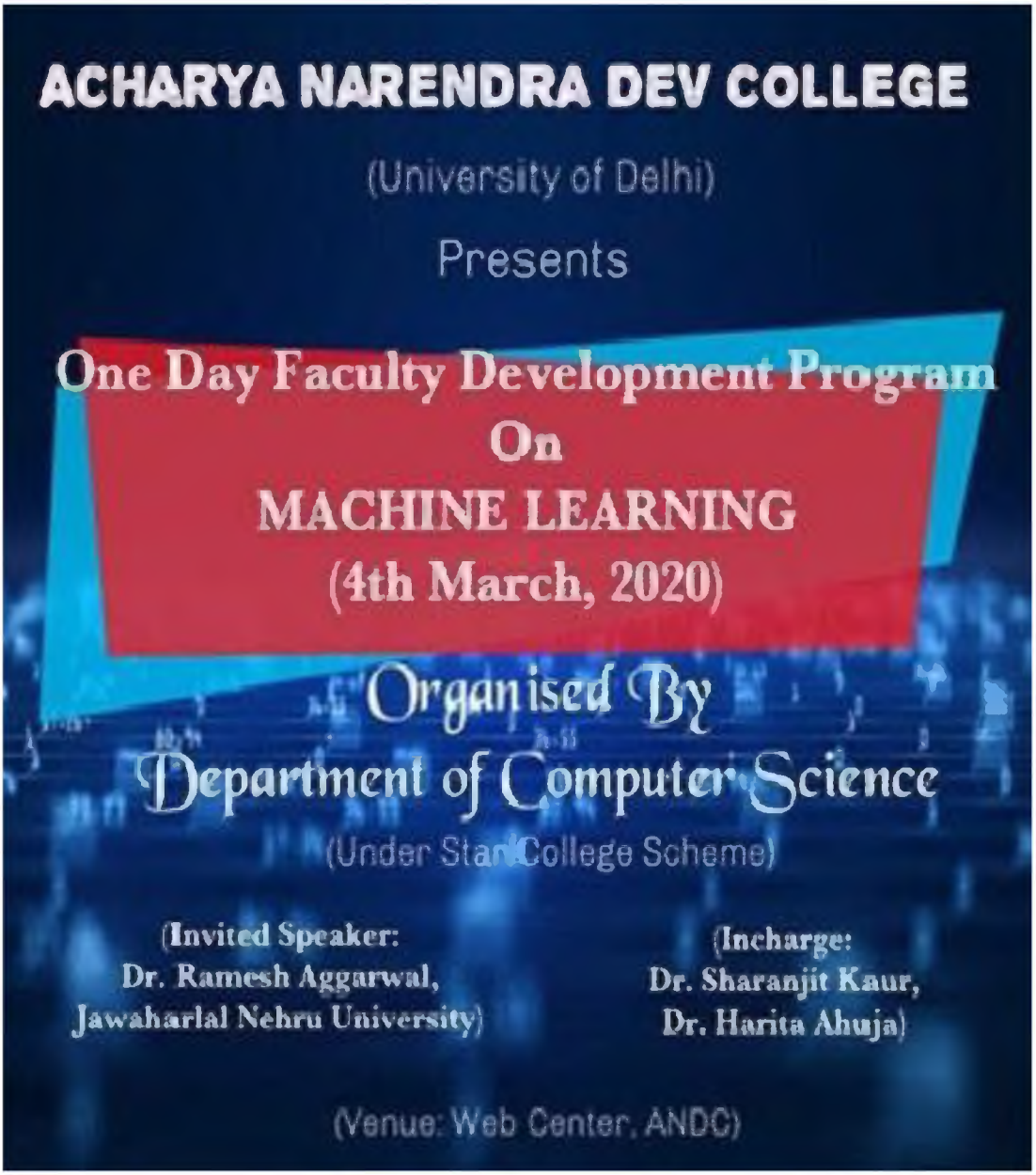

REPORT

Department of Computer Science of the Acharya Narendra Dev College under DBT Star Scheme organized a one day workshop on the topic of "Machine Learning" on 4th March 2020. The Talk was convened by Dr. Sharanjit Kaur and Dr. Harita Ahuja. It was attended by all the students and faculty of the computer science department. We had

(Prof.) Dr. Ramesh Aggarwal as our eminent guest speaker. He is working as a Professor in Jawahar Lal Nehru Univeristy . He had started the session with a talk on Machine learning, an application of Artificial Intelligence (AI). It provides systems the ability to automatically learn and improve from experience without being

explicitly programmed. It focuses on the development of computer programs that can access data and use it to learn for themselves. He also discussed the applications and types of Learning. There are various types of Learning e.g. supervised, unsupervised, Reinforcement Learning, etc.

At the end, Dr. Sharanjit Kaur delivered a vote of thanks to Speaker and concluded the session. All Participants were interactive and shown keen interest in the topic of the talk. They were provided with the certificates after the sucessful completion of the workshop.

Event Name: One Day Faculty Development Programme on "Machine Learning" for the faculty and students of computer science
Date : 4th March, 2020
No. Of Beneficiaries: 55

Student Attendances		
S. No	Name	Roll No
1	ABHISHEK BHANGALIA	AB-1201
2	ABHISHEK KUMAR PRAJAPATI	AB-1202
3	ADITYA RAJ	AB-1203
4	AKSHIT SHARMA	AB-1204
5	AMAN SHARMA	AB-1205
6	ANIKET ROY	AB-1260
7	ANINDITA PANDA	AB-1207
8	ANKIT SHARMA	AB-1208
9	ANURAG SONI	AB-1211
10	ANUSHKA JAIN	AB-1212
11	AYUSHI SHARMA	AB-1266
12	BHARAT ADHIKARI	AB-1214
13	DEEPANSHU	AB-1216
14	DESHNA JAIN	AB-1252
15	DEVANSH SHARMA	AB-1258
16	GULSHAN KUMAR	AB-1217
17	HARSH KUMAR	AB-1218
18	HIMANSHU	AB-1219
19	MANISH KUMAR	AB-1262
20	MANSI SANWAL	AB-1269
21	MEGHA KARKI	AB-1223
22	NIAMATULLAH AZIZI	AB-1267
23	NITESH KUMAR	AB-1225
24	PAWAN KUMAR	AB-1268
25	PRAJWAL SONI	AB-1265
26	PRIYA SINGH	AB-1226
27	R J SAMRAT	AB-1227
28	RACHIT CHAUDHARY	AB-1228
29	RAHUL BASU	AB-1263
30	RAVINDER KUMAR	AB-1230
31	RISHABH DUBEY	AB-1231
32	RISHI SARBOBHOUM	AB-1232
33	ROBIN SINGH	AB-1270
34	SAMBIT BASU	AB-1264
35	SANT KUMAR	AB-1234
36	SARVESH SHARMA	AB-1271
37	SHILPI VERMA	AB-1235
38	SHIVAM ORAON	AB-1236
39	SHIVAM SAINI	AB-1237
40	SHIVANSH TYAGI	AB-1273
41	SHREY SINGHAL	AB-1239
42	SHRUTI JAIN	AB-1240
43	SHUBHAM KUMAR DAS	AB-1241
44	SUPRIYA KUMARI	AB-1272
45	SURUCHI VERMA	AB-1243
46	TABASSUM RANA	AB-1254
47	TANU	AB-1244
48	TISHYA THUKRAL	AB-1245
49	TUSHAR CHAUHAN	AB-1259
50	TUSHAR GAURAV	AB-1253

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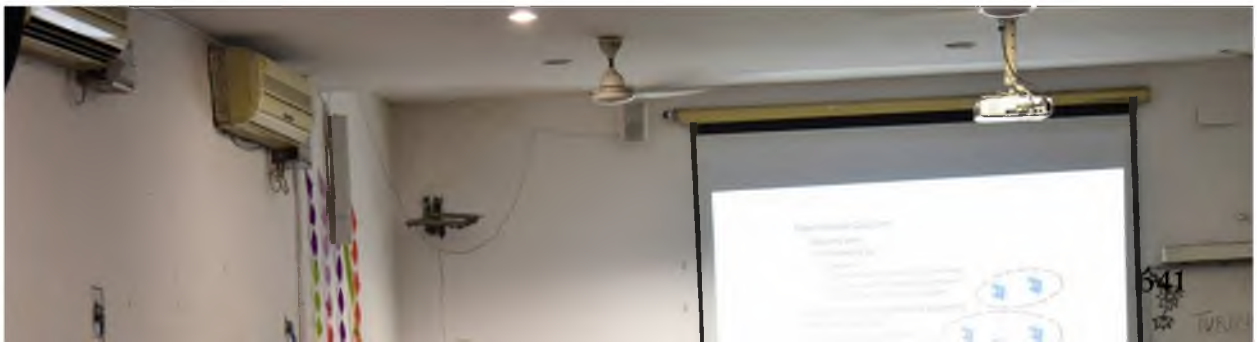
51	UJJWAL	AB-1257
52	UJJWAL KUMAR	AB-1246
53	USHNA KHAN	AB-1247
54	UTKARSH AGRAWAL	AB-1248
55	VIDHI ARORA	AB-1249

ACHARYA NARENDRA DEV COLLEGE
(University of Delhi)
NAAC ACCREDITED : 'A' Grade
Turing Society
Department of Computer Science
(Under the Aegis of Star Scheme College , 2019-2020)
PRESENTS
TECHNICAL TALK
On

REPORT

The Turing Society of Computer Science Department of Acharya Narendra Dev College under DBT Star Scheme 2018-19 organized a Technical Talk on System Automation and HA clustering on 7th November, 2019. Our eminent Speaker was Mr. Manish Bansal, Principal System Engineer, Altran Technologies. It is the technology by which a process or procedure is performed with minimal human assistance. Mr. Bansal also discussed the advantages and uses of Automation or automatic control in various control systems for operating equipment such as machinery, processes in factories, boilers, heat treating ovens, aircraft, and other applications and vehicles with minimal or reduced human intervention.

At the end convener of Turing society Dr. Chandra Kanta Samal delivered a vote of thanks and concluded the session. The enthusiasm and Passion of the students and volunteers was commendable all through the talk. Participants were interactive and showed keen interest in the topic of talk. The talk was a great success.



Event Name: System Automation & HA clustering
Date : 7th Nov, 2019
No. Of Beneficiaries: 63

Student Attendances		
S. No	Name	Roll No
1	ABHISHEK BHANGALIA	AB-1201
2	ABHISHEK KUMAR PRAJAPATI	AB-1202
3	ADITYA RAJ	AB-1203
4	AKSHIT SHARMA	AB-1204
5	AMAN SHARMA	AB-1205
6	ANIKET ROY	AB-1260
7	ANINDITA PANDA	AB-1207
8	ANKIT SHARMA	AB-1208
9	ANURAG SONI	AB-1211
10	ANUSHKA JAIN	AB-1212
11	AYUSHI SHARMA	AB-1266
12	BHARAT ADHIKARI	AB-1214
13	DEEPANSHU	AB-1216
14	DESHNA JAIN	AB-1252
15	DEVANSH SHARMA	AB-1258
16	GULSHAN KUMAR	AB-1217
17	HARSH KUMAR	AB-1218
18	HIMANSHU	AB-1219
19	MANISH KUMAR	AB-1262
20	MANSI SANWAL	AB-1269
21	MEGHA KARKI	AB-1223
22	NIAMATULLAH AZIZI	AB-1267
23	NITESH KUMAR	AB-1225
24	PAWAN KUMAR	AB-1268
25	PRAJWAL SONI	AB-1265
26	PRIYA SINGH	AB-1226
27	R J SAMRAT	AB-1227
28	RACHIT CHAUDHARY	AB-1228
29	RAHUL BASU	AB-1263
30	RAVINDER KUMAR	AB-1230
31	RISHABH DUBEY	AB-1231
32	RISHI SARBOBHOUM	AB-1232
33	ROBIN SINGH	AB-1270
34	SAMBIT BASU	AB-1264
35	SANT KUMAR	AB-1234
36	SARVESH SHARMA	AB-1271
37	SHILPI VERMA	AB-1235
38	SHIVAM ORAON	AB-1236
39	SHIVAM SAINI	AB-1237
40	SHIVANSH TYAGI	AB-1273
41	SHREY SINGHAL	AB-1239
42	SHRUTI JAIN	AB-1240
43	SHUBHAM KUMAR DAS	AB-1241
44	SUPRIYA KUMARI	AB-1272
45	SURUCHI VERMA	AB-1243
46	TABASSUM RANA	AB-1254
47	TANU	AB-1244
48	TISHYA THUKRAL	AB-1245
49	TUSHAR CHAUHAN	AB-1259
50	TUSHAR GAURAV	AB-1253
51	UJJWAL	AB-1257

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52	UJJWAL KUMAR	AB-1246
53	USHNA KHAN	AB-1247
54	UTKARSH AGRAWAL	AB-1248
55	VIDHI ARORA	AB-1249
56	ABHINAV SINGH	Z-1258
57	ABHISHEK KANDARI	Z-1201
58	AJAY SHARMA	Z-1202
59	AKSHANSH DHIRYAN	Z-1203
60	ALOK PRATAP	Z-1205
61	AMAN KUMAR	Z-1207
62	AMAN PRATAP SINGH	Z-1206
63	ANIL KUMAR YADAV	Z-1209

REPORT

Department of Computer Science of the Acharya Narendra Dev College under DBT Star Scheme organized a webinar on the topic of " Unravelling the Social Network of Covid-19 in India from 30th Jan to 6th Ap, 2020" on 15th June 2020. The webinar was convened by Dr. Sharanjit Kaur and Dr. Sunita Narang. It was attended by all the students of the computer science department. We had Dr. Satita Azad as our eminent guest speaker. She is working as an Assistant Professor in IIT Mandi, Himachal Pradesh, India.

She started session with how the network of Covid spread in India from time period 30th January to 6th April 2020 and the use of tool Social Network analysis to map and measure the relationship among people and organisations. She further explained various kinds of networks and gave an example of Mumbai attack 26/11 and also discuss how these studies are beneficial in taking out the major factor of spreading such viruses.

At the end, Dr. Sharanjit Kaur delivered a vote of thanks to Speaker and concluded the session. All Participants were interactive and shown keen interest in the topic of the talk. The talk was a great success.

Event Name: Webinar on "Unraveling the Social Network of Covid-19 in India from 30th Jan to 6th Apr, 2020"
Date : 15th June, 2020
No. Of Beneficiaries: 76

Student Attendances

S. No	Name	Roll No
1	ABHISHEK BHANGALIA	AB-1201
2	ABHISHEK KUMAR PRAJAPATI	AB-1202
3	ADITYA RAJ	AB-1203
4	AKSHIT SHARMA	AB-1204
5	AMAN SHARMA	AB-1205
6	ANIKET ROY	AB-1260
7	ANINDITA PANDA	AB-1207
8	ANKIT SHARMA	AB-1208
9	ANURAG SONI	AB-1211
10	ANUSHKA JAIN	AB-1212
11	AYUSHI SHARMA	AB-1266
12	BHARAT ADHIKARI	AB-1214
13	DEEPANSHU	AB-1216
14	DESHNA JAIN	AB-1252
15	DEVANSH SHARMA	AB-1258
16	GULSHAN KUMAR	AB-1217
17	HARSH KUMAR	AB-1218
18	HIMANSHU	AB-1219
19	MANISH KUMAR	AB-1262
20	MANSI SANWAL	AB-1269
21	MEGHA KARKI	AB-1223
22	NIAMATULLAH AZIZI	AB-1267
23	NITESH KUMAR	AB-1225
24	PAWAN KUMAR	AB-1268
25	PRAJWAL SONI	AB-1265
26	PRIYA SINGH	AB-1226
27	R J SAMRAT	AB-1227
28	RACHIT CHAUDHARY	AB-1228
29	RAHUL BASU	AB-1263
30	RAVINDER KUMAR	AB-1230
31	RISHABH DUBEY	AB-1231
32	RISHI SARBOBHOUM	AB-1232
33	ROBIN SINGH	AB-1270
34	SAMBIT BASU	AB-1264
35	SANT KUMAR	AB-1234
36	SARVESH SHARMA	AB-1271
37	SHILPI VERMA	AB-1235
38	SHIVAM ORAON	AB-1236
39	SHIVAM SAINI	AB-1237
40	SHIVANSH TYAGI	AB-1273
41	SHREY SINGHAL	AB-1239
42	SHRUTI JAIN	AB-1240
43	SHUBHAM KUMAR DAS	AB-1241
44	SUPRIYA KUMARI	AB-1272
45	SURUCHI VERMA	AB-1243
46	TABASSUM RANA	AB-1254
47	TANU	AB-1244
48	TISHYA THUKRAL	AB-1245
49	TUSHAR CHAUHAN	AB-1259
50	TUSHAR GAURAV	AB-1253
51	UJJWAL	AB-1257

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52	UJJWAL KUMAR	AB-1246
53	USHNA KHAN	AB-1247
54	UTKARSH AGRAWAL	AB-1248
55	VIDHI ARORA	AB-1249
56	ABHINAV SINGH	Z-1258
57	ABHISHEK KANDARI	Z-1201
58	AJAY SHARMA	Z-1202
59	AKSHANSH DHIRYAN	Z-1203
60	ALOK PRATAP	Z-1205
61	AMAN KUMAR	Z-1207
62	AMAN PRATAP SINGH	Z-1206
63	ANIL KUMAR YADAV	Z-1209
64	ANSHIKA VARSHNEY	Z-1210
65	ARVIND KUMAR GUPTA	Z-1212
66	ASHWIN KUMAR	Z-1213
67	BHUMI CHAUDHARY	Z-1214
68	CHIRAG GARG	Z-1215
69	DAYA SHANKAR	Z-1216
70	GAURAV LOHKNA	Z-1219
71	GYANESH KUMAR SINGH	Z-1220
72	HARSH KUMAR	Z-1222
73	HARSH UPRETI	Z-1221
74	HIMANSHU SHARMA	Z-1224
75	JUGAL SINGH	Z-1226
76	KSHITIJ JAIN	Z-1227

REPORT

Acharya Narendra Dev College is a pioneer within the University in exclusive use of Linux Operating System and other Free & Open Source Software (FOSS) on its PCs.

adopted FOSS in the year 2007 to provide great learning and sharing opportunities to its students. Under this initiative Department of Computer Science of the college organizes an Introductory workshop every year to welcome freshers into the world of FOSS. It is mandatory for all the freshers of the thirteen courses, that college offers, to attend the workshop whether they have taken computer science course or not, as Linux is the only operating system available on its laptop and desktop machines unless other proprietary software is dictated by the syllabus. This year too a four day workshop was organized from 28th Aug, 2018 to 04th Sep, 2018 to familiarize the incumbents of various courses with FOSS concepts. Senior students of B.Sc. (H) Computer Science and B.Sc. Physical Science (Computer Science) were roped in as volunteers for the workshop. They are the ideal candidate for this purpose as they attended this workshop as freshers and then they have been extensively trained through the year on various Linux platforms. Each session was divided into three parts. The first part covered introduction to FOSS and salient features of Linux operating system including why it comes under the category of open source software. Second part gave a contrast between Linux & Windows operating system. And third part introduced Libre Office which included LibreOffice Writer for writing text, LibreOffice Calc for working on spread sheets and LibreOffice Impress for preparing presentations. To impart functional knowledge a practice session was also given to the students. The workshop was a great success. Most of the students of each course could attend it and it turned out to be a great learning experience for all the participants as well as volunteers. The enthusiasm and passion of the new students and volunteers was commendable all through the workshop. Participants were interactive and showed keen interest in the hands-on sessions of the workshop

Photo 1

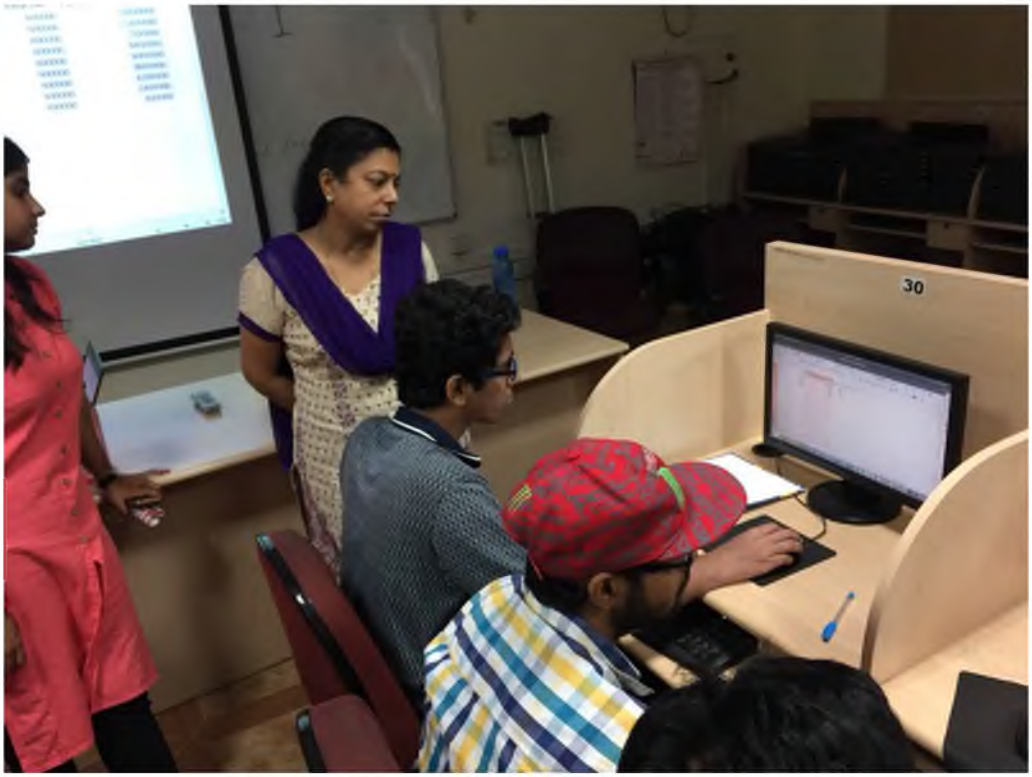


Photo 2

Photo 3

Photo 4

FOSS & LINUX WORKSHOP 2018-2019

ACHARYA NARENDRA DEV COLLEGE Part I (Semester I) 2018-2019

S. No.	Name	Roll No						
1	AAKIB JAVED	ZO-255						
2	AASTHA	ZO-243						
3	AATIRUDDIN KHAN	ZO-201						
4	ALISHA ANSARI	ZO-248						
5	AMISHA	ZO-202						
6	AMIT KUMAR	ZO-203						
7	ANAS AKHTAR	ZO-204						
8	ANNIE SINGH BATRA	ZO-205						
9	ANTARA MOGHE	ZO-206						
10	ANUSHEEL VERMA	ZO-207						
11	ARPIT SHARMA	ZO-249						
12	BHASHKAR PAUL	ZO-208						
13	CHANDAN KUMAR RAJAK	ZO-209						
14	CHRISTINA SONOWAL	ZO-210						
15	DEEKSHA PARTHSARTHY	ZO-211						
16	DIPESH TALUKDAR	ZO-212						
17	DIVYA BHARTI	ZO-213						
18	GRATIA DEI SILVADASAN	ZO-250						
19	HARSHIT JINDAL	ZO-214						
20	HARSHVARDHAN GUPTA	ZO-215						
21	JAYASHREE MALLICK	ZO-216						
22	JUHI TIWARI	ZO-217						
23	KAJAL PANDEY	ZO-218						
24	KAMAKSHI TOMAR	ZO-219						
25	KAUSTAV GAUTHAMAN	ZO-252						
26	KM KANIKA	ZO-220						
27	KUMUD KAUL	ZO-221						
28	MAMTA CHHETRI	ZO-222						
29	MANSI ARORA	ZO-223						
30	MIZNA MUHAMMED KUNHI	ZO-224						
31	MRITTIKA ADHIKARY	ZO-225						
32	MUSKAN GUPTA	ZO-226						
33	NAHID	ZO-227						
34	NAIN RUHELA	ZO-242						
35	NAVODITA SETH	ZO-228						
36	Nisha Kesari	ZO-246						
37	REEMA SAHU	ZO-230						
38	RISHI DEV	ZO-244						
39	ROHIT RAJESH GOKHALE	ZO-232						
40	SACHIN	ZO-233						
41	SACHIN SHARMA	ZO-254						
42	SHAGUFTA ALI	ZO-234						
43	SHIVANI KUMARI	ZO-235						
44	SHREYA ROY CHOWDHURY	ZO-236						
45	SHUBHAM SHUKLA	ZO-245						
46	SIDDHARTH MEHDIRATTA	ZO-237						
47	SOMAK NANDY	ZO-238						
48	STANZIN KUNZANG	ZO-251						

FOSS & LINUX WORKSHOP 2018-2019

ACHARYA NARENDRA DEV COLLEGE- Part-I (Semester-I) 2018-2019

49	SUDEEPTA SINGH	ZO-239						
50	TAMANNA	ZO-240						
51	Tenzin Kunga	ZO-247						
52	VARUN KAPOOR	ZO-241						
53	YASHWANT MEENA	ZO-253						

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No					
1	AASTHA SINGH	ZO-640					
2	ABHIJEET KUMAR	ZO-601					
3	ABHISHEK KAUSHIK	ZO-637					
4	ABHISHEK VISHWAKARMA	ZO-653					
5	ALIA AFREEN	ZO-602					
6	AMAN	ZO-642					
7	AMIT	ZO-650					
8	AMIT	ZO-654					
9	ANAMIKA RANA	ZO-655					
10	ANANYA GUPTA	ZO-604					
11	ANJU	ZO-656					
12	ANKITA NEGI	ZO-657					
13	ANKUSH	ZO-658					
14	ARGHYADEEP MAJUMDAR	ZO-605					
15	ASHISH JHA	ZO-659					
16	ASHUTOSH TANWAR	ZO-606					
17	ASHWANI DIXIT	ZO-660					
18	ASTHA NEGI	ZO-661					
19	AVANTIKA TILWALIYA	ZO-662					
20	CHANDAN PRAKASH	ZO-663					
21	CHAVI VATS	ZO-664					
22	CHIRAG PULWANI	ZO-665					
23	DEEPAK PUNIA	ZO-666					
24	DEEPANSHU VATS	ZO-635					
25	DEV BAJAJ	ZO-610					
26	DEVESH RAWAT	ZO-667					
27	DHARMENDRA SHISHODIA	ZO-668					
28	DHRUV KHANNA	ZO-638					
29	FIZA ANSARI	ZO-649					
30	HEENA NIZAM	ZO-669					
31	HIMANSHU DUTT KAUSHIK	ZO-670					
32	HIMANSHU RAJ	ZO-611					
33	ISHA MAHENDRU	ZO-612					
34	JATIN AVTAR	ZO-613					
35	JITENDER JANGID	ZO-671					
36	JYOTI SHARMA	ZO-615					
37	KHUSHBOO	ZO-616					
38	LALREMRUATI	ZO-652					
39	MANISH KUMAR TIWARI	ZO-619					
40	MANISHA GUPTA	ZO-672					
41	MANSI BHANDARI	ZO-673					
42	MEGHNA SINGH	ZO-674					

FOSS & LINUX WORKSHOP 2018-2019

43	MOHIT RAJ SINGH	ZO-675					
44	MONIKA	ZO-620					
45	MUSKAAN MALHOTRA	ZO-676					
46	MUSKAN GUPTA	ZO-677					
47	MUSTABIN AHMED	ZO-678					
48	NARAIN SWAMI	ZO-679					
49	NAROTAMA	ZO-680					
50	NAVEEN TEWATIA	ZO-681					
51	NEHA UPPAL	ZO-646					
52	NIKITA TYAGI	ZO-682					
53	NITISH BHARDWAJ	ZO-683					
54	NITISH KALSON	ZO-684					
55	OSHO	ZO-621					
56	PAYAL	ZO-685					
57	PAYAL SINGH	ZO-686					
58	PRANAV TUSHIR	ZO-687					
59	PRASEETHA P KUMAR	ZO-688					
60	PREETI	ZO-689					
61	PRIYA SONI	ZO-636					
62	PRIYANSHI JAIN	ZO-623					
63	RACHNA DHURE	ZO-624					
64	RAJANSHI MISHRA	ZO-625					
65	REENA	ZO-690					
66	RICHA	ZO-691					
67	RIYA	ZO-692					
68	ROHAN	ZO-693					
69	RUCHI KOTNALA	ZO-694					
70	RUPALI	ZO-695					
71	SAMEER AHMED	ZO-648					
72	SAMIKSHA SINGH	ZO-626					
73	SHAILESH GUPTA	ZO-641					
74	SHATABDI	ZO-696					
75	SHIVANI	ZO-627					
76	SHRANKHLA KUSHWAHA	ZO-628					
77	SHREYA SAXENA	ZO-630					
78	SHUBHANKAR SINGH	ZO-697					
79	SHWETA GUPTA	ZO-698					
80	SIMRANJEET KAUR	ZO-699					
81	SNEHA MAHAR	ZO-700					
82	SRISHTI	ZO-1501					
83	STANZIN DUDDUL	ZO-1502					
84	TATHAGAT VAIBHAV	ZO-1503					
85	VAISHNAVI CHAUHAN	ZO-631					
86	VANSHIKA	ZO-1504					
87	VARTIKA GUPTA	ZO-632					
88	VARUN DHIRAN	ZO-1505					
89	VATSAL SURYAVANSHI	ZO-1506					
90	VISHAL KUMAR DAGUR	ZO-1507					
91	VISHAL SINGH	ZO-634					
92	YOGESH KUMAR	ZO-651					
93	YUKTA	ZO-1508					

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	ADARSH JHA	Z-1047							
2	AKARSHAN GUPTA	Z-1045							
3	ALKA YADAV	Z-1001							
4	AMISHA PANDA	Z-1002							
5	AMISHA RATHAUR	Z-1003							
6	ANJALI KHOLIYA	Z-1004							
7	ANJALI SINGH	Z-1005							
8	ANKIT KUMAR PRAJAPATI	Z-1006							
9	ANSHUL GAUTAM	Z-1007							
10	**ANWAR ALI**	Z-1008							
11	ARTI	Z-1009							
12	BHAVESH KUMAR	Z-1050							
13	Bhumika	Z-1010							
14	DAS TRIPTA	Z-1044							
15	DEEPANKAN	Z-1011							
16	DEEPANSHI SACHAN	Z-1012							
17	HALEEMA ANJUM	Z-1013							
18	HARSHITA	Z-1040							
19	JYOTI NAWARIYA	Z-1014							
20	KABIR MOLLA	Z-1046							
21	KAPIL KUMAR	Z-1015							
22	KOMAL	Z-1054							
23	KUSHAGRA SATI	Z-1016							
24	LAIRIKYENGBAM ELIZA DEVI	Z-1042							
25	MADHAV GOEL	Z-1052							
26	MUKUND NAGPURE	Z-1017							
27	NABARUN SONOWAL	Z-1018							
28	NAEEM AHMED	Z-1019							
29	**NAMRATA DHARIWAL**	Z-1043							
30	NENGNEICHONG FLORENCE HA	Z-1020							
31	**NIRMEGH BASU**	Z-1021							
32	PALLAVI	Z-1053							
33	PARIKSHIT SAHOTRA	Z-1022							
34	**PRERNA SIROHI**	Z-1023							
35	PRIYA CHAUDHARY	Z-1049							

FOSS & LINUX WORKSHOP 2018-2019

36	RINYARIN KEISHING	Z-1024							
37	RUPAM KUMARI	Z-1025							
38	**RUSHALI BANERJEE**	Z-1026							
39	SAKSHI TOMAR	Z-1041							
40	SANSKRITI OJHA.	Z-1027							
41	SARAH PARWEZ	Z-1028							
42	SHIVAM SHARMA	Z-1029							
43	SHUBHAM	Z-1030							
44	SHUBHAM SRIVASTAVA	Z-1038							
45	SHUSHANK	Z-1031							
46	SONI GUPTA	Z-1032							
47	SUHANI RATHORE	Z-1033							
48	SUNIDHI ANEJA	Z-1034							
49	TAMANNA	Z-1051							
50	TANUPRIYA GUPTA	Z-1035							
51	VANDANA GAUTAM	Z-1036							
52	VATSAL BHARGAVA	Z-1037							
53	VIDUSHI SAXENA	Z-1048							
54	YASH VIRMANI	Z-1039							

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	ABHISHEK KHANNA	ZO-501							
2	AJEET SINGH	ZO-502							
3	AKASH YADAV	ZO-503							
4	ANKIT TOMAR	ZO-504							
5	APARNA JINDAL	ZO-506							
6	ARJUN SINGH	ZO-507							
7	ASHISH GUPTA	ZO-508							
8	ASHISH KANOJIA	ZO-553							
9	BULBUL	ZO-554							
10	DEEPAK KUMAR GUPTA	ZO-511							
11	DEV RAJ SINGH	ZO-512							
12	ESHITA SINGH	ZO-513							
13	GAURAV DWIVEDI	ZO-514							
14	GAURAV JANGRA	ZO-515							
15	GAYATRI ARYA	ZO-552							
16	GEETIKA	ZO-549							
17	HARSH GUPTA	ZO-516							
18	HARSH KANT TIWARY	ZO-517							
19	HITESH SONI	ZO-518							
20	ISHIKA SAGWAL	ZO-519							
21	KANGANA JAISWAL	ZO-520							
22	KARAMBIR	ZO-521							
23	MAHIMA YADAV	ZO-522							
24	MANSI	ZO-523							
25	MAYANK SINGLA	ZO-524							
26	MOHIT KUMAR	ZO-525							
27	MRINAL	ZO-526							
28	MUKUL KUMAR	ZO-527							
29	MUSKAN	ZO-551							
30	NANCY SINGH	ZO-550							
31	PRINCE KUMAR	ZO-555							
32	PURUSHOTTAM YADAV	ZO-528							
33	RABINA YADAV	ZO-529							
34	RAHUL KUMAR SHARMA	ZO-548							
35	SAGAR GOYAL	ZO-530							
36	SAHIL ARORA	ZO-531							
37	SAKSHI GHILDIYAL	ZO-532							
38	SAURABH RANA	ZO-533							
39	SHAILJA	ZO-534							
40	SHEETAL	ZO-535							
41	SHIVAM DWIVEDI	ZO-536							
42	SHIVAM YADAV	ZO-537							
43	SHREYANSH PANDEY	ZO-538							
44	SHUBHAM KUMAR	ZO-540							
45	SHUBHAM KUMAR TIWARI	ZO-539							
46	SHUBHAM RAI	ZO-541							
47	SIDDHANT TRIPATHI	ZO-542							
48	SITU BEHERA	ZO-543							

FOSS & LINUX WORKSHOP 2018-2019

49	SOURABH	ZO-544							
50	SOURASH YADAV	ZO-545							
51	TANYA YADAV	ZO-546							
52	VIVEK KUMAR YADAV	ZO-547							
53	YOGESH KUMAR	ZO-556							

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	AJAY KUMAR	ZO-901							
2	AKASH KUMAR	ZO-903							
3	AKASH TRIVEDI	ZO-902							
4	AKSHAY PRATAP SINGH	ZO-904							
5	ALPESH KUMAR	ZO-905							
6	AMAN KUMAR	ZO-906							
7	AMAN MISHRA	ZO-907							
8	AMIT	ZO-908							
9	ANIKET GUPTA	ZO-909							
10	ANJALI DHAMI	ZO-910							
11	ANSHUMAN	ZO-911							
12	ARCHIT SINGH	ZO-912							
13	ARNAV KHOKHAR	ZO-913							
14	ASHISH YADAV	ZO-914							
15	DHEERAJ KUMAR	ZO-949							
16	DIVYA CHAKSHU SHARMA	ZO-915							
17	Gaurav KUMAR Gautam	ZO-916							
18	GOURAV GUPTA	ZO-917							
19	HARSHITA MALHOTRA	ZO-918							
20	JATIN SAGAR	ZO-948							
21	JATIN UPRETI	ZO-919							
22	KARTIK KAY	ZO-920							
23	KESHANT LOMAS	ZO-922							
24	KUSHAL SANKHLA	ZO-923							
25	LOVENEET	ZO-924							
26	MALLIKA YADAV	ZO-925							
27	MANPREET YADAV	ZO-926							
28	MUKUL KUMAR	ZO-927							
29	PANKAJ PANDEY	ZO-929							
30	PRADEEP MANJHU	ZO-930							
31	PRINCE	ZO-931							
32	RAMNEEK GHINTALA	ZO-932							
33	SAKSHI	ZO-934							
34	SHARYAURAI RIANG	ZO-935							
35	SHAZIA TABASSUM	ZO-936							
36	SHIVAM SHAKYA	ZO-937							
37	SHUBHAM	ZO-938							
38	SIMRAN	ZO-939							
39	VAISHALI VASHISHTHA	ZO-940							

FOSS & LINUX WORKSHOP 2018-2019

40	VIKALP BAJPAI	ZO-942						
41	VIKAS DWIVEDI	ZO-943						
42	VINEET KUMAR SINGH	ZO-944						
43	VIPUL KUMAR	ZO-945						
44	VISHAL KUMAR	ZO-946						
45	YUVRAJ SEHGAL	ZO-947						

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	AASHIMA	ZO-701							
2	ABHINAV CHAUDHARY	ZO-702							
3	ABHISHEK PAL	ZO-703							
4	ADITI RASTOGI	ZO-704							
5	ADITY DUBEY	ZO-705							
6	AMBUJ TOMAR	ZO-706							
7	ANIRBAN MISHRA	ZO-707							
8	ANKIT KUMAR GANGWAR	ZO-708							
9	ANKUR SINGH	ZO-709							
10	ANMOL BEHERA	ZO-710							
11	ANUNAY SRIVASTAVA	ZO-753							
12	ANURAG VERMA	ZO-711							
13	GAURAV MEENA	ZO-712							
14	GURPREET KAUR	ZO-713							
15	KANCHAN BONAL	ZO-714							
16	KM SHIKHA KUMARI	ZO-715							
17	KRISHAN	ZO-716							
18	KUMAR Nandan Kishor	ZO-751							
19	KUNAL PANT	ZO-717							
20	LOVEPREET	ZO-718							
21	M ABHINAV RAJ	ZO-719							
22	Madhur Gahtori	ZO-720							
23	MANOJ KUMAR	ZO-721							
24	NAMAN GOYAL	ZO-722							
25	NEHA	ZO-723							
26	NIDHI SHARMA	ZO-724							
27	PANKAJ KUMAR YADAV	ZO-725							
28	POOJA	ZO-726							
29	PRACHI	ZO-727							
30	PRATYUSH SINGH JANGPANGI	ZO-728							
31	PRIYANSHI GUPTA	ZO-729							
32	PULKIT NARAYAN PANDEY	ZO-730							
33	PUSHKAR PANDEY	ZO-731							
34	RAHUL JAMATIA	ZO-732							
35	RAJESH KUMAR	ZO-733							

FOSS & LINUX WORKSHOP 2018-2019

36	RANJEET KUMAR SAHU	ZO-734						
37	RITIK KEHRA	ZO-735						
38	RUPESH KUMAR	ZO-736						
39	SAURABH KUMAR	ZO-737						
40	SHAHEED	ZO-738						
41	SHALINI KATARIA	ZO-739						
42	SHRUTI CHANDRA GUPTA	ZO-740						
43	SOMIYA KAPOOR	ZO-754						
44	SUBHENDU BERA	ZO-741						
45	SUKANTA SARKAR	ZO-742						
46	SUMIT KUMAR SAH	ZO-743						
47	SUNIDHI KHANNA	ZO-744						
48	SURAJ NARAYAN PANDEY	ZO-745						
49	SWETA PATHAK	ZO-746						
50	UJJWAL NAUDIYAL	ZO-747						
51	VAIBHAV MISHRA	ZO-748						
52	VIVEK KUMAR	ZO-752						
53	YOGESH KUMAR	ZO-749						

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No
1	AAKASH ROY	ZO-301
2	ADARSH KUMAR GAURAB	ZO-350
3	ADARSH TIWARI	ZO-302
4	AKHIL SHARMA	ZO-349
5	ANUJ KUMAR	ZO-304
6	ANUKOOL JAIN	ZO-305
7	ASHISH MEENA	ZO-306
8	ASHWIN GUPTA	ZO-307
9	AWDHESH KUMAR TIWARI	ZO-308
10	AYUSHI KHANDELIA	ZO-309
11	BHANUPRATAP SHEKHAWAT	ZO-310
12	DEVESH	ZO-311
13	DHARMENDER SINGH RAWAT	ZO-312
14	GAURAV YADAV	ZO-313
15	GURU PRASAD	ZO-314
16	HITESH KUMAR	ZO-315
17	JAYA	ZO-316
18	KARTIK GUPTA	ZO-318
19	LAKSHAYA	ZO-351
20	MAHIMA DUDEJA	ZO-320
21	MANISH KUMAR	ZO-321
22	MOHIT YOGI	ZO-322
23	MOTHSIM ALAM	ZO-323
24	NARAYAN singh	ZO-324
25	NARENDRA KUMAR MEENA	ZO-325
26	NAVEEN RAWAT	ZO-326
27	NEERAJ VISHWAKARMA	ZO-327
28	NIKHIL JOSHI	ZO-328
29	NITESH KUMAR	ZO-329
30	PAWAN KUMAR	ZO-330
31	PRIYANKA	ZO-331
32	RAHUL RANA	ZO-332
33	RAHUL SINGH KUSHWAHA	ZO-333
34	RAVI KUMAR	ZO-334
35	ROHIT YADAV	ZO-335
36	SAGAR GUPTA	ZO-352
37	SAKSHAM SETIA	ZO-336
38	SAURABH DOHAIYA	ZO-337
39	SEEMA	ZO-338
40	SHIVANI CHAUDHARY	ZO-339

FOSS & LINUX WORKSHOP 2018-2019

41	SHIVANI SAXENA	ZO-340						
42	SHIVANSHU TOMAR	ZO-341						
43	SHUBHAM KHARI	ZO-342						
44	SONI	ZO-343						
45	SURBHI SANTRAJ	ZO-344						
46	VAANI SINGH	ZO-345						
47	VIJAY YADAV	ZO-346						
48	VISHAL SHARMA	ZO-347						
49	YASH VERMA	ZO-348						

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No						
1	ABHINAV SINGH	Z-1258						
2	ABHISHEK KANDARI	Z-1201						
3	AJAY SHARMA	Z-1202						
4	AKSHANSH DHIRYAN	Z-1203						
5	ALOK PRATAP	Z-1205						
6	AMAN KUMAR	Z-1207						
7	AMAN PRATAP SINGH	Z-1206						
8	AMBREESH KUMAR RATHORE	Z-1208						
9	ANIL KUMAR YADAV	Z-1209						
10	ANSHIKA VARSHNEY	Z-1210						
11	ANUJ KUMAR	Z-1211						
12	ARVIND KUMAR GUPTA	Z-1212						
13	ASHWIN KUMAR	Z-1213						
14	BHUMI CHAUDHARY	Z-1214						
15	CHIRAG GARG	Z-1215						
16	DAYA SHANKAR	Z-1216						
17	Divyanshi GARG	Z-1217						
18	GAURAV LOHKNA	Z-1219						
19	GYANESH KUMAR SINGH	Z-1220						
20	HARSH KUMAR	Z-1222						
21	HARSH UPRETI	Z-1221						
22	HARSHIT	Z-1223						
23	HIMANSHU SHARMA	Z-1224						
24	HRITIK RAJ	Z-1225						
25	JUGAL SINGH	Z-1226						
26	KSHITIJ JAIN	Z-1227						
27	KUNAL BHANDARI	Z-1228						
28	LALIT	Z-1229						
29	MADANMOHAN GARG	Z-1230						
30	MAYANK MALIK	Z-1231						
31	MUKESH KUMAR	Z-1232						
32	NAMANPREET SINGH	Z-1234						
33	NAVEEN AGGARWAL	Z-1235						
34	NIDHISH GOEL	Z-1236						
35	NIMESH YADAV	Z-1237						
36	POOJA RANJAN	Z-1238						
37	PRAKHYAT SHARMA	Z-1239						
38	PRAKRITI GUPTA	Z-1240						
39	PRANOV	Z-1241						
40	PRATIKA TRIPATHI	Z-1242						

FOSS & LINUX WORKSHOP 2018-2019

41	RAMESH CHANDRA PANT	Z-1243				
42	S SAI SACHEEN	Z-1244				
43	SACHIN SETH	Z-1245				
44	SANTOSH KUMAR ROY	Z-1246				
45	SHIVA PATEL	Z-1247				
46	SHUBHAM KUDIYA	Z-1248				
47	TANYA GUPTA	Z-1249				
48	TRISHNA BHARTI	Z-1250				
49	UTKARSH PAL	Z-1251				
50	UTKARSH SRIVASTAVA	Z-1257				
51	VIBHU SINGH	Z-1255				
52	VINAY KUMAR SHARMA	Z-1256				
53	VIVEK SHARMA	Z-1252				
54	YAMINI BAKSHI	Z-1253				
55	YASHI YADAV	Z-1254				

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No						
1	ABHIJEET KUMAR TIWARI	ZO-802						
2	ABHINAV TYAGI	ZO-803						
3	ABHISHEK MANDAL	ZO-804						
4	AKASH BABU	ZO-805						
5	AKHILESH KUMAR	ZO-807						
6	AKSHIT AGGARWAL	ZO-808						
7	ALISHA BISWAL	ZO-809						
8	AMAN KUMAR	ZO-810						
9	AMRIT DUTTA	ZO-812						
10	ANKIT KUMAR	ZO-874						
11	ANKUR BADOLA	ZO-813						
12	ANUDEEP A S	ZO-814						
13	ANURAG KUMAR	ZO-815						
14	ARPITA DEBNATH	ZO-816						
15	ARUN KUMAR SOLANIA	ZO-817						
16	ASHISH KUMAR	ZO-818						
17	ASHISH NAINWAL	ZO-819						
18	ASHUTOSH SHARMA	ZO-820						
19	BANSHI LAL	ZO-821						
20	BRIJNANDAN KUMAR RAY	ZO-822						
21	CHANDERDEEP	ZO-823						
22	DEBOJYATI KONER	ZO-824						
23	DEEPAK KUMAR	ZO-825						
24	GAURAV ATTRISH	ZO-826						
25	KANT PRATAP	ZO-827						
26	KARAN BAJAJ	ZO-828						
27	KARAN SHARMA	ZO-829						
28	KHUSHBOO GUPTA	ZO-830						
29	KSHITIJ GAUTAM	ZO-831						
30	MOHAMMAD NAZIM	ZO-832						
31	MOHD SHOAIB MALIK	ZO-833						
32	NIHARIKA PANT	ZO-834						

FOSS & LINUX WORKSHOP 2018-2019

33	NISHANT SAINI	ZO-835							
34	NITESH GANGWAR	ZO-836							
35	NITIN JOSHI	ZO-838							
36	PRAJWAL UPADHYAY	ZO-839							
37	Prashant Mishra	ZO-840							
38	PRAVEEN SINGH	ZO-841							
39	PRAVIN BHIMASHANKAR KAMALE	ZO-842							
40	PRIYANKA SHARMA	ZO-843							
41	RAAYESHA AMIN	ZO-844							
42	RAKESH KUMAR	ZO-845							
43	RASHID ALI RATHER	ZO-846							
44	REYA NEGI	ZO-847							
45	SAHIL KUMAR	ZO-848							
46	SANKET VERMA	ZO-849							
47	SHALINI BISHT	ZO-850							
48	SHIPRA SUPRABHA	ZO-851							
49	SHIVANG SHARMA	ZO-852							
50	SHIVANK SHARMA	ZO-853							
51	SHIVANSHU TRIPATHI	ZO-854							
52	SHIVRAT SACHDEVA	ZO-855							
53	SIMRAN SIDHANTI	ZO-856							
54	SUBHASH CHANDRAVANSHI	ZO-858							
55	SURESH SINGH DHAMI	ZO-859							
56	TUSHAR MISHRA	ZO-861							
57	VEDAVYAS S A	ZO-863							
58	VIDIT VERMA	ZO-864							
59	VIKASH TOMAR	ZO-865							
60	VINEET KUMAR	ZO-866							
61	VINOD JAKHAR	ZO-867							
62	VIREN TYAGI	ZO-868							
63	VIVEK KUMAR	ZO-869							
64	YUKTA KANDPAL	ZO-873							

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No						
1	AARTI RAGHAV	ZO-054						
2	AASTHA TAKKAR	ZO-055						
3	AAYUSH CHANDRA JHA	ZO-001						
4	ABHISHEK	ZO-056						
5	ABHISHEK PANDEY	ZO-002						
6	AJAY KUMAR	ZO-057						
7	ANDALEEB ZAHRA	ZO-050						
8	ANJALI MEENA	ZO-004						
9	ANJANA	ZO-005						
10	ANKIT CHAWRA	ZO-006						
11	ANKITA	ZO-007						
12	ANKITA	ZO-058						
13	ANURAG KUMAR PAL	ZO-059						
14	APOORVA	ZO-060						
15	AQSA KHAN	ZO-061						
16	ASHUTOSH SINGH	ZO-062						
17	BEERU VERMA	ZO-009						
18	CHANDRA PRAKASH TIWARI	ZO-011						
19	DEEPAK	ZO-012						
20	DEEPAK KUMAR	ZO-013						
21	DEEPAK MISHRA	ZO-063						
22	DEEPANSHI PATEL	ZO-014						
23	DEEPTI	ZO-015						
24	DIKSHA	ZO-064						
25	DIKSHA GUPTA	ZO-065						
26	DIVYA BHATT	ZO-066						
27	FIROZ	ZO-052						
28	GAURAV KUMAR	ZO-016						
29	GAURAV RAWAT	ZO-067						
30	HARSHITA SHARMA	ZO-068						
31	HIMANSHU SINGH	ZO-017						
32	ISHANK BEDWAL	ZO-069						
33	JATIN	ZO-070						
34	JAYANT JAIN	ZO-071						
35	KAMBATI NIHARIKA	ZO-020						
36	LAKSHIKA	ZO-072						
37	MANISH SONI	ZO-021						
38	MOHD BILAL	ZO-047						
39	MOHIT SINGH KANYAL	ZO-023						
40	MUSKAN	ZO-024						
41	Muskan Bhatia	ZO-025						

FOSS & LINUX WORKSHOP 2018-2019

42	NADEEM AHMED	ZO-073						
43	NEELAM	ZO-026						
44	NEHA	ZO-027						
45	NEHA	ZO-074						
46	NEHA PANT	ZO-075						
47	NIDHI PATHAK	ZO-076						
48	**NIKITA GOEL**	ZO-028						
49	NISCHAY	ZO-029						
50	NITESH VERMA	ZO-053						
51	PARVINDER SINGH SAINI	ZO-030						
52	PAWAN	ZO-046						
53	POOJA	ZO-077						
54	POOJA DEVI	ZO-049						
55	POOJA KUMARI	ZO-078						
56	PRATIK SRIVASTAVA	ZO-032						
57	PRATYUSH GUPTA	ZO-048						
58	PREETI SAI	ZO-079						
59	PRERAK YADAV	ZO-080						
60	RAJAT KACHARI	ZO-033						
61	**RAJAT SHARMA**	ZO-034						
62	RINKI	ZO-081						
63	RITIKA	ZO-082						
64	RITU JHA	ZO-083						
65	ROBIN KHAN	ZO-084						
66	RUPNI MINJ ORAON	ZO-035						
67	SHIVALI	ZO-085						
68	SHIVAM SINGH	ZO-051						
69	SHIVANGI TYAGI	ZO-086						
70	SHIVANI PAL	ZO-087						
71	SHREYA PANDEY	ZO-088						
72	SIMMI	ZO-037						
73	SIMRAN	ZO-043						
74	SMRITY JHA	ZO-038						
75	SOMYA MAHESHWARI	ZO-042						
76	TUHIN KUMAR DUTTA	ZO-089						
77	VIBHA GUPTA	ZO-039						
78	VINAY PANWAR	ZO-090						
79	YASH NAAVARIYA	ZO-040						

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	AASHIRWAD PANDEY	Z-1301							
2	ADITYA PRAKASH PRAJAPATI	Z-1303							
3	AMAR SINGH	Z-1305							
4	ANCHAL	Z-1307							
5	ARYAN THAKUR	Z-1311							
6	DEVENDER	Z-1315							
7	EKTA RANI	Z-1317							
8	HARSHIT GULATI	Z-1319							
9	JATIN SAHU	Z-1321							
10	KASHISH GUPTA	Z-1323							
11	KINSHUL SINGHAL	Z-1325							
12	MAMTA	Z-1329							
13	MEENU	Z-1331							
14	NEHA SHAH	Z-1335							
15	NITANT	Z-1337							
16	PARANJAY KUKRETI	Z-1339							
17	PARTH SACHDEVA	Z-1341							
18	PRAKHAR PRAKASH YADAV	Z-1343							
19	PRATISHTHA BISHT	Z-1345							
20	RAGHAV GUPTA	Z-1347							
21	RICHA BHARTI	Z-1349							
22	SACHIN GOYAL	Z-1351							
23	SARANSH SHARMA	Z-1355							
24	SAURABH MANGLA	Z-1357							
25	SHUBHAM DILAWARI	Z-1359							
26	SONIKA	Z-1361							
27	SUBIN BABU	Z-1363							
28	VAIBHAV MAHAJAN	Z-1367							
29	VYOM VASHISHTH	Z-1371							
30	AJAY KUMAR ARYA	Z-1373							
31	DEEPAK	Z-1375							
32	AKSHAT JAIN	Z-1377							
33	PAWAN THAKUR	Z-1379							
34	VANSH BHUTANI	Z-1381							
35	NIYATI SHARMA	Z-1383							
36	KRITI MITTAL	Z-1385							
37	Vikalp Kashyap	Z-1387							
38	ANJALI SHARMA	Z-1389							
39	MANSI MALPANI	Z-1391							
40	PUNEET CHOUDHARY	Z-1393							
41	ADITYA BHATT	Z-1395							
42	AMAN KUMAR	Z-1397							
43	ASHISH KUMAR	Z-1399							
44	FAGUNI GHAI	Z-1401							
45	HARSHIT SHARMA	Z-1403							
46	JAI CHAUHAN	Z-1405							
47	PAYAL KUMARI	Z-1407							
48	PIYUSH BANSAL	Z-1409							
49	PRINCE GAUTAM	Z-1411							
50	SAURABH SONU	Z-1413							
51	SUMIT KUMAR	Z-1415							
52	VANSH GUJRAL	Z-1417							

FOSS & LINUX WORKSHOP 2018-2019

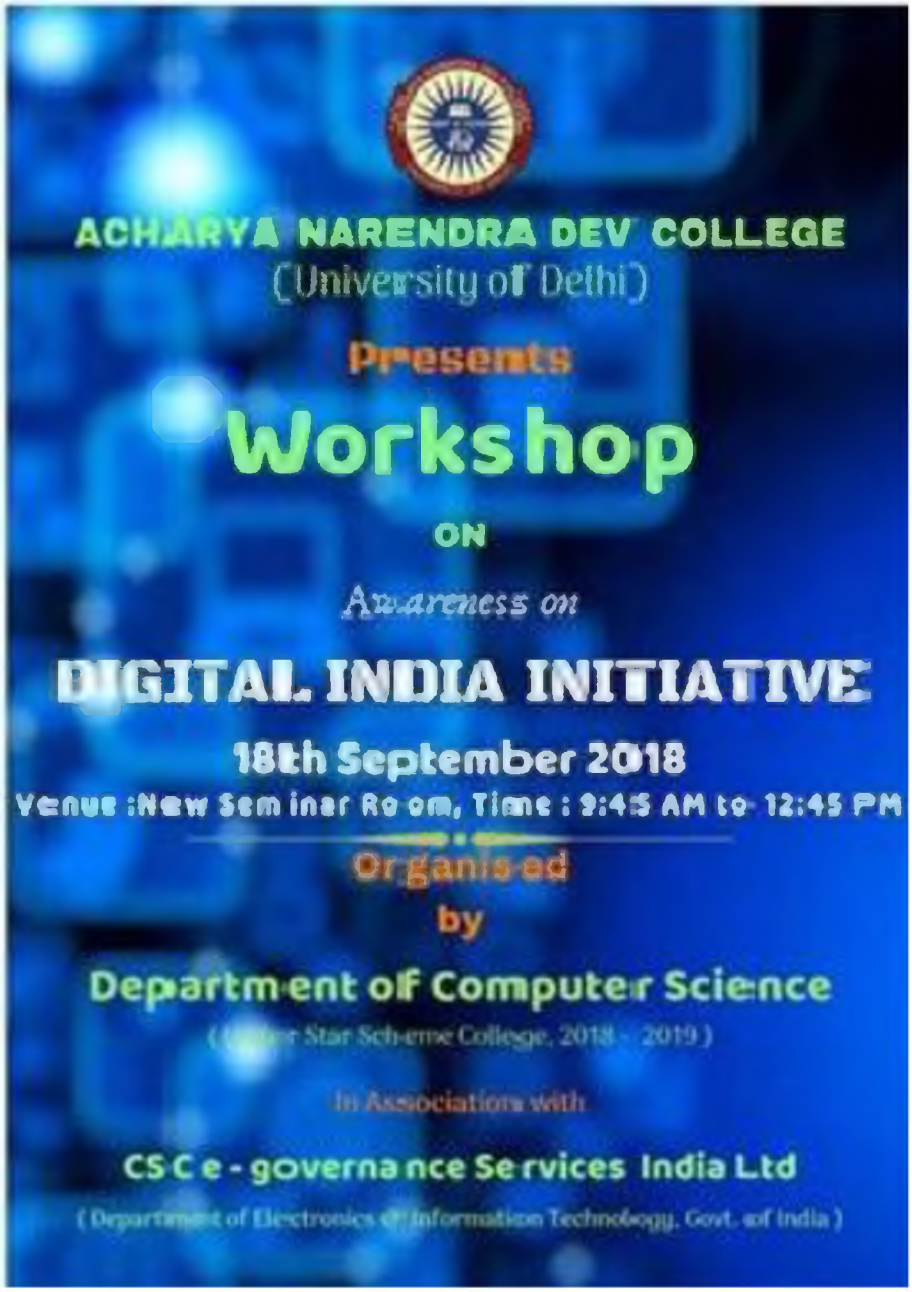
S. No.	Name	Roll No							
1	ABHISHEK PANDEY	Z-1302							
2	ANAS KUNHU	Z-1306							
3	ANKIT CHAUHAN	Z-1308							
4	ARUSHI JAIN	Z-1310							
5	DEEPAK SHAKYA	Z-1314							
6	DHRUV RISHI	Z-1316							
7	HARSHIT KUMAR GARG	Z-1318							
8	HIMANSHI MADAAN	Z-1320							
9	JEBIN JOSEPH	Z-1322							
10	KRISHAN KUMAR	Z-1326							
11	LAKSHIATA	Z-1328							
12	MANAS GAMBHIR	Z-1330							
13	MOKSH MAHORE	Z-1332							
14	MUSKAN	Z-1334							
15	PALAK CHITKARA	Z-1338							
16	PAWAN	Z-1342							
17	PRASHANT	Z-1344							
18	RAGHAV AGARWAL	Z-1346							
19	REKHA	Z-1348							
20	RITIK GIRI	Z-1350							
21	SATRUPA NISHAD	Z-1356							
22	SIDDHARTH GAUR	Z-1360							

FOSS & LINUX WORKSHOP 2018-2019

S. No.	Name	Roll No							
1	AASHU KUMAR	ZO-401							
2	ABHISHEK	ZO-402							
3	ABHISHEK PURI	ZO-443							
4	AKASH DEEP	ZO-403							
5	AMAN TYAGI	ZO-404							
6	ANAMTA ISLAM	ZO-405							
7	ankita SHUKLA	ZO-406							
8	ANKUR	ZO-407							
9	ANUJ SINGH ALMIA	ZO-408							
10	ANURAG SAXENA	ZO-409							
11	ASHISH KUMAR	ZO-410							
12	ASHUTOSH MANI TRIPATHI	ZO-447							
13	ATIF	ZO-449							
14	AYAM MISRA	ZO-411							
15	DEEPAK KUMAR MEENA	ZO-456							
16	DEVANSH VERMA	ZO-412							
17	DEVASHISH	ZO-413							
18	DEVESH SAMANT	ZO-414							
19	DIVYANSH SHARMA	ZO-455							
20	GAURAV DUBEY	ZO-448							
21	ISLAM MULK	ZO-445							
22	JAGAT PAL	ZO-452							
23	JAYANT DWIVEDI	ZO-446							
24	JYOTI SAINI	ZO-444							
25	KARAMBIR SHARMA	ZO-416							
26	KARAN	ZO-417							
27	LALIT SHARMA	ZO-419							
28	Lalit SHUKLA	ZO-418							
29	MAHAK KALRA	ZO-420							
30	MAYANK SINGH RAWAT	ZO-451							
31	MD BASHARAT KARIM	ZO-421							
32	MOHD AAMIR	ZO-422							
33	MOHD NAZAM	ZO-423							
34	MOHIT SUPYAL	ZO-424							
35	MOHMMAD JUBAIR	ZO-425							
36	PHULENDER	ZO-426							
37	PIYUSH KUMAR	ZO-427							
38	PRAHLAD PRAJAPAT	ZO-428							
39	PUSHKAR BARANWAL	ZO-457							
40	SAMEER TYAGI	ZO-454							

FOSS & LINUX WORKSHOP 2018-2019

41	SHARDULL	ZO-442							
42	SHASHWAT GUPTA	ZO-432							
43	SUDHEER KUMAR	ZO-450							
44	SUDHIR KUMAR SHARMA	ZO-435							
45	SURAJ SINGH	ZO-437							
46	TARIQUE EHSAN	ZO-453							
47	TUSHAR KUMAR PATEL	ZO-438							
48	VASU NARANG	ZO-439							
49	VINAY PATEL	ZO-440							
50	YASH VARSHNEY	ZO-441							



REPORT

DEPARTMENT OF COMPUTER SCIENCE OF ACHARYA NARENDRA DEV COLLEGE ORGANIZED A WORKSHOP (UNDER THE STAR COLLEGE SCHEME) ON DIGITAL INDIA INITIATIVE IN COLLABORATION WITH CSC E-GOVERNANCE SERVICES INDIA LTD. ON 18TH SEPTEMBER, 2018.

CSC e-Governance Services India Limited is a Special Purpose Vehicle (SPV) set up by the Ministry of Electronics & IT to oversee the implementation of the

scheme. CSC SP
provides a centralized collaborative framework for delivery of services through Common Services Centers (CSCs).

CSCs are the last mile access points for delivery of various e-governance and public services such as PAN card, Election ID, UID etc. to citizens. They are also focused on employment generation through e-learning and skill development for rural communities.

About 150 studenrs from Department of Computer Science, Electronics and Zoology attended the workshop. The workshop was a great success. Participants were interactive and showed keen interest in the services offered by CSCs. Their enthusiastic participation led to greater awareness about the courses offered through the CSCs.

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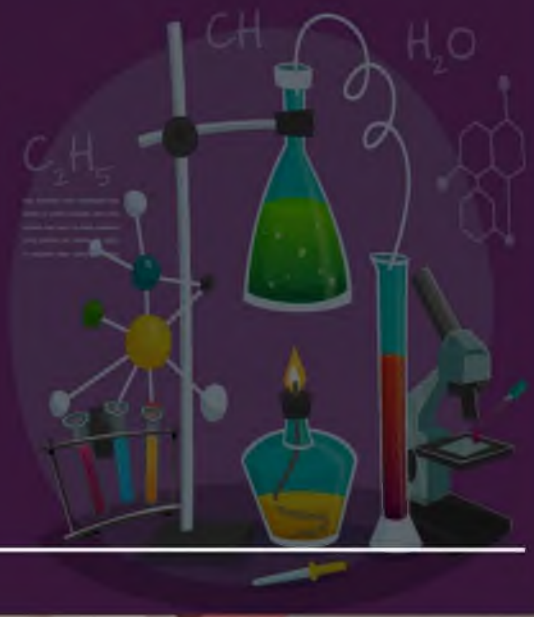
About 150 studenrs from Department of Computer Science, Electronics and Zoology attended the workshop. The workshop was a great success. Participants were interactive and showed keen interest in the services offered by CSCs. Their enthusiastic participation led to greater awareness about the courses offered through the CSCs.

Photo 1

DEPARTMENT OF CHEMISTRY



Conferences/Workshops/Seminars for the year 2021-22

Introduction to New Experiments

Report of workshop

A one day Hands-on workshop on "Introduction to New Experiments" was organized by ANDC, under the aegis of DBT star scheme and IQAC on 21st April 2022 from 9:30 PM to 4:30 PM in Chemistry Laboratory IV of Acharya Narendra Dev College, University of Delhi. Dr Neeti Misra (Associate Professor, ANDC) and Dr Pragati Malik (Assistant Professor, ANDC) were the resource persons in the morning session. Students were taught Basics of Molecular Modelling and a detailed description of the Avogadro Software and Argus Lab Software was given. 38 students from different courses and Universities attended the workshop. Resource Persons gave an introduction of Computational Chemistry, Difference between Quantum Chemical Calculation and Molecular Mechanical Calculation, Density Functional Theory, Basis Sets and Functionals, Molecular Structure Building, Geometry or Structure Optimization, stability.

During the afternoon session, from 1:00 PM to 5:00 PM, Dr. Pooja Bhagat (Associate Professor, ANDC) and Dr. Kavita Mittal (Assistant Professor, ANDC) were the resource persons. Total participants including 10 students, 03 faculty and 02 lab-staffs from college attended the event. A manual of the topic "Thin Layer Chromatography" was given to the students for their future consideration. Later on, report showing the "Optimization of solvent system for the separation of components using thin layer chromatography" was submitted by the students along with the sequenced pictures of TLCs.

There was question answer session after each session. Participants were quite satisfied with the information given and we got positive response from them.

Resource Persons:

Dr Neeti Misra (Associate Professor, ANDC), 9810276577, neetimisra@andc.du.ac.in

Dr Pragati Malik (Assistant Professor, ANDC), 9910517371, pragatimalik@andc.du.ac.in

Dr. Pooja Bhagat (Associate Professor, ANDC), 9311402302, poojabhagat@andc.du.ac.in

Dr. Kavita Mittal (Assistant Professor, ANDC), 9810940472, kavitamittal@andc.du.ac.in

Attendance

S.No.	Name
1.	HIMANSHU RAWAT
2.	ISHIKA
3.	ISHITA
4.	JATIN
5.	JYOTSNA
6.	KAPIL RATHORE
7.	KHUSHBOO
8.	KRISHNA AGRAWAL
9.	MADHOOLIKA SINGH
10.	MADHU
11.	MANSI PAWAR
12.	MEGHANA BISHT
13.	MOHD PARVEZ
14.	MONIKA
15.	MRIDUL TIWARI
16.	MUKUL BINJOLA
17.	MUSKAN SHARMA
18.	NANDKISHOR AHIRWAR
19.	Parag Nath
20.	PRABHAT KUMAR
21.	Preeti Saini
22.	Ramjeet
23.	RITWIZ TIWARI
24.	ROHIT KUMAR
25.	SAKSHI YADAV
26.	SANJAY DAHIYA
27.	SEJAL

28. SHRAWAN MALIK
29. SHWETA
30. SHYAM SUNDAR KUMAR
31. SOMYA SINGH
32. SUMAN
33. TANUSHREE
34. TANYA CHOPRA
35. TARUNA SHARMA
36. TUSHAR JASROTIA
37. UMESH
38. VINAY
39. VIRENDER KR AHLAWAT
40. VAISHNAVI THAKUR
41. NEERAJ
42. POOJA ACHARYA
43. PRAGYA SINGH
44. SACHIN
45. SAKSHAM DOSAR

Sunita Hooda

Acharya Narendra Dev College

UNIVERSITY OF DELHI

NAAC ACCREDITATION GRADE 'A' | NIRF RANK 30

Department of Chemistry

Under the aegis of DBT Star Scheme and IQAC

Analytical Laboratory Techniques

Date 25-29th Oct. 2021

Time 12:00-5:00 PM

Venue – Department of Chemistry Laboratory No. 4

Resource Person

Prof. Sunita Hooda

Dr. Geet Gambhi

Dr. Shallu Sachdeva

Drashya

Aayush Jain

Patron : Prof Ravi Toteja

DBT Coordinator : Prof Sunita Hooda

Convenor : Dr. Geetu Gambhir

Co-Convenor : Dr. Shallu Sachdeva

Workshop Schedule

Day	Time	Techniques	Resource Person
25 Oct 2021	12:00-02:00 PM	Warm welcome with Instrumental Analytical techniques	Prof. Sunita Hooda Dr. Shallu Sachdeva Drashya
	LUNCH BREAK (02:00-02:30 PM)		
	02:30-05:00 PM	UV –Visible Spectroscopy • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Dr. Geetu Gambhir
26 Oct 2021	12:00-2:00 PM	Shaker and Vacuum Rotary vapor • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Prof. Sunita Hooda
	LUNCH BREAK (02:00-02:30 PM)		
	02:30-5:00 PM	Ultrasonicator and pH-meter • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Dr. Geetu Gambhir Dr. Shallu Sachdeva
27 Oct 2021	12:00-2:00 PM	Nuclear Magnetic Resonance Spectroscopy • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Prof. Sunita Hooda Dr. Shallu Sachdeva

	LUNCH BREAK (02:00-02:30 PM)		
	02:30-5:00 PM	Infrared spectroscopy • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Prof. Sunita Hooda Dr. Geetu Gambhir

28 Oct 2021	12:00-2:00 PM	Gravimetric Analysis and Weighing Instrument • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Dr. Shallu Sachdeva
	LUNCH BREAK (02:00-02:30 PM)		
	02:30-5:00 PM	Thin Layer Chromatography • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Dr. Geetu Gambhir
29 Oct 2021	12:00-3:00 PM	Column Chromatography • Theory • Instrumentation • Application in Industries • Hands-on	Drashya Dr. Geetu Gambhir
	LUNCH BREAK (03:00-03:30 PM)		
	03:30-5:00 PM	Closing with talk by the guest Speaker on "Development of TL detectors for medical applications"	Aayushi Jain

Report of Workshop on Analytical Laboratory Techniques

Four days work shop on **Analytical Laboratory Techniques** was carried out from 25th to 29th Oct 2021. Various analytical techniques were explained to students like UV – Visible Spectroscopy Shaker and Vacuum Rotary vapor Ultrasonicator and pH-meter, Nuclear Magnetic Resonance Spectroscopy, Infrared spectroscopy, Gravimetric Analysis and Weighing Instrument, Thin Layer Chromatography, Column Chromatography. Theory, Instrumentation, Application of various instruments to Industrial problems and Hands-on training on various equipments were also given to students so that they can have handle these equipments independently. The four day workshop was culminated by the talk on "Development of TL detectors for medical applications" By Aayushi Jain.

Contact Details of Speaker.

1. Prof. Sunita Hooda

Mob. No. 9311830222

2. Prof. Geetu Gambhir

Mob. No.9810168960

3. Dr. Shallu Sachdeva

Mob. No. 9810858089

4. Dr. Drashya Gautam

Mob. No. 9015244647

Attendance of Workshop on Analytical Laboratory Tools

S. No. Name

1. Afnita
2. Kajal Mangla
3. Shuaib
4. Nikita Gupta
5. Prachi Singh
6. Pritika Kwatra 7. Rini
8. Than dar Aung
9. Sakshi Sharma
10 Aditi
11. Hitesh Kala
12. Jatin
13. N Khachuk Debbarma
14. Nitesh
15. Param Kumar
16. Pragya Muni
17. Pratiksha
18. Preeti Maurya
19. Suhani Sharma
20. Shweta Yadav
21. Devangna Sharma
22. Tanuj Malik
23. Ajita Ojha

24. Antima Kumari
25. Meenakshi
26. Prateek Khutela
27. Gunjan

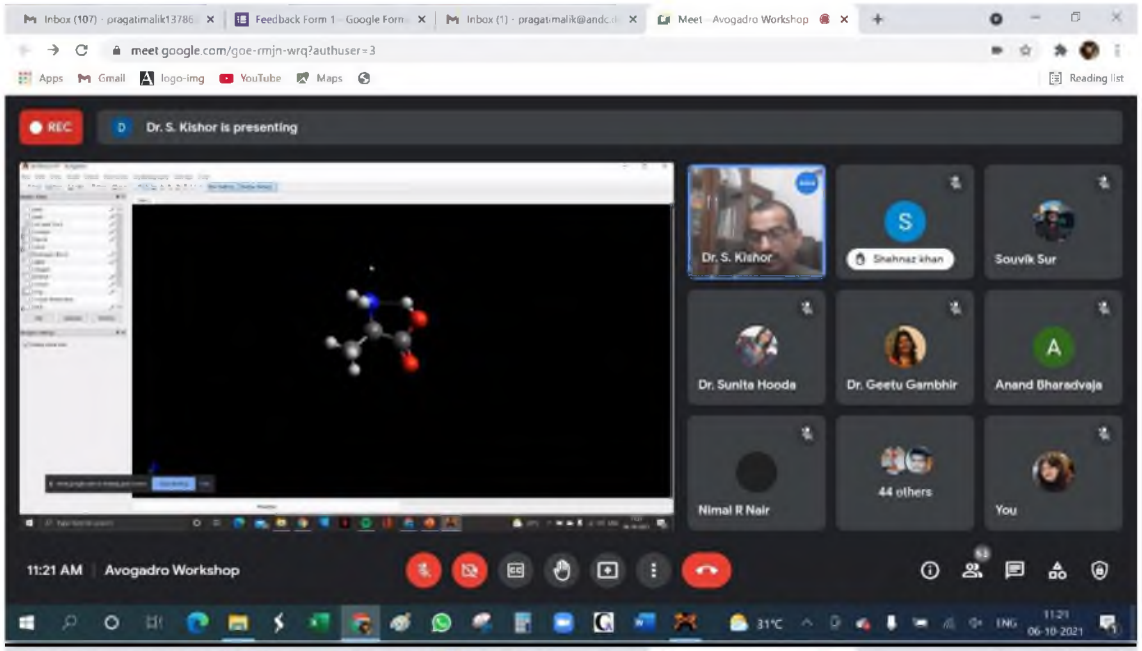
Sunita Hooda

Computational Chemistry Workshop : A New Approach to Understanding & Solving Chemical Problems

Report of the Workshop

A two day workshop on "Computational Chemistry Workshop : A New Approach to Understanding & Solving Chemical Problems" was held by Abhikriya, The Chemical Society of ANDC, under the aegis of DBT star scheme and IQAC on 6-7 October 2021 from 10:00 AM to 4:00 PM on Google Meet. Dr Shyam Kishor, Associate Professor, Janta Vedic College, Baraut, Uttar Pradesh was the speaker. He gave detailed description of the Avogadro Software. Around 60 participants from different Colleges and Universities attended the Event. On first day, Dr Shyam Kishor gave an introduction of Avogadro, building molecules, carbon

nanotubes, biomolecules and supercell and performing geometry optimization calculations, various Quantum Chemistry packages and installation of ORCA. On second day, he taught DFT calculations, generate and visualize Molecular Orbitals and uv-vis spectra of a molecule. Participants were quite satisfied with the information given and got positive feedback.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Dr. S. Kishor
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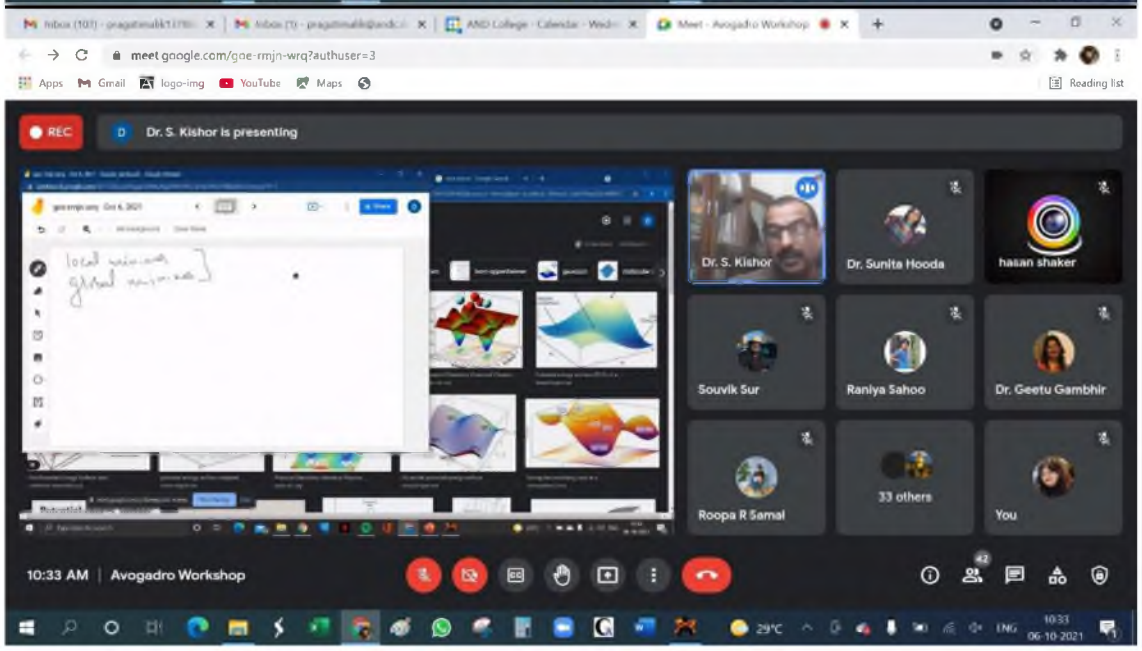
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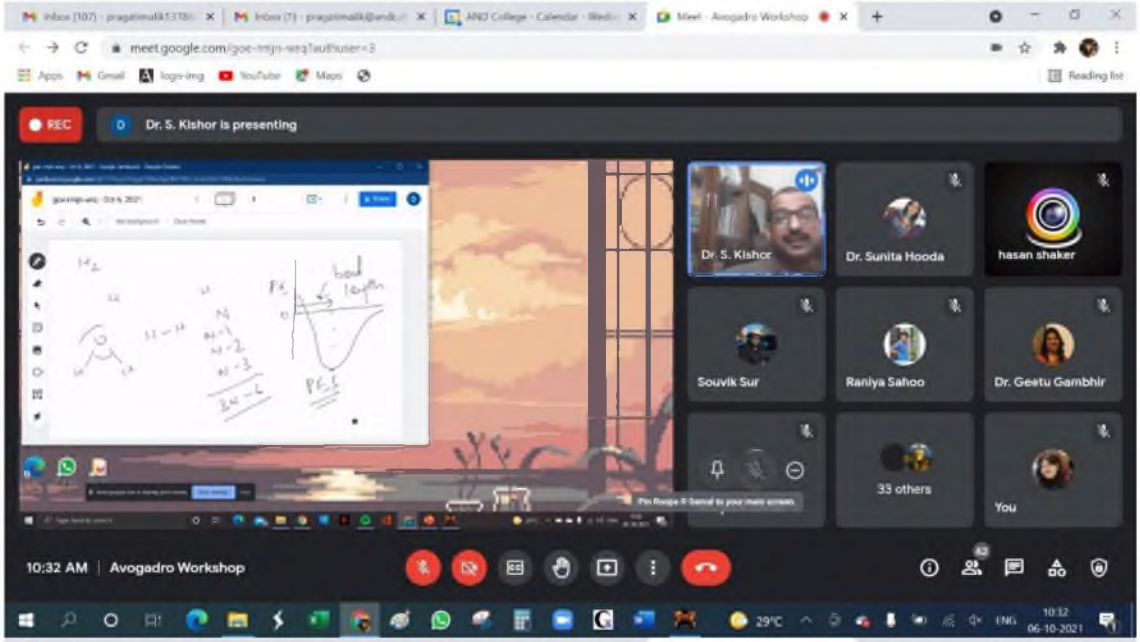
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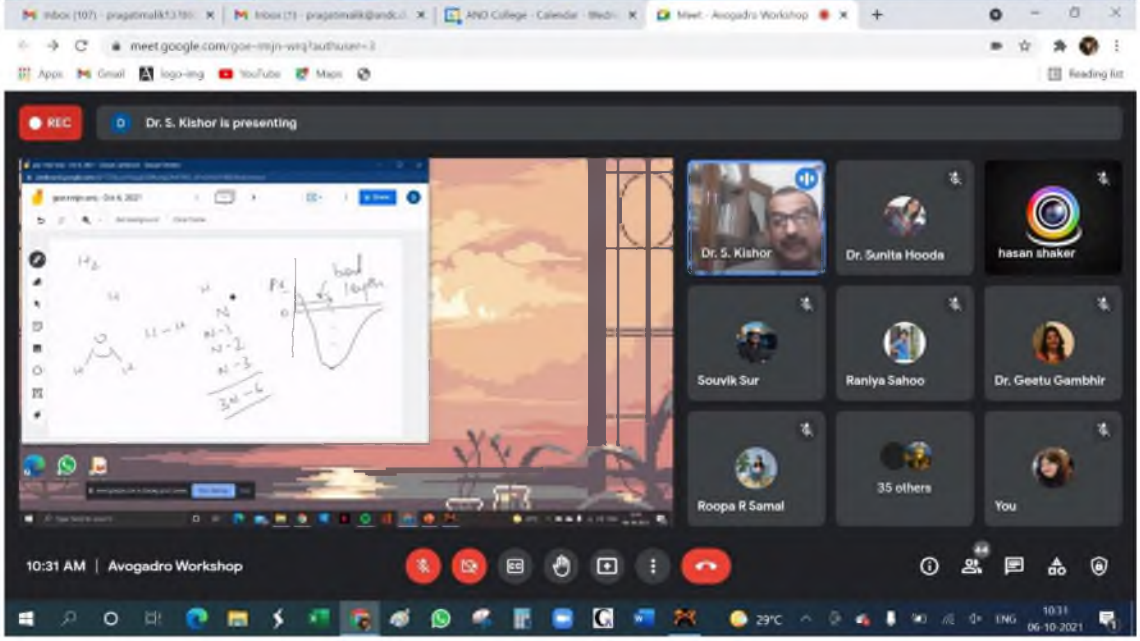
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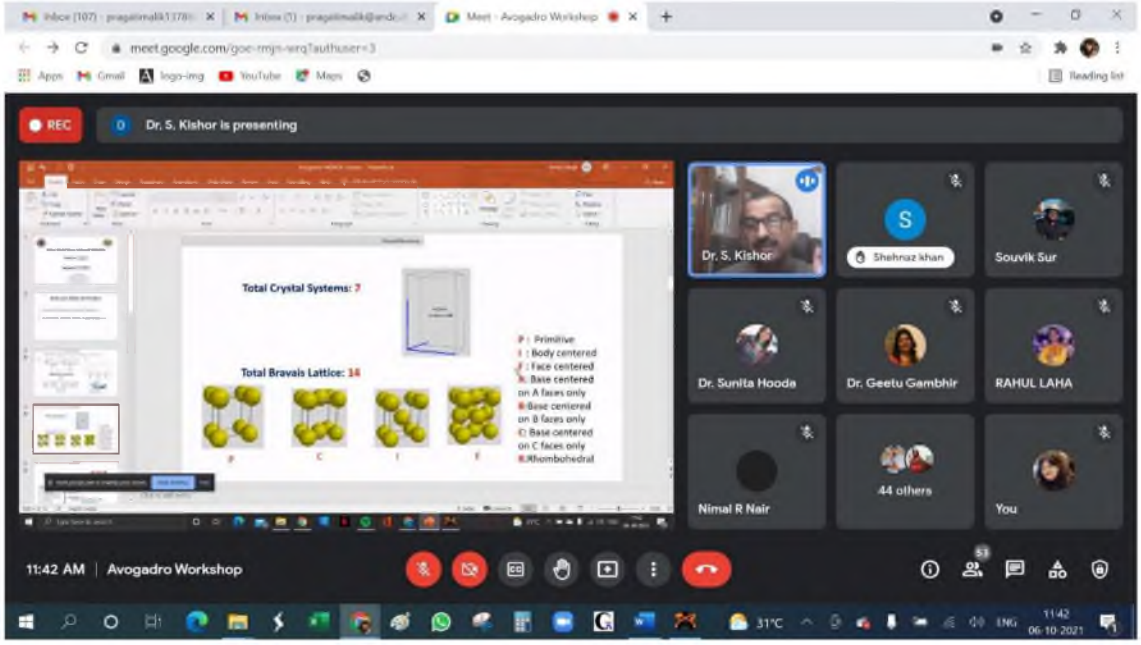
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Nimal R Nair
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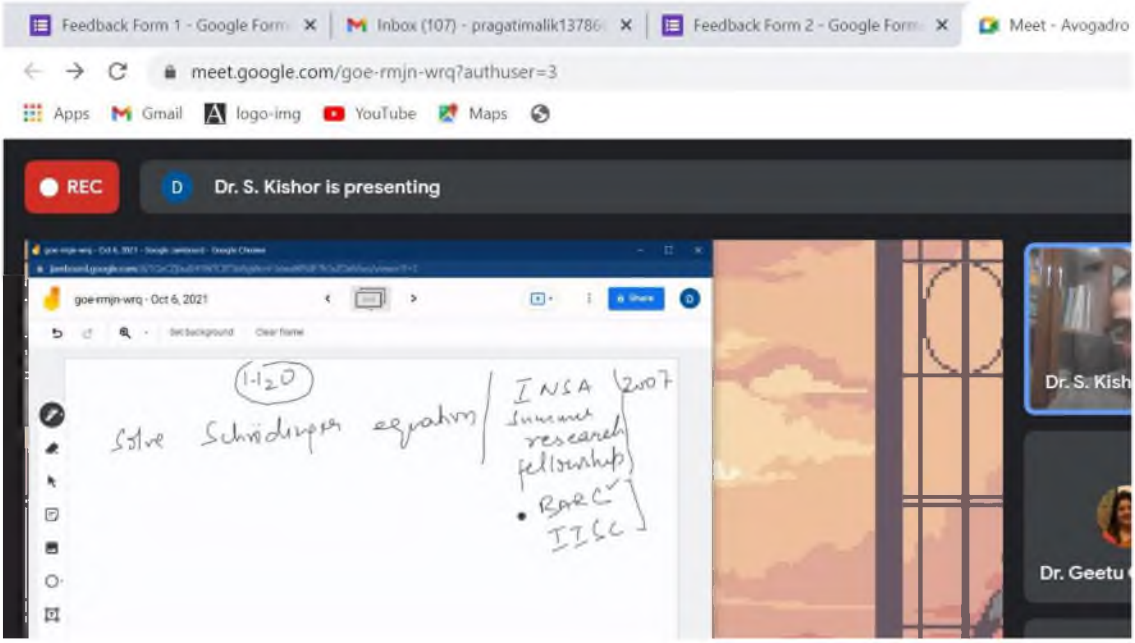
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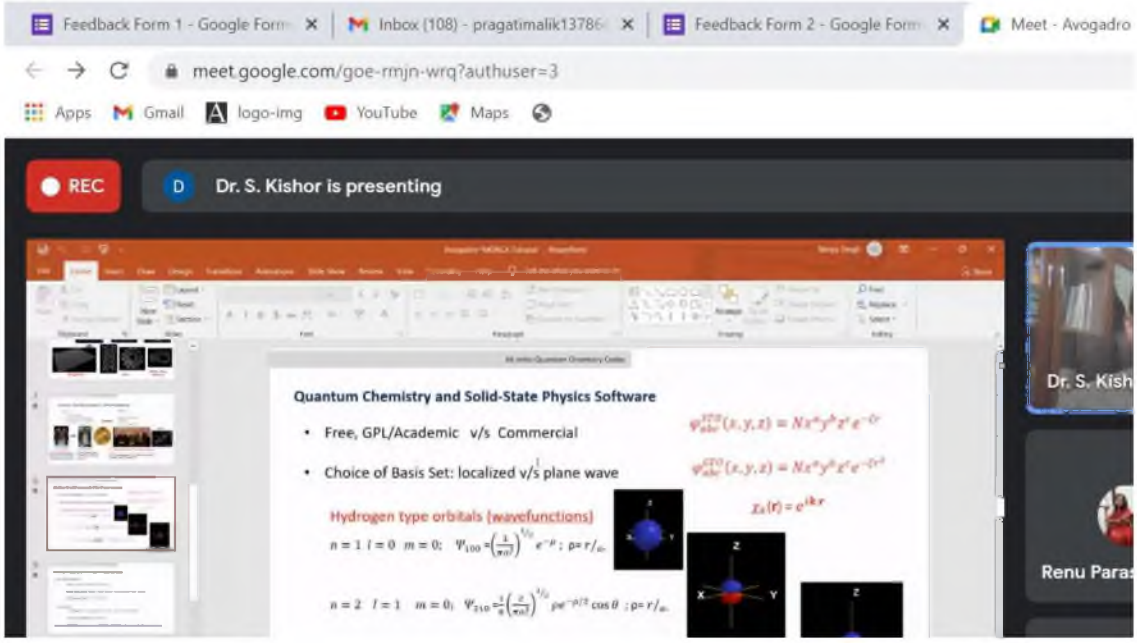
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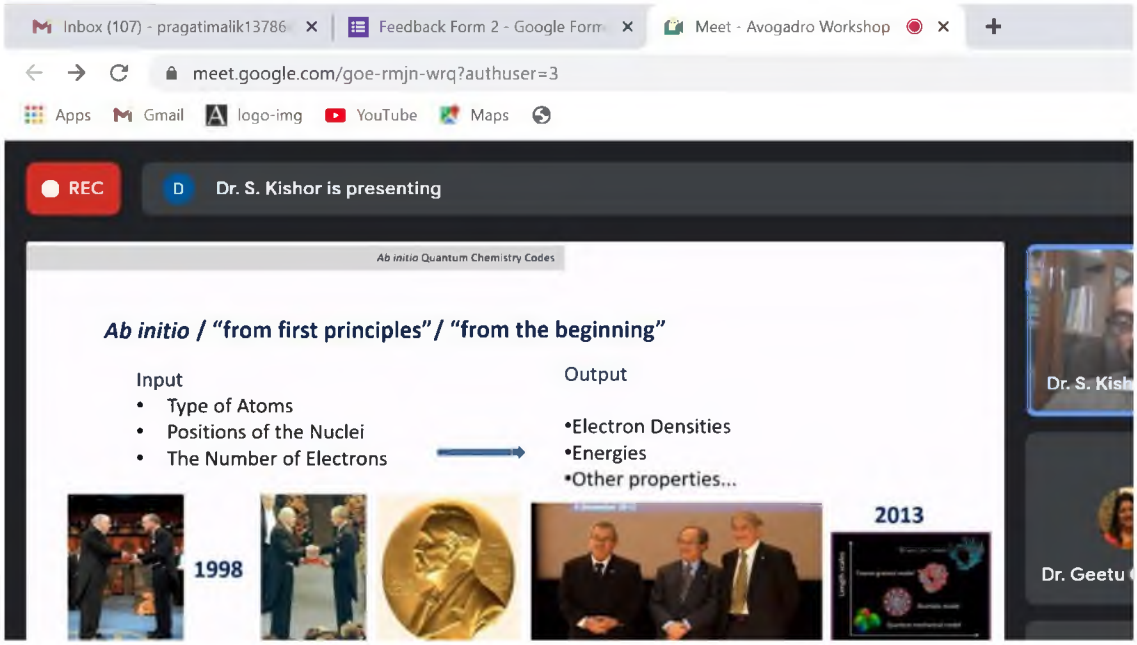
Hydrogen type orbitals (wavefunctions)
Dr. S. Kish
Renu Para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Dr. S. Kish
Dr. Geetu

Attendance

Pragati

Details of the Resource Person

Name – Dr. Shyam Kishor

Designation – Associate Professor, Head, Department of Chemistry, J.V.(PG) College, Baraut

Email ID - shyam387@gmail.com

Phone No. - 8020636233

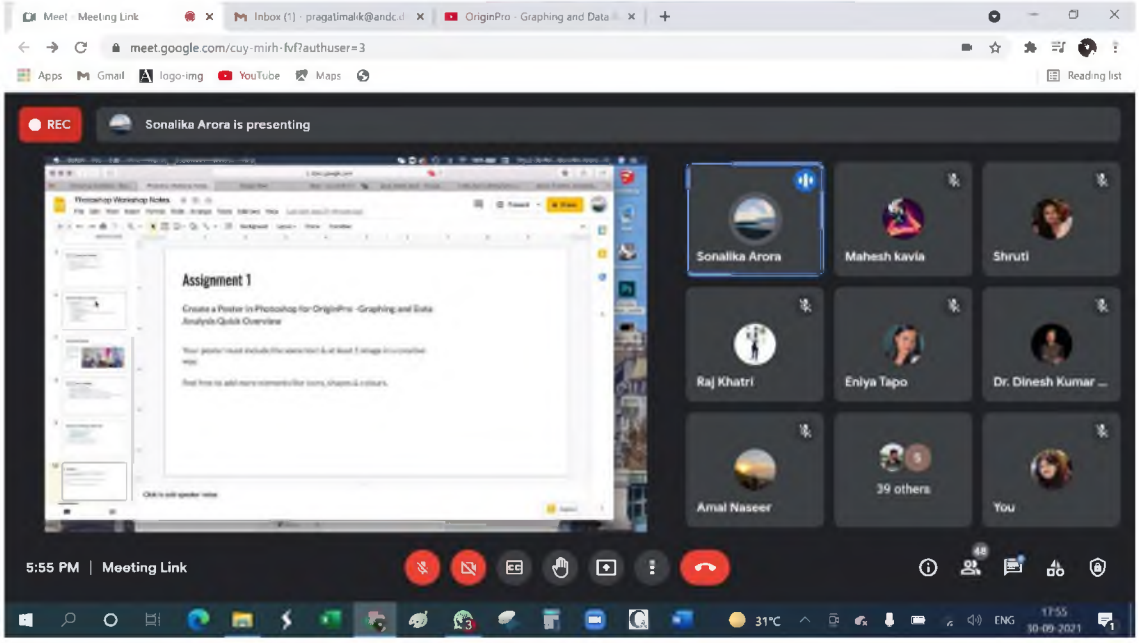
Basics of Photoshop and it's applications for poster making, reports, photo editing and social media

Report of the Workshop

A two day workshop on "Basics of Photoshop and it's applications for poster making, reports, photo editing and social media" was organised by Abhikriya, The Chemical Society of ANDC, under the aegis of DBT star scheme and IQAC on 30 September to 1- October 2021 from 04:00 PM to 7:00 PM on Google Meet. Ms. Sonalika Arora, Digital marketing designer from Facebook was the speaker. She gave detailed description of the software. Around 70 participants including students and faculty from the Colleges attended the event.

On first day, she explained the pixels and explained the making of poster. On second day, photo editing was explained. Participants also submitted their own work as assignment.

ACHARYA NARENDRA DEV COLLEGE
University of Delhi, NAAC Accreditation Grade 'A' | NIRF-Rank 20
THIS POSTER HAS BEEN CREATED ON PHOTOSHOP
DO YOU WANT TO LEARN HOW TO DO THIS?
Join us for 2-day Webinar Workshop on
BASICS OF PHOTOSHOP
and its application for Poster Making, Reports, Photo Editing & Social Media
Resource Person
Sonalika Arora
Digital Marketing Designer
30 Sept - 1 Oct | 4-7 pm
Google Meet Link: https://meet.google.com/cuy-mirh-fvf
Organised by
Abhikriya - Chemical Society, Dept. of Chemistry
under the Aegis of DBT star College scheme and IQAC
Prof. Ravi Toteja
Patron
Dr. Geetu Gambhir
Convener
Prof. Sunita Hooda
DBT Coordinator
Dr. Pragati Malik
Co-convener
Certificate provided on successful completion.
Please log-in from desktop/ laptop for hands-on session.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Assignment 1
Sonalika Arora
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Shruti
Raj Khatri
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Dr. Dinesh Kumar ...
Amal Naseer
39 others
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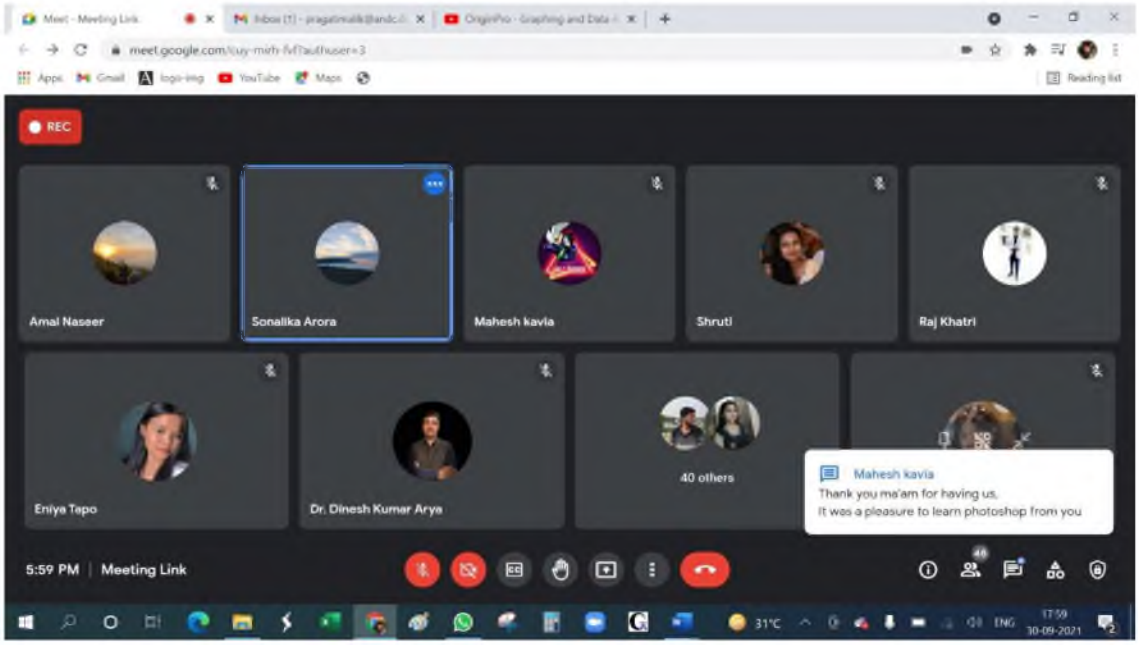
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Amal Naseer
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Mahesh kavia
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It was a pleasure to learn photoshop from you
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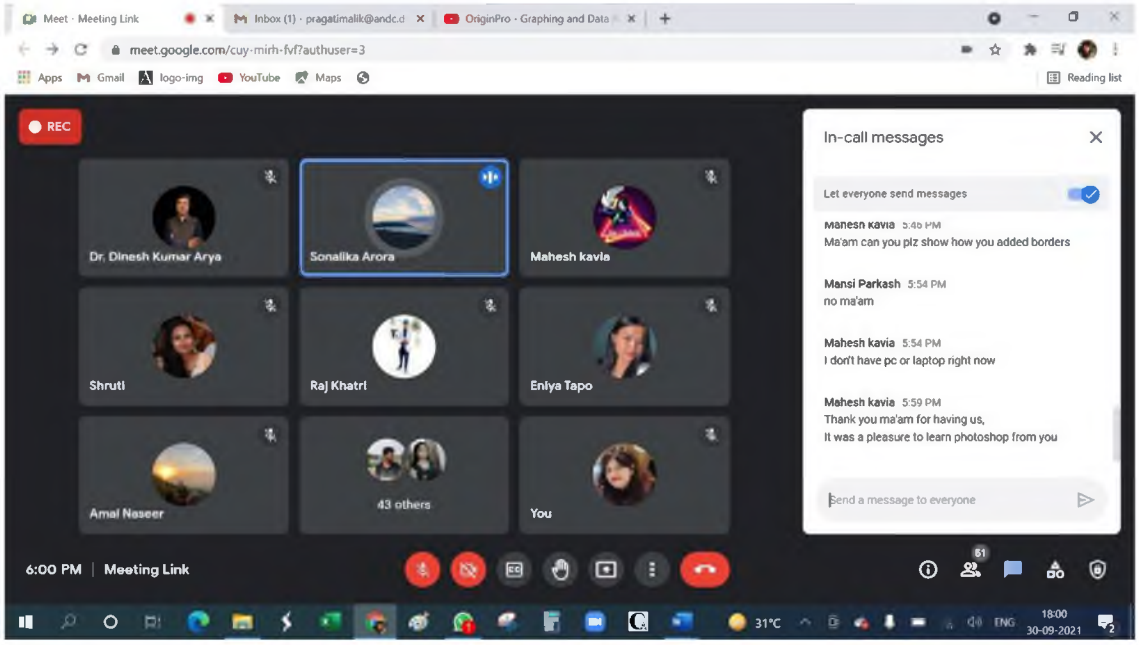
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Dr. Dinesh Kumar Arya
Sonalika Arora
Mahesh kavia
Shruti
Raj Khatri
Eniya Tapo
Amal Naseer
43 others
You
In-call messages
Let everyone send messages
Mahesh kavia 5:49 PM
Ma'am can you plz show how you added borders
Mansi Parkash 5:54 PM
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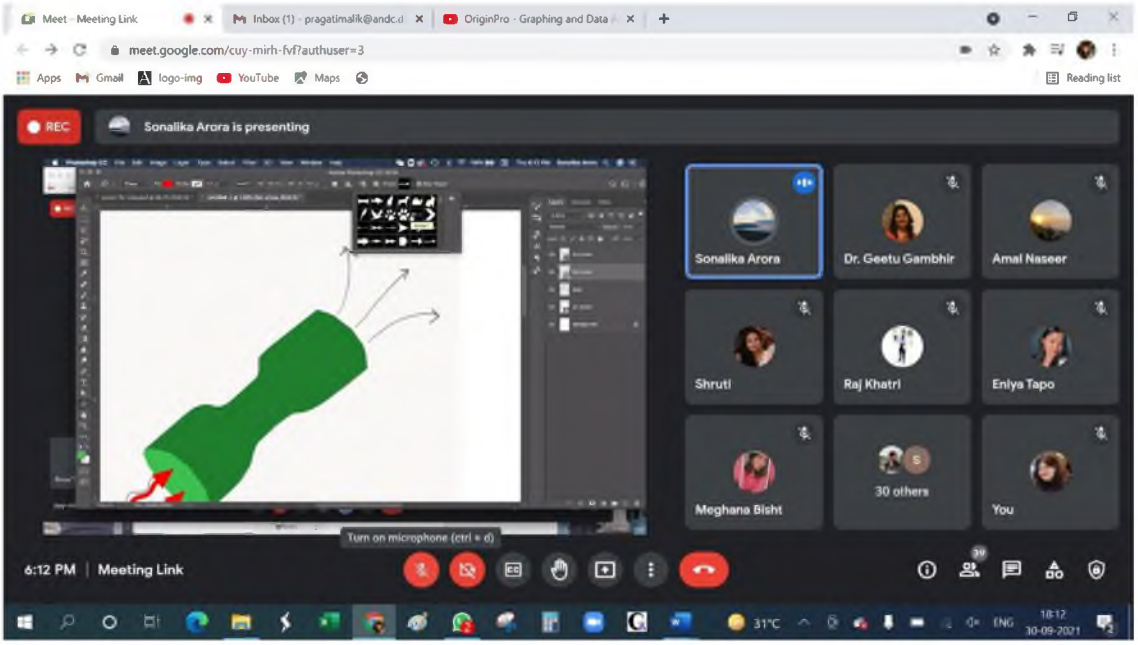
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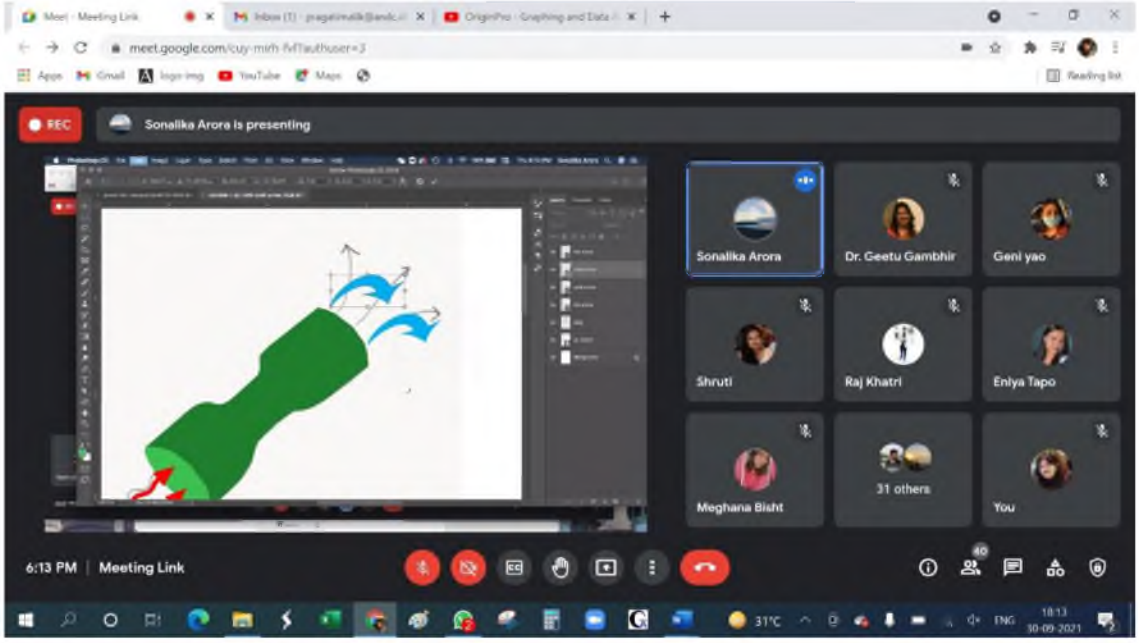
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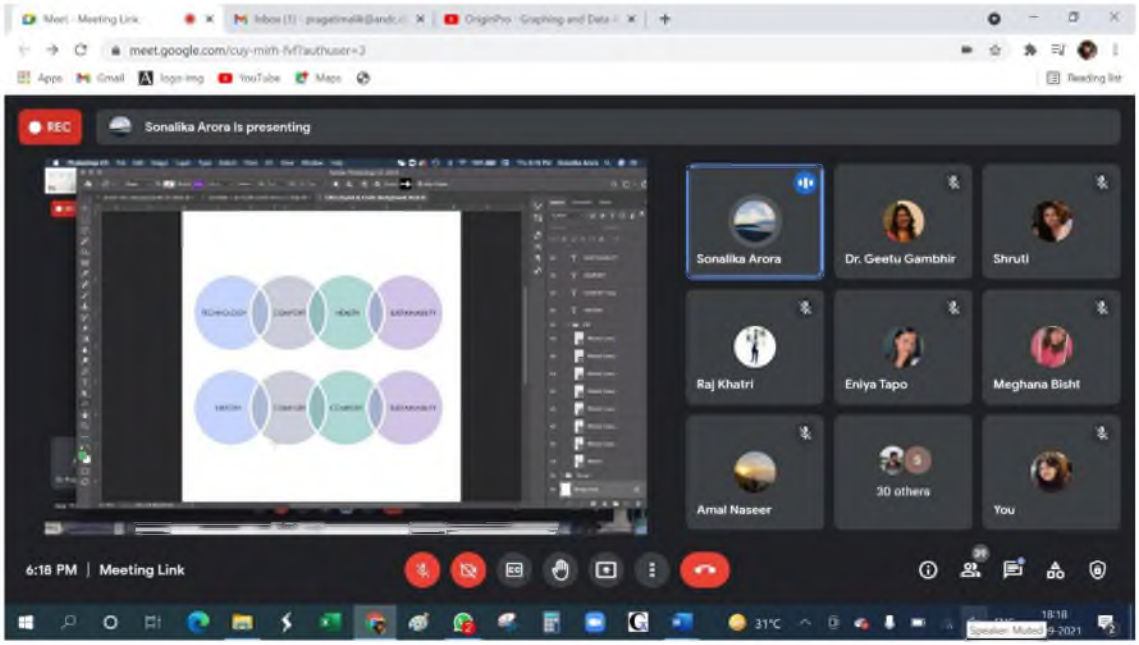
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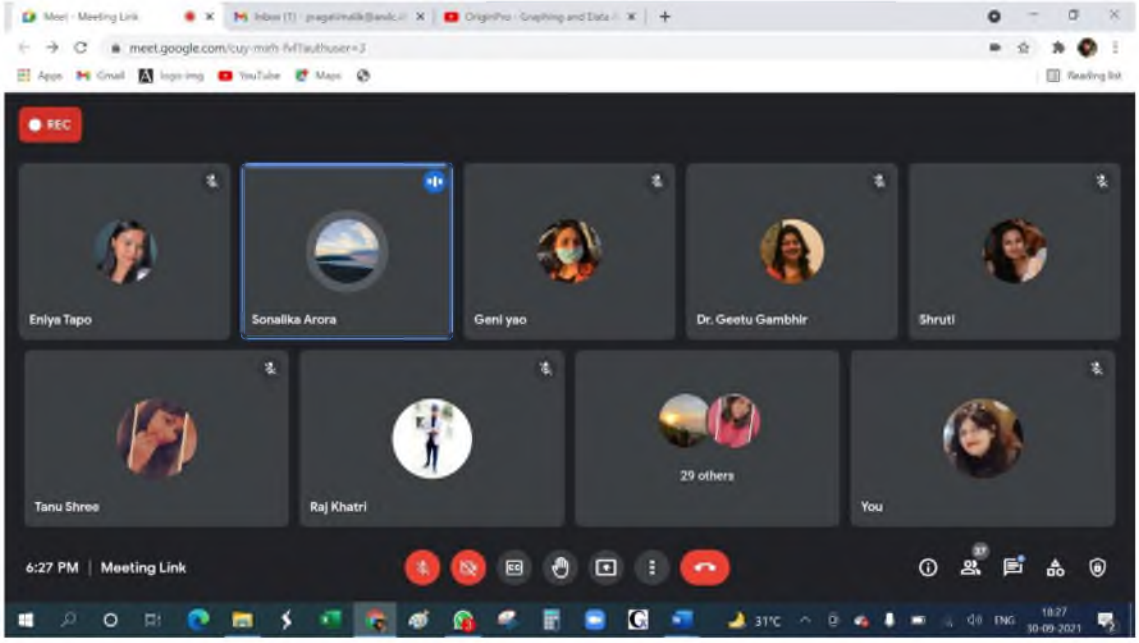
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29 others
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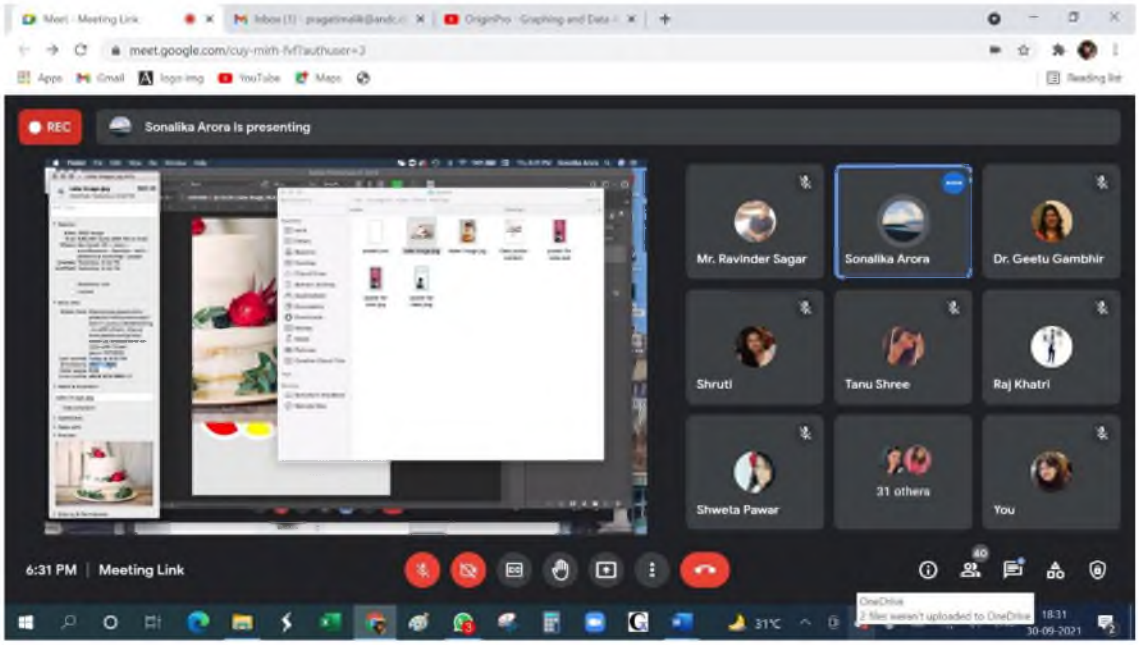
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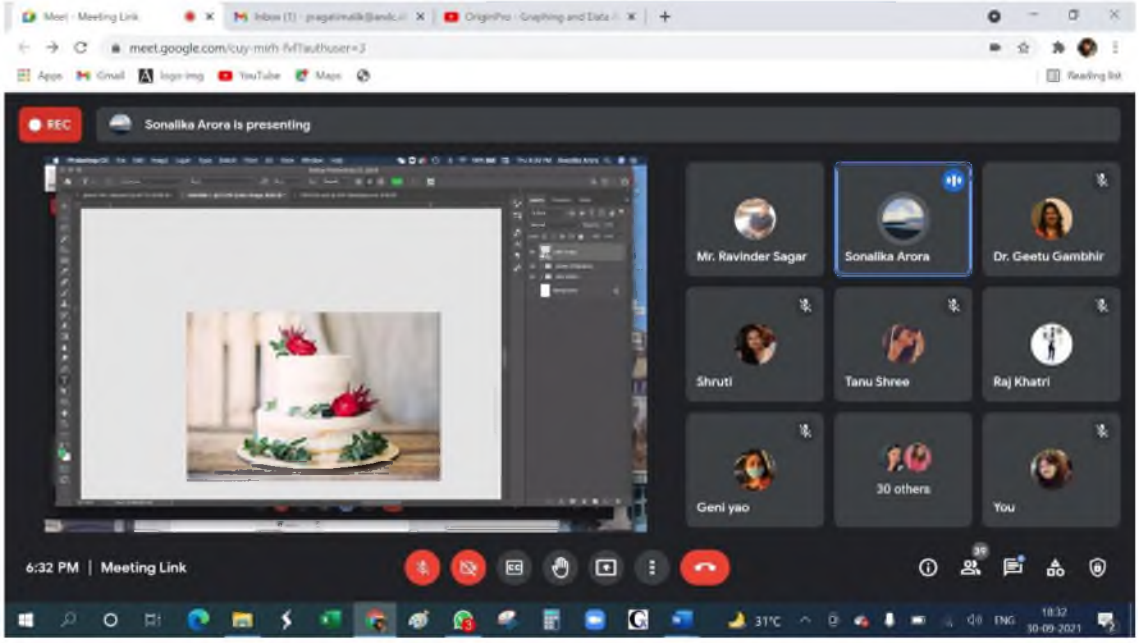
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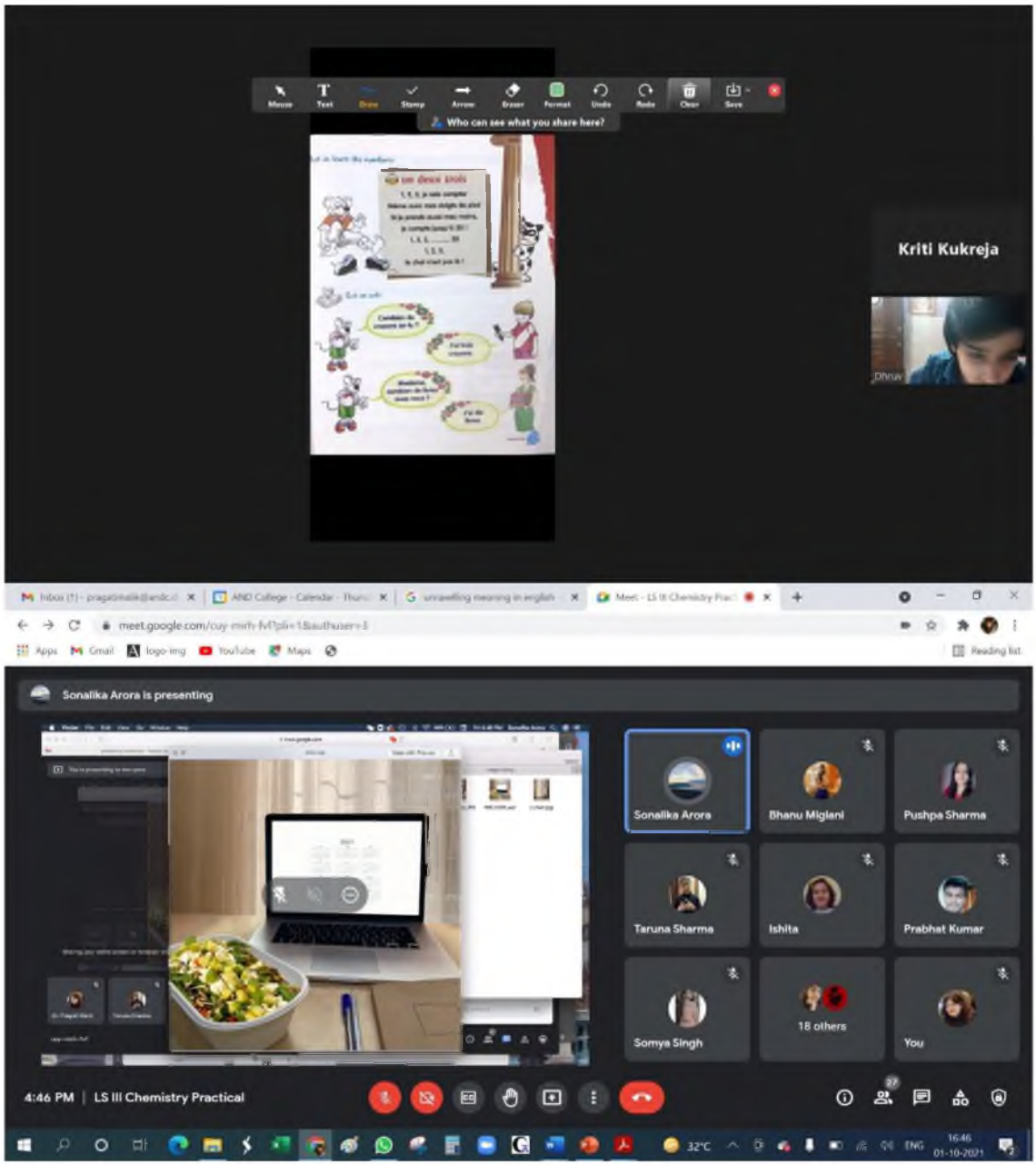
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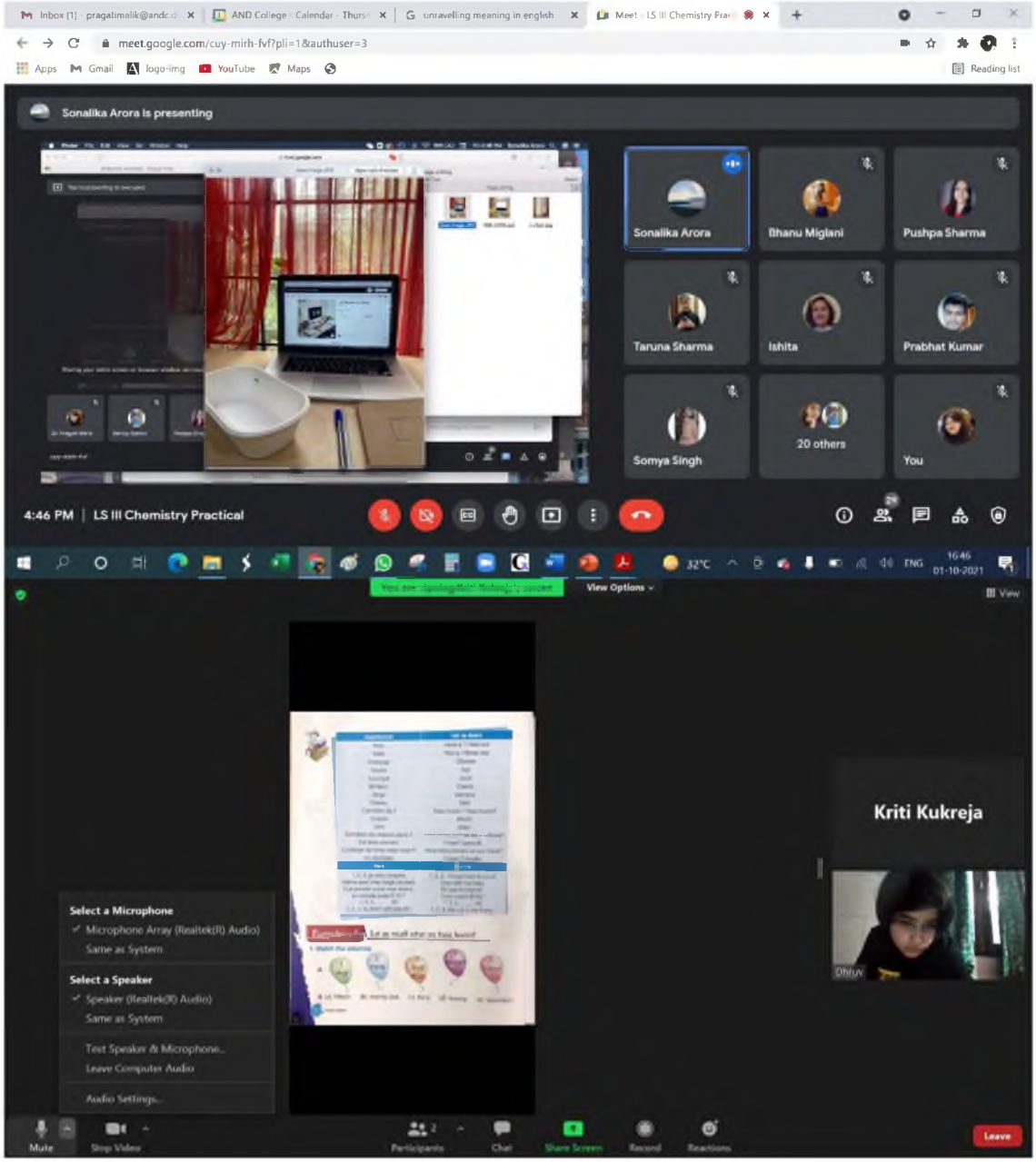
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Prabhat Kumar
Somya Singh
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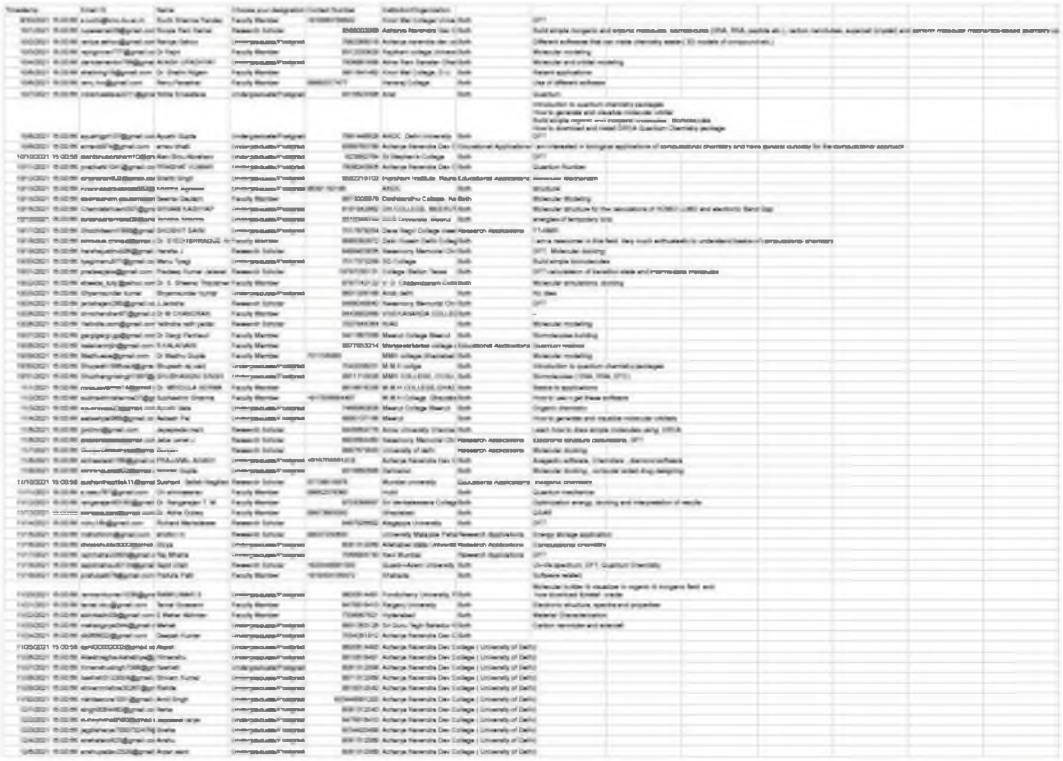
Reactions
Leave

Attendance



Pragati

Details of the Resource Person

Name – Ms. Sonalika Arora

Designation – Digital Marketing Designer

Email ID – soar.sonalikaarora@gmail.com

Phone No. - 9810030325

Hands-on workshop (online mode) on “Exploring and Understanding Computational Chemistry Using Gaussian:

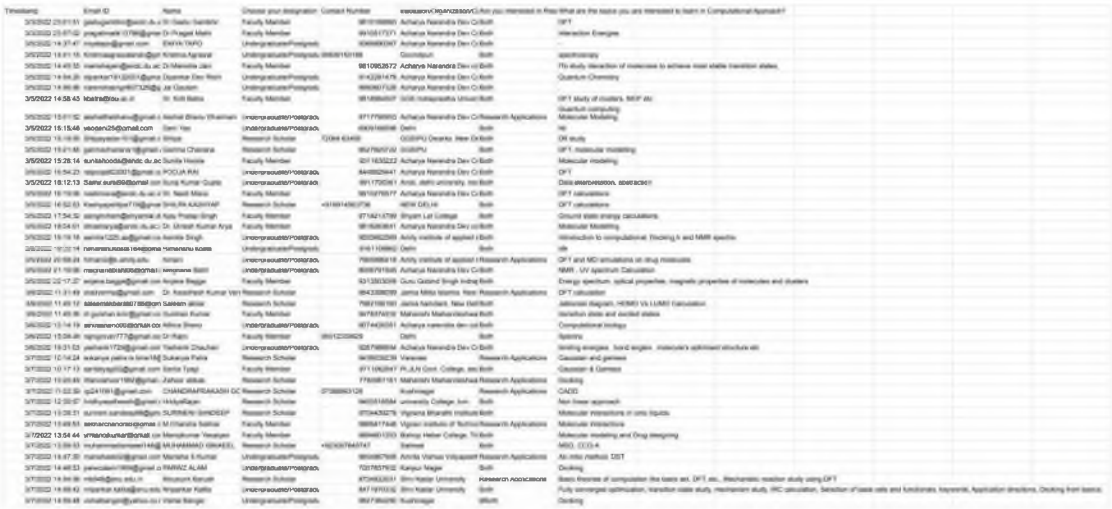
Report of the Workshop

A four day workshop on "Exploring and understanding Computational Chemistry using Gaussian: molecular builder and visualization tool" was held by Abhikriya, The Chemical Society of ANDC, under the aegis of DBT star scheme and IQAC on 7-10 March 2022 from 1:00 PM to 3:00 PM on Zoom. Dr Nikhil Aggarwal, Director, Centre for Advanced Computational Chemistry Studies, New Delhi was the speaker. He gave detailed description of the Gaussian Software. Around 20 participants from different Colleges and Universities attended the Event. On first day, Dr Nikhil Aggarwal gave an introduction of Introduction to Computational Chemistry, Difference between Quantum Chemical Calculation and Molecular Mechanical Calculation, Density Functional Theory, Molecular size vs. accuracy vs. Time factor, Basis Sets and Functionals, Equilibrium and Non-equilibrium Properties calculation, Solvent effect: Implicit model vs. explicit mode, Molecular Structure Building, Pre-optimization. On second day, he taught Geometry or Structure Optimization: stability, Dipole Moment & Solubility, Frequency (IR Spectrum), Visualization of Types of Vibrational Modes (Stretching vs Bending), Raman Spectrum Calculation, NMR Spectrum Calculation, Excited states and UV spectrum Calculation, Visualization of Types of Molecular Orbitals: HOMO vs. LUMO. On third day, Single-Point Energy, Reaction mechanisms, Emission Spectrum: Fluorescence and Phosphorescence property Simulation Potential Energy Diagrams, Interaction Energies, Equilibrium and Transition State Structures, Excited States (Singlet and Triplet) Calculation: Jablonski Diagram, Orbital Contribution, Electron & Hole Density Distribution Maps, Charge Transfer: LMCT or MLCT. On fourth day, Basics of Molecular Docking, Software's Installation on Windows, Online Database Exploration, Docking studies: Protein-Ligand interaction (Docked structure, Binding Energy) using Autodockwise software. There was question answer session after each session. Participants were quite satisfied with the information given and got positive feedback.

THE CHEMICAL SOCIETY
Department of Chemistry
Under the Aegis of DBT Star Scheme and IQAC
ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
NAAC ACCREDITATION Grade 'A' | NIRF RANK - 20
ABHIKRIYA
presents
4-DAYS WORKSHOP
ON
Exploring and understanding Computational Chemistry using Gaussian : molecular builder and visualization tool
Open for Faculty, Science Undergraduates and Research Scholars
Last date to register is 5th March 2022
No registration Fee
Objectives
Introduction to Computational Chemistry, Geometry or Structure Optimization: stability, Dipole Moment & Solubility, Frequency (IR Spectrum), Visualization of Types of Vibrational Modes (Stretching vs Bending), Raman Spectrum Calculation, NMR Spectrum Calculation, Excited states and UV spectrum Calculation, Visualization of Types of Molecular Orbitals: HOMO vs. LUMO, Interaction Energies, Equilibrium and Transition State Structures, Excited States (Singlet and Triplet) Calculation: Jablonski Diagram, Orbital Contribution, Electron & Hole Density Distribution Maps, Basics of Molecular Docking, Software's Installation on Windows, Online Database Exploration, Docking studies: Protein-Ligand interaction (Docked structure, Binding Energy) using Autodockwise software.
Invited Speaker
Dr Nikhil Aggarwal
Director, Centre of Advanced Computational Chemistry Studies, New Delhi (ACC), Assistant Professor, School of Basic Sciences and Research, Sharda University
Register Now :
https://forms.gle/v9jXKLp9MUUSmfrv8
DATE: 7 - 10 March , 2022
TIMING: 1:00 PM - 3:00 PM
VENUE: GOOGLE MEET
Prof. Ravi Toteja
PATRON
Prof. Sunita Hooda
DBT Coordinator
Dr. Geeta Gambhir
Convenor
Dr Dinesh Kumar Arya
Coordinator
Dr. Pragati Malik
Co-Convenor
Student Coordinator: Prajjwal Akash(9709661418) , Isha Gupta(9627365979)

Dr. Nikhil Aggarwal
Dr Pragati Malik
Manisha Jain
Dr. Kriti Batra
shilpa kashyap
Garima Char
Garima Chanana

Attendance



Pragati

Details of the Resource Person

Name – Dr. Nikhil Aggarwal

Designation – Director, Centre for Advanced Computational Chemistry Studies, New Delhi
(ACC), Assistant Professor, School of Basic Sciences and Research, Sharda University

Email ID - nikhilaggarwal@alumni.iitm.ac.in

Phone No. - 9790969349

Ethics to Paper writing

Contact Detail of Speaker

Ms. Shrya Arora

Mob. No. 9891939103

List of participants

S. No.	Name of the student
1	Khushi Meena
2	Shiwani Kashyap
3	Saloni Kashyap
4	Prajjwal Akash
5	Sakshi Pal
6	
7	Kajal
	Meghana Bisht
8	Shweta
9	
	Krishna Agarwal
10	Tanya Chopra
11	Ayushi Gupta
12	Kapil Rathour
13	Anshul Roulaniya
14	Ritwij Tiwari
15	Tanushree
16	
	Ankita Priyadarshini
17	Nandkishore

18 Mansi
19
20 Suman

Sakshi Yadav
21 Taruna
22
23 Abhishek
24
Nikita

Anuj Thakur
25 Akriti Singh

26 Bipasa Arya

27 Sarthak Singh
28 Anurag

29 Sneha

30 Abhijit

31 Avinash Prajapati
32 Aranya

33 Dipankar

34 Divya

35 Amal Joshy

36 Lalit

37 Vishal Verma
38 Arun

39 Aashi

40 Sandeep G

41 Harshika

42 Vijay Kumar Yadav
43 Vibha Shukla
44 Saloni

45 Lucky

46 Arunima

47 Devanshi

48 Heena Praveen
49 Kanishka

50 Sruthi Jha

51 Chirag

52 Sayantan Chatterjee
53 Suraj Mariyam
54 Krith

55 Preeti

56 Nikhil

57 Mohit Singh
58 Sonali Singh
59 Pooja Yadav

60 Ravi Takoria

61 Aman

62 Vishal Kashyap
63 Nikhil Kumar
64 Nidhi Singh

65 Akshita Kapri
66 Jagdish Arya

67 Bhawna

68 Anshika

69 Neetu

70 Priyanka

71 Dixit Sinha

72 Khushi Singh
73 Vishwa Deepak
74 Kapil Kumar

75 Nibha

76 Shikha Negi

77 Anjali Gupta

Sunita Hooda

Report of Webinar on Ethics of Paper Writing

A webinar was organized on "Ethics of Paper Writing" on 19th April 2022. Ms. Shreya Arora, Reviewer Selection Lead at Taylor Francis, deliver a talk of paper writing. The

lecture was quite informative and students were very much interested in understanding the pattern of paper writing. They were explained about literature survey, introduction writing part, references arrangement etc. Patent filing was also explained in detail.

An online webinar on "e- resources of Delhi University and Inflibnet NList"

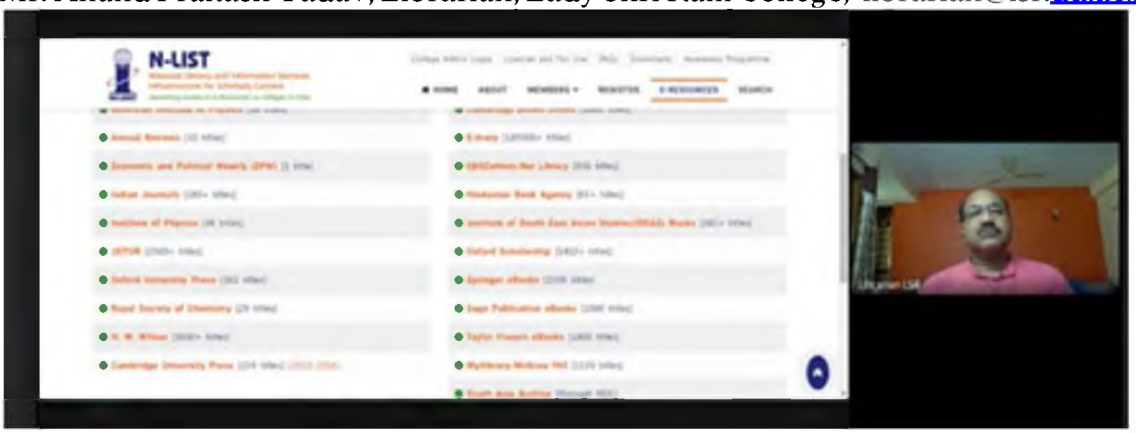
Brief description of the Event

Acharya Narendra Dev College Library organized the Webinar on 31st July 2021 at 3.00 pm on electronic resources available for the students and faculty. Dr. Rajesh

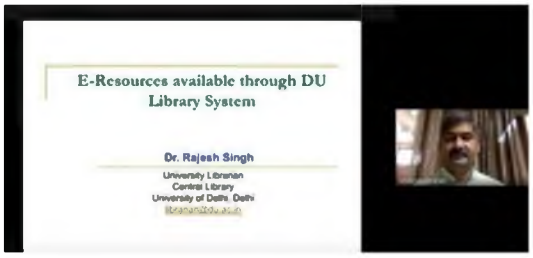
Singh, Librarian, Delhi University Library System delivered the talk on "E-resources
& Facilities Available through DULS".
The talk by Mr. Anand Prakash Yadav, Librarian, Lady Shri Ram College (University of Delhi) made the participants aware about the "E-resources of Inflibnet N-List (National Library & Information Services Infrastructure for Scholarly Content)". More than 100 students and faculty members attended the webinar.

Contact Details of Resource Persons:

Dr. Rajesh Singh: Librarian, Delhi University Library System, librarian@du.ac.in
Mr. Anand Prakash Yadav, Librarian, Lady Shri Ram College, librarian@lsr.du.ac.in



Picture of Mr. Anand Prakash Yadav, Librarian, Lady Shri Ram College delivering his lecture



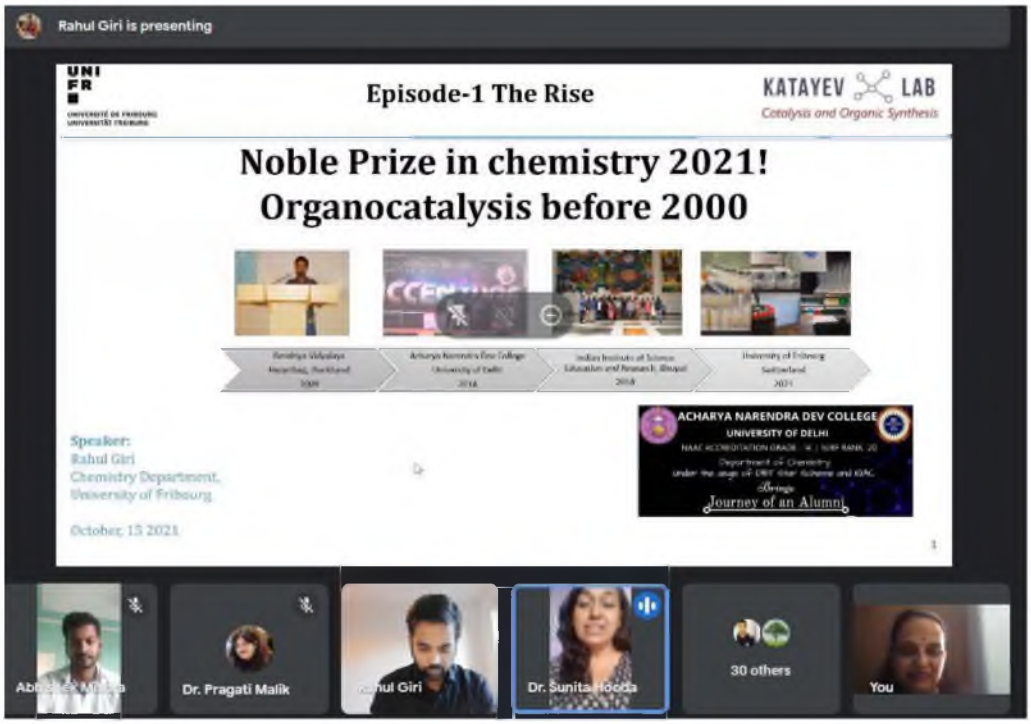
Pictures of Dr. Rajesh Singh: Librarian, Delhi University Library System delivering his lecture

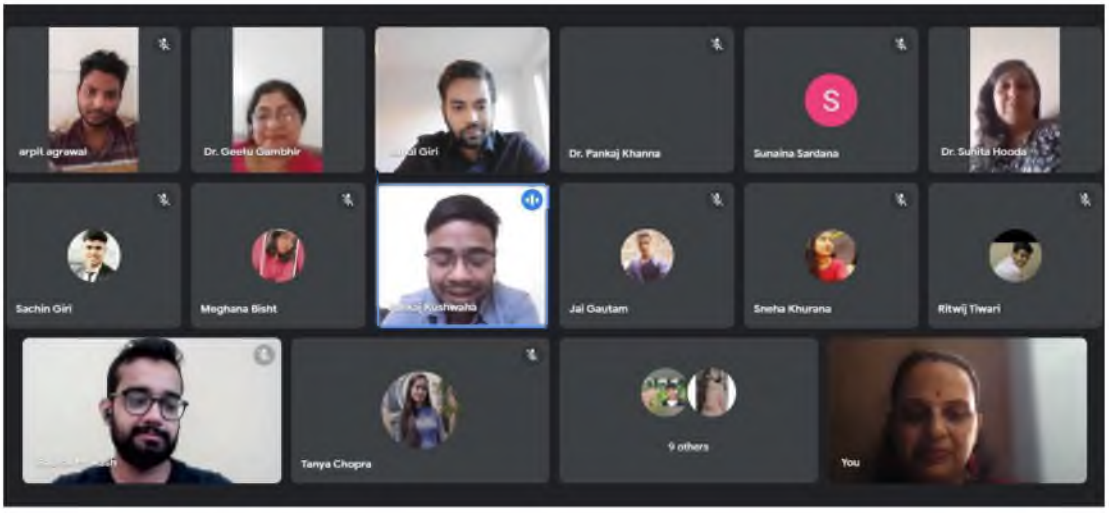
Report of an Alumni Lecture Series

An Alumnus Talk on "**Journey of an Alumni Episode -1 The Rise**" was successfully organized by Department of Chemistry, Acharya Narendra Dev College under the aegis of DBT star scheme and IQAC on 16th October 2021 from 12:30 PM to 2:00 PM on Google Meet. Mr. Rahul Giri from Katayev Lab, University of Fribourg, Switzerland was the speaker. He is our Alumni form BSc. (H) Chemistry, Batch 2013-16. He presented his work on the topic "Nobel prize in chemistry 2020! Organocatalysis before 2000" and gave information about chirality and history of organic synthesis. Participants including students, faculty from college and around 10 other alumni placed internationally attended the event. All students and faculty members enjoyed the program. At the end, wonderful responses received through Feedback form.

Poster

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
NAAC ACCREDITATION GRADE - 'A' | NIRF RANK- 20
Department of Chemistry
Under the aegis of DBT Star Scheme and IQAC
Brings
Journey of an Alumni
Date: 16/10/2021
Time: 12:30PM
Venue - Google Meet
Google meet link:
https://meet.google.com/hww-xrve-bhm
Rahul Giri
PhD Scholar, Katayev Lab
Catalysis and Organic Synthesis
University of Fribourg, Switzerland
Episode-1 The Rise
COMETH, SIT, TALK ABOUT YOUR GONE DAYS
Prof. Ravi Toteja
PATRON
Prof. Sunita Hooda
DBT Coordinator
Dr. Geetu Gambhir
Convenor
Dr. Kavita Mittal
Co-Convenor
Student Coordinator - Meghana Bisht (8006791945)


Rahul Giri is presenting
Episode-1 The Rise
KATAYEV LAB
Catalysis and Organic Synthesis
Noble Prize in chemistry 2021!
Organocatalysis before 2000
Speaker:
Rahul Giri
Chemistry Department,
University of Fribourg
October, 15 2021
ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Journey of an Alumni
Dr. Pragati Malik
Dr. Sunita Hooda
30 others
You


arpit agrawal
Dr. Geetu Gambhir
Dr. Pankaj Khanna
Sunaina Sardana
Dr. Sunita Hooda
Sachin Giri
Meghana Bisht
Jai Gautam
Sneha Khurana
Ritwij Tiwari
Tanya Chopra
9 others
You

Report of an Alumnus Talk Series

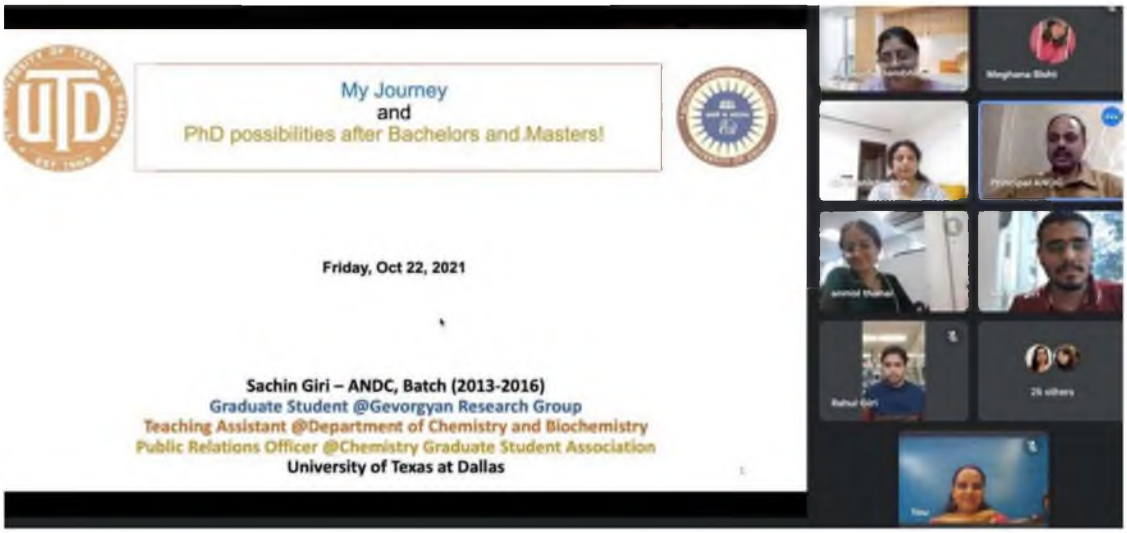
An Alumnus Talk on "Journey of an Alumni Episode -2 The Rise" was successfully organized by Department of Chemistry, Acharya Narendra Dev College under the aegis of DBT star scheme and IQAC on 22nd October 2021 from 6:30 PM to 8:00 PM on Google Meet. Mr. Sachin Giri from Gevorgyan Research Group, University of Texas, Dallas, United States was the speaker. He is our Alumni form BSc. (H) Chemistry, Batch 2013-16. He presented his work on the topic "My journey and PhD possibilities after Bachelor's and Master's!" Around 50 participants including students, faculty from college and around 10 other alumni placed internationally attended the event. All students and faculty members enjoyed the program. He showed virtual tour of his working laboratory. His lecture was based on the various career options available abroad for the students.

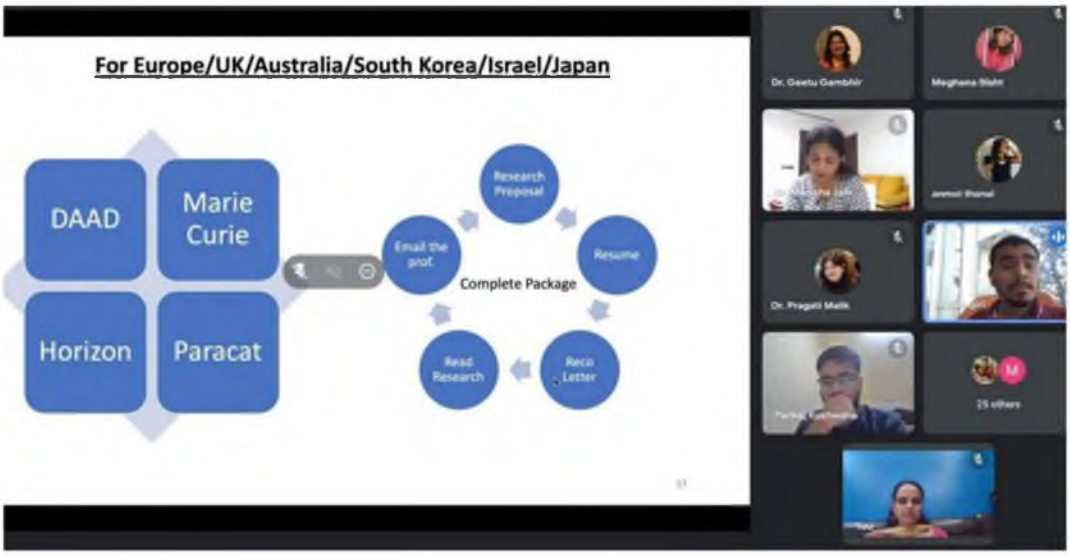
At the end, wonderful responses received through Feedback form.

Resource person: Mr. Sachin Giri from Gevorgyan Research Group, University of Texas

Ph: 8860941374

Poster





Attendance

S. No.	Name of the participant		S. No.	Name of the participant
1.	Mohit Singh		35.	Khushi Singh
2.	Dixit		36.	Krith
3.	Sneha		37.	Taruna
4.	Gaurav		38.	Amal Joshy
5.	Sarthak Singh		39.	Anuj Thakur
6.	Vibha Shukla		40.	Rahul Giri
7.	Divya		41.	Nandkishore
8.	Suraj Mariyam		42.	Vijay Kumar Yadav
9.	Anshul Roulaniya		43.	Pooja Yadav

10.	Nidhi Singh		44.	Akshita
11.	Lalit		45.	Khushi Meena
12.	Kajal		46.	Anurag
13.	Vishal Verma		47.	Neetu
14.	Shikha Negi		48.	Pankaj Kushwaha
15.	Anjali Gupta		49.	Heena Praveen
16.	Krishna Agarwal		50.	Anmol Thanai
17.	Ankita Priyadarshini		51.	Dr. Rashmi Thukral
18.	Jagdish Arya		52.	Dr. Sunita Hooda
19.	Aashi		53.	Dr. Seema Gupta
20.	Harshika		54.	Dr. Geetu Gambhir
21.	Suman		55.	Dr. Kavita Mittal
22.	Kanishka		56.	Dr. Pragati Malik
23.	Abhishek		57.	Dr. Manisha Jain
24.	Vishwa Deepak			
25.	Sruthi Jha			
26.	Avinash Prajapati			
27.	Ayushi Gupta			
28.	Sayantan Chatterjee			
29.	Sonali Singh			
30.	Sakshi Pal			
31.	Meghana Bisht			
32.	Kanishka			
33.	Abhishek			
34.	Vishwa Deepak			

Dr. Kavita Mittal

Acharya Narendra dev College
Report of International Seminar

An International Seminar of Alumnus Talk on "Journey of an Alumni Episode -3 The Rise" was successfully organized by Department of Chemistry, Acharya Narendra Dev College under the aegis of DBT star scheme and IQAC on 30th October 2021 from 12:30 PM to 2:00

PM on Google Meet. Ms. Anmol Thanai from University of Manchester, United Kingdom was the speaker. She is our Alumni form BSc. (H) Chemistry, Batch 2015-18. She presented her work on the topic "My journey from India to England". Around 50 participants including students, faculty from college and around 10 other alumni placed internationally attended the event. All students and faculty members enjoyed the program. She also showed virtual tour of her working laboratory. She talked about the various scholarship options available abroad for the students. At the end, wonderful responses received through Feedback form.

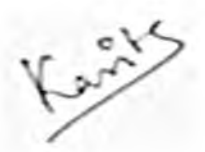
Resource Person: Anmol Thanai, University of Manchester, United Kingdom
Email: anmolthanai@gmail.com

Poster

Attendance

S. No.	Name of the participant		S. No.	Name of the participant
1.	Ravi Takoria		35.	Shweta
2.	Abhijit		36.	Sandeep G
3.	Amal Joshy		37.	Nikhil Kumar
4.	Dixit Sinha		38.	Jagdish Arya
5.	Arunima		39.	Nikita
6.	Arun		40.	Pooja Yadav

7.	Nandkishore		41.	Ritwij Tiwari
8.	Heena Praveen		42.	Anshika
9.	Saloni		43.	Lucky
10.	Aranya		44.	Mohit Singh
11.	Vijay Kumar Yadav		45.	Kapil Rathour
12.	Aditi Kandhari		46.	Sarthak Singh
13.	Devanshi Saini		47.	Abhimanyu Kumar
14.	Vibha Shukla		48.	Vishal Verma
15.	Krishna Agarwal		49.	Ankita Priyadarshini
16.	Aman		50.	Akshita Kapri
17.	Taruna		51.	Suman
18.	Aakash Maurya		52.	Bipasa Arya
19.	Khushi Singh		53.	Dipankar
20.	Shikha Negi		54.	Preeti
21.	Neetu		55.	Kajal
22.	Sneha		56.	Mansi
23.	Tanushree		57.	Nidhi Singh
24.	Anuj Thakur		58.	Bhawna
25.	Anurag		59.	Vishal Kashyap
26.	Aashi		60.	Anjali Gupta
27.	Anshul		61.	Jai Gautam
28.	Shiwani Kashyap		62.	Dr. Pankaj Khanna
29.	Tanya Chopra		63.	Dr. Seema Gupta
30.	Sakshi Yadav		64.	Dr. Geetu Gambhir
31.	Akriti Singh		65.	Dr. Kavita Mittal
32.	Priyanka		66.	Dr. Pragati Malik
33.	Krith		67.	Dr. Sunita Hooda
34.	Khushi Meena			



Dr. Kavita Mittal

Acharya Narendra dev College

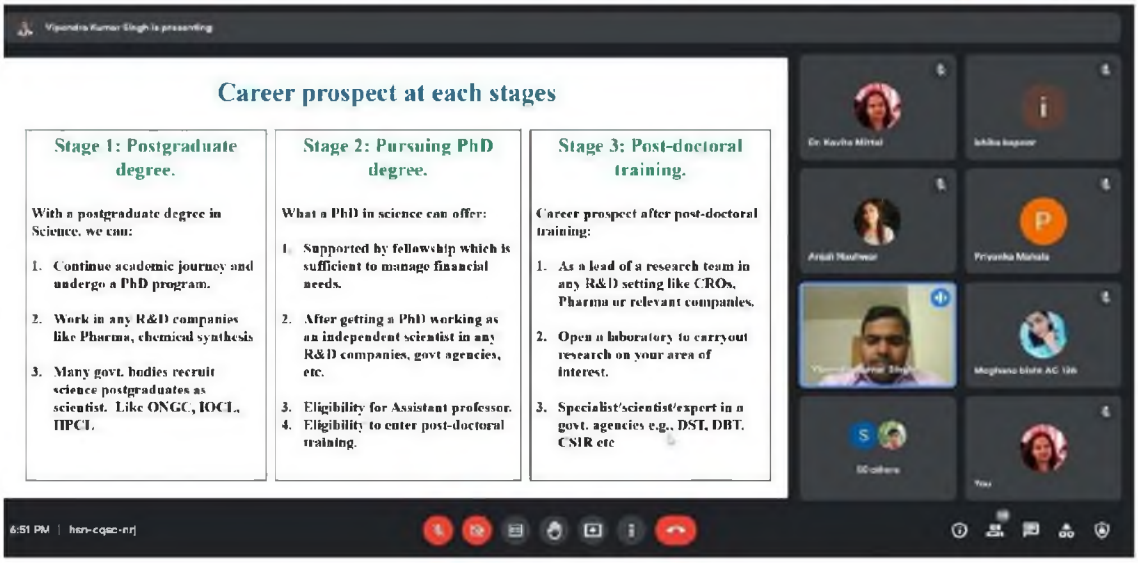
International Seminar
(Alumni Talk Series) Report

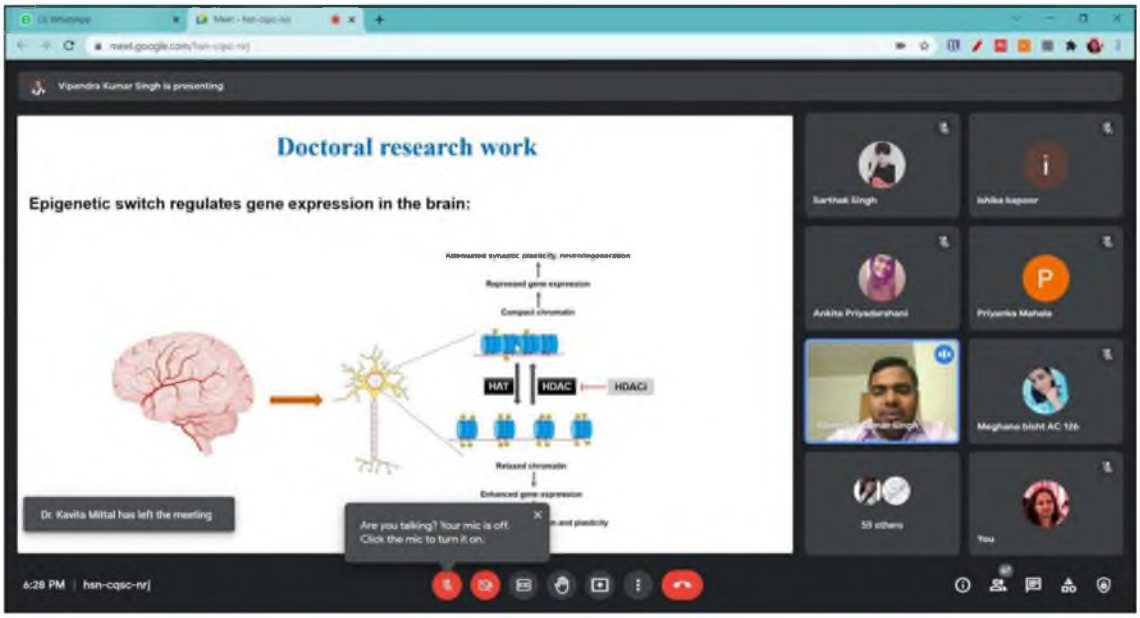
An International Seminar of Alumnus Talk on "Journey of an Alumni Episode -4 The Rise" was successfully organized by Department of Chemistry, Acharya Narendra Dev College under the aegis of DBT star scheme and IQAC on 26th November 2021 from 6:00 PM to 8:00 PM on Google Meet. Dr. Vipendra Kumar from University of Illinois, Urbana Champaign IL, USA, was the speaker. He is our Alumni form BSc. (P) Life Sciences, Batch 2009-2012. He presented his Ph.D. work on the topic "My experience in science- from curiosity to career". Around 70 participants including students, faculty from college and around 10 other alumni placed internationally attended the event. All students and faculty members enjoyed the program. He talked about the switching scholarship options available abroad for the students. At the end, wonderful responses received through Feedback form.

Resource Person: Dr. Vipendra Kumar, University of Illinois, USA, (Ph: 9716316274)

Poster

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
NAAC ACCREDITATION GRADE - 'A' | NIRF RANK- 20
DEPARTMENT OF CHEMISTRY
UNDER THE AEGIS OF DBT STAR SCHEME AND IQAC
Brings
International Seminar
Journey of an Alumni
Date: 26/11/2021 (FRIDAY)
Time: 06:00 PM
Venue - Google Meet
Google meet link:
https://meet.google.com/hsn-cqsc-nrj
Vipendra Kumar
Postdoctoral research associate
University of Illinois
Urbana Champaign, IL, USA
Episode-4 The Rise
COMETH, SIT, TALK ABOUT YOUR GONE DAYS
Prof. Ravi Toteja
PATRON
Prof. Sunita Hooda
DBT Coordinator
Dr. Geetu Gambhir
Convenor
Dr. Kavita Mittal
Co-Convenor
Student Coordinator - Meghana Bisht (8006791945)


Career prospect at each stages
Stage 1: Postgraduate degree.
With a postgraduate degree in Science, we can:
1. Continue academic journey and undergo a PhD program.
2. Work in any R&D companies like Pharma, chemical synthesis
3. Many govt. bodies recruit science postgraduates as scientist. Like ONGC, IOCL, HPCL
Stage 2: Pursuing PhD degree.
What a PhD in science can offer:
1. Supported by fellowship which is sufficient to manage financial needs.
2. After getting a PhD working as an independent scientist in any R&D companies, govt agencies, etc.
3. Eligibility for Assistant professor.
4. Eligibility to enter post-doctoral training.
Stage 3: Post-doctoral training.
Career prospect after post-doctoral training:
1. As a lead of a research team in any R&D setting like CROs, Pharma or relevant companies.
2. Open a laboratory to carryout research on your area of interest.
3. Specialist/scientist/expert in a govt. agencies e.g., DST, DBT, CSIR etc
6:51 PM | hsn-cqsc-nrj



Attendance of participants:

S. No.	Name of the participant		S. No.	Name of the participant
1.	Ishika		35.	Muskan Sarwangi
2.	Anjali		36.	Tanya Chopra
3.	Meghana Bisht		37.	Suman
4.	Priyanka Mahala		38.	Deepak
5.	Suraj		39.	Ritwij
6.	Abhishek Kumar Singh		40.	Priyanshu Sharma
7.	Aakash Maurya		41.	Krishna Agarwal
8.	Anshul Roulaniya		42.	Pratyush Kumar
9.	Shweta Yadav		43.	Sawan
10.	Ankush		44.	Tanushree
11.			45.	Ravi Takoria
12.	Abhi Soni		46.	Sapna Moond
13.	Aditya Kala		47.	Nandkishore
14.	Aman		48.	Nitin Sharma
15.	Anmol Rathi		49.	Ankush
16.	Ashish Kumar		50.	Soni Yadav
17.	Deepanshu		51.	Kapil Rathour
18.	Garima Choudhary		52.	Rohit
19.	Hemant Sharma		53.	Hemant Sharma
20.	Jai Gautam		54.	Lalit Kumar

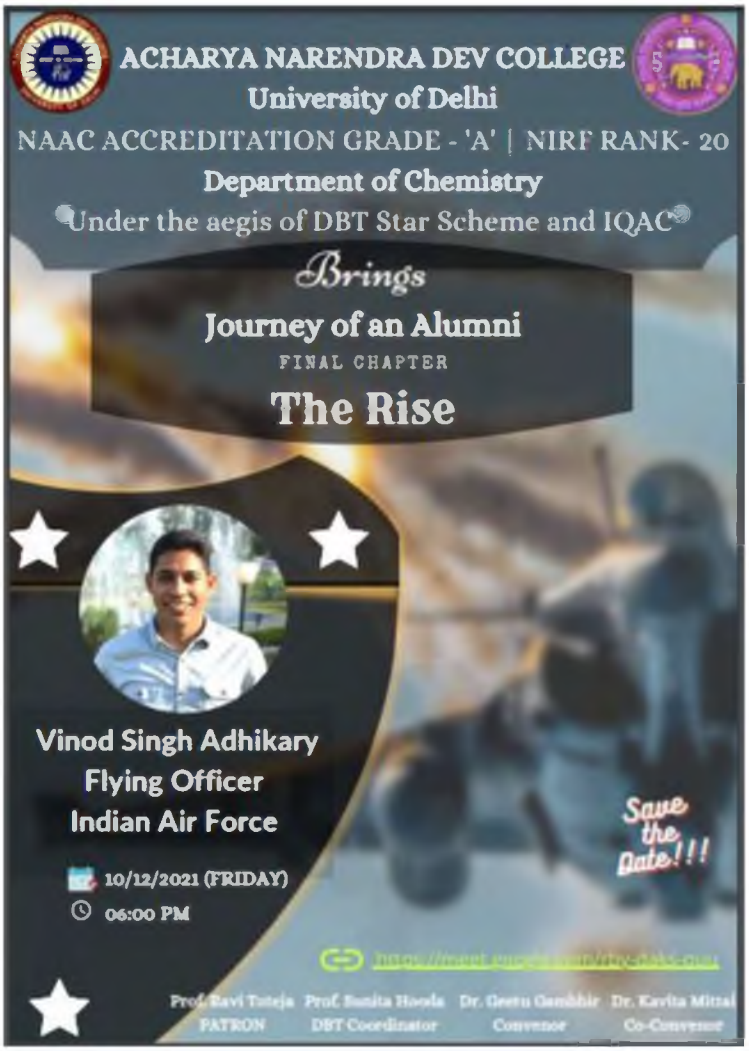
21.	Lalit Kumar		55.	Nitish Kumar
22.	Manoj Singh Mehta		56.	Ankita Priyadarshini
23.	Mintoo		57.	Mansi
24.	Mohit Kumar		58.	Eniya tapo
25.	Shyam Sunder		59.	Ankita
26.	Gaurav Sharma		60.	Bipasa Arya
27.	Rohit		61.	Dr. Pankaj Khanna
28.	Vinay Bansal		62.	Dr. Sunita Hooda
29.	Aayushi Rajpur		63.	Mr. Namo Narayan Meena
30.	Aryan Kesarwani		64.	Dr. Geetu Gambhir
31.	Asad Khan		65.	Dr. Kavita Mittal
32.	Dipankar		66.	Dr. Pragati Malik
33.	Amal Joshy			
34.	Abhijit Roy			

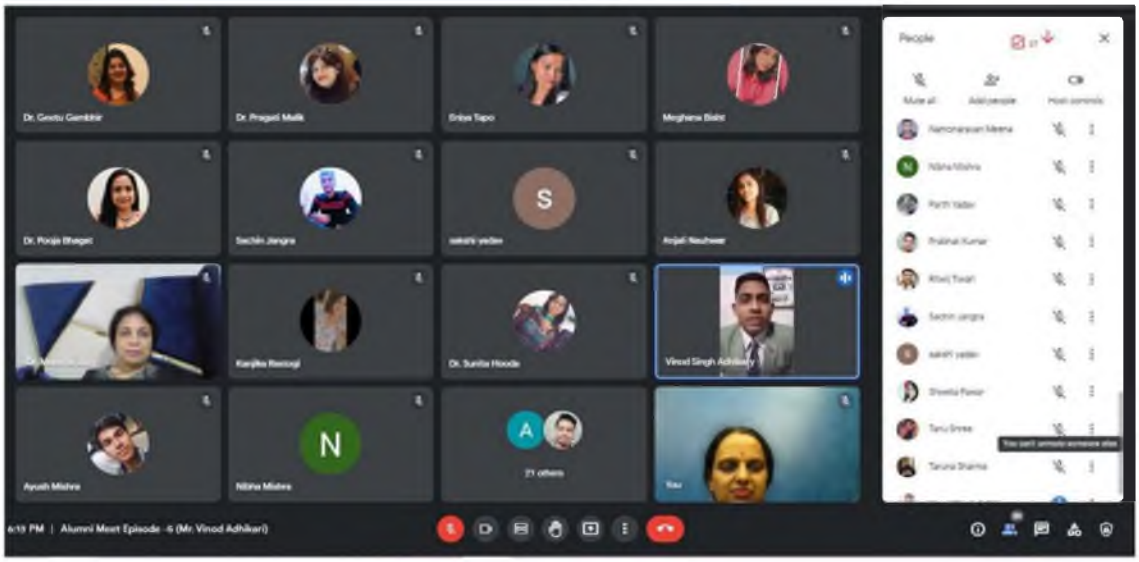
Dr. Kavita Mittal

Report of an Alumnus Talk Series

An Alumnus Talk on "Journey of an Alumni Episode -5 The Rise" was successfully organized by Department of Chemistry, Acharya Narendra Dev College under the aegis of DBT star scheme and IQAC on 10th December 2021 from 6:00 PM to 8:00 PM on Google Meet. Mr. Vinod Singh Adhikari, currently working as Flying Officer in Indian Air Force was the speaker. He is our Alumni form BSc. (H) Chemistry, Batch 2013-16. He presented his journey from Bachelor's to Indian air force. Around 60 participants including students, faculty from college attended the event. He talked about the career prospects, branches and eligibility criteria for IAF. All students and faculty members enjoyed the program enthusiastically. At the end, wonderful responses received through Feedback form.

Resource person: Mr. Vinod Singh Adhikari, Flying Officer (Indian Air Force) Poster





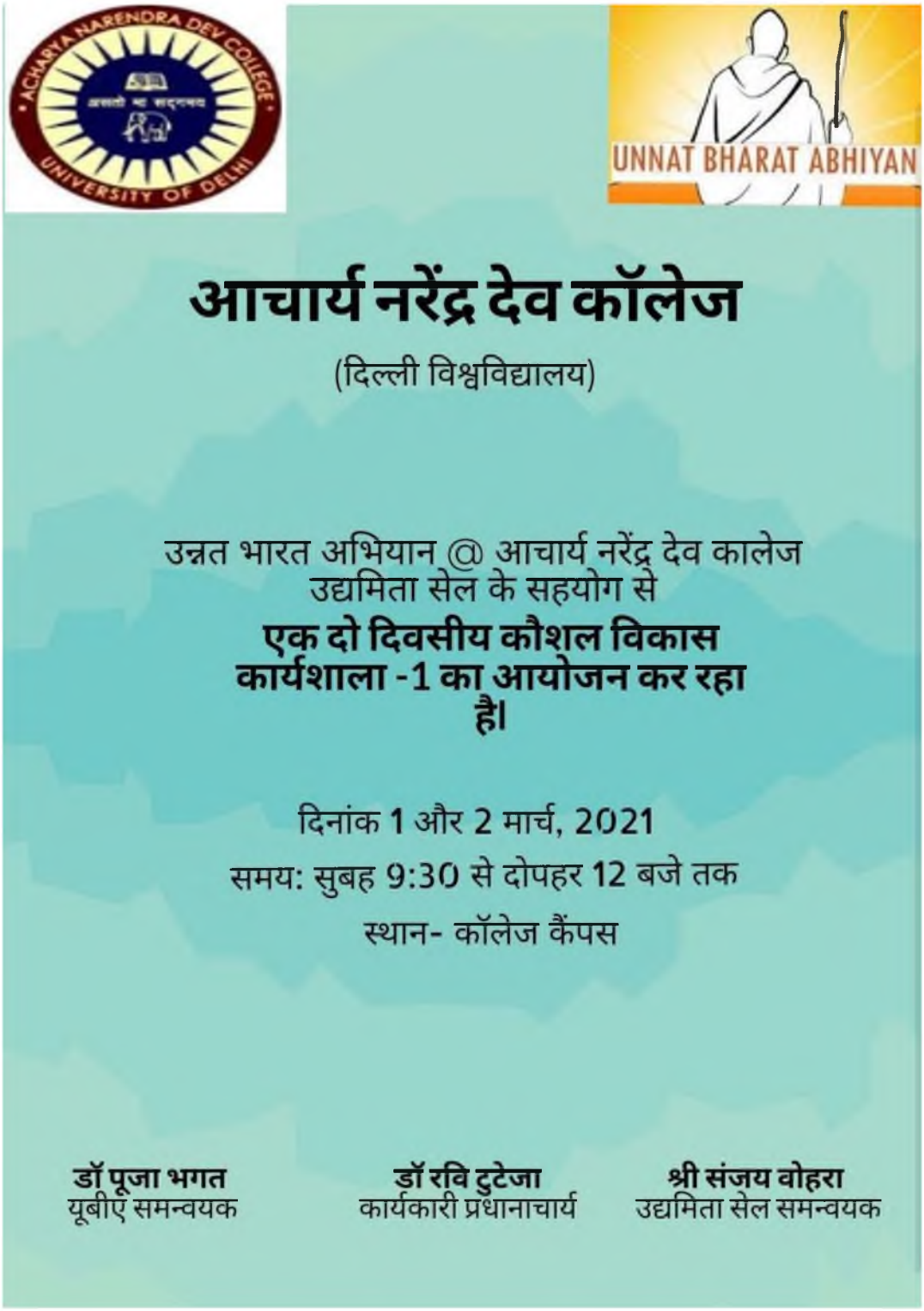
Attendance

S. No.	Name of the participant		S. No.	Name of the participant
1.	Nibha Mishra		35.	Shweta Pawar
2.	Parth yadav		36.	Sandeep G
3.	Prabhat Kumar		37.	Nikhil Kumar
4.	Sachin Jangra		38.	Jagdish Arya
5.	Sakshi Yadav		39.	Nikita
6.	Tanushree		40.	Pooja Yadav
7.	Meghana Bisht		41.	Ritwij Tiwari
8.	Taruna sharma		42.	Anshika
9.	Anjali		43.	Lucky
10.	Ayush Mishra		44.	Mohit Singh
11.	Kanjika		45.	Kapil Rathour
12.	Vishal Verma		46.	Sarthak Singh
13.	Ankita Priyadarshini		47.	Abhimanyu Kumar
14.	Akshita Kapri		48.	Alok Yadav
15.	Suman		49.	Gaurav Sharma
16.	Bipasa Arya		50.	Garima Choudhary
17.	Dipankar		51.	Hemant Sharma
18.	Preeti		52.	Jai Gautam
19.	Kajal		53.	Shweta Yadav

20.	Mansi		54.	Sawan
21.	Nidhi Singh		55.	Khushi singh
22.	Bhawna		56.	Aman
23.	Vishal Kashyap		57.	Shikha
24.	Gaurav		58.	Vibha
25.	Ishita		59.	Dr. Pankaj Khanna
26.	Ankita		60.	Mr. Namonarayan Meena
27.	Shyam Sunder		61.	Dr. Pragati Malik
28.	Soni Yadav		62.	Dr. Manisha Jain
29.	Rohit		63.	Dr. Seema Gupta
30.	Vinay Bansal		64.	Dr. Geetu Gambhir
31.	Aayushi Rajpur		65.	Dr. Kavita Mittal
32.	Aryan Kesarwani		66.	Dr. Pooja Bhagat
33.	Priyanka		67.	Dr. Sunita Hooda
34.	Dipankar			

Dr. Kavita Mittal

Workshop on “Hands on training for skill development”


ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
UNNAT BHARAT ABHIYAN
आचार्य नरेंद्र देव कॉलेज
(दिल्ली विश्वविद्यालय)
उन्नत भारत अभियान @ आचार्य नरेंद्र देव कालेज
उद्यमिता सेल के सहयोग से
एक दो दिवसीय कौशल विकास
कार्यशाला -1 का आयोजन कर रहा
है।
दिनांक 1 और 2 मार्च, 2021
समय: सुबह 9:30 से दोपहर 12 बजे तक
स्थान- कॉलेज कैंपस
डॉ पूजा भगत
यूबीए समन्वयक
डॉ रवि टुटेजा
कार्यकारी प्रधानाचार्य
श्री संजय वोहरा
उद्यमिता सेल समन्वयक

Report

UBA@ANDC organised 'Hands on training' for skill development of the interested residents of the adopted area, Govindpuri on March 1st-2nd, 2021.

During recent visits to the area by UBA volunteers, they discussed the problems faced by the residents to which most of the residents informed that they are struggling for their livelihood as due to corona they do not have any more paid jobs. The purpose of the training program was to help them be self reliant.

In the training program, UBA@ANDC along with the Entrepreneurship Cell of the college, trained them in the preparation of different types of Hand Washes (Liquid Soap). During the program participants were given motivational talk and were also groomed with marketing skills. The participants were also given the set of material required for the preparation of these liquid soaps.

Contact Details of the Resource Person:

Mr. Sanjay Vohra
Placement Officer
Acharya Narendra Dev College
Mob: 9868229322

Picture of the Hands-on Training by Mr Sanjay Vohra and Dr Pooja Bhagat

Hands on Training for Skill Develpoment

March 01-02, 2021

S.No.	Name	Address
1	Renu	A273
2	Jyoti	B417
3	Ratna	B54
4	Sonia	B62
5	Jagdish	C28
6	Urmila	E345
7	Soniya	E345
8	Poonam	E345
9	Sadhna	B175
10	Aruna	A56
11	Sunitha	D283. Navjivan Camp
12	Geeta	EB275, Nehru Camp
13	Laxmi	A61
14	Nirmala	B292
15	Husain Banu	B490
16	Kiran	—
17	Saroj	D231
18	Sneha	ANDC
19	Ankita	ANDC
20	Bibin	ANDC
21	Devesh	ANDC
22	Sumit	ANDC

Bhagat.
[Dr Pooja Bhagat]

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)

NAAC Accreditation Grade 'A' | NIRF 2020 All India Ranking - 18

ABHIKRIYA

The chemistry society of ANDC and IQAC
is organising a Webinar on

CAREERS AFTER GRADUATION

Know about:

- COURSES & COUNTRY OPTIONS
- ADMISSION ENTRY REQUIREMENTS
- STUDENT PROFILING
- EXAMINATIONS
- SCHOLARSHIPS
- VISA ASSISTANCE

and more

GUEST SPEAKER

Ms. KANCHAN NANDA RALHAN

Director - Proprietor, Futures Abroadd.
Two decades of experience in education industry.
Director, RCC.
Pilot license holder.
LLB, DU

Confused about what next?

Don't worry
Bring in all your career related questions to this webinar by Futures Abroad

Webinar Details:

Date: 12th November 2020, Thursday
Time: 3:00 - 4:00 PM IST
Platform: Zoom

register on Google form
to receive the Zoom login details

PATRON	EVENT COORDINATOR	CONVENOR ABHIKRIYA	IQAC COORDINATOR
Dr.Ravi Toteja (Officiating Principal)	Dr.Geetu Gambhir	Dr.Sunita Hooda	Dr.Yasheshwar

Contact Details of Speaker

Ms. Kanchan Nanda Ralhan

Mob. No. 9971125544

Attendance

S.NO.	NAME
1	ABHISHEK SINGH
2	ADITI KANDARI
3	AMAN SINGH
4	ANJALI
5	ANKITA KUMARI
6	ANKITA PRIYADARSHANI
7	ANKUSH KUMAR
8	ANSHUL ROULANIYA
9	ANURAG PRIYAM
10	AYUSH
11	AYUSHI GUPTA
12	BHANU MIGLANI
13	BITTU
14	Deepak
15	DHANANJAY
16	DHRUVANSH PACHAURI
17	GAURAV
18	HIMANSHU
19	HIMANSHU DIXIT
20	HIMANSHU RAWAT
21	ISHIKA
22	ISHITA
23	JATIN

24 JYOTSNA

24 KAPIL RATHORE

25 KHUSHBOO

26 KRISHNA AGRAWAL

27 MADHOOLIKA SINGH

28 MADHU

29 MANSI PAWAR

30 MEGHANA BISHT

31 MOHD PARVEZ

32 MONIKA

33 MRIDUL TIWARI

34 MUKUL BINJOLA

35 MUSKAN SHARMA

36 NANDKISHOR AHIRWAR

37 Parag Nath

38 PRABHAT KUMAR

39 Preeti Saini

40 Ramjeet

41 RITWIZ TIWARI

42 ROHIT KUMAR 43 SAKSHI YADAV

44 SANJAY DAHIYA

45 SEJAL

46 SHRAWAN MALIK

47 SHWETA

48 SHYAMSUNDAR KUMAR

49 SOMYA SINGH

50 SUMAN

51 TANUSHREE

52 TANYA CHOPRA

53 TARUNA SHARMA

54 TUSHAR JASROTIA

55 UMESH

56 VINAY

57 VIRENDER KR AHLAWAT

58 VAISHNAVI THAKUR

59. NEERAJ

60 POOJA ACHARYA

61. PRAGYA SINGH

62. SACHIN

63 SAKSHAM DOSAR

64. SEJAL CHOUDHARY

65. TEJASW VERMA

66. UTKARSH SINGH KHATI

67. VIKRAM KUMAR

68. Manish

69. Pulkit

70. Shalini

71. Yogesh

72. Zafrudin

73, Harshdev

74. RAVI DEEP BALGUHER

75. SAMEER GUPTA

76. SHIVAM KUMAR

77. SHIVAM RAJPUT

78. SHOBHA BISHNOI
79. SHREYA TYAGI
80. SHUBHAM
81. SHUBHAM VERMA
82. SIDHANT NARWAL
83. SIDHARTH MISHRA
84. SMRITI VERMA
85. SUNAINA SARDANA
86. SWARNANIL SARMA
87. TARUN YADAV
88. TNISH DHIR
89. VANSHIKA
90. VIJAY LAXMI
91. PIYUSH RANA
92. PRIYANKA BAGADWAL
93. PRIYANKA JHA
94. PRIYANSHU
95. RADHIKA BANSAL

Sunita Hooda

Report of Webinar on **Career Opportunities After Graduation**

Abhikriya, a chemical society was inaugurated on 12th Nov. 2020 and a webinar on

"**Carrier Opportunities After Graduation**" was organized. The speaker was Ms. Kanchan Nanda Balhan. Students were informed about various carrier options which they can have after completion of graduation. Students participated in large numbers to discuss about their career option that they can choose after their degree.

One Day Seminar on Intellectual Property Rights

Report

The Chemistry Department's Society, Abhikriya, organised a One Day Seminar on 'Intellectual Property Rights' under the aegis of the Star College Scheme, on 7th November, 2019. The seminar comprised of talks by Dr Nidhi Sandal, Additional Director and Scientist E, INMAS DRDO (Patents), Dr Arul George Scaria, Assistant Professor, National Law University
(Copyright) and Mr Ravi Chadha, Partner Trademarks- Rahul Chaudhry Partners (Trademarks). The program provided the holistic familiarity of the three IPRs to the students and faculty alike and was well appreciated by them.

Pictures of Dr Nidhi Sandal, Additional Director and Scientist E, INMAS DRDO
(Lecture on Patents)

Contact Details of the Resource Person: Dr Nidhi Sandal,
Additional Director and Scientist E,
INMAS DRDO
Mob: 9868810016
nidhisandal@inmas.drdo.in

Mr Ravi Chadha, Partner Trademarks- Rahul Chaudhry Partners
(Lecture on Trademarks)

Contact Details of the Resource Person:
Mr Ravi Chadha,
Partner Trademarks- Rahul Chaudhry Partners
Mob: 8447787171

Email: ravi.chadha@rahulchaudhry.com

Pictures of Dr Arul George Scaria (National Law University)
(Lecture on Copyright)

Contact Details of the Resource Person:
Dr Arul George Scaria
National Law University
Mob: 85272 62232
Email: arul.scaria@nludelhi.ac.in; arulgs@gmail.com

Participants at "Seminar on Intellectual Property Rights'

7th November, 2019

S. No.	Name of the student	Course
1	Kangana Jaiswal	B. Sc (P) Physical sciences
2	Himani Sharma	B.Sc. (H) Chemistry
3	Mega	B.Sc. (H) Chemistry
4	Ayush	B.Sc. (H) Chemistry
5	Rohan	B. Sc. Life Sciences
6	Sneha Khurana	B.Sc. (H) Chemistry
7	Payal Singh	B. Sc. Life Sciences
8	Ankit Rai	B.Sc. (H) Chemistry
9	Harsha	B.Sc. (H) Chemistry
10	Radhika	B.Sc. (H) Chemistry
11	Sushma	B.Sc. (H) Chemistry
12	Shruti Singla	B.Sc. (H) Chemistry
13	Ankush	B. Sc. Life Sciences
14	Isha Gupta	B.Sc. (H) Chemistry
15	Dev Raj Singh	B. Sc (P) Physical sciences
16	Pawnesh Kumar Mishra	B.Sc. (H) Chemistry
17	Karambir	B. Sc (P) Physical sciences
18	Himani Kanwal	B.Sc. (H) Chemistry
19	Arpit Aggarwal	B.Sc. (H) Chemistry
20	Sagar Goyal	B. Sc (P) Physical sciences
21	Aakriti	B.Sc. (H) Chemistry
22	Harsh Baliyan	B.Sc. (H) Chemistry
23	Muskan	B. Sc (P) Physical sciences
24	Khushi Khanna	B.Sc. (H) Chemistry
25	Vijaylaxmi	B.Sc. (H) Chemistry
26	Narain Swami	B. Sc. Life Sciences
27	Bharat Dixit	B.Sc. (H) Chemistry
28	Sakshi	B.Sc. (H) Chemistry
29	Mustabin Ahmed	B. Sc. Life Sciences
30	Raniya Sahoo	B.Sc. (H) Chemistry
31	Chavi Vats	B. Sc. Life Sciences
32	Rahul Kumar	B. Sc (P) Physical sciences
33	Deepanshu	B.Sc. (H) Chemistry
34	Shobha	B.Sc. (H) Chemistry
35	Nancy Singh	B. Sc (P) Physical sciences
36	Priyanka Jha	B.Sc. (H) Chemistry
37	Vandana Singh	B.Sc. (H) Chemistry
38	Gaurav Dwivedi	B. Sc (P) Physical sciences
39	Vanshika	B.Sc. (H) Chemistry
40	Ankita	B.Sc. (H) Chemistry
41	Vishal Yadav	B.Sc. (H) Chemistry
42	Shruti Singla	B.Sc. (H) Chemistry

Parbij Sharma

43	Abhijeet Kumar	B. Sc. Life Sciences
44	Ashish Jha	B. Sc. Life Sciences
45	Ankita Negi	B. Sc. Life Sciences
46	Prince Kumar	B. Sc (P) Physical sciences
47	Muskan Gupta	B. Sc. Life Sciences
48	Shreshtha Tripathi	B.Sc. (H) Chemistry
49	Eshita Singh	B. Sc (P) Physical sciences
50	Yukta	B. Sc. Life Sciences
51	Abhishek	B.Sc. (H) Chemistry
52	Mrinal	B. Sc (P) Physical sciences
53	Manvi Sharma	B.Sc. (H) Chemistry
54	Vanshika	B. Sc. Life Sciences
55	Priyanka Jha	B.Sc. (H) Chemistry
56	Chirag	B. Sc. Life Sciences
57	Megha Tanwar	B.Sc. (H) Chemistry
58	Priya Dhaundiyal	B.Sc. (H) Chemistry
59	Shivam Kumar	B.Sc. (H) Chemistry
60	Vanshika	B.Sc. (H) Chemistry
61	Smirti	B.Sc. (H) Chemistry
62	Anubhuti	B.Sc. (H) Chemistry
63	Gokesh	B. Sc (P) Physical sciences
64	Ishika Sagwal	B. Sc (P) Physical sciences
65	Sourabh Rana	B. Sc (P) Physical sciences
66	Kirti	B.Sc. (H) Chemistry
67	Rajkamal	B.Sc. (H) Chemistry

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

Govindpuri, Kalkaji, New Delhi - 110019

(Internal Quality Assurance Cell)

Workshop on

Empowering Teachers: Current Technology Based Educational Contents Creation and Delivery"

(Using Open Source, Free software)

Patron

Dr. Ravi Toteja (Acting Principal)

Organising Committee

Conveners

Dr. Manisha Jain (Assoc. Professor, Chemistry Department),
9810952672, manishajain@andc.du.ac.in
Dr. Yasheshwar (Asst. Professor, Botany Department), (IQAC, Coordinator)
9810133500, yasheshwar@andc.du.ac.in

Members

Dr. Neeti Misra (Assoc. Professor, Chemistry Department)
Dr. Pooja Bhagat (Assoc. Professor, Chemistry Department)

Resource Person

Mr. V. Krishnamoorthy, Educational Media Consultant (Tamilnadu Govt. and Skill India)
vkrishnamoorthy2003@gmail.com, vkrishnamoorthy2003@yahoo.com

(Internal Quality Assurance Cell)

Report

Workshop on

"Empowering Teachers: Current Technology based Educational Contents Creation and Delivery" (Using open source free software)

December 2-6, 2019.

Day 1 (December 2, 2019, Monday)

The first session started with welcome address by the Principal, Dr. Ravi Toteja and IQAC Coordinator, Dr. Yasheshwar and self-introduction of the participants. It was followed by a small presentation by the resource person, Mr. V. Krishnamoorthy on the objective of the workshop and the various techniques that would be discussed during the workshop for development and delivery of educational content. The purpose of the workshop was to introduce the participants to various open source and free software rather than focussing on expertise in few software. It was highlighted that the workshop will focus on creating and delivering educational content and the choice of software depends upon requirements of the content and the availability of funds. The participants were also introduced to the concept of Flipped-classroom.

The Day progressed with distribution of important software to be used during the workshop, to all the participants. Mr. Tarun and Mr. Sanjay Sangwan, the technical staff of the college, helped the participants in installing different softwares on their laptops. The session then focussed on overview of software *Balabolka*. Various ways in which this can be used to create audio content, was demonstrated by the resource person to the participants. The participants were also introduced to the concept of *silent classroom* and how it works using ***stream what you hear***.

The participants were asked to use the *Balabolka* software on the written educational content with them to prepare an audio file.

Day 2 (December 3, 2019, Tuesday)

The second Day began with the introduction of Audacity Software to create and edit audio files of the educational content. Participants created audio files of their content using *Balabolka,*

which is a text-to-speech software and recorded the audio with the help of Audacity software. Mr. Moorthy taught the participants how to edit the audio file using Audacity for producing a finished product. Throughout the day the participants edited their content and also learned the streaming of audio content in the concept of silent classroom.

The resource person also introduced the concept of wifi server on pen drive which is useful for lacal streaming of educational content.

Day 3 (December 4, 2019, Wednesday)

On third day participants were introduced to image editing tool-GIMP. The participants learned importing photographs in GIMP, editing their backgrounds, making gif animations, adjusting the picture size based upon final usage etc.

Participants were also taught the conversion of one video file format to the other, using the software *Handbrake*. The software is utmost useful in assisting the content creator to have a compatibility across various platforms.

A third software introduced to participants was a screen recording tool – Hypercam. This is useful for capturing screen activities in a video format. It was suggested by the resource person that this method in conjunction with audacity and webcam can be used for live capturing of classroom teaching.

Photos, an application of Microsoft available in windows, was also introduced to the participants to enable them to create videos using images and previously recorded audio files.

Day 4 (December 5, 2019, Thursday)

The fourth day concentrated on practicing the video editing of videos prepared in earlier sessions. For this the participants were introduced to software Openshot. Mr. Moorthy demonstrated correct handling of mobile phone to shoot classroom lecture by shooting few minutes lecture of some participants. He then explained the enriching of this video using Openshot software. He compared the two applications – Photos and Openshot for creating and editing videos.

For the remaining day, the participants prepared their educational videos based upon their own choice and understanding of various softwares introduced to them.

Day 5 (December 6, 2019, Friday)

On request of participants, the final Day of the workshop began with recapitulation of GIMP software. The participants also learned the video streaming. The participants were taught the live streaming using VLC.

An introduction about QR Codes, their generation and use was also given to the participants. This enables a user to encrypt any information in the QR Code and make it available for faster access to other user.

Participants presented their prepared videos and got their problems solved individually.

The Day ended with a verbal feedback session about the workshop from all participants and Vote of thanks to the resource person by the Workshop coordinator.

Dr. Manisha Jain
Workshop Convener

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

Govindpuri, Kalkaji, New Delhi -110019

(Internal Quality Assurance Cell)

Workshop on "Empowering Teachers: Current Technology Based Educational Contents Creation and Delivery (Using Open Source, Free software)", (December2-6, 2019)

LIST OF PARTICIPANTS

S.No	Name of Participant	Designation	Department	Institution	Mobile No.	E- mail id
1.	Dr. Ravi Toteja	Associate Professor	Zoology	ANDC, DU	9811675982	ravitoteja@andc.du.ac.in
2.	Dr. Sharanjit Kaur	Associate Professor	Computer Science	ANDC, DU	9871899798	sharanjitkaur@andc.du.ac.in
3.	Ms. Sunita Jetly	Associate Professor	Biomedical Science	ANDC, DU	9312922180	sunitajetly@andc.du.ac.in
4.	Dr. Monica Misra	Associate Professor	Zoology	ANDC, DU	9560076661	monicamisra@andc.du.ac.in
5.	Dr. Seema Makhija	Associate Professor	Zoology	ANDC, DU	9136563762	seemamakhija@andc.du.ac.in
6.	Dr. Manisha Jain	Associate Professor	Chemistry	ANDC, DU	9810952672	manishajain@andc.du.ac.in
7.	Dr. Neeti Misra	Associate Professor	Chemistry	ANDC, DU	9810276577	neetimisra@andc.du.ac.in
8.	Ms. Rupali Pabreja	Associate Professor	Commerce	ANDC, DU	8826872799	rupalipabreja@andc.du.ac.in
9.	Dr. Geetu Gambhir	Assistant Professor	Chemistry	ANDC, DU	9810168960	geetugambhir@andc.du.ac.in
10.	Dr. Yasheshwar	Assistant Professor	Botany	ANDC, DU	9810133500	yasheshwar@andc.du.ac.in
11.	Dr. Udaibir Singh	Assistant Professor	Electronics	ANDC, DU	9811346445	udaibirsingh@andc.du.ac.in
12.	Dr. Ravneet Kaur	Assistant Professor	Electronics	ANDC, DU	9810836367	ravneetkaur@andc.du.ac.in
13.	Dr. Rashmi Sharma	Assistant Professor	Botany	ANDC, DU	7011301160	rashmisharma@andc.du.ac.in
14.	Dr. Pankaj Khanna	Assistant Professor	Chemistry	ANDC, DU	9818009250	pankajkhanna@andc.du.ac.in
15.	Dr. Sarita Agarwal	Assistant Professor	Mathematics	ANDC, DU	9810637952	saritaagarwal@andc.du.ac.in
16.	Dr. Pragati Malik	Assistant Professor	Chemistry	ANDC, DU	9910517371	pragatimalik@andc.du.ac.in
17.	Dr. Kavita Mittal	Assistant Professor	Chemistry	ANDC, DU	9810940472	
18.	Dr. Shelja Tiwari	Assistant Professor	Chemistry	ANDC, DU	9718021399	sheljatiwari@gmail.com
19.	Ms. Vandita Grover	Assistant Professor	Computer Science	ANDC, DU	9871119094	vanditagrover@andc.du.ac.in
20.	Mr. Abhay Pratap Singh	Assistant Professor	Environment Science	ANDC, DU	9891274760	abhaypratapsingh@andc.du.ac.in
21.	Dr. Ranjit Kaur	Assistant Professor	Physical Education	ANDC, DU	7982110092	Kaur.ranjit851@gmail.com
22.	Dr. Deepali Joon	Assistant Professor	Zoology	SGTB Khalsa College, DU	8447267772	deepalijoon@gmail.com
23.	Dr. Geetanjali Joon	Assistant Professor	Zoology	C.H.L Govt. College, Chhara (Jhajjar), Haryana	9873305880	geetanjalisrcc@gmail.com
24.	Dr. Smita Bhatia	Associate Professor	Zoology	Ramjas College, DU	9810010895	smitabhatia@ramjas.du.ac.in
25.	Mr. Pradeep Kumar	Assistant Professor	Computer Science	Keshav Mahavidyalaya	9582596424	Inf.pradeep@gmail.com

UNIVERSITY OF DELHI

Contact Detail of Speaker

Swaranjeet Singh Chhatwal (Jeet Chhatwal)

Director, Hartek group of Company

Mob. No.- 9810544556

Report of Webinar on Covid 19 Impact Strategies For Education and Challenges in Virtual Learning

A webinar was organized on 20th may 2020 on the topic of Covid 19 Impact Strategies For Education and Challenges in Virtual Learning. The speaker was Mr. Swaranjeet Singh Chatwal, Director, Harteek Group of Companies. The various challenges which we all were facing in Covid 19 times were discussed in detail. The new mode of teaching – learning was discussed in detail. The participants had very good online interaction with speaker. All of them thoroughlt enjoyed the webinar.

Attendance Record

S. No.	Name

1 AANCHAL BHASKAR AGGARWAL
2 AKRAMUZ ZAMAN
3 AKSHAT BHANU DHARMANI
4 ANISH NAGAR
5 ANKUSH PANWAR
6 ANTIMA
7 ASTHA PUJARA
8 ATHIRA SHENO
9 CHANDRIKA CHAUDHARY
10 DANISH SIRAJ
11 DIVYA PAL
12 INSHUL BANSAL
13 KHUSHI SAXENA
14 KRITH UNNI KRISHNAN
15 MAHAK
16 MARIYAM ALI
17 MOHIT KUMAR
18 MUSKAN
19 NANCY VISHWAKARMA
20 NIKHIL KUMAR
21 NIKHIL SHARMA
22 POOJA RAI
23 POOJA KACHAWAHA
24 PREETI
25 PRITEE SINGH
26 RAJU SHARMA
27 RUMPA MAJUMDER
28 SAYANTAN CHATTERJEE AB
29 SHUBHANGI

30 SONALI KUMARI SINGH

31 SUMITRA SHAH

32 SURAJ KUMAR GUPTA

33 YASHANK CHAUHAN

34 YASHI RATHI

35 Stanzin Duddul

36. Abhishek Verma

37. Akshya

38. Pragya Singh

39. Sachin

40. Tannu

41. Tammna

42. Summit

43. Vikram

44. Yogesh

45. Pooja

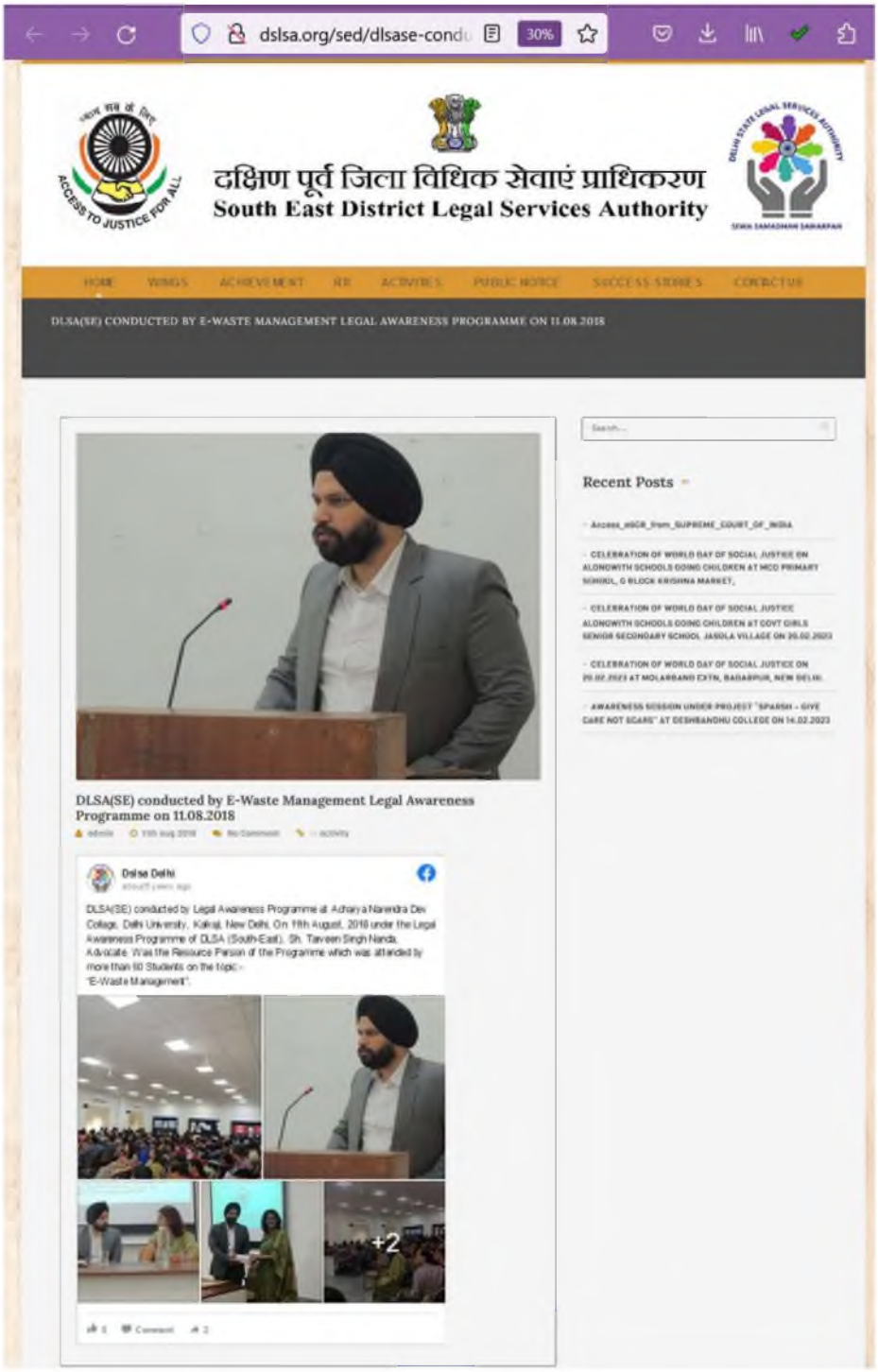
Sunita Hooda

Workshop on "Legal Awareness Program on E-Waste Management"

Report

Legal Awareness Program on E-Waste Management was organized on August 11, 2018. Advocate Tarveen Singh Nanda was the resource person from Delhi State Legal Services Authority. The event is being shared by DLSA(SE) on http://dslsa.org/sed/?p=3695.

ACHARYA NARENDRA DEV
COLLEGE
ECO-CLUB- PARITANTRA



Details on DLSLA site at http://dslsa.org/sed/?p=3695

Workshop on 'Legal Awareness Program on E-waste Management'

Name	Roll No.	Course
1) Shivanshu Tripathi	20-054	Physics Hons (Ist)
2) Nitesh Gangwar	20-036	Physics Hons (Ist)
3) Ayushi	2-1386	B.Com Hons (Ist)
4) Manek Goel	2-1374	B Com (H) (I)
5) Anushi Jain	2-1310	B.Com (H) (Ist)
6) Himanshi Madaan	2-1320	B.com (H) (Ist)
7) Tanu	2-1366	B-com (H) (Ist)
8. Ishika	20-519	PMC (Ist)
9. Sakshi	20-532	PMC (Ist)
10.) Rajat Mann	X0-466	Electronics (H) - 3rd
11.) Lokender	X0-462	Electronics (H) - 3rd
12) Lovely Singh	X0-456	Electronics (H) - 3rd
13) ~~Prinshu~~ Abhay	Y0-402	Electronics (H) - 1st

Workshop on 'Legal Awareness Program on E-Waste Management'

CHEMISTRY HONS II Year

1	Anushali Srivastava	Y0-105
2.	Smriti Verma	Y0-138.
3.	Vanshika	Y0-152
4	Harmender	Y0-143
5.	Manvi	Y0-118
6.	Gauma	Y0-154
7	Shreya	Y0-133
8	Naveen	Y0-121
9	Ravideep	Y0-128
10.	Aakash	Y0-102
11.	Abhishek	Y0-101

Workshop on 'Legal Awareness' Program on E-Waste Management'

1	Monika	ZO-620	BSC life Science	1 year
2.	Jyoti Sharma	ZO-615	BSC L.S	1 year
3	Aditi Pandey	XO-602	BSC L.S	2nd year
4.	Priyanshi Jain	XO-623	BSC. L.S.	1 year
5	Rachna Dhami	ZO-624	BSC. L.S	1 Year
6	Alia Afreen	ZO-602	BSC. L.S.	1st year
7	Khushboo	ZO-616	BSC L.S	1st yr
8.	Abhijit Kumar	ZO-601	BSC L.S	1st year
9	Vishal Singh	ZO-634	BSC L.S.	1st year.
10	Isha Mahendru	ZO-613	BSC L.S.	1st year
11	Vaishnavi	ZO-631	"	"
12.	Dev Bargoy	ZO-610	"	"
13.	Sameer Ahmed	ZO-648	"	"
14	Vartika gupta		"	"
15.	Shivani			
16.	Dhruv Khanna	ZO-638	BSC L.S.	1st year
17.	Deepanshu	ZO-635	"	"
18.	Aastha Singh	ZO-640	"	"
19.	Shrankhla	ZO-628	"	"
20.	Rajanshi	ZO-625	"	"
21.	Ananya	ZO-604	"	"

Workshop on Legal Awareness Program on E-waste management

PMCS – Dst year

1. Vijay YADAV 20-346
2. Mohit Yogi 20-322
3. Soni 20-343
4. Guru Prasad 20-314
5. Pawan 20-330

Workshop on Legal, Awareness Program on E-waste Management

3rd Sem

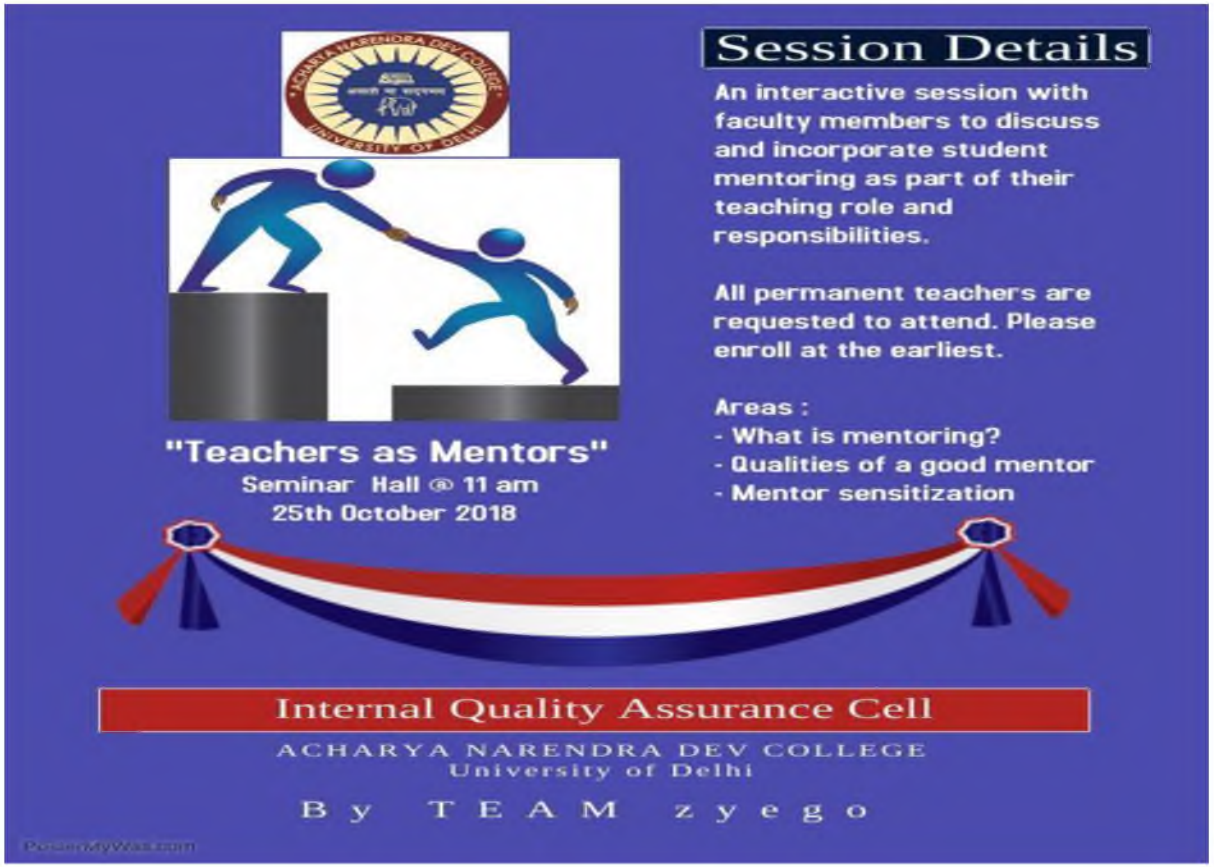
BSC (H) Chemistry

1	Deepti	YO-108	BSc Chemistry (III
2.	Shobha	YO-132	"
3.	Vijay	YO-142	"
4.	Ankit Rai	YO-~~10~~ 153	"
5	Lalit	YO-116	"
6.	Priyanka Jha	YO-125	"
7.	Priyanka	YO-124	"
8.	Radhika	YO-150	
9	Sumania	YO-151	
10	Gungan	YO-111	
11.	Himani	YO-146	
12	Zeeshan	YO-119	"
13	Mubarak	YO-140	"
14	Ankit Gola	YO-104	"
15	Shivam Rajput	YO-131	
16	Bharat	YO-107	
17	Akarsh	YO-144	
18	Swarnanil	YO-139	
19	Tarun	YO-140	
20	Tnish	YO-141	
21	Sidharth	YO-137	
22	Priyanshu	YO-126	" IInd yr
23	Shubham	YO-135	"
24	Piyush	YO-123	"
25	Smriti	YO-138	
26	Shivan Shakya	ZO-937	PMF 1st

My Note Book

Acharya Narendra Dev College
Internal Quality Assurance Cell
Report on Workshop
'Teachers as Mentors'

Held on 25.10.18


Session Details
An interactive session with faculty members to discuss and incorporate student mentoring as part of their teaching role and responsibilities.
All permanent teachers are requested to attend. Please enroll at the earliest.
Areas :
- What is mentoring?
- Qualities of a good mentor
- Mentor sensitization
"Teachers as Mentors"
Seminar Hall @ 11 am
25th October 2018
Internal Quality Assurance Cell
ACHARYA NARENDRA DEV COLLEGE
University of Delhi
By TEAM zyego

Resource Persons

- Mr. Arindam Sen(Zyego Co.)
  ALS Wellness Network Pvt
  Ltd
  H 1462, FF Chittaranjan Park
  New Delhi 110019
- Ms. Tripti

College Counsellor

Interactive Session

How to help students cope with career and personal life issues which hinder their professional and personal development and emotional wellbeing.

Workshop on Mentoring - Teacher's as Mentors, Seminar Hall
11:00 am
25th Oct. 2018

ACHARYA NARENDRA DEV COLLEGE
(University of Delhi)

S. No.	Name	Designation	Department	Signature
1	Dr. Savithri Singh	Principal	-	
2	Dr. Sunita Hooda	Associate Professor	Chemistry	
3	Dr. Seema Gupta	Associate Professor	Chemistry	
4	Dr. Mamta Bhatia	Associate Professor	Physics	
5	Dr. Sanjeeta Rani	Associate Professor	Physics	
6	Ms. Sangeeta Relan	Associate Professor	Commerce	
7	Dr. Manisha Verma	Associate Professor	Physics	
8	Ms. Sadhna Gupta	Associate Professor	Commerce	
9	Ms. Anupama	Associate Professor	Mathematics	Anupama
10	Dr. Vatsla Kohli	Associate Professor	Mathematics	
11	Dr. Poonam A. Kant	Associate Professor	Zoology	
12	Dr. Sarita Kumar	Associate Professor	Zoology	
13	Dr. M.S. Rajeswari	Associate Professor	Botany	
14	Dr. Shalu Dhanda	Associate Professor	Physics	
15	Dr. Pooja Bhagat	Associate Professor	Chemistry	
16	Dr. Sona Pranav Kumar	Associate Professor	Electronics	
17	Dr. Anju Agarwal	Associate Professor	Electronics	
18	Dr. Sharanjit Kaur	Associate Professor	Computer Science	
19	Dr. Surinder Kaur	Associate Professor	Commerce	
20	Dr. Amit Garg	Associate Professor	Electronics	
21	Dr. Anupama Shukla	Associate Professor	Botany	
22	Dr. Urmi Bajpai	Associate Professor	Biomedical Science.	
23	Ms. Sunita Jetly	Associate Professor	Biomedical Science	
24	Dr. Gagan Dhawan	Assistant Professor	Biomedical Science.	
25	Dr. Archna Pandey	Associate Professor	Biomedical Science.	
26	Dr. Shallu Sachdeva	Associate Professor	Chemistry	
27	Dr. Rashmi Thukral	Associate Professor	Chemistry	
28	Dr. Anita Narang	Associate Professor	Botany	
29	Mr. Gaurav Sharma	Associate Professor	Mathematics	
30	Dr. Monisha Khanna Kapur	Associate Professor	Zoology	
31	Dr. Ravi Toteja	Associate Professor	Zoology	
32	Dr. Monica Misra	Associate Professor	Zoology	
33	Dr. Seema Makhija	Associate Professor	Zoology	S Mak
34	Dr. Charu Khosla Gupta	Associate Professor	Botany	
35	Dr. Manisha Jain	Associate Professor	Chemistry	
36	Dr. Neeti Misra	Associate Professor	Chemistry	
37	Dr. Vibha Gaur	Associate Professor	Computer Science	

Convener
Seema Gupta

38	Ms. Poonam Chauhan	Assistant Professor	Commerce	
39	Ms. Anuradha Sarin	Associate Professor	Commerce	
40	Ms. Rupali Pabreja	Associate Professor	Commerce	
41	Mr. Vishal Dhingra	Assistant Professor	Electronics	
42	Dr. Neelu Dheer	Associate Professor	Chemistry	
43	Dr. Geetu Gambhir	Assistant Professor	Chemistry	
44	Dr. Vandana Uberoi	Associate Professor	Chemistry	
45	Dr. Meenu Mohil	Associate Professor	Physics	
46	Dr. Arijit Chowdhuri	Assistant Professor	Physics	
47	Dr. Yasheshwar	Assistant Professor	Botany	
48	Dr. Ranjeet Singh	Assistant Professor	Physics	
49	Dr. Geetika Kalra	Associate Professor	Botany	
50	Mr. Ravinder Kr. Sagar	Assistant Professor	Zoology	
51	Dr. Priti Goyal	Associate Professor	Physics	
52	Dr. Sandeep Kr. Goel	Associate Professor	Commerce	
53	Dr. Shalu Mahajan	Assistant Professor	Commerce	
54	Dr. Sunita Narang	Assistant Professor	Computer Science	
55	Dr. Harita Ahuja	Assistant Professor	Computer Science	
56	Dr. Preeti Marwaha	Assistant Professor	Computer Science	
57	Dr. Dinesh Kr. Arya	Assistant Professor	Chemistry	
58	Dr. Chandra Kanta Samal	Assistant Professor	Computer Science	
59	Dr. Roopesh Tehri	Associate Professor	Mathematics	
60	Dr. Laxmi Narain	Associate Professor	Mathematics	
61	Ms. Seema Gupta	Associate Professor	Mathematics	
62	Dr. Sada Nand Prasad	Assistant Professor	Mathematics	
63	Dr. Subhash Kumar	Assistant Professor	Physics	
64	Dr. Rachna Joshi	Associate Professor	Physics	
65	Mr. Pawan Kumar	Assistant Professor	Physics	
66	Mr. Manoj Kumar Garg	Assistant Professor	English	
67	Dr. Vikrant Kumar	Assistant Professor	Chemistry	
68	Dr. Rajesh Chaudhary	Assistant Professor	Biomedical Science	
69	Dr. Udaibir Singh	Assistant Professor	Electronics	
70	Dr. Ravneet Kaur	Assistant Professor	Electronics	
71	Dr. Rashmi Sharma	Assistant Professor	Botany	
72	Dr. Pankaj Khanna	Assistant Professor	Chemistry	
73	Dr. Chaman Singh	Assistant Professor	Mathematics	
74	Dr. Sarita Agarwal	AssistantProfessor (Temporary)	Mathematics	
75	Ms. Anu Preveen	AssistantProfessor (Temporary)	Comp. Science	

Commerce

Workshop on Mentoring - Teachers as Mentors, Seminar Hall
11:00 a.m.
25th Oct 2018

ACHARYA NARENDRA DEV COLLEGE
(University of Delhi)

Adhoc list (current Odd semester 2018-2019)

S.No	Name	Department	Signature
1	Dr. Abhishek K.Mehta	Biomedical Science	
2	Dr. Satendra Singh	Biomedical Science	
3	Dr. Rakesh Roshan	Biomedical Science	
4	Dr. Namita Singh	Biomedical Science	
5	Dr. Abhijeet Mishra	Biomedical Science	
6	Dr. Yash Mangla	Botany	
7	Dr. Anita Thakur	Botany	
8	Dr. Manoj Kumar Singh	Botany	
9	Dr. Sumit Sahni	Botany	
10	Dr. Vineet Kumar Singh	Botany	
11	Dr. Pragati Malik	Chemistry	Pragati 25/10/18
12	Dr. Kavita Mittal	Chemistry	
13	Ms. Sapna Yadav	Economics	
14	Ms. Priyanka Sharma	Computer Science	
15	Mr. Keshava Pratap Singh	Computer Science	
16	Ms. Shiva Saini	Computer Science	
17	Ms. Nishu Singh	Computer Science	
18	Ms. Gunjan Rani	Computer Science	
19	Ms. Gauri Ghai	Electronics	
20	Dr. Anita Kumari	Electronics	Anita
21	Mr. Dinesh Kumar	Electronics	
22	Dr. Monika Bhattacharya	Electronics	
23	Dr. Joita Dhar Rakshit	English	
24	Dr. Neeti Goel	Mathematics	
25	Mr. Narayan Singh	Mathematics	
26	Mr. Brijendra Yadav	Mathematics	
27	Mr. Gurudatt Rao Ambedkar	Mathematics	

Convenor
Seema Gupta

S.No	Name	Department	Remarks/Signature
28	Mr. Dev Om	Mathematics	
29	Dr. Sanjay Kumar	Mathematics	
30	Mr. Kalu Ram Meena	Mathematics	
31	Mr. Deo Datta Aarya	Mathematics	
32	Dr. Satyapal Singh	Physical Education	
33	Dr. Ranjit Kaur	Physical Education	
34	Dr. V. Bhasker Raj	Physics	
35	Dr. Rohtash Singh	Physics	
36	Dr. Vikram Sen	Physics	
37	Dr. Ambika	Physics	
38	Dr. Neelakshi N.K. Borah	Physics	
39	Dr. Sanjay Kumar	Physics	
40	Dr. Shashi Shekhar	Physics	
41	Mr. Pradeep Kr. Gupta	Physics	
42	Dr. Siddhartha	Physics	
43	Mr. Abhishek Kumar	Physics	
44	Dr. Aparna Sharma	Zoology	
45	Dr. Sweety Shrimali	Zoology	
46	Dr. Rahul Dev	Zoology	
47	Dr. Neelgagan Singh	Zoology	
48	Mr. Sanjay Kumar	Zoology	
49	Mr. Vineet Girdharwal	Zoology	
50	Ms. Sneh Sagar	Zoology	
51	Ms. Hemant Yadav	Zoology	
52	Mr. Jitender Goel	Commerce	
53	Mr. Ankit Singh	Commerce	
54	Mr. Yask Sain	Commerce	
55	Mr. Gurjinder Singh	Commerce	
56	Ms. Hanisha Bhagat	Commerce	
57	Mr. Abhay Pratap Singh	Environment Science	

Convener
Seema Gupta

Tinkering for Scientists

Report

The Department's Society, Abhikriya organised its annual festival, Synergia 2019, on 13th

February 2019. The day started with the Inaugural Lecture, under the aegis of the Star College Scheme, by Prof. Dhananjay V. Gadre, NSUT, on "Tinkering for Scientists,". He is a Director of two open access laboratories at NSUT, namely Centre for Electronics Design and Technology (CEDT) and TI Centre for Embedded Product Design (TI-CEPD). The talk comprised of demonstrations of the devices relating to various principles of Science and was highly appreciated in-sync by the students and faculty of the college. Further program included various co-curricular activities like Chemistry Quiz, poster making and chemistry related fun games.

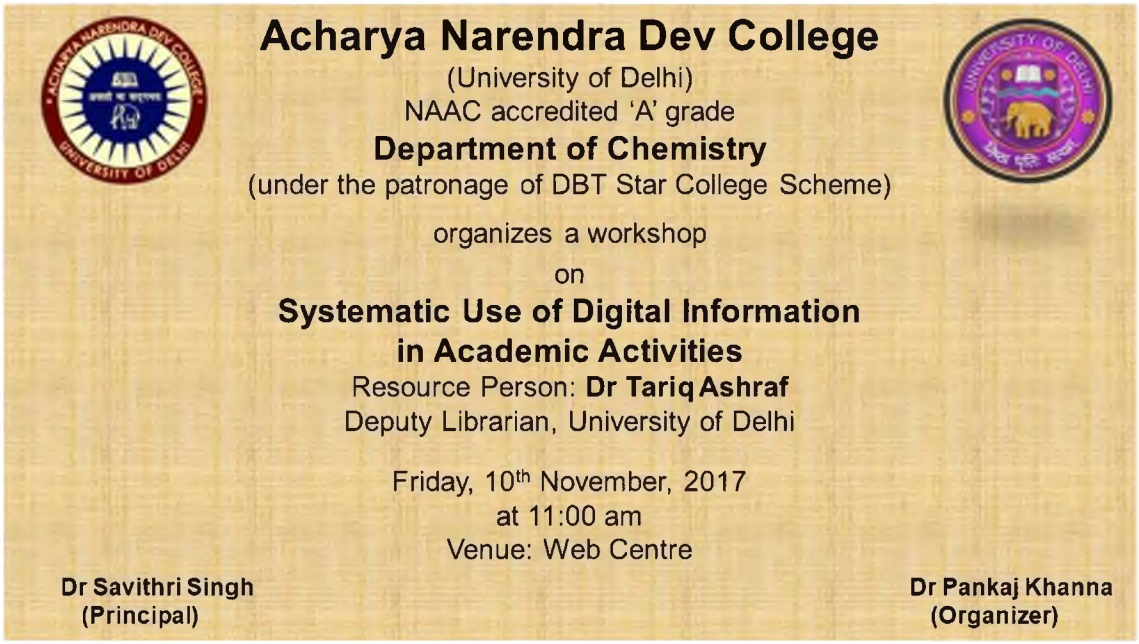
Contact Details of the Resource Person:
Prof. Dhananjay V. Gadre,
NSUT
Mob: 9968357499
Email: dvgadre@gmail.com, dvgadre@nsit.ac.in

TINKERING
FOR
SCIENTIST

Participants at 'Tinkering for Scientists'

S. No.	Name Of The Student	Course
1.	Ankit Rai	B.Sc. (H) Chemistry
2.	Priyanka Jha	B.Sc. (H) Chemistry
3.	Vijaylaxmi	B.Sc. (H) Chemistry
4.	Harshvardhan	B.Sc. (H) Chemistry
5.	Ankush	B.Sc. (H) Chemistry
6.	Shweta Gupta	B. Sc. Life Sciences
7.	Yukta	B. Sc. Life Sciences
8.	Manvi	B.Sc. (H) Chemistry
9.	Pivush	B.Sc. (H) Chemistry
10.	Priyanka Bagadwal	B.Sc. (H) Chemistry
11.	Himani	B.Sc. (H) Chemistry
12.	Bharat Dixit	B.Sc. (H) Chemistry
13.	Eshita Singh	B. Sc (P) Physical Sciences
14.	Radhika	B.Sc. (H) Chemistry
15.	Shivam Kumar	B.Sc. (H) Chemistry
16.	Shobha	B.Sc. (H) Chemistry
17.	Smriti	B.Sc. (H) Chemistry
18.	Tarun	B.Sc. (H) Chemistry
19.	Vanshika	B.Sc. (H) Chemistry
20.	Anu Malik	B.Sc. (H) Chemistry
21.	Pawnesh Kumar Mishra	B.Sc. (H) Chemistry
22.	Aakriti	B.Sc. (H) Chemistry
23.	Gaurav Dwivedi	B. Sc (P) Physical Sciences
24.	Ankita Negi	B. Sc. Life Sciences
25.	Ankush	B. Sc. Life Sciences
26.	Harsh Baliyan	B.Sc. (H) Chemistry
27.	Prince Kumar	B. Sc (P) Physical Sciences
28.	Nancy Singh	B. Sc (P) Physical Sciences
29.	Muskan	B. Sc (P) Physical Sciences
30.	Mega	B.Sc. (H) Chemistry
31.	Sakshi	B.Sc. (H) Chemistry
32.	Megha Tanwar	B.Sc. (H) Chemistry
33.	Ishika Sagwal	B. Sc (P) Physical Sciences
34.	Kangana Jaiswal	B. Sc (P) Physical Sciences
35.	Arpan Sharma	B.Sc. (H) Chemistry
36.	Rajkamal	B.Sc. (H) Chemistry
37.	Naram Swami	B. Sc. Life Sciences
38.	Mustabin Ahmed	B. Sc. Life Sciences
39.	Monika	B.Sc. (H) Chemistry
40.	Pragya Singh	B.Sc. (H) Chemistry
41.	Deepanshu	B.Sc. (H) Chemistry
42.	Kirti	B.Sc. (H) Chemistry
43.	Himani Kanwal	B.Sc. (H) Chemistry
44.	Anubhuti	B.Sc. (H) Chemistry
45.	Muskan Gupta	B. Sc. Life Sciences
46.	Purti Patel	B.Sc. (H) Chemistry
47.	Shreshtha Tripathi	B.Sc. (H) Chemistry
48.	Priyash Verma	B.Sc. (H) Chemistry
49.	Abhishek Kumar Verma	B.Sc. (H) Chemistry
50.	Amisha Thakur	B.Sc. (H) Chemistry
51.	Amit Kumar Maurya	B.Sc. (H) Chemistry
52.	Anjali Wadhwa	B.Sc. (H) Chemistry
53.	Bhavesh Siroha	B.Sc. (H) Chemistry
54.	Harshita Madaan	B.Sc. (H) Chemistry
55.	Hemant Kumar	B.Sc. (H) Chemistry
56.	Jagdish Kumar	B.Sc. (H) Chemistry
57.	Muskan	B.Sc. (H) Chemistry
58.	Gajendra Meena	B.Sc. (H) Chemistry
59.	Gourav Godhiwal	B.Sc. (H) Chemistry
60.	Manisha	B.Sc. (H) Chemistry
61.	Miti Joshi	B.Sc. (H) Chemistry
62.	Bhavesh Soni	B.Sc. (H) Chemistry
63.	Devansh Patle	B.Sc. (H) Chemistry
64.	Devesh Awasthi	B.Sc. (H) Chemistry
65.	Esha Mukhopadhyay	B.Sc. (H) Chemistry
66.	Vaibhav Joshi	B.Sc. (H) Chemistry
67.	Neeraj	B.Sc. (H) Chemistry
68.	Sumit	B.Sc. (H) Chemistry
69.	Pooja Acharya	B.Sc. (H) Chemistry

Workshop on 'Systematic Use of Digital Information in Academic Activities'



Report

Acharya Narendra Dev College
(University of Delhi)
Department of Chemistry

A workshop was organised by the Department of Chemistry, under the support of DBT Star College Scheme, on 10th November 2017 at the Web Centre. The workshop, with the theme of 'Systematic Use of Digital Information in Academic Activities', had an esteemed presence of Dr Tariq Ashraf (Deputy Librarian, University of Delhi) as the resource person. More than seventy students and faculty members participated in the workshop.

Dr Ashraf highlighted various aspects of Digital Information starting with various possible resources for the same. He then deliberated on the University of Delhi Library System in detail. The focus here was to let the students understand different e-resources such as books, journals and articles and ways to search them under varied criteria viz. author, year of publication. The hands-on mode at the web centre of the college helped the students to learn the techniques upfront and clear their doubts. The discussion was taken to the next level by including the concepts of Plagiarism and publication ethics.

The workshop was well attended by the students as well as faculty and was a great success and learning experience.

Dr. Tariq Ashraf
University of Delhi South Campus
Mobile: 9868335593

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List of Participants at Workshop on 'Systematic Use of Digital Information in Academic Activities' held on 10th Nov 2017

S. No.	Name of Student
1.	SANDEEP GUPTA
2.	SHITANSHU MISHRA
3.	SHIVAM MISHRA
4.	NIKITA CHAUHAN
5.	NISHCHAL CHAUHAN
6.	PANKAJ GANGWAR
7.	HARSHIT SHRIVASTAVA
8.	KAJAL SAHNI
9.	ANKITA PATHAK
10.	DEVENDRA SHARMA
11.	DIPIN KUMAR TOMAR
12.	ABHISHEK SINGH
13.	ADERSH PATEL
14.	AMAN KUMAR
15.	ANMOL
16.	ARUN RAI
17.	MADHAV JHA
18.	MAHIMA PUNDIR
19.	MANEESHA CHAHAR
20.	PRACHI DWIVEDI
21.	RAJ SHARMA
22.	SIMRAN AGGARWAL
23.	VAIBHAV SRIVASTAVA
24.	JATIN
25.	JITENDER
26.	KIRTI CHUGH
27.	AMIT KUMAR
28.	AMAN YADAV
29.	AKASH ARORA
30.	AAKRITI
31.	ABHINAV SINGH
32.	HARSH KUMAR
33.	HEENA MALIK
34.	HIMANI
35.	ANIKET VERMA
36.	ANTIM RANI
37.	CHINMAY GUPTA
38.	DEEPANSHU DHIMAN
39.	DEVASHISH MEENA
40.	MEGA JAMATIA
41.	HARSH BALIYAN
42.	ANU MALIK
43.	ARPAN SHARMA
44.	ARYAN VISHWAKARMA
45.	MONIKA
46.	NIKITA KUMARI
47.	MARIYAM MANAARATH
48.	MEGHA TANWAR
49.	PAWNESH KUMAR
50.	RAHUL VERMA
51.	RAJKAMAL
52.	SHRESHTHA TRIPATHI
53.	SALONI CHHABRA
54.	SANJEEV KUMAR SINGH
55.	ANKIT RAI
56.	ANUBHUTI SRIVASTAVA
57.	BHARAT DIXIT
58.	DEEPTI
59.	SHIVAM RAJPUT
60.	ABHISHEK KISHOR
61.	MANVI SHARMA
62.	MD ZEESHAN
63.	MUBARAK ALI
64.	SHIVAM KUMAR
65.	NIKHIL DUDEJA
66.	PRIYANKA BAGADWAL
67.	PRIYANKA JHA
68.	SAMEER GUPTA
69.	AKASH BHARTI
70.	ANKIT GOLA
71.	GARIMA DHASMANA
72.	VANSHIKA
73.	SHREYA TYAGI
74.	RADHIKA BANSAL
75.	SHOBHA
76.	VIJAY LAXMI

National Symposium on

Contemporary Environmental Concerns – 2018

Awareness, Assessment, Mitigation, Public health and Socio-cultural aspects

Day 1-Thursday March 15 , 2018	
08:30 -10:00	Registration
10:00-10:30	Inaugural Function
10:30-11:30	Keynote address Dr. B.C Sabata Sr. Scientific Officer, Department of Environment, Govt. of NCT of Delhi on "Youth and Environment"
11:30-12:00	Tea
12:00-1:00	Dr. R. Gopichandran Director,Vigyan Prasar, New Delhi
01:00-01:45	Lunch
01:45-02:45	Dr. Govind Singh Assistant Professor, Indraprastha College for Women, University of Delhi "Delhi at the Crossroads of Sustainable Development"
02:45-4:30	Oral/Poster Presentation
Day 2-Friday March 16, 2018	
09:30 -10:30	Dr Vijay Dhasmana Ecologist and Conservationist "Rewilding Aravali Biodiversity Parl"
10:30-11:00	Tea

11:00-12:00	Dr. Anjali Sharma Department of Physics, Atma Ram Sanatan Dharma College, University of Delhi "Gas Sensors for environmental monitoring"
12:00-01:00	Oral presentations
1:00-1:45	Lunch

Acharya Narendra Dev College (University of Delhi)

Govindpuri, Kalkaji, New Delhi – 110 019, INDIA

Venue: Conference Hall, Acharya Narendra Dev College

15-17 March, 2018

Scientific Program

(under the aegis of IQAC and Eco-Club 'Paritantra', ANDC)

Day 3-Saturday, March 17, 2018	
09:30-10:30	Mr. Augustine Veliath Founder-Director, Asian Center for Entertainment Education “5 Ps of Sustainable Development”
10:30-11:00	Tea
11:00-12:00	Ms. Lydia Powell Senior Fellow, Observer Research Foundation "Environmental Externalities of Energy Consumption: Global and Local Challenges
12:00-01:00	Dr. Praveen Saxena (Ex-advisor to ministry of MNRE) CEO, Skill Council for green jobs
01:00-01:45	**Lunch**
01:45-03:00	Valedictory Vote of thanks

Report

01:45-02:45	Mr. Ananda Banerjee Senior Journalist, Livemint "The Great Migration and Sixth Extinction"
02:45-4:30	Oral/Poster Presentations

A Clean environment is considered to be a basic requirement for Human Health and is included by the United nations as one of the Sustainable Development Goals. However, pollution in the Environment continues to pose a significant threat to well being of humans and is a critical issue the world over. Scientific findings indicate urgent need to undertake pre-emptive action as a panacea to control this gigantic problem. Acharya Narendra Dev College took a lead in this Endeavour by holding a three day National Symposium from March 15-18, 2018 on 'Contemporary Environmental Concerns 2018' under the aegis of IQAC and the Eco Club of the college. The main idea behind the symposium was to generate awareness about the rising environmental issues, their assessment, mitigation and socio-cultural aspect. The emphasis was on dwindling public health in wake of the current situation. A good number of undergraduate students, research scholars and teachers from various colleges and Universities participated in the symposium. Many undergraduate students and Ph.D scholars presented their research work in the form of Oral or Poster presentations.

The symposium was inaugurated by the principal of the college, Dr. Savithri Singh. The Key note address was delivered by Dr B C Sabata, Department of Environment, Govt of NCT of Delhi. He motivated the youth to realize the importance of environment and work towards its betterment.
The Director of Vigyan Parisar, Dr R Gopichandran enlightened the audience about article 51 A(H) of the Indian constitution which focuses on Science as a duty of every citizen.

Importance of Sustainable Development was highlighted by Dr Govind Singh, Associate Professor, IP College, University of Delhi. The participants also had the privilege of listening and interacting with Vijay Dasmana, a noted ecologist and conservationist working and reclaiming the Aravali Biodiversity park, Gurugram. He emphasized on the importance of the native species and the importance of restoration work done by him and his team.

Dr Anjali Sharma, ARSD College, University of Delhi spoke on the importance of wearable gas sensors in environmental monitoring and assessment

A senior journalist of the 'Livemint' magazine, Mr Aananda Banerjee spoke about the great migrations and the sixth extinction which is probably occurring because of anthropogenic interference.

Two of our own Associate Professors Dr Manoj Singh and Sumit Sahni presented an elaborate account of Waste Management and Strategies: implications in Indian Scenario. Implications of unsegregated waste disposal and the ever increasing Landfills were discussed

Mr Augustine Veliath, Founder director of Asian center for Environment Education spoke about the 5P's of sustainable development. He encouraged the students to take up the cause of sustainable development.

Ms Lydia Powell, Senior fellow of Observer Research foundation presented a brief account on environmental Externalities of energy consumption- The local and Global challenges of the same.

Dr Praveen saxena, Ex advisor to Ministry of MSME spoke on India's approach towards sustainability.

The three day Symposium was concluded by a Valedictory function where the best Oral and Poster Presentations were awarded and all participants were given a certificate of attendance.

Contact Details of the Speakers:

1. Dr. B.C Sabata
Sr. Scientific Officer, Department of Environment, Govt. of NCT of Delhi bcsabat@gmail.com
2. Dr. R. Gopichandran
Director,Vigyan Prasar, New Delhi
r.gopichandran@vigyanprasar.gov.in

3. Dr. Govind Singh
Assistant Professor, Indraprastha College for Women, University of Delhi contact@govindsingh.com 98111 47754
4. Dr Vijay Dhasmana
Director, Best Fortune Construction (I) Pvt Ltd
vijay.dhasmana@gmail.com
5. Dr. Anjali Sharma
Department of Physics, A.R.S.D. College
6. Mr. Ananda Banerjee Senior Journalist, Livemint protectwildlife@gmail.com
7. Mr. Augustine Veliath
Founder-Director, Asian Center for Entertainment Education
augustinevj@gmail.com
8. Ms. Lydia Powell
Senior Fellow, Observer Research Foundation
lydia@orfonline.org
Lydia Powell I Energy & Climate Change I ORF Centre for Resources Management I Observer Research Foundation I 20 Rouse Avenue I New Delhi 110 002 I India I tel: +91 11 43520020 extn 2114 I Fax: + 91 11 4352 0003 I Mob: + 91 96500 12518
9. Dr. Praveen Saxena
(Ex-advisor to ministry of MNRE)
CEO, Skill Council for green jobs

Skill Council for Green Jobs
3rd Floor, Central Board of Irrigation and Power (CBIP) Building
Malcha Marg, Chanakyapuri
New Delhi – 110021
eogreenjobs@gmail.com

DEPARTMENT OF ELECTRONICS

Workshop: Full Stack Web Development using MERN

Date: March 5-9, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person (Industry Partner): Mr. Amit Srivastava, Founder CEO, Brain Mentors Pvt. Ltd.

SPIE ANDC Office Bearers & Student Coordinators

President	Shruti Yadav	B.Sc.(H) Electronics VI Sem
Vice President	Devesh Yadav	B.Sc. Physical Sc. (with Computer Sc.)
Secretary	Aditya Goyal	B.Sc. Physical Sc. (with Computer Sc.)
Treasurer	Shivansh Bhatnagar	B.Sc.(H) Electronics II Sem
Editorial Officer	Kalpajit Roy	BSc. Hons. Physics
Technical Officer	Ankush Rana	B.Sc.(H) Electronics II Sem

Department of Electronics and Student Chapter at Acharya Narendra Dev College, Universityof Delhi partnered yet again with Brain Mentors Pvt. Ltd. to organize an online workshop focusing on Web Development using the latest industry-ready tools.

Approximately 25 chapter members alongwith other students from different departments joined in to attend the virtual workshop through the online conference portal, Google Meet. The workshop started with cordial greetings and an introduction to Mr. Amit Srivastava, Founder-CEO of

Brain Mentors Pvt. Ltd. Mr. Srivastava went over the introduction and basics of the tools required and the essence and industry necessities for web development.

The workshop went on for 5 days, spanning 2 hours for each session as the students learned the basics of front-end and back-end web designing. The workshop concluded on March 9th with Mr. Srivastava sharing the contact details to help the students with any further queries

Number of Participants: The talk was attended by 86 students from various departments

https://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/ar_2021/mobile/
https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2021.pdf

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Workshop: Learning Holography

Date: March 14, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person: Dr. Sanjay Kumar, Department of Physics, Acharya Narendra DevCollege, University of Delhi.

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Technical Officer	Ankush Rana	B.Sc.(H) Electronics II Sem

SPIE. STUDENT CHAPTER
SPIE Student Chapter University of Delhi at
Acharya Narendra Dev College and
Department of Electronics under DBT Star College and IQAC
presents
LEARNING HOLOGRAPHY
Click to Register
A ONE DAY OFFLINE WORKSHOP
14 March
Starts at 10:00 a.m.
Free for SPIE Students
₹ 50 for ANDC Students
₹ 300 for Other Students
E-certificates will be provided after the successful completion of the workshop.
Student Coordinators :
Shruti Yadav (8577827574)
Devesh Yadav (9305528116)
Teacher Coordinators :
Prof. Amit Garg
Dr. Ravneet Kaur
Acharya Narendra Dev College,
University of Delhi
www.spieandc.org

Department of Electronics and SPIE Student Chapter organized a One-Day Offline Workshop on Holography, instructed by Dr. Sanjay Kumar, Department of Physics, Acharya Narendra Dev College, University of Delhi.

Holography is a technique that enables a wavefront to be recorded and later reconstructed. Holography is best known as a method of generating three-dimensional images. This workshop was held on March 14, 2021 in the SPIE Lab at Acharya Narendra Dev College.

A group of around 69 students participated in it. Students were divided into seven batches, with five in each session.

Each session lasted around 1.5 hours, and a real hologram image was brought out at the end. The hologram was also cut into four pieces and distributed among the students as a token of learning and experience. The sessions were profoundly amazing and real learning.

Number of Participants: The talk was attended by 69 students from various

departmentshttps://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/ar_2021/mobile/

https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2021.pdf

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Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Ramat Kaur
09/03/2022

Training Workshop and demonstration of Lab Equipment forTeaching and Non- Teaching Faculty

Date: March 23, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person (Industry partner): M/s Vijayanta Electronics

Training workshop and demonstration of various newly purchased lab equipments related to Photonics and Applied Physics was organized for Teaching and Non-Teaching Staff in collaboration with industry partner M/s Vijayanta Electronics on March 23, 2022.

Azadi Ka Amrit Mahotsav

YEARS 1922-2022

ACHARYA NARENDRA DEV COLLEGE

(UNIVERSITY OF DELHI)

NAAC ACCREDITION GRADE 'A' | NIRF 2020 ALL INDIA RANKING - 18

Presents

Training Workshop & Demonstration of Lab Equipments for Teaching and Non-Teaching faculty

One day hands on workshop will be held on March 23, 2022
Demonstration organised in collaboration with Industry partner
Vijayanta Electronics
28, Dr. Baldev Singh Marg, Civil Lines, Roorkee, Uttarakhand 247667

Date :
March 23, 2022

PATRON	TEACHER COORDINATOR	DBT STAR COORDINATOR
Prof. Ravi Toteja	Prof. Amit Garg	Dr. Ravneet Kaur

The following faculty members and non-teaching participated in the workshop

Faculty Members

- Prof. Anju Agrawal
- Prof. Amit Garg
- Dr. Vishal Dhingra
- Prof. Udaibir Singh
- Dr. Ravineet Kaur
- Ms. Gauri Ghai
- Mr. Dinesh Kumar
- Dr. Monika Bhattacharya

Non-Teaching Staff

- Mr. Suresh Kumar (Laboratory Assistant)
- Mr. Atlesh Kumar Tanwar (Laboratory Assistant)
- Mr. Ravindra Kumar (Laboratory Assistant)
- Mr. Amit Kumar Singh (Laboratory Assistant)
- Mr. Pradeep Kumar (Laboratory Assistant)
- Mr. Kiran Ahuja (Laboratory Assistant)
- Mr. Ravinder Kumar(Laboratory Staff)
- Mr. Pankaj Singh Bisht (Laboratory Staff)

Workshop: Arduino and Sensor Interfacing

Date: March 26, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers & Student Coordinators

President	Shruti Yadav	B.Sc.(H) Electronics VI Sem
Vice President	Devesh Yadav	B.Sc. Physical Sc. (with Computer Sc.)
Secretary	Aditya Goyal	B.Sc. Physical Sc. (with Computer Sc.)
Treasurer	Shivansh Bhatnagar	B.Sc.(H) Electronics II Sem
Editorial Officer	Kalpajit Roy	BSc. Hons. Physics
Technical Officer	Ankush Rana	B.Sc.(H) Electronics II Sem

Department of Electronics under the aegis of DBT STAR College scheme and ANDC SPIE Student Chapter, organized a hands-on workshop on Arduino and Sensor Interfacing intechnical collaboration with industry partner Touch Techno Pvt. Ltd.

Key Learning Objectives included an introduction to Arduino UNO, bitwise operation of gates, controlling the timing and brightness of LEDs, controlling the rotation and speed of servo motors, controlling the sound of buzzers, and Detection of distance using SONAR.

The workshop proved to be highly productive, knowledgeable, and worthy and provided students with an opportunity to learn about the technical world and its future aspects.

Number of Participants: The talk was attended by 58 students from various departments

https://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/ar_2021/mobile/
https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2021.pdf

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Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Training Workshop and demonstration of 'Control Lab withsoftware and Data Acquisition and Universal Dev Board withFPGA and CPLD

Date: April 25, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person (Industry partner): M/s Silicom Electronics

Department of Electronics organized training workshop and demonstration of Control Lab with software and data acquisition and Universal Dev Board with FPGA and CPLD for Teachers in collaboration with industry partner M/s Silicom Electronics on April 25, 2022.

Azadi Ka Amrit Mahotsav
YEARS 1922-2022
ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
NAAC ACCREDITION GRADE 'A' | NIRF 2020 ALL INDIA RANKING - 18
DBT STAR College Scheme
Presents
Training workshop and demonstration of Control Lab with software and data acquisition and Universal Dev Board with FPGA and CPLD for Teachers
One day hands on workshop will be held on April 25,2022
Demonstration organized in collaboration with Industry partner M/s Silicom Electronics
Date :
April 25, 2022
PATRON
Prof. Ravi Toteja
TEACHER COORDINATOR
Prof. Amit Garg
DBT STAR COORDINATOR
Dr. Ravneet Kaur

The following faculty members and non-teaching staff participated in the workshop:

Faculty Members

- Prof. Anju Agrawal
- Prof. Amit Garg
- Dr. Vishal Dhingra
- Prof. Udaibir Singh
- Dr. Ravineet Kaur
- Ms. Gauri Ghai
- Mr. Dinesh Kumar
- Dr. Monika Bhattacharya

Non-Teaching Staff

- Mr. Suresh Kumar (Laboratory Assistant)
- Mr. Atlesh Kumar Tanwar (Laboratory Assistant)
- Mr. Ravindra Kumar (Laboratory Assistant)
- Mr. Amit Kumar Singh (Laboratory Assistant)
- Mr. Pradeep Kumar (Laboratory Assistant)
- Mr. Kiran Ahuja (Laboratory Assistant)
- Mr. Ravinder Kumar(Laboratory Staff)
- Mr. Pankaj Singh Bisht (Laboratory Staff)

Workshop: Digital Transformation and it's impact on the future after Covid-19

Date: July 7, 2021

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person: Dr. Amita Kapoor, Associate Professor, Shaheed Rajguru College ofApplied Science

Acharya Narendra Dev College
University of Delhi
Department of Electronics
DBT STAR COLLEGE
Digital Transformation and its impact on the future after COVID-19
WEDNESDAY
07
JULY
4:00 to
5:00 p.m.
Dr. Amita Kapoor
ASSOCIATE PROFESSOR
SHAHEED RAJGURU COLLEGE OF APPLIED SCIENCES
Meet : http://meet.google.com/vhf-ikng-stx

An Invited Talk on 'Digital Transformation and its Impact on the Future after Covid-19 was delivered by Dr. Amita Kapoor, Associate Professor, Shaheed Rajguru College of Applied Science cope up on July 07, 2021.

The speaker discussed in detail on how Covid-19 pandemic has forced the world to very rapidly move towards digitization and the kind of impact it will have on the future. In education and academic sector, the teaching and learning process has very quickly shifted to online mode. Teachers as well as students are using innovative techniques and virtual lab tools to cope up in the best possible manner

Participants truly enjoyed this very insightful and informative talk on how to be future ready
in today's time when we are very rapidly moving towards digitisation.

Number of Participants: The talk was attended by 63 students from II and III year of B.Sc.

(H) Electronics

S. No.	Name	Roll No	Cour se
1	ABHISHEK	ZO-402	B.Sc.(H) Electronics V Sem
2	ABHISHEK PURI	ZO-443	B.Sc.(H) Electronics V Sem
3	ADITI	AB-402	B.Sc.(H) Electronics III Sem
4	ADITYA	AB-403	B.Sc.(H) Electronics III Sem
5	ADITYA KUMAR	AB-404	B.Sc.(H) Electronics III Sem
6	ADITYA RANA	AB-452	B.Sc.(H) Electronics III Sem
7	AKASH DEEP	ZO-403	B.Sc.(H) Electronics V Sem
8	AMAN TYAGI	ZO-404	B.Sc.(H) Electronics V Sem
9	ANAMTA ISLAM	ZO-405	B.Sc.(H) Electronics V Sem
10	ANKITA SHUKLA	ZO-406	B.Sc.(H) Electronics V Sem
11	ANKUR	ZO-407	B.Sc.(H) Electronics V Sem
12	ANUJ SINGH ALMIA	ZO-408	B.Sc.(H) Electronics V Sem
13	ANURAG RAJPUT	AB-407	B.Sc.(H) Electronics III Sem
14	ANURAG SAXENA	ZO-409	B.Sc.(H) Electronics V Sem
15	APOORV SINGH	AB-408	B.Sc.(H) Electronics III Sem
16	ASHISH	AB-409	B.Sc.(H) Electronics III Sem
17	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc.(H) Electronics V Sem
18	AVIJIT MOHAN	AB-411	B.Sc.(H) Electronics III Sem
19	AYAM MISRA	ZO-411	B.Sc.(H) Electronics V Sem
20	DEEPAK KUMAR MEENA	ZO-456	B.Sc.(H) Electronics V Sem
21	DEVANSH VERMA	ZO-412	B.Sc.(H) Electronics V Sem
22	DEVASHISH	ZO-413	B.Sc.(H) Electronics V Sem
23	DEVESH SAMANT	ZO-414	B.Sc.(H) Electronics V Sem
24	DIVYANSH SHARMA	ZO-455	B.Sc.(H) Electronics V Sem
25	GAURAV DUBEY	ZO-448	B.Sc.(H) Electronics V Sem
26	ISLAM MULK	ZO-445	B.Sc.(H) Electronics V Sem
27	JAGAT PAL	ZO-452	B.Sc.(H) Electronics V Sem

28	JYOTI SAINI	ZO-444	B.Sc.(H) Electronics V Sem
29	KARAMBIR SHARMA	ZO-416	B.Sc.(H) Electronics V Sem
30	KARAN	ZO-417	B.Sc.(H) Electronics V Sem
31	LALIT SHUKLA	ZO-418	B.Sc.(H) Electronics V Sem
32	LALIT SHARMA	ZO-419	B.Sc.(H) Electronics V Sem
33	MAHAK KALRA	ZO-420	B.Sc.(H) Electronics V Sem

34	MAYANK CHAUDHARY	AB-424	B.Sc.(H) Electronics III Sem
35	MOHD AAMIR	ZO-422	B.Sc.(H) Electronics V Sem
36	MOHD NAZAM	ZO-423	B.Sc.(H) Electronics V Sem
37	MOHD. MUKHTAR ANSARI	AB-457	B.Sc.(H) Electronics III Sem
38	MOHIT SUPYAL	ZO-424	B.Sc.(H) Electronics V Sem
39	MOHMMAD JUBAIR	ZO-425	B.Sc.(H) Electronics V Sem
40	NISHANT KUMAR	AB-426	B.Sc.(H) Electronics III Sem
41	OBAIDULLAH KHUDAYAR	AB-461	B.Sc.(H) Electronics III Sem
42	PHULENDER	ZO-426	B.Sc.(H) Electronics V Sem
43	RIDHIMA SURI	AB-460	B.Sc.(H) Electronics III Sem
44	RITESH KUMAR	AB-432	B.Sc.(H) Electronics III Sem
45	RUDRA ABHISHEK	AB-434	B.Sc.(H) Electronics III Sem
46	SACCHI SINGH	AB-435	B.Sc.(H) Electronics III Sem
47	SACHIN	AB-436	B.Sc.(H) Electronics III Sem
48	SAGAR BISHT	AB-437	B.Sc.(H) Electronics III Sem
49	SATYAVEER	AB-438	B.Sc.(H) Electronics III Sem
50	SHASHANK	AB-440	B.Sc.(H) Electronics III Sem
51	SHIWANSHU KUMAR KHARWAR	AB-442	B.Sc.(H) Electronics III Sem
52	SHRUTI BHARDWAJ	AB-443	B.Sc.(H) Electronics III Sem
53	SHRUTI SINGH	AB-453	B.Sc.(H) Electronics III Sem
54	SHRUTI YADAV	AB-444	B.Sc.(H) Electronics III Sem
55	SHUBHAM PAL	AB-445	B.Sc.(H) Electronics III Sem
56	SONU KUMAR	AB-446	B.Sc.(H) Electronics III Sem
57	STUTI THAKUR	AB-447	B.Sc.(H) Electronics III Sem
58	SUDHIR KUMAR	AB-458	B.Sc.(H) Electronics III Sem
59	SUKHVINDER SINGH	AB-448	B.Sc.(H) Electronics III Sem
60	SUMIT	AB-449	B.Sc.(H) Electronics III Sem
61	UJJWAL SINGH	AB-450	B.Sc.(H) Electronics III Sem
62	UTKARSH TYAGI	AB-451	B.Sc.(H) Electronics III Sem
63	VIKASH KUMAR	AB-455	B.Sc.(H) Electronics III Sem

Ramneet Kaur
07/07/2021

Workshop: Cloud Computing

Date: September 6-9 &11, 2021

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Industry Partner: Brain Mentors Private Limited

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Editorial Officer	Kalpajit Roy	BSc. Hons. Physics
Technical Officer	Ankush Rana	B.Sc.(H) Electronics II Sem

SPIE. STUDENT CHAPTER
UNIVERSITY OF DELHI AT ACHARYA NARENDRA DEV COLLEGE
SPIE Student Chapter University of Delhi at
Acharya Narendra Dev College
with DBT STAR College and IQAC
is organizing a
WORKSHOP
CLOUD COMPUTING
A five day Hands-On Workshop with a two hours session each day
Scan QR & register !
Date:
6-9 & 11 Sep.
3:30 P.M. - 5:30 P.M.
The participants will get to learn about :
• Fundamental of Cloud Computing
• Understanding the Core Services of AWS
• Billing and Support Services
• Security Aspects
Teacher Coordinators:
Dr. Amit Garg
Dr. Ravneet Kaur
Student Coordinator:
Ms. Shruti Yadav
(85778 27574)
E-Certificates will be provided after
the successful completion of the workshop
Industry Partner - Brain Mentors Private Limited

Cloud computing is the delivery of computing services including servers, storage, databases, networking, software, analytics, and intelligence over the internet (the cloud) to offer faster innovation, flexible resources, and economies of scale. Acknowledging the importance of these services in the current technological world, the SPIE chapter in collaboration with BrainMentors Pvt. Ltd. (industry partner) organized an online workshop on 'Cloud Computing' from September 06-09, 2021 and September 11, 2021 on Google Meet.

The key learning outcomes included: understanding the fundamentals of cloud computing, anintroduction to core services of AWS (Amazon Web Services), billing and support services, and the security aspects of cloud computing. About 50 students participated with enthusiasm and the workshop was highly productive as per the feedback obtained.

Number of Participants: The talk was attended by 50 students from various

departmentshttps://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/ar_2021/mobile/

https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2021.pdf

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YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Ramneet Kaur
11/09/2021

Workshop: Career Opportunities in Publishing

Date: February 4, 2022

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person: Mr. Sahil Gupta, pulbishingconsultant.in

The world today is consuming media at a rate higher than ever before. Content creation is now a viable career path for aspiring students. But since it is such a new, different and rather diverse fields, many aspirants are justifiably confused as to how they go about to pursue this.

Department of Electronics under the aegis of DBT STAR College scheme and in collaboration with SPIE Student Chapter at Acharya Narendra Dev College, University of Delhi, teamed up with Mr. Sahil Gupta, founder at pulbishingconsultant.in to shed some light at this largely underdiscussed field.

SPIE. STUDENT CHAPTER
UNIVERSITY OF DELHI AT ACHARYA NARENDRA DEV COLLEGE
SPIE Student Chapter University of Delhi
Acharya Narendra Dev College
with IQAC and DBT STAR College
presents
LIVE
Webinar Session
Are you good at Editing/Proof Reading, Type setting, Graphic Designing, Digital Marketing, Translation, Voice over etc ? Then this is an opportunity for you..
Topic :
Career Opportunities in Publishing
REGISTER NOW
Teacher Coordinator :
Prof. Amit Garg
Dr. Ravneet Kaur
Student Coordinators :
Ms. Shruti Yadav (8577927574)
Mr. Devesh Yadav (9305528116)
Scan QR
February 4, 2022
4:00 PM-5:30 PM
With :
Mr. Sahil Gupta
Founder at
Publishingconsultant.in
www.spieandc.org

Number of Participants: The talk was attended by 67 students from various departments

https://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/uploads/annualreports/Annual%20Report_2022.pdf

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

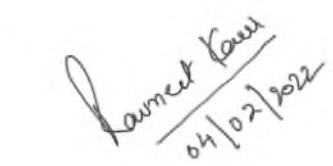
Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/



Invited Talk: Magnetic Nano-structures based Microwave Monolithic signal processing devices: Fabrication and Testing

Date: April 199, 2022

Teacher Coordinators: Prof. Anju Agrawal and Prof. Amit garg

DBT and IQAC coordinator: Dr. Ravneet

KaurStudent Coordinator: Ms. Shruti

Yadav Resource Person: Prof. Bijoy Kumar

Kuanr

An Invited Talk on 'Magnetic Nano- structures based Microwave Monolithic Signal Processing Devices' was delivered by Prof. Bijoy Kumar Kuanr, Special Centre for Nanoscience, JNU, New Delhi on April 19, 2022.

Number of Participants: The talk was attended by 56 students from various departments

S. No.	Name	Roll No	Course
1	ABHISHEK PANDEY	AD-401	B.Sc. (H) Electronics II Sem
2	ADARSH PANDEY	AD-402	B.Sc. (H) Electronics II Sem
3	ADHIVRAJ SINGH UDAWAT	AD-403	B.Sc. (H) Electronics II Sem
4	AJAY LODHI	AD-404	B.Sc. (H) Electronics II Sem
5	AKANKSHA RAWAL	AC-404	B.Sc. (H) Electronics IV Sem
6	AKASH JHA	AC-405	B.Sc. (H) Electronics IV Sem
7	AKASH KUMAR JHA	AD-405	B.Sc. (H) Electronics II Sem
8	ALOK SINGH	AC-406	B.Sc. (H) Electronics IV Sem
9	AMAN	AD-406	B.Sc. (H) Electronics II Sem
10	AMARJEET KUMAR	AD-407	B.Sc. (H) Electronics II Sem
11	AMIT KUMAR	AC-407	B.Sc. (H) Electronics IV Sem
12	ANKUSH RANA	AC-408	B.Sc. (H) Electronics IV Sem
13	ANSHITA DEO	AD-216	B.Sc. (H) Biomedical Science II Sem
14	ANSHU KUMARI	AD-409	B.Sc. (H) Electronics II Sem
15	ANUBHAV SINGH	AC-409	B.Sc. (H) Electronics IV Sem
16	CHANDAN KUMAR	AD-448	B.Sc. (H) Electronics II Sem
17	CHANDRAKANT CHOUDHARY	AD-410	B.Sc. (H) Electronics II Sem
18	CHIRAG NEGI	AD-411	B.Sc. (H) Electronics II Sem
19	DEV PANCHAL	AD-413	B.Sc. (H) Electronics II Sem
20	GAURAV KUMAR SUWASIA	AD-414	B.Sc. (H) Electronics II Sem
21	HARSH	AD-415	B.Sc. (H) Electronics II Sem
22	HARSH KUMAR	AD-416	B.Sc. (H) Electronics II Sem
23	HARSH DALAL	AD-222	B.Sc. (H) Biomedical Science II Sem
24	HARSHIT PARWAL	AD-223	B.Sc. (H) Biomedical Science II Sem
25	KANIKA	AD-420	B.Sc. (H) Electronics II Sem
26	KUDRAT DESWAL	AD-421	B.Sc. (H) Electronics II Sem
27	KULDEEP YADAV	AD-822	B.Sc. (H) Physics II Sem
28	MANISH CHAUHAN	AD-827	B.Sc. (H) Physics II Sem
29	NAMAN SIROHI	AD-424	B.Sc. (H) Electronics II Sem
30	NIKITA SHARMA	AD-119	B.Sc. (H) Chemistry II Sem
31	NISHA	AD-835	B.Sc. (H) Physics II Sem
32	PRACHI DUBEY	AD-426	B.Sc. (H) Electronics II Sem
33	PRASHANT KUMAR	AD-449	B.Sc. (H) Electronics II Sem
34	PRINCE C P	AD-839	B.Sc. (H) Physics II Sem
35	RAHUL SONI	AD-428	B.Sc. (H) Electronics II Sem
36	SACHIN JARWAL	AD-429	B.Sc. (H) Electronics II Sem
37	SACHIN KUMAR ARYA	AD-754	B.Sc. (H) Maths II Sem
38	SAHBIR HUSSAIN	AD-430	B.Sc. (H) Electronics II Sem

39	SANJAY SINGH SODHA	AD-1281	B.Sc. (H) Computer Science II Sem
40	SANJEET KUMAR	AD-1282	B.Sc. (H) Computer Science II Sem
41	SARVAGYA RASTOGI	AD-1283	B.Sc. (H) Computer Science II Sem
42	SATENDER KUMAR	AD-1284	B.Sc. (H) Computer Science II Sem

43	SAURABH KAUSHIK	AD-432	B.Sc. (H) Electronics II Sem
44	SHORYA BHATNAGAR	AD-1288	B.Sc. (H) Computer Science II Sem
45	SHREYANSH PANDEY	AD-433	B.Sc. (H) Electronics II Sem
46	SHUBH SANKHYADHAR	AD-1290	B.Sc. (H) Computer Science II Sem
47	SHUBHAM KUMAR	AD-1291	B.Sc. (H) Computer Science II Sem
48	SONU KUMAR	AD-435	B.Sc. (H) Electronics II Sem
49	SUMIT	AD-1294	B.Sc. (H) Computer Science II Sem
50	SURJEET SHARMA	AD-437	B.Sc. (H) Electronics II Sem
51	SURYANANDAN K V	AD-1295	B.Sc. (H) Computer Science II Sem
52	VINOD	AD-442	B.Sc. (H) Electronics II Sem
53	VISHAL GUPTA	AD-443	B.Sc. (H) Electronics II Sem
54	VISHAL KUMAR	AD-1602	B.Sc. (H) Computer Science II Sem
55	YASH GUPTA	AD-1604	B.Sc. (H) Computer Science II Sem
56	YATHARTH	AD-444	B.Sc. (H) Electronics II Sem

Rameet Kaur
19/02/2022

Workshop: Hybrid Mobile App development using Flutter programming

Date: July 13-17, 2020

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person (Industry Partner): Brain Mentors Pvt. Ltd.

SPIE ANDC Office Bearers & Student Coordinators

President	Aman Tyagi	B.Sc.(H) Electronics V Sem
Vice President	Shruti Yadav	B.Sc.(H) Electronics III Sem
Secretary	Prahlad Prajapat	B.Sc.(H) Electronics V Sem
Treasurer	Phulender Singh	B.Sc.(H) Electronics V Sem

SPIE. STUDENT CHAPTER
Acharya Narendra Dev College
Department of Electronics
DBT STAR College Scheme
University of Delhi at ANDC SPIE Student Chapter
PRES ENTS
HYBRID MOBILE APP DEV WITH FLUTTER
Duration:
Date:
Time:
Tool:
Fees:
Google Meet
What will you learn
Flutter Architecture
Flutter &DART Setup
Building Flutter First App
Run App On Real Device &Emulator
Deep Dive of Dart Language
Stateful And Stateless Widgets
Basic Widgets
Material Widgets
Layouts In Flutter
Scaffold Widgets
Flutter Navigation And Routes
Event Handling
State Management
Async Coding in Flutter
OAuth in FireBase
Integrate Flutter with FireBase
Requirements
Laptop/Desktop
Knowledge of any programming language
Internet connectivity
Limited seats Available
!!Register Now!!
Scan to register
Projects
MUSIC APP
TODO APP
Industry Partner

In today's time of smart phones, knowledge of Flutter programming which has become one of the most popular programming language for mobile application development is a must. The workshop was attended by students as well as faculty members of different departments from various colleges. During the five day workshop, the participants were given a very comprehensive understanding of various aspects of flutter programming including: a) Basic Flutter architecture, Flutter and Dart Set-up b) Building simple applications on real device and emulator c) Flutter Navigators & Routes and event handling Integrating Flutter with fire base At the end of the workshop, the participants were able to build simple mobile applications and demonstrate their successful implementation on a real device.

Number of Participants: 13 students from I, II and III year of B.Sc. (H) Electronics participated in the event in the online mode. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics V Sem
2	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics V Sem
3	MOHMMAD JUBAIR	ZO-425	B.Sc. (H) Electronics V Sem
4	PHULENDER	ZO-426	B.Sc. (H) Electronics V Sem
5	PIYUSH KUMAR	ZO-427	B.Sc. (H) Electronics V Sem
6	PRAHLAD PRAJAPAT	ZO-428	B.Sc. (H) Electronics V Sem
7	PUSHKAR BARANWAL	ZO-457	B.Sc. (H) Electronics V Sem
8	RUDRA ABHISHEK	AB-434	B.Sc. (H) Electronics III Sem
9	SACCHI SINGH	AB-435	B.Sc. (H) Electronics III Sem
10	SACHIN	AB-436	B.Sc. (H) Electronics III Sem
11	SAGAR BISHT	AB-437	B.Sc. (H) Electronics III Sem
12	SATYAVEER	AB-438	B.Sc. (H) Electronics III Sem
13	SHASHANK	AB-440	B.Sc. (H) Electronics III Sem

Workshop: Data Science with Python

Date: March 3-7, 2021

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet

KaurResource Person (Industry Partner): Brain

Mentors Pvt. Ltd. SPIE ANDC Office Bearers & Student

Coordinators

President	Aman Tyagi	B.Sc.(H) Electronics V Sem
Vice President	Shruti Yadav	B.Sc.(H) Electronics III Sem
Secretary	Prahlad Prajapat	B.Sc.(H) Electronics V Sem
Treasurer	Phulender Singh	B.Sc.(H) Electronics V Sem

A five day workshop (with two hours session each day) on implementation of various algorithms of Data Science with Python programming was organized by the department from March 03-07, 2021, under the aegis of SPIE ANDC Student Chapter and DBT Star College Scheme in technical collaboration with industry partner M/s Brain Mentors Pvt. Ltd.

The workshop was found to be very beneficial and informative by all the participants as Data science is emerging as one of the most rapidly growing fields of technology. Extensive hands-on training and exposure was provided to the participants during the five days of the workshop on implementing Data Science algorithms using python programming.

At the end of the workshop, participants got to learn and implement various aspects of data science including:

- Data analysis on Covid-19 and IPL
- Face detection and Recognition
- Face Mask detection using machine learning

An assignment/task was given at the end of each day of the workshop. E-certificates were provided to all the participants who attended all the five days of the workshop and were able to successfully complete the assignments given.

Number of Participants: 31 students from I, II and III year of B.Sc. (H) Electronics participated in the event in the online mode. The complete list of students is given below

S. No.	Name	Roll No	Course
1	ABHISHEK	ZO-402	B.Sc. (H) Electronics V Sem
2	ABHISHEK PURI	ZO-443	B.Sc. (H) Electronics V Sem
3	ADITYA RANA	AB-452	B.Sc. (H) Electronics III Sem
4	AKASH DEEP	ZO-403	B.Sc. (H) Electronics V Sem
5	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics V Sem
6	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics V Sem
7	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics V Sem
8	ANKUR	ZO-407	B.Sc. (H) Electronics V Sem
9	ANURAG RAJPUT	AB-407	B.Sc. (H) Electronics III Sem
10	APOORV SINGH	AB-408	B.Sc. (H) Electronics III Sem
11	ASHISH	AB-409	B.Sc. (H) Electronics III Sem
12	AVIJIT MOHAN	AB-411	B.Sc. (H) Electronics III Sem
13	AYUSH RAWAT	AB-412	B.Sc. (H) Electronics III Sem
14	CHETAN	AB-413	B.Sc. (H) Electronics III Sem
15	DEVASHISH	ZO-413	B.Sc. (H) Electronics V Sem
16	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics V Sem
17	DIVYANSH SHARMA	ZO-455	B.Sc. (H) Electronics V Sem

18	FAIZ AHMAD	AB-416	B.Sc. (H) Electronics III Sem
19	GAGAN BAGHEL	AB-462	B.Sc. (H) Electronics III Sem
20	GAURAV DUBEY	ZO-448	B.Sc. (H) Electronics V Sem
21	HARI SHANKAR	AB-418	B.Sc. (H) Electronics III Sem
22	ISLAM MULK	ZO-445	B.Sc. (H) Electronics V Sem
23	JAGAT PAL	ZO-452	B.Sc. (H) Electronics V Sem
24	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics V Sem
25	KARAMBIR SHARMA	ZO-416	B.Sc. (H) Electronics V Sem
26	KARAN	ZO-417	B.Sc. (H) Electronics V Sem
27	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics V Sem
28	LALIT SHARMA	ZO-419	B.Sc. (H) Electronics V Sem
29	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics V Sem
30	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics V Sem
31	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics V Sem

Kanwal Kaur
07/03/2021

Invited Talk: Creative Thinking and Enterpreneurial Skills

Date: June 23, 2021

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Invited Talk on Creative Thinking and Enterpreneurial Skills was delivered by Dr. Ravinder Kaur, Associate Professor, Deptt. Of Electronics, Deen Dayal Upadhaya College, DelhiUniversity on June 23, 2021. The students were given overview on importance of creative thinking which would enhance their entrepreneurial skills.

Acharya Narendra Dev College
University of Delhi
NIRF 2020 Ranking - 18
Department of Electronics under
DBT STAR COLLEGE
Creative Thinking and Entrepreneurial Skills
Time : 4:00 - 5:00 pm
Date : 23 June, 2021
Dr.Ravinder Kaur
Associate Professor, MoE IIC Ambassador
Department of Electronics
Deen Dayal Upadhyay College
Google meet
https://meet.google.com/mvz-uuck-wme

Number of Participants: 40 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event in the online mode. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	ABHISHEK	ZO-402	B.Sc. (H) Electronics V Sem
2	ABHISHEK PURI	ZO-443	B.Sc. (H) Electronics V Sem
3	ADITYA RANA	AB-452	B.Sc. (H) Electronics III Sem
4	AKASH DEEP	ZO-403	B.Sc. (H) Electronics V Sem
5	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics V Sem
6	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics V Sem
7	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics V Sem
8	ANKUR	ZO-407	B.Sc. (H) Electronics V Sem
9	ANURAG RAJPUT	AB-407	B.Sc. (H) Electronics III Sem
10	APOORV SINGH	AB-408	B.Sc. (H) Electronics III Sem
11	ASHISH	AB-409	B.Sc. (H) Electronics III Sem
12	AVIJIT MOHAN	AB-411	B.Sc. (H) Electronics III Sem
13	AYUSH RAWAT	AB-412	B.Sc. (H) Electronics III Sem
14	CHETAN	AB-413	B.Sc. (H) Electronics III Sem
15	DEVASHISH	ZO-413	B.Sc. (H) Electronics V Sem
16	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics V Sem
17	DIVYANSH SHARMA	ZO-455	B.Sc. (H) Electronics V Sem
18	FAIZ AHMAD	AB-416	B.Sc. (H) Electronics III Sem
19	GAGAN BAGHEL	AB-462	B.Sc. (H) Electronics III Sem
20	GAURAV DUBEY	ZO-448	B.Sc. (H) Electronics V Sem
21	HARI SHANKAR	AB-418	B.Sc. (H) Electronics III Sem
22	ISLAM MULK	ZO-445	B.Sc. (H) Electronics V Sem
23	JAGAT PAL	ZO-452	B.Sc. (H) Electronics V Sem
24	JYOTI SAINI	ZO-	B.Sc. (H) Electronics V

		444	Sem
25	KARAMBIR SHARMA	ZO-416	B.Sc. (H) Electronics V Sem
26	KARAN	ZO-417	B.Sc. (H) Electronics V Sem
27	KARTIK SHARMA	AB-422	B.Sc. (H) Electronics III Sem
28	KUNIKA GOYAL	AB-423	B.Sc. (H) Electronics III Sem
29	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics V Sem
30	LALIT SHARMA	ZO-419	B.Sc. (H) Electronics V Sem
31	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics V Sem
32	MAYANK CHAUDHARY	AB-424	B.Sc. (H) Electronics III Sem
33	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics V Sem
34	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics V Sem
35	MOHD. MUKHTAR ANSARI	AB-457	B.Sc. (H) Electronics III Sem
36	NISHANT KUMAR	AB-426	B.Sc. (H) Electronics III Sem
37	OBAIDULLAH KHUDAYAR	AB-461	B.Sc. (H) Electronics III Sem
38	RIDHIMA SURI	AB-460	B.Sc. (H) Electronics III Sem
39	RITESH KUMAR	AB-432	B.Sc. (H) Electronics III Sem
40	RUDRA ABHISHEK	AB-434	B.Sc. (H) Electronics III Sem

23/06/2021

Invited Talk: Imaging Arithmetic (Physics + Maths)

Date: June 29, 2021

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers & Student Coordinators

President	Shruti Yadav	B.Sc.(H) Electronics VI Sem
Vice President	Devesh Yadav	B.Sc. Physical Sc. (with Computer Sc.)
Secretary	Aditya Goyal	B.Sc. Physical Sc. (with Computer Sc.)
Treasurer	Shivansh Bhatnagar	B.Sc.(H) Electronics II Sem
Editorial Officer	Kalpajit Roy	BSc. Hons. Physics
Technical Officer	Ankush Rana	B.Sc.(H) Electronics II Sem

Resource Person: Dr. Gaurav Sharma, Professor of Electrical & Computer Engineering, University of Rochester, New York

A talk on use (Physics + Maths) for Imaging Arithmetic by Dr. Gaurav Sharma, Professor of Electrical & Computer Engineering, University of Rochester, New York was organised on June 29, 2021.

Number of Participants: The talk was attended by 125 students from various departments

https://www.andcollege.du.ac.in/beyondtheclassroom/spie https://www.andcollege.du.ac.in/ar_2020/ANDC_AnnualReport2020.html https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2020.pdf

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Invited Talk: All You Need to Know About Writing a ResearchPaper

Date: Feb 28, 2021

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers & Student Coordinators

President	Aman Tyagi	B.Sc.(H) Electronics V Sem
Vice President	Shruti Yadav	B.Sc.(H) Electronics III Sem
Secretary	Prahlad Prajapat	B.Sc.(H) Electronics V Sem
Treasurer	Phulender Singh	B.Sc.(H) Electronics V Sem

On the occasion of National Science Day, SPIE ANDC Student Chapter AND Electronics department organised an illuminating talk on the topic 'All You Need to Know About Writinga Research Paper' on February 28, 2021.

Prof. Amit Garg, Faculty Advisor, SPIE ANDC Student Chapter delivered a very insightful and engaging talk on how to write and present research work in an

effective manner which make suitable for publication

Number of Participants: The talk was attended by 70 students from various departments

https://www.andcollege.du.ac.in/beyondtheclassroom/spie https://www.andcollege.du.ac.in/ar_2020/ANDC_AnnualReport2020.html https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2020.pdf

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

WORKSHOPS & INVITED TALKS ORGANISED BY THE DEPARTMENT(2019-2020)

Invited Talk: IOT and Connectivity Solution

Date: March 3, 2020

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

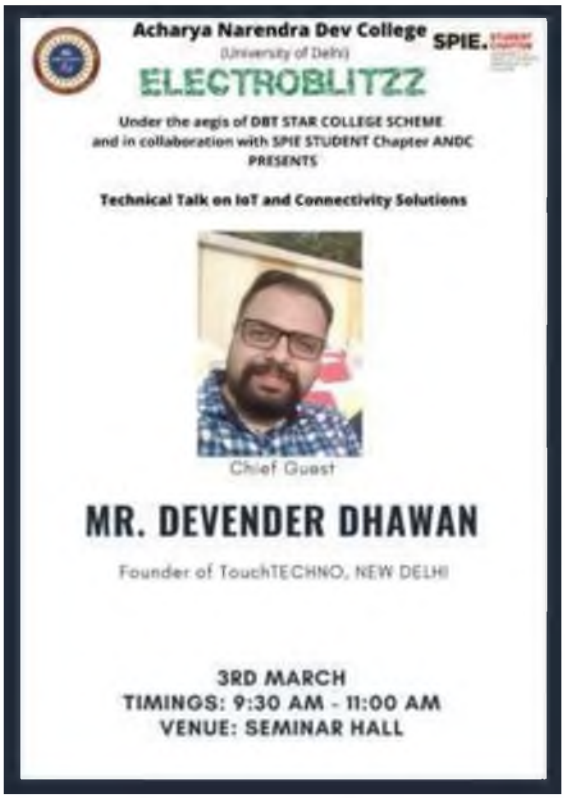
Resource Person: Mr. Devender Dhawan, the founder of „TouchTECHNO" Pvt. Ltd

SPIE ANDC Office Bearers & Student Coordinators

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

Department of Electronics in collaboration with the SPIE Student Chapter ANDC and DBT STAR College scheme organised an invited lecture talk on March 3, 2020. The talk was organised as an inaugural event in annual departmental fest „Electroblitzz. Mr. Devender Dhawan, the founder of „TouchTECHNO" and alumni of the college graced the occasion anddelivered a very enlightening talk on „IOT and Connectivity Solution".

He discussed in detail about the recent trends in IOT technology and present challenges with respect to reliable wireless connectivity solutions. The talk was very useful and interactive and generated great interest amongst students in IOT



Technology.

Number of Participants: 79 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below

S. No.	Name	Roll No	Course
1	AASHISH KUMAR	YO-401	B.Sc.(H) Electronics VI Semester
2	ABHAY PATEL	YO-402	B.Sc.(H) Electronics VI Semester
3	ABHISHEK BHADANA	YO-404	B.Sc.(H) Electronics VI Semester
4	ABHISHEK YADAV	YO-405	B.Sc.(H) Electronics VI Semester
5	ADITYA KUMAR	YO-406	B.Sc.(H) Electronics VI Semester
6	ADITYA RAJ SINGH	YO-407	B.Sc.(H) Electronics VI Semester
7	AKASH YADAV	YO-408	B.Sc.(H) Electronics VI Semester
8	AKHIL TIWARI	YO-438	B.Sc.(H) Electronics VI Semester
9	AMANDEEP SURYAVANSHI	YO-409	B.Sc.(H) Electronics VI Semester
10	AMIT RANA	YO-410	B.Sc.(H) Electronics VI Semester
11	ANKIT NEGI	YO-453	B.Sc.(H) Electronics VI Semester
12	ANMOL DOGRA	YO-513	B.Sc.(H) Electronics VI Semester
13	AQIL ALI	YO-411	B.Sc.(H) Electronics VI Semester
14	AVINASH KUMAR LAL	YO-451	B.Sc.(H) Electronics VI Semester
15	AYUSH RAWAT	AB-412	B.Sc.(H) Electronics II Semester
16	CHETAN	AB-413	B.Sc.(H) Electronics II Semester
17	DEVENDER KUMAR SONI	YO-413	B.Sc.(H) Electronics VI Semester
18	DHEERAJ KUMAR	YO-440	B.Sc.(H) Electronics VI Semester
19	DIGVIJAY SINGH KORANGA	YO-414	B.Sc.(H) Electronics VI Semester
20	FAIZ AHMAD	AB-416	B.Sc.(H) Electronics II Semester
21	GAGAN	YO-455	B.Sc.(H) Electronics VI Semester
22	GAGAN BAGHEL	AB-462	B.Sc.(H) Electronics II Semester
23	HARDIK MINOCHA	YO-441	B.Sc.(H) Electronics VI Semester
24	HARI SHANKAR	AB-418	B.Sc.(H) Electronics II Semester
25	HARSH KUMAR MAHOUR	AB-419	B.Sc.(H) Electronics II Semester
26	HARSHITA MANSINGHKA	AB-421	B.Sc.(H) Electronics II Semester
27	INDRAJIT YADAV	YO-415	B.Sc.(H) Electronics VI Semester
28	KAPIL KUMAR GUPTA	YO-457	B.Sc.(H) Electronics VI Semester
29	KARTIK SHARMA	AB-422	B.Sc.(H) Electronics II Semester
30	KUNAL SHARMA	YO-416	B.Sc.(H) Electronics VI Semester
31	KUNIKA GOYAL	AB-423	B.Sc.(H) Electronics II Semester
32	LALIT SHUKLA	ZO-418	B.Sc.(H) Electronics IV Semester
33	LALIT SHARMA	ZO-419	B.Sc.(H) Electronics IV Semester
34	LALIT UPRETI	YO-417	B.Sc.(H) Electronics VI Semester
35	LATA SINHA	YO-418	B.Sc.(H) Electronics VI Semester
36	MAHAK KALRA	ZO-420	B.Sc.(H) Electronics IV Semester
37	MAYANK CHAUDHARY	AB-424	B.Sc.(H) Electronics II Semester
38	MOHAMMAD SUHAIL	YO-442	B.Sc.(H) Electronics VI Semester
39	MOHD AAMIR	ZO-422	B.Sc.(H) Electronics IV Semester
40	MOHD MUKHTAR ANSARI	AB-457	B.Sc.(H) Electronics II Semester
41	NAVEEN KUMAR RAO	YO-421	B.Sc.(H) Electronics VI Semester

42	NAVEEN RAWAT	AB-425	B.Sc.(H) Electronics II Semester
43	NIRMIT RATHI	AB-459	B.Sc.(H) Electronics II Semester
44	NISHANT KUMAR	AB-426	B.Sc.(H) Electronics II Semester
45	OBAIDULLAH KHUDAYAR	AB-461	B.Sc.(H) Electronics II Semester

46	PARWEJ ALAM	YO-423	B.Sc.(H) Electronics VI Semester
47	PRAVAL BISHT	YO-425	B.Sc.(H) Electronics VI Semester
48	PRINCE SHARMA	YO-427	B.Sc.(H) Electronics VI Semester
49	PUSHKAR BARANWAL	ZO-457	B.Sc.(H) Electronics IV Semester
50	RADHESHYAM KUMAR	AB-429	B.Sc.(H) Electronics II Semester
51	RAHUL CHAWLA	YO-428	B.Sc.(H) Electronics VI Semester
52	RAHUL GAUR	YO-429	B.Sc.(H) Electronics VI Semester
53	RAHUL KUMAR	YO-443	B.Sc.(H) Electronics VI Semester
54	RAHUL SINGH BIST	AB-431	B.Sc.(H) Electronics II Semester
55	RAJAT BHARDWAJ	YO-444	B.Sc.(H) Electronics VI Semester
56	RIDHIMA SURI	AB-460	B.Sc.(H) Electronics II Semester
57	RITESH KUMAR	AB-432	B.Sc.(H) Electronics II Semester
58	RUDRA ABHISHEK	AB-434	B.Sc.(H) Electronics II Semester
59	SACCHI SINGH	AB-435	B.Sc.(H) Electronics II Semester
60	SACHIN	AB-436	B.Sc.(H) Electronics II Semester
61	SAGAR BISHT	AB-437	B.Sc.(H) Electronics II Semester
62	SAMEER TYAGI	ZO-454	B.Sc.(H) Electronics IV Semester
63	SATYAVEER	AB-438	B.Sc.(H) Electronics II Semester
64	SHARDULL	ZO-442	B.Sc.(H) Electronics IV Semester
65	SHASHANK	AB-440	B.Sc.(H) Electronics II Semester
66	SHASHWAT GUPTA	ZO-432	B.Sc.(H) Electronics IV Semester
67	SHIVANGI SINGH	AB-441	B.Sc.(H) Electronics II Semester
68	SHIWANSHU KUMAR KHARWAR	AB-442	B.Sc.(H) Electronics II Semester
69	SHRUTI BHARDWAJ	AB-443	B.Sc.(H) Electronics II Semester
70	SHRUTI SINGH	AB-453	B.Sc.(H) Electronics II Semester
71	SHRUTI YADAV	AB-444	B.Sc.(H) Electronics II Semester
72	SHUBHAM PAL	AB-445	B.Sc.(H) Electronics II Semester
73	SONU KUMAR	AB-446	B.Sc.(H) Electronics II Semester
74	STUTI THAKUR	AB-447	B.Sc.(H) Electronics II Semester
75	SUDHEER KUMAR	ZO-450	B.Sc.(H) Electronics IV Semester
76	SUDHIR KUMAR	AB-458	B.Sc.(H) Electronics II Semester
77	SUDHIR KUMAR SHARMA	ZO-435	B.Sc.(H) Electronics IV Semester
78	SURAJ SINGH	ZO-437	B.Sc.(H) Electronics IV Semester
79	TUSHAR KUMAR PATEL	ZO-438	B.Sc.(H) Electronics IV Semester

Kamal Kaur
03/03/2020

Raspberry Pi Workshop

Date: March 3, 2020, 1:00 p.m. to 5:00 p.m.

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

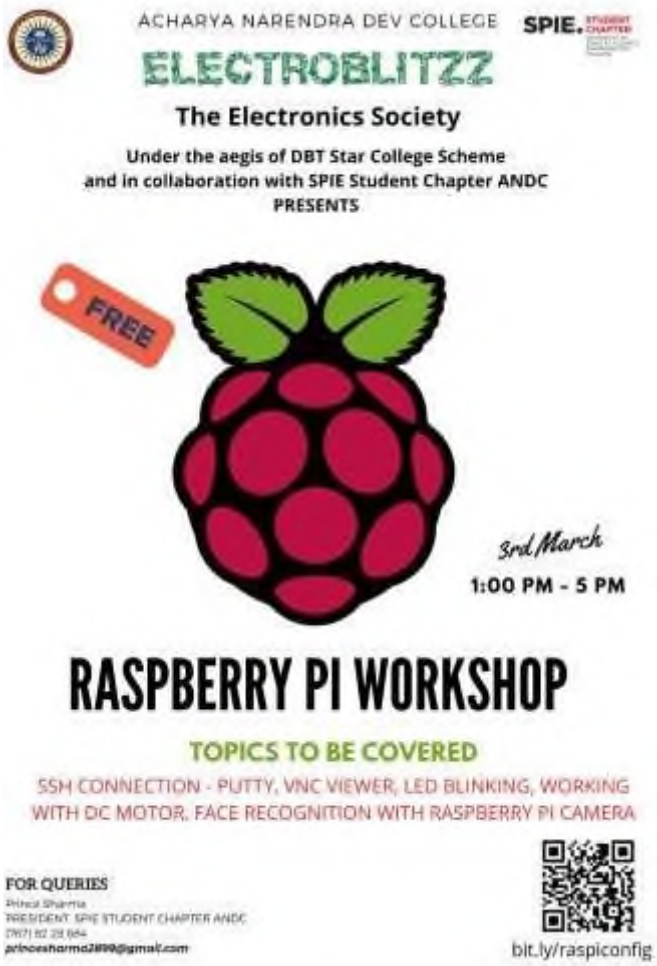
Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers & Student Coordinators

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

„Electronika" society of the department in collaboration with the SPIE Student Chapter
ANDC and DBT STAR College scheme organised its annual departmental fest

„Electroblitzz" (March 3-4, 2020). One of the major events was „Raspberry Pi" workshop which was organised on 3rd March (day 1 of the fest). The main purpose of the workshop wasto give a general overview about raspberry Pi and also provide hands-on training in designinga simple automation system using raspberry Pi. The workshop was attended with great enthusiasm by students of various departments of the college. The students were able to learn how to use PuTTY (*SSH* and telnet client protocol for windows) and implement simple application such as face



recognition by image processing.

Number of Participants: 41 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	AASHISH KUMAR	YO-401	B.Sc.(H) Electronics VI Semester
2	ABHAY PATEL	YO-402	B.Sc.(H) Electronics VI Semester
3	ABHISHEK BHADANA	YO-404	B.Sc.(H) Electronics VI Semester
4	ABHISHEK YADAV	YO-405	B.Sc.(H) Electronics VI Semester
5	ADITYA KUMAR	YO-406	B.Sc.(H) Electronics VI Semester
6	CHETAN	AB-413	B.Sc.(H) Electronics II Semester
7	DEVENDER KUMAR SONI	YO-413	B.Sc.(H) Electronics VI Semester
8	DHEERAJ KUMAR	YO-440	B.Sc.(H) Electronics VI Semester
9	DIGVIJAY SINGH KORANGA	YO-414	B.Sc.(H) Electronics VI Semester
10	FAIZ AHMAD	AB-416	B.Sc.(H) Electronics II Semester
11	GAGAN	YO-455	B.Sc.(H) Electronics VI Semester
12	GAGAN BAGHEL	AB-462	B.Sc.(H) Electronics II Semester
13	HARDIK MINOCHA	YO-441	B.Sc.(H) Electronics VI Semester
14	HARI SHANKAR	AB-418	B.Sc.(H) Electronics II Semester
15	HARSH KUMAR MAHOUR	AB-419	B.Sc.(H) Electronics II Semester
16	HARSHITA MANSINGHKA	AB-421	B.Sc.(H) Electronics II Semester
17	INDRAJIT YADAV	YO-415	B.Sc.(H) Electronics VI Semester
18	KAPIL KUMAR GUPTA	YO-457	B.Sc.(H) Electronics VI Semester
19	KARTIK SHARMA	AB-422	B.Sc.(H) Electronics II Semester
20	KUNAL SHARMA	YO-416	B.Sc.(H) Electronics VI Semester
21	KUNIKA GOYAL	AB-423	B.Sc.(H) Electronics II Semester
22	LALIT SHUKLA	ZO-418	B.Sc.(H) Electronics IV Semester
23	LALIT SHARMA	ZO-419	B.Sc.(H) Electronics IV Semester
24	LALIT UPRETI	YO-417	B.Sc.(H) Electronics VI Semester
25	LATA SINHA	YO-418	B.Sc.(H) Electronics VI Semester
26	MAHAK KALRA	ZO-420	B.Sc.(H) Electronics IV Semester
27	NISHANT KUMAR	AB-426	B.Sc.(H) Electronics II Semester
28	OBAIDULLAH KHUDAYAR	AB-461	B.Sc.(H) Electronics II Semester
29	PARWEJ ALAM	YO-423	B.Sc.(H) Electronics VI Semester
30	PRAVAL BISHT	YO-425	B.Sc.(H) Electronics VI Semester
31	PRINCE SHARMA	YO-427	B.Sc.(H) Electronics VI Semester
32	RUDRA ABHISHEK	AB-434	B.Sc.(H) Electronics II Semester
33	SACCHI SINGH	AB-435	B.Sc.(H) Electronics II Semester
34	SACHIN	AB-436	B.Sc.(H) Electronics II Semester
35	SAGAR BISHT	AB-437	B.Sc.(H) Electronics II Semester
36	STUTI THAKUR	AB-447	B.Sc.(H) Electronics II Semester
37	SUDHEER KUMAR	ZO-450	B.Sc.(H) Electronics IV Semester
38	SUDHIR KUMAR	AB-458	B.Sc.(H) Electronics II Semester
39	SUDHIR KUMAR SHARMA	ZO-435	B.Sc.(H) Electronics IV Semester
40	SURAJ SINGH	ZO-437	B.Sc.(H) Electronics IV Semester
41	TUSHAR KUMAR PATEL	ZO-438	B.Sc.(H) Electronics IV Semester

Pawnel Kaur
03/03/2020

Robo Race (Robotics Workshop)

Date: March 3, 2020, 11:00 a.m. to 1:00 p.m.

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

Other Student Coordinators

Yash Varshney	B.Sc. (H) Electronics (IV Sem)
Aman Tyagi	B.Sc. (H) Electronics (IV Sem)

„Electronika" society of the department in collaboration with the SPIE Student Chapter
ANDC and DBT STAR College scheme organised its annual departmental fest

„Electroblitzz" (3rd March to 4th March, 2020). Major highlight of fest was „Robo Race", robotics workshop and competition which was organised on 3rd March (day 1 of the fest). Students from different colleges participated in the event.

There were in total 10 teams, with two students in each team. Each team was provided with a kit containing basic hardware modules required to build a robot. Each of the participating team was asked to assemble the components to build a robotic vehicle. Robotic vehicle was programmed to enable its forward, backward and sideways movement. A fun-filled racing competition was then organised between the robotic vehicles assembled and programmed by participating teams.

Number of Participants: 45 students from I, II and III year of B.Sc. (H) Electronics participated in the event. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	AASHISH KUMAR	YO-401	B.Sc.(H) Electronics VI Semester
2	ABHAY PATEL	YO-402	B.Sc.(H) Electronics VI Semester
3	ABHISHEK BHADANA	YO-404	B.Sc.(H) Electronics VI Semester
4	ABHISHEK YADAV	YO-405	B.Sc.(H) Electronics VI Semester
5	ADITYA KUMAR	YO-406	B.Sc.(H) Electronics VI Semester
6	CHETAN	AB-413	B.Sc.(H) Electronics II Semester
7	DEVENDER KUMAR SONI	YO-413	B.Sc.(H) Electronics VI Semester
8	DHEERAJ KUMAR	YO-440	B.Sc.(H) Electronics VI Semester
9	HARDIK MINOCHA	YO-441	B.Sc.(H) Electronics VI Semester
10	HARI SHANKAR	AB-418	B.Sc.(H) Electronics II Semester
11	HARSH KUMAR MAHOUR	AB-419	B.Sc.(H) Electronics II Semester
12	HARSHITA MANSINGHKA	AB-421	B.Sc.(H) Electronics II Semester
13	INDRAJIT YADAV	YO-415	B.Sc.(H) Electronics VI Semester
14	KAPIL KUMAR GUPTA	YO-457	B.Sc.(H) Electronics VI Semester
15	KARTIK SHARMA	AB-422	B.Sc.(H) Electronics II Semester
16	KUNAL SHARMA	YO-416	B.Sc.(H) Electronics VI Semester
17	KUNIKA GOYAL	AB-423	B.Sc.(H) Electronics II Semester
18	LALIT SHUKLA	ZO-418	B.Sc.(H) Electronics IV Semester
19	LALIT SHARMA	ZO-419	B.Sc.(H) Electronics IV Semester
20	LALIT UPRETI	YO-417	B.Sc.(H) Electronics VI Semester
21	LATA SINHA	YO-418	B.Sc.(H) Electronics VI Semester
22	MAHAK KALRA	ZO-420	B.Sc.(H) Electronics IV Semester
23	MAYANK CHAUDHARY	AB-424	B.Sc.(H) Electronics II Semester
24	MOHAMMAD SUHAIL	YO-442	B.Sc.(H) Electronics VI Semester
25	MOHD AAMIR	ZO-422	B.Sc.(H) Electronics IV Semester
26	MOHD MUKHTAR ANSARI	AB-457	B.Sc.(H) Electronics II Semester
27	NAVEEN KUMAR RAO	YO-421	B.Sc.(H) Electronics VI Semester
28	NAVEEN RAWAT	AB-425	B.Sc.(H) Electronics II Semester
29	NIRMIT RATHI	AB-459	B.Sc.(H) Electronics II Semester
30	NISHANT KUMAR	AB-426	B.Sc.(H) Electronics II Semester
31	OBAIDULLAH KHUDAYAR	AB-461	B.Sc.(H) Electronics II Semester
32	PARWEJ ALAM	YO-423	B.Sc.(H) Electronics VI Semester
33	SAMEER TYAGI	ZO-454	B.Sc.(H) Electronics IV Semester
34	SATYAVEER	AB-438	B.Sc.(H) Electronics II Semester

35	SHARDULL	ZO-442	B.Sc.(H) Electronics IV Semester
36	SHASHANK	AB-440	B.Sc.(H) Electronics II Semester
37	SHASHWAT GUPTA	ZO-432	B.Sc.(H) Electronics IV Semester

38	SHIVANGI SINGH	AB-441	B.Sc.(H) Electronics II Semester
39	SHIWANSHU KUMAR KHARWAR	AB-442	B.Sc.(H) Electronics II Semester
4 0	STUTI THAKUR	AB-447	B.Sc.(H) Electronics II Semester
41	SUDHEER KUMAR	ZO-450	B.Sc.(H) Electronics IV Semester
42	SUDHIR KUMAR	AB-458	B.Sc.(H) Electronics II Semester
43	SUDHIR KUMAR SHARMA	ZO-435	B.Sc.(H) Electronics IV Semester
44	SURAJ SINGH	ZO-437	B.Sc.(H) Electronics IV Semester
45	TUSHAR KUMAR PATEL	ZO-438	B.Sc.(H) Electronics IV Semester

Pawneet Kaur
03/03/2020

Poster/Exhibit Presentation: New Frontiers in Science

Date: October 22, 2019

Patron: Prof. Ravi Toteja (Principal)

Program Coordinators: Dr. Archna Pandey and Dr. Seema Makhija

Program Convenors: Dr. Ravneet Kaur and Dr. Harita Ahuja

Acharya Narendra Dev College under the aegis of DBT Star College Scheme organized a One Day Interdisciplinary Exhibit Presentation on "New Frontiers in Science" in the College premises on 22nd October, 2019. Department of Electronics along with the other departments of the college was actively involved in organising the event.

Various innovative projects of inter-disciplinary nature undertaken by UG students under the following heads were considered for demonstration/exhibition,:

1. Star Projects (2017-2019)
2. ELITE projects (2018-2019)
3. Think Lab (2018-2019)
4. Cube (2018-2019)
5. Extramural projects

Ph.D. students who are registered with the college teachers were also encouraged to present their work.

All the participants were also asked to submit an abstract of the /project/research work they wish to present in the exhibition. After a rigorous review process by the screening committee, 50 projects were shortlisted for poster presentation. The posters/exhibits were judged by subject experts and 3 best projects were rewarded. All the participating students were also awarded certificates of participation.

Total 112 participants presented their research work and projects in the exhibition

13 projects were presented by students of Electronics Department

ELITE project titled „Arduino based Solar Tracking System" presented by Prahlad Prajapat and Ankita Shukla, B.Sc.(H) Electronics III Sem won the BEST PAPER PRESENTATIONaward.

Project Head	Reference ID	Project Name	Department	Mentors Name	Students Name	Course
ELITE 2019	PS_3	RFID Based AttendanceSystem	Electronics	Dr. Anju Agrawal Mr. Dinesh Kumar	Aditya Kumar Gagan	B.Sc.(H) Electronics-V Sem
ELITE 2019	PS_5	Real Time Passenger Counting System (R.T.P.C.S)	Electronics	Mr. Dinesh Kumar Dr. Anita Kumari	Yash Varshney Abhishek	B. Sc.(H) Electronics-III Sem
ELITE 2019	PS_6	Gesture ControlledRobot	Electronics	Dr. Anju Agrawal Ms.Gauri Ghai	Phulender Pushkar Baranwal	B. Sc.(H) Electronics-III Sem

ELITE 2019	PS_7	Arduino based Solar tracking system	Electronics	Dr. Udaibir Singh Mr. Dinesh Kumar	Prahlad Prajapat Ankita Shukla	B. Sc.(H) Electronics-III Sem
ELITE 2019	PS_8	Piezoelectric Energy Harvesting	Electronics	Dr. Ravneet Kaur Ms. Gauri Ghai.	Avinash Kumar Lal	B.Sc.(H) Electronics-V Sem

		System			Abhishek Bhadana	
ELIT E2019	PS_9	Magnetic Resonant Anti-Collision System	Electronics	Dr. Ravneet Kaur Ms. Gauri Ghai.	Reya Negi Lalit Shukla	B.Sc.(H) Physics-VSem B. Sc.(H) Electronics-III Sem
ELIT E2019	PS_10	Data Transfer Through CPU Fan	Electronics	Dr. Ravneet Kaur Ms. Gauri Ghai.	Anurag Saxena.	B. Sc.(H) Electronics-III Sem
ELIT E2019	PS_13	Electrostimulation in Plants	Electronics	Dr. Ravneet Kaur Ms. Gauri Ghai.	Kunal Sharma Praval Bisht Lalit Upreti	B.Sc.(H) Electronics-V Sem
ELIT E2018	PS_22	CELL PHONE DETECTOR	Electronics	Dr. Anju Agrawal Ms.Gauri Ghai	Avinash Kumar Lal Abhishek Bhadana Shashank Nagar Anmol Dogra	Bsc(H) Electronics-V Sem Bsc(H) Electronics-V Sem Bsc(H) Electronics-V Sem Bsc(H) Electronics-V Sem
SPIE		Using the Arduino for the experimental determination ofa friction coefficient by movement on an inclined plane.			Avinash Kumar Lal Tripti Varshney	B.Sc(H) Electronics-V Sem B.Sc(H) physics
SPIE		Voice Controlling Car			Abhishek	B.Sc (H) Electronics-III Sem
SPIE		LASER BASED FOOTFALL COUNTER			Prahlad Prajapat Jaya	B.Sc(H) Electronics-III Sem B. Sc. Physical Science with Computer

						Science)-
SPIE		Smart Mirror			Prince Sharma Aqil Ali	B.Sc(H) Electronics-V Sem

Ravneet Kaur
22/10/2019

Workshop: Arduino MASTERCLASS

Date: September 7, 2019

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

Other Student Coordinators:

Aqil Ali B.Sc.(H) Electronics (VI Sem)

A hands-on workshop on „Arduino" was organized by Department of Electronics under the aegis of DBT Star College scheme and in collaboration with ANDC SPIE Student chapter to familiarise the students with programming and designing of systems using arduino The basic purpose of the workshop was to give a general overview about the basics of programming with Arduino, building an Arduino Instant Messenger and implement simple automated systems such as weather station, disco light and ultrasonic radar. The event witnessed great enthusiasm and curiosty amongst the participants. Students came up their own ideas and tried to realise it. It was attended by over 100 students of various departments.

ACHARYA NARENDRA DEV COLLEGE

SPIE. STUDENT CHAPTER
Univ. of Delhi Acharya Narendra Dev College

&

DEPARTMENT OF ELECTRONICS
(Under the aegis of DBT Star College Program)

in association with

Elecbits

PRESENTS

Register Here
bit.ly/arduinospie

ARDUINO MASTERCLASS

- Introduction to Arduino
- Build an Arduino Instant Messenger
- Build your own Weather Station
- Build your own Disco Light
- Build an Ultrasonic Radar

1 PM Onwards,
Saturday, 7th September

Seminar Hall, Acharya Narendra Dev College, Govindpuri KalkaJi, New Delhi-110019

*Bring your own laptop and charger.

Prince Sharma 7678228684
princesharma2899@gmail.com
(President, SPIE Student Chapter ANDC)

PS: It will be a Hands on Workshop

Aqil Ali (9161684719)
elecbits.in | classroom.elecbits.in

Number of Participants: 100 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	AASHISH KUMAR	YO-401	B.Sc.(H) Electronics V Semester
2	AASHU KUMAR	AB-401	B.Sc.(H) Electronics I Semester
3	AASHU KUMAR	ZO-401	B.Sc.(H) Electronics III Semester
4	ABHAY PATEL	YO-402	B.Sc.(H) Electronics V Semester
5	ABHISHEK	ZO-402	B.Sc.(H) Electronics III Semester
6	ABHISHEK BHADANA	YO-404	B.Sc.(H) Electronics V Semester
7	ABHISHEK PURI	ZO-443	B.Sc.(H) Electronics III Semester
8	ABHISHEK YADAV	YO-405	B.Sc.(H) Electronics V Semester
9	ADITI	AB-402	B.Sc.(H) Electronics I Semester
10	ADITYA	AB-403	B.Sc.(H) Electronics I Semester
11	ADITYA KUMAR	YO-406	B.Sc.(H) Electronics V Semester
12	ADITYA KUMAR	AB-404	B.Sc.(H) Electronics I Semester
13	ADITYA RAJ SINGH	YO-407	B.Sc.(H) Electronics V Semester
14	ADITYA RANA	AB-452	B.Sc.(H) Electronics I Semester
15	AKASH DEEP	ZO-403	B.Sc.(H) Electronics III Semester
16	AKASH YADAV	YO-408	B.Sc.(H) Electronics V Semester
17	AKHIL TIWARI	YO-438	B.Sc.(H) Electronics V Semester
18	AMAN TYAGI	ZO-404	B.Sc.(H) Electronics III Semester
19	AMANDEEP SURYAVANSHI	YO-409	B.Sc.(H) Electronics V Semester
20	AMIT RANA	YO-410	B.Sc.(H) Electronics V Semester
21	ANAMTA ISLAM	ZO-405	B.Sc.(H) Electronics III Semester
22	ANKIT NEGI	YO-453	B.Sc.(H) Electronics V Semester
23	ANKITA SHUKLA	ZO-406	B.Sc.(H) Electronics III Semester
24	ANKUR	ZO-407	B.Sc.(H) Electronics III Semester
25	ANUJ SINGH ALMIA	ZO-408	B.Sc.(H) Electronics III Semester
26	ANURAG RAJPUT	AB-407	B.Sc.(H) Electronics I Semester
27	ANURAG SAXENA	ZO-409	B.Sc.(H) Electronics III Semester
28	APOORV SINGH	AB-408	B.Sc.(H) Electronics I Semester
29	AQIL ALI	YO-411	B.Sc.(H) Electronics V Semester
30	ASHISH	AB-409	B.Sc.(H) Electronics I Semester
31	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc.(H) Electronics III Semester
32	AVIJIT MOHAN	AB-411	B.Sc.(H) Electronics I Semester
33	AVINASH KUMAR LAL	YO-451	B.Sc.(H) Electronics V Semester
34	AYAM MISRA	ZO-411	B.Sc.(H) Electronics III Semester
35	AYUSH RAWAT	AB-412	B.Sc.(H) Electronics I Semester
36	CHETAN	AB-413	B.Sc.(H) Electronics I Semester
37	DEEPAK KUMAR MEENA	ZO-456	B.Sc.(H) Electronics III Semester
38	DEVANSH VERMA	ZO-412	B.Sc.(H) Electronics III Semester
39	DEVASHISH	ZO-413	B.Sc.(H) Electronics III Semester
40	DEVENDER KUMAR SONI	YO-413	B.Sc.(H) Electronics V Semester
41	DEVESH SAMANT	ZO-414	B.Sc.(H) Electronics III Semester
42	DHEERAJ KUMAR	YO-440	B.Sc.(H) Electronics V Semester

43	DIGVIJAY SINGH KORANGA	YO-414	B.Sc.(H) Electronics V Semester
44	DIVYANSH SHARMA	ZO-455	B.Sc.(H) Electronics III Semester

45	FAIZ AHMAD	AB-416	B.Sc.(H) Electronics I Semester
46	GAGAN	YO-455	B.Sc.(H) Electronics V Semester
47	GAGAN BAGHEL	AB-462	B.Sc.(H) Electronics I Semester
48	GAURAV DUBEY	ZO-448	B.Sc.(H) Electronics III Semester
49	HARDIK MINOCHA	YO-441	B.Sc.(H) Electronics V Semester
50	HARI SHANKAR	AB-418	B.Sc.(H) Electronics I Semester
51	HARSH KUMAR MAHOUR	AB-419	B.Sc.(H) Electronics I Semester
52	HARSHITA MANSINGHKA	AB-421	B.Sc.(H) Electronics I Semester
53	INDRAJIT YADAV	YO-415	B.Sc.(H) Electronics V Semester
54	ISLAM MULK	ZO-445	B.Sc.(H) Electronics III Semester
55	JAGAT PAL	ZO-452	B.Sc.(H) Electronics III Semester
56	JYOTI SAINI	ZO-444	B.Sc.(H) Electronics III Semester
57	KAPIL KUMAR GUPTA	YO-457	B.Sc.(H) Electronics V Semester
58	KARAMBIR SHARMA	ZO-416	B.Sc.(H) Electronics III Semester
59	KARAN	ZO-417	B.Sc.(H) Electronics III Semester
60	KARTIK SHARMA	AB-422	B.Sc.(H) Electronics I Semester
61	KUNAL SHARMA	YO-416	B.Sc.(H) Electronics V Semester
62	KUNIKA GOYAL	AB-423	B.Sc.(H) Electronics I Semester
63	LALIT SHUKLA	ZO-418	B.Sc.(H) Electronics III Semester
64	LALIT SHARMA	ZO-419	B.Sc.(H) Electronics III Semester
65	LALIT UPRETI	YO-417	B.Sc.(H) Electronics V Semester
66	LATA SINHA	YO-418	B.Sc.(H) Electronics V Semester
67	MAHAK KALRA	ZO-420	B.Sc.(H) Electronics III Semester
68	MAYANK CHAUDHARY	AB-424	B.Sc.(H) Electronics I Semester
69	MOHAMMAD SUHAIL	YO-442	B.Sc.(H) Electronics V Semester
70	MOHD AAMIR	ZO-422	B.Sc.(H) Electronics III Semester
71	MOHD MUKHTAR ANSARI	AB-457	B.Sc.(H) Electronics I Semester
72	MOHD NAZAM	ZO-423	B.Sc.(H) Electronics III Semester
73	MOHIT SUPYAL	ZO-424	B.Sc.(H) Electronics III Semester
74	MOHMMAD JUBAIR	ZO-425	B.Sc.(H) Electronics III Semester
75	NAVEEN KUMAR RAO	YO-421	B.Sc.(H) Electronics V Semester
76	NAVEEN RAWAT	AB-425	B.Sc.(H) Electronics I Semester
77	NIRMIT RATHI	AB-459	B.Sc.(H) Electronics I Semester
78	NISHANT KUMAR	AB-426	B.Sc.(H) Electronics I Semester
79	OBAIDULLAH KHUDAYAR	AB-461	B.Sc.(H) Electronics I Semester
80	PARWEJ ALAM	YO-423	B.Sc.(H) Electronics V Semester
81	PHULENDER	ZO-426	B.Sc.(H) Electronics III Semester
82	PIYUSH KUMAR	ZO-427	B.Sc.(H) Electronics III Semester
83	PRAHLAD PRAJAPAT	ZO-428	B.Sc.(H) Electronics III Semester
84	PRAVAL BISHT	YO-425	B.Sc.(H) Electronics V Semester
85	PRINCE SHARMA	YO-427	B.Sc.(H) Electronics V Semester
86	PUSHKAR BARANWAL	ZO-457	B.Sc.(H) Electronics III Semester
87	RADHESHYAM KUMAR	AB-429	B.Sc.(H) Electronics I Semester
88	RAHUL CHAWLA	YO-428	B.Sc.(H) Electronics V Semester
89	RAHUL GAUR	YO-429	B.Sc.(H) Electronics V Semester
90	RAHUL KUMAR	YO-443	B.Sc.(H) Electronics V Semester
91	RAHUL SINGH BIST	AB-431	B.Sc.(H) Electronics I Semester
92	RAJAT BHARDWAJ	YO-444	B.Sc.(H) Electronics V Semester

93	RIDHIMA SURI	AB-460	B.Sc.(H) Electronics I Semester
94	RITESH KUMAR	AB-432	B.Sc.(H) Electronics I Semester
95	RUDRA ABHISHEK	AB-434	B.Sc.(H) Electronics I Semester
96	SACCHI SINGH	AB-435	B.Sc.(H) Electronics I Semester
97	SACHIN	AB-436	B.Sc.(H) Electronics I Semester
98	SAGAR BISHT	AB-437	B.Sc.(H) Electronics I Semester
99	SAMEER TYAGI	ZO-454	B.Sc.(H) Electronics III Semester
100	SATYAVEER	AB-438	B.Sc.(H) Electronics I Semester

Pawneet Kaur
07/09/2019

SPIE ANDC Student Chapter (Workshop): Optical Color Mixing

Date: August 9, 2019

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

Other Student Coordinators:

Hardik Minocha B.Sc.(H) Electronics (V Sem)

Optical Color Mixing Workshop cum introductory session was organized to give newly joined members of the SPIE society an idea about the recent trends and development in the field of „Optics". A team of SPIE student members led by Mr. Hardik Minocha, gave theoretical explanation of Colors and emphasized on the difference between Optical and Pigment Colors. Students were given the practical overview of how Red, Green and Blue are mixed together to generate different colors. It was attended by 110 students of various departments.

https://www.andcollege.du.ac.in/beyondtheclassroom/spie https://www.andcollege.du.ac.in/uploads/annualreports/ar_2019_wdCover.pdf https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2019.pdf

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

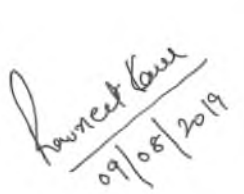
Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/



Workshop: NI LabVIEW Online Basic Training

Date: June 23-27, 2020

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

SPIE ANDC Office Bearers

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

Resource Person: Mr. Devender Dhawan, the founder of „TouchTECHNO"

Department of Electronics under the aegis of DBT Star College scheme and in collaboration
with ANDC SPIE Student chapter and industry partner „Touch Techno Pvt Ltd", organised a

five day hands-on workshop in the online mode on „NI LabVIEW" to familiarise the studentswith virtual instrumentation using NI LabVIEW from June 23-27, 2020.
Number of Participants: 67 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below:

S. No.	Name	Roll No	Course
1	AASHU KUMAR	AB-401	B.Sc. (H) Electronics II Sem
2	ADITI	AB-402	B.Sc. (H) Electronics II Sem
3	ADITYA	AB-403	B.Sc. (H) Electronics II Sem
4	ADITYA KUMAR	AB-404	B.Sc. (H) Electronics II Sem
5	ADITYA RANA	AB-452	B.Sc. (H) Electronics II Sem
6	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics IV Sem
7	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics IV Sem
8	ANKIT NEGI	YO-453	B.Sc. (H) Electronics VI Sem
9	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics IV Sem
10	ANKUR	ZO-407	B.Sc. (H) Electronics IV Sem
11	ANMOL DOGRA	YO-513	B.Sc. (H) Electronics VI Sem
12	ANUJ SINGH ALMIA	ZO-408	B.Sc. (H) Electronics IV Sem
13	ANURAG RAJPUT	AB-407	B.Sc. (H) Electronics II Sem
14	ANURAG SAXENA	ZO-409	B.Sc. (H) Electronics IV Sem
15	APOORV SINGH	AB-408	B.Sc. (H) Electronics II Sem
16	AQIL ALI	YO-411	B.Sc. (H) Electronics VI Sem
17	ASHISH	AB-409	B.Sc. (H) Electronics II Sem
18	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc. (H) Electronics IV Sem
19	AVIJIT MOHAN	AB-411	B.Sc. (H) Electronics II Sem
20	AVINASH KUMAR LAL	YO-451	B.Sc. (H) Electronics VI Sem
21	AYAM MISRA	ZO-411	B.Sc. (H) Electronics IV Sem
22	AYUSH RAWAT	AB-412	B.Sc. (H) Electronics II Sem
23	CHETAN	AB-413	B.Sc. (H) Electronics II Sem
24	DEEPAK KUMAR MEENA	ZO-456	B.Sc. (H) Electronics IV Sem

25	DEVANSH VERMA	ZO-412	B.Sc. (H) Electronics IV Sem
26	DEVASHISH	ZO-413	B.Sc. (H) Electronics IV Sem
27	DEVENDER KUMAR SONI	YO-413	B.Sc. (H) Electronics VI Sem
28	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics IV Sem
29	DHEERAJ KUMAR	YO-440	B.Sc. (H) Electronics VI Sem
30	DIGVIJAY SINGH KORANGA	YO-414	B.Sc. (H) Electronics VI Sem
31	DIVYANSH SHARMA	ZO-455	B.Sc. (H) Electronics IV Sem
32	FAIZ AHMAD	AB-416	B.Sc. (H) Electronics II Sem
33	GAGAN	YO-455	B.Sc. (H) Electronics VI Sem
34	GAGAN BAGHEL	AB-462	B.Sc. (H) Electronics II Sem
35	GAURAV DUBEY	ZO-448	B.Sc. (H) Electronics IV Sem
36	HARDIK MINOCHA	YO-441	B.Sc. (H) Electronics VI Sem
37	HARI SHANKAR	AB-418	B.Sc. (H) Electronics II Sem
38	HARSHITA MANSINGHKA	AB-421	B.Sc. (H) Electronics II Sem
39	INDRAJIT YADAV	YO-415	B.Sc. (H) Electronics VI Sem

40	ISLAM MULK	ZO-445	B.Sc. (H) Electronics IV Sem
41	JAGAT PAL	ZO-452	B.Sc. (H) Electronics IV Sem
42	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics IV Sem
43	KAPIL KUMAR GUPTA	YO-457	B.Sc. (H) Electronics VI Sem
44	KARTIK SHARMA	AB-422	B.Sc. (H) Electronics II Sem
45	KUNAL SHARMA	YO-416	B.Sc. (H) Electronics VI Sem
46	KUNIKA GOYAL	AB-423	B.Sc. (H) Electronics II Sem
47	LALIT UPRETI	YO-417	B.Sc. (H) Electronics VI Sem
48	LATA SINHA	YO-418	B.Sc. (H) Electronics VI Sem
49	MAYANK CHAUDHARY	AB-424	B.Sc. (H) Electronics II Sem
50	MOHAMMAD SUHAIL	YO-442	B.Sc. (H) Electronics VI Sem
51	MOHD. MUKHTAR ANSARI	AB-457	B.Sc. (H) Electronics II Sem
52	NAVEEN KUMAR RAO	YO-421	B.Sc. (H) Electronics VI Sem
53	NISHANT KUMAR	AB-426	B.Sc. (H) Electronics II Sem
54	OBAIDULLAH KHUDAYAR	AB-461	B.Sc. (H) Electronics II Sem
55	PARWEJ ALAM	YO-423	B.Sc. (H) Electronics VI Sem
56	PRAVAL BISHT	YO-425	B.Sc. (H) Electronics VI Sem
57	PRINCE SHARMA	YO-427	B.Sc. (H) Electronics VI Sem
58	RAHUL CHAWLA	YO-428	B.Sc. (H) Electronics VI Sem
59	RAHUL GAUR	YO-429	B.Sc. (H) Electronics VI Sem
60	RAHUL KUMAR	YO-443	B.Sc. (H) Electronics VI Sem
61	RIDHIMA SURI	AB-460	B.Sc. (H) Electronics II Sem
62	RITESH KUMAR	AB-432	B.Sc. (H) Electronics II Sem
63	RUDRA ABHISHEK	AB-434	B.Sc. (H) Electronics II Sem
64	SACCHI SINGH	AB-435	B.Sc. (H) Electronics II Sem
65	SACHIN	AB-436	B.Sc. (H) Electronics II Sem
66	SAGAR BISHT	AB-437	B.Sc. (H) Electronics II Sem

67	SAURAV KUMAR	YO-430	B.Sc. (H) Electronics VI Sem

Kanwal Kaur
27/06/2020

Invited Talk: Autonomous Navigation System with IntelligentCamera for Space and Earth

Date: March 3, 2020

Faculty Advisor (ANDC SPIE Student Chapter): Prof. Amit Garg

Event Convenor (DBT STAR Coordinator): Dr. Ravneet Kaur

Resource Person: Prof. Marija Strojnik, Astrophysicist and Distinguished Professor atOptical Research Center, Mexico

SPIE ANDC Office Bearers & Student Coordinators

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

University of Delhi at ANDC SPIE Student Chapter
ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
Govindpuri, Kalkaji, New Delhi – 110019

SPIE Student Chapter
University of Delhi at ANDC

Technical Talk and Interaction
with

Prof. Marija Strojnik

Astrophysicist and Distinguished Professor, Optical Research Center
Leon, Gto., Mexico

(Date- 15th October 2019, Venue- Seminar Hall)

9:15 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 10:15 a.m.	Welcome and Lamp Lighting Welcome address **Dr. Ravi Toteja** Acting Principal, Acharya Narendra Dev College Inaugural address **Dr. Arijit Chowdhuri** Faculty, Department of Physics
10:15 a.m. – 11:30 a.m.	**Lecture on Autonomous Navigation with Intelligent Camera for Space and Earth** **Prof. Marija Strojnik**
11:30 a.m. – 11:45 a.m.	**Tea break**
11:45 a.m. – 1:00 p.m.	**Motivational Interactive Session with Women Students** **Prof. Marija Strojnik**
1:00 p.m. – 1:05 p.m.	Vote of Thanks- **Mr. Prince Sharma**, President, SPIE Student Chapter Memento- SPIE Student Chapter Office Bearers
1:05 p.m. – 2:00 p.m.	Project Exhibition by SPIE Students (Venue: Department of Electronics)
2:00 p.m. – 3:00 p.m.	Guest Lunch

Prof. Marija Strojnik, Astrophysicist and Distinguished Professor at Optical Research Center, Mexico delivered a very insightful talk on Autonomous Navigation System with Intelligent Camera for Space and Earth'

https://www.andcollege.du.ac.in/beyondtheclassroom/spie
https://www.andcollege.du.ac.in/uploads/spie-reports/SPIE-2019.pdf
https://www.andcollege.du.ac.in/ar_2020/ANDC_AnnualReport2020.html#p=21

Links for more information on of student members and activities:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/
Instagram page:
https://www.instagram.com/spie_andc/ YouTube
channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Invited Talk: Current trends in Mobile Application Development

Date: September 20, 2018

Event Convenor (DBT Corodinator): Dr. Ravneet Kaur

Resource Person: Mr. Rohit Gambhir, Lead, Mobile Application Development, QA Infotech

Department of Electronics, under the aegis of DBT STAR College Scheme, organized an inaugural lecture on 20th September, 2018. Mr. Rohit Gambhir, was the key speaker of the function. Mr. Rohit Gambhir is an alumnus of our college and currently the Lead in Mobile Application Development at QA Infotech. He delivered an informative talk on **'Current trends in Mobile Application Development'**. The students were able to learn about Mobile Application Development and some upcoming Applications.

The talk was followed by an interactive session where students queries where answered. Since the speaker was an alumnus of the college, he was also able to share some memories and experience with students.

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Electronics

(under the aegis of DBT STAR College scheme)

cordially invites you to a lecture by

Mr. Rohit Gambhir

Lead, Mobile Application Development, QA Infotech

On

Current Trends in Mobile Application Development

Date: 20th September, 2018 (Thursday)

Time: 9:30 A.M.

Venue: College Conference Hall

Number of Participants: 85 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below

S. No.	Name	Roll No	Course
1	AASHU KUMAR	ZO-401	B.Sc. (H) Electronics (I Sem)
2	ABHISHEK	ZO-402	B.Sc. (H) Electronics (I Sem)
3	ABHISHEK PURI	ZO-443	B.Sc. (H) Electronics (I Sem)
4	AKASH DEEP	ZO-403	B.Sc. (H) Electronics (I Sem)
5	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics (I Sem)
6	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics (I Sem)
7	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics (I Sem)
8	ANKUR	ZO-407	B.Sc. (H) Electronics (I Sem)
9	ANUJ SINGH ALMIA	ZO-408	B.Sc. (H) Electronics (I Sem)
10	ANURAG SAXENA	ZO-409	B.Sc. (H) Electronics (I Sem)
11	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc. (H) Electronics (I Sem)
12	AYAM MISRA	ZO-411	B.Sc. (H) Electronics (I Sem)
13	CHANCHAL SAGAR	XO-411	B.Sc. (H) Electronics (V Sem)
14	CHIRADEEP DAS	XO-413	B.Sc. (H) Electronics (V Sem)
15	DEEPAK KUMAR MEENA	ZO-456	B.Sc. (H) Electronics (I Sem)
16	DEVANSH VERMA	ZO-412	B.Sc. (H) Electronics (I Sem)
17	DEVASHISH	ZO-413	B.Sc. (H) Electronics (I Sem)
18	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics (I Sem)
19	GAURAV	XO-415	B.Sc. (H) Electronics (V Sem)
20	IBRAHIM USMANI	XO-417	B.Sc. (H) Electronics (V Sem)
21	JAGAT PAL	ZO-452	B.Sc. (H) Electronics (I Sem)
22	JITU KUMAR UTSAV	XO-460	B.Sc. (H) Electronics (V Sem)
23	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics (I Sem)
24	KAPIL KUMAR GUPTA	YO-457	B.Sc. (H) Electronics (III Sem)
25	KAPIL PORWAL	XO-461	B.Sc. (H) Electronics (V Sem)
26	KARAMBIR SHARMA	ZO-416	B.Sc. (H) Electronics (I Sem)
27	KARAN	ZO-417	B.Sc. (H) Electronics (I Sem)
28	KUNAL SHARMA	YO-416	B.Sc. (H) Electronics (III Sem)
29	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics (I Sem)
30	LALIT SHARMA	ZO-419	B.Sc. (H) Electronics (I Sem)
31	LALIT UPRETI	YO-417	B.Sc. (H) Electronics (III Sem)
32	LALTESH	XO-420	B.Sc. (H) Electronics (V Sem)
33	LATA SINHA	YO-418	B.Sc. (H) Electronics (III Sem)
34	LOKENDER	XO-462	B.Sc. (H) Electronics (V Sem)
35	LOVELY	XO-456	B.Sc. (H) Electronics (V Sem)
36	MADHUKAR PANDEY	XO-421	B.Sc. (H) Electronics (V Sem)
37	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics (I Sem)
38	MANISH	XO-423	B.Sc. (H) Electronics (V Sem)
39	MANISH SINGH	XO-422	B.Sc. (H) Electronics (V Sem)
40	MOHAN DUBEY	XO-424	B.Sc. (H) Electronics (V Sem)
41	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics (I Sem)

42	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics (I Sem)

43	NAVEEN KUMAR RAO	YO-421	B.Sc. (H) Electronics (III Sem)
44	NEERAJ KUMAR	XO-425	B.Sc. (H) Electronics (V Sem)
45	NEERAJ SINGH SIKARWAR	XO-450	B.Sc. (H) Electronics (V Sem)
46	PARWEJ ALAM	YO-423	B.Sc. (H) Electronics (III Sem)
47	PAYAL	XO-427	B.Sc. (H) Electronics (V Sem)
48	PRANJAL SINGH	XO-431	B.Sc. (H) Electronics (V Sem)
49	PRAVAL BISHT	YO-425	B.Sc. (H) Electronics (III Sem)
50	PRAVEEN	YO-426	B.Sc. (H) Electronics (III Sem)
51	PRINCE SHARMA	YO-427	B.Sc. (H) Electronics (III Sem)
52	PRIYA KUMARI MEENA	XO-434	B.Sc. (H) Electronics (V Sem)
53	PUSHKAR BARANWAL	ZO-457	B.Sc. (H) Electronics (I Sem)
54	RAHUL CHAWLA	YO-428	B.Sc. (H) Electronics (III Sem)
55	RAJAT KUMAR CHOUDHARY	XO-465	B.Sc. (H) Electronics (V Sem)
56	RAJAT MANN	XO-466	B.Sc. (H) Electronics (V Sem)
57	RAM AVATAR	XO-436	B.Sc. (H) Electronics (V Sem)
58	RANJEET KUMAR YADAV	XO-467	B.Sc. (H) Electronics (V Sem)
59	RITESH RAJ	XO-452	B.Sc. (H) Electronics (V Sem)
60	ROHAN SETHI	XO-468	B.Sc. (H) Electronics (V Sem)
61	ROHIT CHAUHAN	XO-469	B.Sc. (H) Electronics (V Sem)
62	ROHIT SAINI	XO-438	B.Sc. (H) Electronics (V Sem)
63	SADAKAT AHAMAD	XO-439	B.Sc. (H) Electronics (V Sem)
64	SAMEER TYAGI	ZO-454	B.Sc. (H) Electronics (I Sem)
65	SHAILENDRA KUMAR	XO-470	B.Sc. (H) Electronics (V Sem)
66	SHARDULL	ZO-442	B.Sc. (H) Electronics (I Sem)
67	SHASHWAT GUPTA	ZO-432	B.Sc. (H) Electronics (I Sem)
68	SHIVANI SOLANKI	YO-432	B.Sc. (H) Electronics (III Sem)
69	SHIVENDRA CHAUDHARI	YO-433	B.Sc. (H) Electronics (III Sem)
70	SHWETA PANDEY	XO-453	B.Sc. (H) Electronics (V Sem)
71	SUDHEER KUMAR	ZO-450	B.Sc. (H) Electronics (I Sem)
72	SUDHIR KUMAR SHARMA	ZO-435	B.Sc. (H) Electronics (I Sem)
73	SULEKHA PRASAD	XO-443	B.Sc. (H) Electronics (V Sem)
74	SURAJ SINGH	ZO-437	B.Sc. (H) Electronics (I Sem)
75	TSETAN NAMGYAL	YO-448	B.Sc. (H) Electronics (III Sem)
76	TUSHAR KUMAR PATEL	ZO-438	B.Sc. (H) Electronics (I Sem)
77	VASU NARANG	ZO-439	B.Sc. (H) Electronics (I Sem)
78	VIBHOR SHARMA	YO-436	B.Sc. (H) Electronics (III Sem)
79	VIKRAM BHARDWAJ	XO-473	B.Sc. (H) Electronics (V Sem)
80	VIKRANT	XO-446	B.Sc. (H) Electronics (V Sem)
81	VINAY PATEL	ZO-440	B.Sc. (H) Electronics (I Sem)
82	VISHAL KASHYAP	XO-454	B.Sc. (H) Electronics (V Sem)
83	VIVEK PANDEY	XO-447	B.Sc. (H) Electronics (V Sem)
84	VIVEK VERMA	YO-437	B.Sc. (H) Electronics (III Sem)
85	YASH VARSHNEY	ZO-441	B.Sc. (H) Electronics (I Sem)

Invited Talk: Professional Conduct with Positive Attitude

Date: October 4, 2018

Event Convenor (DBT Corodinator): Dr. Ravneet Kaur

Resource Person: Ms. Anju Kumari, Motivational Speaker and Life Skills Trainer, Founder of Crafting Leaders

Department of Electronics organized an invited talk, under the aegis of DBT STAR Scheme, on October 4, 2018. Ms. Anju Kumari was the key speaker of the function. Ms. Anju Kumari is Motivational speaker and life skills trainer. She is also the Founder of Crafting Leaders. She delivered an inspiring talk on „Professional conduct with positive attitude". The speaker interacted with the students and involved them in various confidence boosting activities. She was also able to guide the students in improving their decision making skills and having a more positive outlook towards life.

Number of Participants: 71 students from I, II and III year of B.Sc. (H) Electronics participated in the event. The complete list of students is given below

S. No.	Name	Roll No	Course
1	AASHU KUMAR	ZO-401	B.Sc. (H) Electronics (I Sem)
2	ABHISHEK	ZO-402	B.Sc. (H) Electronics (I Sem)
3	ABHISHEK PURI	ZO-443	B.Sc. (H) Electronics (I Sem)
4	AKASH DEEP	ZO-403	B.Sc. (H) Electronics (I Sem)
5	AKASH YADAV	XO-403	B.Sc. (H) Electronics (V Sem)
6	AKSHANSH JHA	XO-405	B.Sc. (H) Electronics (V Sem)
7	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics (I Sem)
8	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics (I Sem)
9	ANKIT AWASTHI	XO-449	B.Sc. (H) Electronics (V Sem)
10	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics (I Sem)
11	ANUJ SINGH ALMIA	ZO-408	B.Sc. (H) Electronics (I Sem)
12	ANURAG SAXENA	ZO-409	B.Sc. (H) Electronics (I Sem)
13	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc. (H) Electronics (I Sem)
14	ASHUTOSH KUMAR SINGH	XO-409	B.Sc. (H) Electronics (V Sem)
15	AYAM MISRA	ZO-411	B.Sc. (H) Electronics (I Sem)
16	BARKHA SINGH	XO-458	B.Sc. (H) Electronics (V Sem)
17	CHANCHAL SAGAR	XO-411	B.Sc. (H) Electronics (V Sem)
18	CHIRADEEP DAS	XO-413	B.Sc. (H) Electronics (V Sem)
19	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics (I Sem)
20	GAURAV	XO-415	B.Sc. (H) Electronics (V Sem)
21	IBRAHIM USMANI	XO-417	B.Sc. (H) Electronics (V Sem)

22	JAGAT PAL	ZO-452	B.Sc. (H) Electronics (I Sem)
23	JITU KUMAR UTSAV	XO-460	B.Sc. (H) Electronics (V Sem)
24	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics (I Sem)
25	KAPIL KUMAR GUPTA	YO-457	B.Sc. (H) Electronics (III Sem)
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32	LALTESH	XO-420	B.Sc. (H) Electronics (V Sem)
33	LATA SINHA	YO-418	B.Sc. (H) Electronics (III Sem)
34	LOKENDER	XO-462	B.Sc. (H) Electronics (V Sem)
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36	MADHUKAR PANDEY	XO-421	B.Sc. (H) Electronics (V Sem)
37	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics (I Sem)
38	MANISH	XO-423	B.Sc. (H) Electronics (V Sem)
39	MANISH SINGH	XO-422	B.Sc. (H) Electronics (V Sem)
40	MOHAN DUBEY	XO-424	B.Sc. (H) Electronics (V Sem)
41	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics (I Sem)
42	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics (I Sem)
43	NAVEEN KUMAR RAO	YO-421	B.Sc. (H) Electronics (III Sem)
44	NEERAJ KUMAR	XO-425	B.Sc. (H) Electronics (V Sem)
45	NEERAJ SINGH SIKARWAR	XO-450	B.Sc. (H) Electronics (V Sem)
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50	PRAVEEN	YO-426	B.Sc. (H) Electronics (III Sem)
51	PRINCE SHARMA	YO-427	B.Sc. (H) Electronics (III Sem)
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55	RAJAT KUMAR CHOUDHARY	XO-465	B.Sc. (H) Electronics (V Sem)
56	RAJAT MANN	XO-466	B.Sc. (H) Electronics (V Sem)
57	RAM AVATAR	XO-436	B.Sc. (H) Electronics (V Sem)
58	RANJEET KUMAR YADAV	XO-467	B.Sc. (H) Electronics (V Sem)
59	RITESH RAJ	XO-452	B.Sc. (H) Electronics (V Sem)
60	SHIVANI SOLANKI	YO-432	B.Sc. (H) Electronics (III Sem)
61	SHIVENDRA CHAUDHARI	YO-433	B.Sc. (H) Electronics (III Sem)
62	SUDHEER KUMAR	ZO-450	B.Sc. (H) Electronics (I Sem)
63	SUDHIR KUMAR SHARMA	ZO-435	B.Sc. (H) Electronics (I Sem)
64	SURAJ SINGH	ZO-437	B.Sc. (H) Electronics (I Sem)
65	TSETAN NAMGYAL	YO-448	B.Sc. (H) Electronics (III Sem)
66	TUSHAR KUMAR PATEL	ZO-438	B.Sc. (H) Electronics (I Sem)
67	VASU NARANG	ZO-439	B.Sc. (H) Electronics (I Sem)
68	VIBHOR SHARMA	YO-436	B.Sc. (H) Electronics (III Sem)
69	VINAY PATEL	ZO-440	B.Sc. (H) Electronics (I Sem)
70	VIVEK VERMA	YO-437	B.Sc. (H) Electronics (III Sem)
71	YASH VARSHNEY	ZO-441	B.Sc. (H) Electronics (I Sem)

Invited Talk: Satellite Communication

Date: January 31, 2019

Event Convenor (DBT Coordinator): Dr. Ravneet Kaur

Resource Person: Prof. Mridula Gupta, Department of Electronics, University of Delhi, South Campus

Department of Electronics organized an invited talk, under the aegis of DBT STAR Scheme, on January 31, 2019. Professor Mridula Gupta from Department of Electronics, University of Delhi, South Campus was the key speaker of the function. She delivered an insight talk on "Satellite Communication". The talk was attended by around 68 students from various courses from our college. Through her talk she was able to enlighten the students about various aspects of Satellite Communication. The talk was followed by an interactive session with the students, where students queries were answered.

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
ELECTRONICA SOCIETY UNDER AEGIS OF
DBT STAR COLLEGE SCHEME
ORGANIZES
SATELLITE
COMMUNICATION
A TALK BY
PROFESSOR MRIDULA GUPTA
DEPARTMENT OF ELECTRONIC SCIENCE
UNIVERSITY OF DELHI
SOUTH CAMPUS
THURSDAY | JANUARY 31,2019
10:00 AM
CONFERENCE HALL

Number of Participants: 68 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below

S. No.	Name	Roll No	Course
1	ADITYA KUMAR	YO-406	B.Sc. (H) Electronics (IV Sem)
2	ADITYA RAJ SINGH	YO-407	B.Sc. (H) Electronics (IV Sem)
3	AKASH YADAV	YO-408	B.Sc. (H) Electronics (IV Sem)
4	AKHIL TIWARI	YO-438	B.Sc. (H) Electronics (IV Sem)
5	AMANDEEP SURYAVANSHI	YO-409	B.Sc. (H) Electronics (IV Sem)
6	AMIT RANA	YO-410	B.Sc. (H) Electronics (IV Sem)
7	ANKIT NEGI	YO-453	B.Sc. (H) Electronics (IV Sem)
8	ANMOL DOGRA	YO-513	B.Sc. (H) Electronics (IV Sem)
9	ANUJ SINGH ALMIA	ZO-408	B.Sc. (H) Electronics (II Sem)
10	ANURAG SAXENA	ZO-409	B.Sc. (H) Electronics (II Sem)
11	AQIL ALI	YO-411	B.Sc. (H) Electronics (IV Sem)
12	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc. (H) Electronics (II Sem)
13	AVINASH KUMAR LAL	YO-451	B.Sc. (H) Electronics (IV Sem)
14	AYAM MISRA	ZO-411	B.Sc. (H) Electronics (II Sem)
15	BARKHA SINGH	XO-458	B.Sc. (H) Electronics (VI Sem)
16	CHANCHAL SAGAR	XO-411	B.Sc. (H) Electronics (VI Sem)
17	CHIRADEEP DAS	XO-413	B.Sc. (H) Electronics (VI Sem)
18	DEEPAK KUMAR MEENA	ZO-456	B.Sc. (H) Electronics (II Sem)
19	DEVANSH VERMA	ZO-412	B.Sc. (H) Electronics (II Sem)
20	DEVASHISH	ZO-413	B.Sc. (H) Electronics (II Sem)
21	DEVENDER KUMAR SONI	YO-413	B.Sc. (H) Electronics (IV Sem)
22	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics (II Sem)
23	DHEERAJ KUMAR	YO-440	B.Sc. (H) Electronics (IV Sem)
24	DIGVIJAY SINGH KORANGA	YO-414	B.Sc. (H) Electronics (IV Sem)
25	DIVYANSH SHARMA	ZO-455	B.Sc. (H) Electronics (II Sem)
26	GAGAN	YO-455	B.Sc. (H) Electronics (IV Sem)
27	GAURAV	XO-415	B.Sc. (H) Electronics (VI Sem)
28	GAURAV DUBEY	ZO-448	B.Sc. (H) Electronics (II Sem)
29	HARDIK MINOCHA	YO-441	B.Sc. (H) Electronics (IV Sem)
30	IBRAHIM USMANI	XO-417	B.Sc. (H) Electronics (VI Sem)
31	INDRAJIT YADAV	YO-415	B.Sc. (H) Electronics (IV Sem)
32	ISLAM MULK	ZO-445	B.Sc. (H) Electronics (II Sem)
33	JAGAT PAL	ZO-452	B.Sc. (H) Electronics (II Sem)
34	JITU KUMAR UTSAV	XO-460	B.Sc. (H) Electronics (VI Sem)
35	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics (II Sem)
36	KAPIL KUMAR GUPTA	YO-457	B.Sc. (H) Electronics (IV Sem)
37	KAPIL PORWAL	XO-461	B.Sc. (H) Electronics (VI Sem)
38	KARAMBIR SHARMA	ZO-416	B.Sc. (H) Electronics (II Sem)
39	KARAN	ZO-417	B.Sc. (H) Electronics (II Sem)
40	KUNAL SHARMA	YO-416	B.Sc. (H) Electronics (IV Sem)
41	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics (II Sem)

42	LALIT SHARMA	ZO-419	B.Sc. (H) Electronics (II Sem)

43	LALIT UPRETI	YO-417	B.Sc. (H) Electronics (IV Sem)
44	LALTESH	XO-420	B.Sc. (H) Electronics (VI Sem)
45	LATA SINHA	YO-418	B.Sc. (H) Electronics (IV Sem)
46	LOKENDER	XO-462	B.Sc. (H) Electronics (VI Sem)
47	LOVELY	XO-456	B.Sc. (H) Electronics (VI Sem)
48	MADHUKAR PANDEY	XO-421	B.Sc. (H) Electronics (VI Sem)
49	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics (II Sem)
50	MANISH	XO-423	B.Sc. (H) Electronics (VI Sem)
51	MANISH SINGH	XO-422	B.Sc. (H) Electronics (VI Sem)
52	MOHAMMAD SUHAIL	YO-442	B.Sc. (H) Electronics (IV Sem)
53	MOHAN DUBEY	XO-424	B.Sc. (H) Electronics (VI Sem)
54	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics (II Sem)
55	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics (II Sem)
56	MOHIT SUPYAL	ZO-424	B.Sc. (H) Electronics (II Sem)
57	MOHMMAD JUBAIR	ZO-425	B.Sc. (H) Electronics (II Sem)
58	NAVEEN KUMAR RAO	YO-421	B.Sc. (H) Electronics (IV Sem)
59	NEERAJ KUMAR	XO-425	B.Sc. (H) Electronics (VI Sem)
60	NEERAJ SINGH SIKARWAR	XO-450	B.Sc. (H) Electronics (VI Sem)
61	PAYAL	XO-427	B.Sc. (H) Electronics (VI Sem)
62	PHULENDER	ZO-426	B.Sc. (H) Electronics (II Sem)
63	PIYUSH KUMAR	ZO-427	B.Sc. (H) Electronics (II Sem)
64	PRAHLAD PRAJAPAT	ZO-428	B.Sc. (H) Electronics (II Sem)
65	PRANJAL SINGH	XO-431	B.Sc. (H) Electronics (VI Sem)
66	PRIYA KUMARI MEENA	XO-434	B.Sc. (H) Electronics (VI Sem)
67	RAJAT KUMAR CHOUDHARY	XO-465	B.Sc. (H) Electronics (VI Sem)
68	RAJAT MANN	XO-466	B.Sc. (H) Electronics (VI Sem)

Induction Workshop (SPIE ANDC Student Chapter)

Date: September 25-26, 2018

Faculty Advisor & Resource Person: Prof. Amit Garg

Office Bearers & Student Coordinators

President	Rohit Saini	B.Sc. (H) Electronics (VI Sem)
Vice President	Chiradeep Das	B.Sc. (H) Electronics (VI Sem)
Secretary	Ritesh Raj	B.Sc. (H) Electronics (VI Sem)
Treasurer	Hardik Minocha	B.Sc. (H) Electronics (IV Sem)

Induction Workshop: - A two-day Induction Workshop was held from September 25-26, 2018 for SPIE members. The workshop had an invited talk by Prof. Joby Joseph, Department of Physics, IIT Delhi on the topic of "Fabrication of Nanophotonic Structures and some Applications". Hands-on sessions were conducted during the workshop on projects like Water drop Microscope, Communication through Fiber-Optic cables, Laser Spirograph, Lissajous light patterns through vibration and Holography. Dr. Sanjay Kumar, Department of Physics was the resource person in setting up and recording the holograms. The workshop convener was Dr. Amit Garg.

Number of Participants: 158 students across different courses in the college participated inthe event.

https://www.andcollege.du.ac.in/beyondtheclassroom/spie

https://www.andcollege.du.ac.in/uploads/spie-

reports/SPIE-2019.pdf Links for more information on of

student members and activities: Contact Information:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

Python Workshop (SPIE ANDC Student Chapter)

Date: April 3, 2019

Faculty Advisor & Resource Person: Prof. Amit Garg

Resource Person: Mr. Jatin Katyal, Python Mentor, Coding Blocks

Office Bearers & Student Coordinators

President	Prince Sharma
Vice President	Mallika Yadav
Secretary	Avinash Kumar
Treasurer	Gaurav Lokhna

A workshop on „PYTHON" was organized in association with, industry partner Coding Blocks for the students of Electronics on April 3, 2019, 1 p.m. to 3 p.m.

CodingBlocks is an online training institute which offers programming and software related courses like Java, C++, Android, NodeJS and more. 70 students from different courses registered for the workshop. The resource person, Mr. Jatin Katyal, python mentor on behalf of Coding Blocks provided basic knowledge about programming in python

https://www.andcollege.du.ac.in/beyondtheclassroom/spie

https://www.andcollege.du.ac.in/uploads/spie-

reports/SPIE-2019.pdf Links for more information on of

student members and activities: Contact Information:

Email: andcspie8@gmail.com

Website: https://www.spieandc.org/

Facebook page: https://m.facebook.com/spieandc/

Instagram page: https://www.instagram.com/spie_andc/

YouTube channel: https://www.youtube.com/@SPIEANDC

LinkedIn page: https://www.linkedin.com/company/spie-andc/

DEPARTMENT OF ELECTRONICS

WORKSHOPS & INVITED TALKS ORGANISED BY THE DEPARTMENT(2017- 2018)

Invited Talk: A Preface into Wireless Communication and Electronic Warfare

Date: January 29, 2018

Event Convenor (DBT Coordinator): Dr. Ravneet Kaur

Resource Person: Mr. Sourabh Basu, Scientist/Engineer 'SE', at ISRO Satellite Centre, Bangalore

Department of Electronics, under the aegis of DBT STAR College Scheme and on the occasion of annual departmental festival 'Electro Blitz' organised a very informative talk on '**A Preface into Wireless Communication and Electronic Warfare**' on January 29, 2018 which was delivered by Mr. Sourabh Basu, Scientist/Engineer 'SE', at ISRO Satellite Centre,

The speaker also interacted with the students and answered their queries which furtherenriched their knowledge on the topic. The talk was followed by various interactive events like Mini Militia, Mobile Legends, Pac Man by Robots and Electronics Jingle competition which was organised by 'Electronika', student society of Electronics department

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Electronics

(under the aegis of DBT STAR College scheme)

ElectroBlitz

The Electronica Society cordially invites you to a lecture by

Mr. Sourabh Basu

Scientist/ Engineer 'SE' ISRO Satellite Centre, Bangalore

Joint Deputy Director, NTRO, New Delhi

On

A preface into Wireless Communication and Electronic Warfare

Date: 29th January, 2018 (Monday)

Time: 10:00 A.M.

Venue: College Conference Hall

Number of Participants: 82 students from I, II and III year of B.Sc. (H) Electronicsparticipated in the event. The complete list of students is given below

S. No.	Name	Roll No	Cour se
1	AASHU KUMAR	ZO-401	B.Sc. (H) Electronics (II Sem)
2	ABHISHEK	ZO-402	B.Sc. (H) Electronics (II Sem)
3	ABHISHEK PURI	ZO-443	B.Sc. (H) Electronics (II Sem)
4	AKASH DEEP	ZO-403	B.Sc. (H) Electronics (II Sem)
5	AKASH YADAV	XO-403	B.Sc. (H) Electronics (VI Sem)
6	AKSHANSH JHA	XO-405	B.Sc. (H) Electronics (VI Sem)
7	AMAN TYAGI	ZO-404	B.Sc. (H) Electronics (II Sem)
8	ANAMTA ISLAM	ZO-405	B.Sc. (H) Electronics (II Sem)
9	ANKIT AWASTHI	XO-449	B.Sc. (H) Electronics (VI Sem)
10	ANKITA SHUKLA	ZO-406	B.Sc. (H) Electronics (II Sem)
11	ANKUR	ZO-407	B.Sc. (H) Electronics (II Sem)
12	ANUJ SINGH ALMIA	ZO-408	B.Sc. (H) Electronics (II Sem)
13	ANURAG SAXENA	ZO-409	B.Sc. (H) Electronics (II Sem)
14	ASHUTOSH MANI TRIPATHI	ZO-447	B.Sc. (H) Electronics (II Sem)
15	ASHUTOSH KUMAR SINGH	XO-409	B.Sc. (H) Electronics (VI Sem)
16	AYAM MISRA	ZO-411	B.Sc. (H) Electronics (II Sem)
17	BARKHA SINGH	XO-458	B.Sc. (H) Electronics (VI Sem)
18	CHANCHAL SAGAR	XO-411	B.Sc. (H) Electronics (VI Sem)
19	CHIRADEEP DAS	XO-413	B.Sc. (H) Electronics (VI Sem)
20	DEEPAK KUMAR MEENA	ZO-456	B.Sc. (H) Electronics (II Sem)
21	DEVANSH VERMA	ZO-412	B.Sc. (H) Electronics (II Sem)
22	DEVASHISH	ZO-413	B.Sc. (H) Electronics (II Sem)
23	DEVESH SAMANT	ZO-414	B.Sc. (H) Electronics (II Sem)
24	JAGAT PAL	ZO-452	B.Sc. (H) Electronics (II Sem)
25	JYOTI SAINI	ZO-444	B.Sc. (H) Electronics (II Sem)
26	KAPIL KUMAR GUPTA	YO-457	B.Sc. (H) Electronics (IV Sem)
27	KAPIL PORWAL	XO-461	B.Sc. (H) Electronics (VI Sem)
28	KARAMBIR SHARMA	ZO-416	B.Sc. (H) Electronics (II Sem)
29	KARAN	ZO-417	B.Sc. (H) Electronics (II Sem)
30	KUNAL SHARMA	YO-416	B.Sc. (H) Electronics (IV Sem)
31	LALIT SHUKLA	ZO-418	B.Sc. (H) Electronics (II Sem)
32	LALIT SHARMA	ZO-419	B.Sc. (H) Electronics (II Sem)
33	LALIT UPRETI	YO-417	B.Sc. (H) Electronics (IV Sem)
34	LALTESH	XO-420	B.Sc. (H) Electronics (VI Sem)
35	LATA SINHA	YO-418	B.Sc. (H) Electronics (IV Sem)
36	LOKENDER	XO-462	B.Sc. (H) Electronics (VI Sem)
37	LOVELY	XO-456	B.Sc. (H) Electronics (VI Sem)
38	MADHUKAR PANDEY	XO-421	B.Sc. (H) Electronics (VI Sem)
39	MAHAK KALRA	ZO-420	B.Sc. (H) Electronics (II Sem)

40	MANISH	XO-423	B.Sc. (H) Electronics (VI Sem)
41	MANISH SINGH	XO-422	B.Sc. (H) Electronics (VI Sem)

42	MOHAN DUBEY	XO-424	B.Sc. (H) Electronics (VI Sem)
43	MOHD AAMIR	ZO-422	B.Sc. (H) Electronics (II Sem)
44	MOHD NAZAM	ZO-423	B.Sc. (H) Electronics (II Sem)
45	NAVEEN KUMAR RAO	YO-421	B.Sc. (H) Electronics (IV Sem)
46	NEERAJ KUMAR	XO-425	B.Sc. (H) Electronics (VI Sem)
47	NEERAJ SINGH SIKARWAR	XO-450	B.Sc. (H) Electronics (VI Sem)
48	PARWEJ ALAM	YO-423	B.Sc. (H) Electronics (IV Sem)
49	PAYAL	XO-427	B.Sc. (H) Electronics (VI Sem)
50	PRANJAL SINGH	XO-431	B.Sc. (H) Electronics (VI Sem)
51	PRAVAL BISHT	YO-425	B.Sc. (H) Electronics (IV Sem)
52	PRAVEEN	YO-426	B.Sc. (H) Electronics (IV Sem)
53	PRINCE SHARMA	YO-427	B.Sc. (H) Electronics (IV Sem)
54	PRIYA KUMARI MEENA	XO-434	B.Sc. (H) Electronics (VI Sem)
55	PUSHKAR BARANWAL	ZO-457	B.Sc. (H) Electronics (II Sem)
56	RAHUL CHAWLA	YO-428	B.Sc. (H) Electronics (IV Sem)
57	RAJAT KUMAR CHOUDHARY	XO-465	B.Sc. (H) Electronics (VI Sem)
58	RAJAT MANN	XO-466	B.Sc. (H) Electronics (VI Sem)
59	RAM AVATAR	XO-436	B.Sc. (H) Electronics (VI Sem)
60	RANJEET KUMAR YADAV	XO-467	B.Sc. (H) Electronics (VI Sem)
61	RITESH RAJ	XO-452	B.Sc. (H) Electronics (VI Sem)
62	ROHAN SETHI	XO-468	B.Sc. (H) Electronics (VI Sem)
63	ROHIT CHAUHAN	XO-469	B.Sc. (H) Electronics (VI Sem)
64	ROHIT SAINI	XO-438	B.Sc. (H) Electronics (VI Sem)
65	SADAKAT AHAMAD	XO-439	B.Sc. (H) Electronics (VI Sem)
66	SAMEER TYAGI	ZO-454	B.Sc. (H) Electronics (II Sem)
67	SHAILENDRA KUMAR	XO-470	B.Sc. (H) Electronics (VI Sem)
68	SHARDULL	ZO-442	B.Sc. (H) Electronics (II Sem)
69	SHASHWAT GUPTA	ZO-432	B.Sc. (H) Electronics (II Sem)
70	SHWETA PANDEY	XO-453	B.Sc. (H) Electronics (VI Sem)
71	SUDHEER KUMAR	ZO-450	B.Sc. (H) Electronics (II Sem)
72	SUDHIR KUMAR SHARMA	ZO-435	B.Sc. (H) Electronics (II Sem)
73	SULEKHA PRASAD	XO-443	B.Sc. (H) Electronics (VI Sem)
74	SURAJ SINGH	ZO-437	B.Sc. (H) Electronics (II Sem)
75	TUSHAR KUMAR PATEL	ZO-438	B.Sc. (H) Electronics (II Sem)
76	VASU NARANG	ZO-439	B.Sc. (H) Electronics (II Sem)
77	VIKRAM BHARDWAJ	XO-473	B.Sc. (H) Electronics (VI Sem)
78	VIKRANT	XO-446	B.Sc. (H) Electronics (VI Sem)
79	VINAY PATEL	ZO-440	B.Sc. (H) Electronics (II Sem)
80	VISHAL KASHYAP	XO-454	B.Sc. (H) Electronics (VI Sem)
81	VIVEK PANDEY	XO-447	B.Sc. (H) Electronics (VI Sem)

82	SHASHWAT GUPTA	ZO-432	B.Sc. (H) Electronics (II Sem)
82	YASH VARSHNEY	ZO-441	B.Sc. (H) Electronics (II Sem)
82	SHARDULL	ZO-442	B.Sc. (H) Electronics (II Sem)
82	SUDHEER KUMAR	ZO-450	B.Sc. (H) Electronics (II Sem)

DEPARTMENT OF COMMERCE

Department of Commerce

2017-18

Title- The Trending Economic and Business Related Issues

Date- September 27, 2017

Organizing Committee - Department of Commerce, ANDC.

Report

A seminar related to "The Trending Economic and Business related issues" was conducted by the Department of Commerce of Acharya Narendra Dev College on 27 September 2017 inviting CA Rajeev Talwar as the speaker. Various challenges such as Crowdfunding, Impact of Demonetization on businesses and GST, etc. had been highlighted in the event. The session was extremely enlightening from the point of view of students especially for those who were planning to pursue entrepreneurship in future.

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

"The Trending Economic and Business Related Issues"

September 27, 2017

S.No.	Course Name	Participant's Name	Enrollment_No	Signature
1	B.Com. (Hons.)	AAKASH	17ANDCBCOH000001	
2	B.Com. (Hons.)	AARTI GUPTA	17ANDCBCOH000002	
3	B.Com. (Hons.)	ABHISHEK	17ANDCBCOH000003	
4	B.Com. (Hons.)	AJAY	17ANDCBCOH000004	
5	B.Com. (Hons.)	AKANKSHA VERMA	17ANDCBCOH000005	
6	B.Com. (Hons.)	AKANSHA MEHRA	17ANDCBCOH000006	
7	B.Com. (Hons.)	AKHILESH	17ANDCBCOH000007	
8	B.Com. (Hons.)	AKSHITA PANJRATH	17ANDCBCOH000008	
9	B.Com. (Hons.)	AMIT AGGARWAL	17ANDCBCOH000009	
10	B.Com. (Hons.)	AMIT RAJ	17ANDCBCOH000010	
11	B.Com. (Hons.)	ANANDU VS	17ANDCBCOH000011	
12	B.Com. (Hons.)	ANKIT RAJ	17ANDCBCOH000012	
13	B.Com. (Hons.)	ANKITA MEENA	17ANDCBCOH000013	
14	B.Com. (Hons.)	ANMOL GARG	17ANDCBCOH000014	
15	B.Com. (Hons.)	ANUPAM SAINI	17ANDCBCOH000015	
16	B.Com. (Hons.)	ANUSHKA KATIYAR	17ANDCBCOH000016	
17	B.Com. (Hons.)	APOORVI PALIWAL	17ANDCBCOH000017	
18	B.Com. (Hons.)	ASHI GARG	17ANDCBCOH000018	
19	B.Com. (Hons.)	ASHISH	17ANDCBCOH000019	
20	B.Com. (Hons.)	AYUSH KUMAR	17ANDCBCOH000020	
21	B.Com. (Hons.)	BHAWNA	17ANDCBCOH000021	
22	B.Com. (Hons.)	BHVAY BHATIA	17ANDCBCOH000022	
23	B.Com. (Hons.)	DAMINI	17ANDCBCOH000023	
24	B.Com. (Hons.)	DEEPAK YADAV	17ANDCBCOH000024	
25	B.Com. (Hons.)	DEEPANSHI AGRAWAL	17ANDCBCOH000025	
26	B.Com. (Hons.)	DEVAK KUMAR	17ANDCBCOH000026	
27	B.Com. (Hons.)	DHARAMBIR	17ANDCBCOH000027	
28	B.Com. (Hons.)	DIKSHA RAJPAL	17ANDCBCOH000028	
29	B.Com. (Hons.)	EKTA DWIVEDI	17ANDCBCOH000029	
30	B.Com. (Hons.)	GANESH DUTT	17ANDCBCOH000030	
31	B.Com. (Hons.)	HEMANT	17ANDCBCOH000031	
32	B.Com. (Hons.)	HIMANSHI	17ANDCBCOH000032	
33	B.Com. (Hons.)	HIMANSHU NEGI	17ANDCBCOH000033	
34	B.Com. (Hons.)	HUZAIR ANSARI	17ANDCBCOH000034	
35	B.Com. (Hons.)	JASPREET SINGH	17ANDCBCOH000035	
36	B.Com. (Hons.)	JATIN KALRA	17ANDCBCOH000036	
37	B.Com. (Hons.)	JAY	17ANDCBCOH000037	
38	B.Com. (Hons.)	JHANAVI GHILDIYAL	17ANDCBCOH000038	
39	B.Com. (Hons.)	JITENDER MITTAL	17ANDCBCOH000039	
40	B.Com. (Hons.)	JOYCE TIRKEY	17ANDCBCOH000040	

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The Trending Economic & Business Related Issues
September 27, 2017

41	B.Com. (Hons.)	KANCHAN GARIYA	17ANDCBCOH000041	Kanchan Gariya
42	B.Com. (Hons.)	KAPIL KUMAR	17ANDCBCOH000042	Kapil Kumar
43	B.Com. (Hons.)	KASHISH GAUR	17ANDCBCOH000043	Kashish Gaur
44	B.Com. (Hons.)	KAVITA CHAURASIA	17ANDCBCOH000044	Kavita Chaurasia
45	B.Com. (Hons.)	KIRTI	17ANDCBCOH000045	Kirti
46	B.Com. (Hons.)	KUMARI ASHU	17ANDCBCOH000046	Kumari Ashu
47	B.Com. (Hons.)	MADHU	17ANDCBCOH000047	Madhu
48	B.Com. (Hons.)	MANAN JAIN	17ANDCBCOH000048	Manan Jain
49	B.Com. (Hons.)	MANAV SEHGAL	17ANDCBCOH000049	Manav Sehgal
50	B.Com. (Hons.)	MANJEET SAINI	17ANDCBCOH000050	Manjeet Saini
51	B.Com. (Hons.)	MANPREET SINGH	17ANDCBCOH000051	Manpreet Singh
52	B.Com. (Hons.)	MD ZUBER	17ANDCBCOH000052	Md Zuber
53	B.Com. (Hons.)	MOHD SUHAIB ALAM	17ANDCBCOH000053	Md. Suhaib Alam
54	B.Com. (Hons.)	MOHIT	17ANDCBCOH000054	Mohit
55	B.Com. (Hons.)	MOHIT MALHOTRA	17ANDCBCOH000055	Mohit Malhotra
56	B.Com. (Hons.)	NIKHIL KUMAR	17ANDCBCOH000056	Nikhil Kumar
57	B.Com. (Hons.)	NIKITA	17ANDCBCOH000057	Nikita
58	B.Com. (Hons.)	POOJA JAKHAR	17ANDCBCOH000058	Pooja Jakhar
59	B.Com. (Hons.)	POOJA KUMARI	17ANDCBCOH000059	Pooja Kumari
60	B.Com. (Hons.)	PRADEEP KUMAR	17ANDCBCOH000060	Pradeep Kr.
61	B.Com. (Hons.)	PRAMOD KUMAR	17ANDCBCOH000061	Pramod Kumar
62	B.Com. (Hons.)	PRATEEK GUPTA	17ANDCBCOH000062	Prateek Gupta
63	B.Com. (Hons.)	PRERAK BHARDWAJ	17ANDCBCOH000063	Prerak Bhardwaj
64	B.Com. (Hons.)	PRERNA	17ANDCBCOH000064	Prerna
65	B.Com. (Hons.)	RACHNA SHARMA	17ANDCBCOH000065	Rachna Sharma
66	B.Com. (Hons.)	RAGHAV DAWAR	17ANDCBCOH000066	Raghav Dawar
67	B.Com. (Hons.)	RASHI TYAGI	17ANDCBCOH000067	Rashi Tyagi
68	B.Com. (Hons.)	RISHABH JAIN	17ANDCBCOH000068	Rishabh Jain
69	B.Com. (Hons.)	RITIKA	17ANDCBCOH000069	Ritika
70	B.Com. (Hons.)	ROHIT	17ANDCBCOH000070	Rohit
71	B.Com. (Hons.)	ROHIT ADLAKHA	17ANDCBCOH000071	Rohit Adlakha
72	B.Com. (Hons.)	ROHIT KUMAR	17ANDCBCOH000072	Rohit Kumar
73	B.Com. (Hons.)	SAARTHAK AGARWAL	17ANDCBCOH000073	Saarthak Agarwal
74	B.Com. (Hons.)	SACHIN JAIN	17ANDCBCOH000074	Sachin Jain
75	B.Com. (Hons.)	SAKSHI GOYAL	17ANDCBCOH000075	Sakshi Goyal
76	B.Com. (Hons.)	SAMARTH BEHL	17ANDCBCOH000076	Samarth Behl
77	B.Com. (Hons.)	SAMEN SINGH	17ANDCBCOH000077	Samen Singh
78	B.Com. (Hons.)	SHALINI	17ANDCBCOH000078	[illegible]
79	B.Com. (Hons.)	SHIVAM	17ANDCBCOH000079	[illegible]
80	B.Com. (Hons.)	SHIVAM NARANG	17ANDCBCOH000080	Shivam Narang
81	B.Com. (Hons.)	SHIVAM SETHI	17ANDCBCOH000081	Shivam Sethi
82	B.Com. (Hons.)	SHIVANGI GUPTA	17ANDCBCOH000082	Shivangi Gupta
83	B.Com. (Hons.)	SHYAM SHAKTI	17ANDCBCOH000083	Shyam
84	B.Com. (Hons.)	SIDDHANT RAJ	17ANDCBCOH000084	Siddhant Jain
85	B.Com. (Hons.)	SIDDHARTH JAIN	17ANDCBCOH000085	Siddhart Jain
86	B.Com. (Hons.)	SNEHIL KUMAR	17ANDCBCOH000086	Snehil Kr.
87	B.Com. (Hons.)	SONU	17ANDCBCOH000087	Sonu

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The Trending Economic & Business Related Issues
September 27, 2017

88	B.Com. (Hons.)	SUMIT PRAJAPAT	17ANDCBCOH000088	
89	B.Com. (Hons.)	SURAJ KUMAR	17ANDCBCOH000089	
90	B.Com. (Hons.)	SWARNIM	17ANDCBCOH000090	
91	B.Com. (Hons.)	THOMAS KUMAR MEHRA	17ANDCBCOH000091	
92	B.Com. (Hons.)	TUSHTI JAIN	17ANDCBCOH000092	
93	B.Com. (Hons.)	UTKARSH KANDOI	17ANDCBCOH000093	
94	B.Com. (Hons.)	VANSHIKA MIGLANI	17ANDCBCOH000094	
95	B.Com. (Hons.)	VARSHA BHADANA	17ANDCBCOH000095	
96	B.Com. (Hons.)	VERSHA	17ANDCBCOH000096	Versha
97	B.Com. (Hons.)	VINAY KUMAR	17ANDCBCOH000097	
98	B.Com. (Hons.)	VISHAL JHA	17ANDCBCOH000098	
99	B.Com. (Hons.)	YASH TEWATIA	17ANDCBCOH000099	Yash
100	B.Com. (Hons.)	YASHIKA	17ANDCBCOH000100	
101	B.Com. (Hons.)	AKHILESH	17ANDCBCOH000007	
102	B.Com. (Hons.)	AMIT AGGARWAL	17ANDCBCOH000009	
103	B.Com. (Hons.)	ANKIT RAJ	17ANDCBCOH000012	
104	B.Com. (Hons.)	ANUPAM SAINI	17ANDCBCOH000015	
105	B.Com. (Hons.)	ASHI GARG	17ANDCBCOH000018	
106	B.Com. (Hons.)	AYUSH KUMAR	17ANDCBCOH000020	
107	B.Com. (Hons.)	DEEPAK YADAV	17ANDCBCOH000024	
108	B.Com. (Hons.)	DHARAMBIR	17ANDCBCOH000027	
109	B.Com. (Hons.)	DIKSHA RAJPAL	17ANDCBCOH000028	Diksha Singh
110	B.Com. (Hons.)	GANESH DUTT	17ANDCBCOH000030	
111	B.Com. (Hons.)	HIMANSHI	17ANDCBCOH000032	
112	B.Com. (Hons.)	JASPREET SINGH	17ANDCBCOH000035	
113	B.Com. (Hons.)	KANCHAN GARIYA	17ANDCBCOH000041	
114	B.Com. (Hons.)	KAVITA CHAURASIA	17ANDCBCOH000044	
115	B.Com. (Hons.)	KUMARI ASHU	17ANDCBCOH000046	
116	B.Com. (Hons.)	MANAV SEHGAL	17ANDCBCOH000049	
117	B.Com. (Hons.)	MANPREET SINGH	17ANDCBCOH000051	
118	B.Com. (Hons.)	MOHD SUHAIB ALAM	17ANDCBCOH000053	
119	B.Com. (Hons.)	NIKHIL KUMAR	17ANDCBCOH000056	
120	B.Com. (Hons.)	PRADEEP KUMAR	17ANDCBCOH000060	
121	B.Com. (Hons.)	PRATEEK GUPTA	17ANDCBCOH000062	
122	B.Com. (Hons.)	PRERNA	17ANDCBCOH000064	
123	B.Com. (Hons.)	KAVITA CHAURASIA	17ANDCBCOH000044	
124	B.Com. (Hons.)	MANAN JAIN	17ANDCBCOH000048	
125	B.Com. (Hons.)	MANPREET SINGH	17ANDCBCOH000051	
126	B.Com. (Hons.)	MOHIT	17ANDCBCOH000054	
127	B.Com. (Hons.)	NIKHIL KUMAR	17ANDCBCOH000056	
128	B.Com. (Hons.)	POOJA JAKHAR	17ANDCBCOH000058	
129	B.Com. (Hons.)	PRAMOD KUMAR	17ANDCBCOH000061	
130	B.Com. (Hons.)	SONU	17ANDCBCOH000087	

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Resource person Details - Mr. Rajeev Talwar, Chartered Accountant

Poster

2019-2020

Title- Lets Talk Session on "Stock Markets"

Date- January 17, 2020

Organizing Committee – Department of Commerce, ANDC

Report

A session on "stock markets" was organised on 17 January 2020 conducted by the Department of Commerce in the seminar hall of Acharya Narendra Dev College to give the students an insight into stock markets as it has been a trending topic for all age groups, especially among the teenagers. Mr. Neeraj Arora was the eminent speaker throughout the event. It was conducted to help students acquire knowledge about the topic as many didn't have prior experience. The motive was also to have a conversation with those who have already worked on it. Students were made aware of the trading terms like mutual funds, investments, derivatives, forex etc.

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Lets Talk Session on "Stock Markets"

January 17, 2020

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3	B.Com. (Hons.)	AMISHA AMBARDAR	19ANDCBCOH000006	Amisha
4	B.Com. (Hons.)	Amit Kumar	19ANDCBCOH000007	Amit Kumar
5	B.Com. (Hons.)	ANCHAL SINGH	19ANDCBCOH000008	Anchal
6	B.Com. (Hons.)	ANKIT KUMAR	19ANDCBCOH000009	Ankit
7	B.Com. (Hons.)	ANUBHAV VARDHAN	19ANDCBCOH000010	Vardhan
8	B.Com. (Hons.)	Chirayu Mittal	19ANDCBCOH000017	Chitta
9	B.Com. (Hons.)	DEEPAK KUMAR	19ANDCBCOH000018	दीपक कुमार
10	B.Com. (Hons.)	deepak kushwaha	19ANDCBCOH000019	Deepak
11	B.Com. (Hons.)	Devender Kumar	19ANDCBCOH000020	Devender
12	B.Com. (Hons.)	DINESH KUMAR BASTIA	19ANDCBCOH000021	Dinesh Bastia
13	B.Com. (Hons.)	FAIZAN NEZAMI	19ANDCBCOH000022	Faizan
14	B.Com. (Hons.)	GAGAN JAIN	19ANDCBCOH000023	Gagan
15	B.Com. (Hons.)	GAURAV	19ANDCBCOH000024	Gaurav
16	B.Com. (Hons.)	NIKITA SAGAR	19ANDCBCOH000055	Nikita Sagar
17	B.Com. (Hons.)	Niskarsh	19ANDCBCOH000056	Niskarsh
18	B.Com. (Hons.)	NITIN NEGI	19ANDCBCOH000057	Nitin Negi
19	B.Com. (Hons.)	Parth Narayan Singh	19ANDCBCOH000058	Parth
20	B.Com. (Hons.)	Piyush Verma	19ANDCBCOH000059	Piyush Verma
21	B.Com. (Hons.)	Pooja	19ANDCBCOH000060	Pooja
22	B.Com. (Hons.)	RADHIKA SETIA	19ANDCBCOH000065	Radhika
23	B.Com. (Hons.)	RAHUL YADAV	19ANDCBCOH000066	Rahul Yadav
24	B.Com. (Hons.)	Rishav Gupta	19ANDCBCOH000068	Rishav Gupta
25	B.Com. (Hons.)	RISHU SINGH	19ANDCBCOH000069	Rishu Singh
26	B.Com. (Hons.)	RITIK GOYAL	19ANDCBCOH000070	Ritik Goyal
27	B.Com. (Hons.)	RITIK GUPTA	19ANDCBCOH000071	Ritik Gupta
28	B.Com. (Hons.)	Shobhit Srivastava	19ANDCBCOH000080	Shobit Srivastava
29	B.Com. (Hons.)	Shreyans Jain	19ANDCBCOH000081	Shreyans Jain
30	B.Com. (Hons.)	Shreyash Satyam	19ANDCBCOH000082	Shreyash Satyam
31	B.Com. (Hons.)	simran gupta	19ANDCBCOH000083	Simran Gupta
32	B.Com. (Hons.)	SONAM	19ANDCBCOH000084	Sonam
33	B.Com. (Hons.)	Sonam Prajapati	19ANDCBCOH000085	Sonam Prajapati
34	B.Com. (Hons.)	Sudha Saroj	19ANDCBCOH000086	Sudha Saroj
35	B.Com. (Hons.)	SUDHIR	19ANDCBCOH000087	Sudhir
36	B.Com. (Hons.)	UTSAV GUGNANI	19ANDCBCOH000091	Utsav Gugnani
37	B.Com. (Hons.)	UZMA	19ANDCBCOH000092	Uzma
38	B.Com. (Hons.)	Vaishali Bhardwaj	19ANDCBCOH000093	Vishali Bhardwaj
39	B.Com. (Hons.)	Vansh Bhimsaria	19ANDCBCOH000094	Vansh Bhimsaria
40	B.Com. (Hons.)	VISHNUDEV C S	19ANDCBCOH000095	Vishnu Dev

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lets talk session on " stock markets" January 17, 2022

88	B.Com. (Hons.)	DEVANSH KOTNALA	18ANDCBCOH000026	Devansh
89	B.Com. (Hons.)	DEVENDER	18ANDCBCOH000027	Devender
90	B.Com. (Hons.)	DHRUV RISHI	18ANDCBCOH000028	Dhruv Rishi
91	B.Com. (Hons.)	EKTA RANI	18ANDCBCOH000029	Ekta Rani
92	B.Com. (Hons.)	FAGUNI GHAI	18ANDCBCOH000030	Fagun
93	B.Com. (Hons.)	JATIN SAHU	18ANDCBCOH000038	Jatin
94	B.Com. (Hons.)	JITENDER SHARMA	18ANDCBCOH000039	Jitender Sharma
95	B.Com. (Hons.)	KASHISH GUPTA	18ANDCBCOH000040	Kashish Gupta
96	B.Com. (Hons.)	KINSHUL SINGHAL	18ANDCBCOH000041	Kinshul Singhal
97	B.Com. (Hons.)	KRISHAN KUMAR	18ANDCBCOH000042	Krishna
98	B.Com. (Hons.)	KRITI MITTAL	18ANDCBCOH000043	Kriti Mittal
99	B.Com. (Hons.)	LAKSHIATA	18ANDCBCOH000044	Lakshita
100	B.Com. (Hons.)	NIKHIL RATRA	18ANDCBCOH000054	Nikhil Ratra
101	B.Com. (Hons.)	NIPUN ARORA	18ANDCBCOH000055	Nipun Arora
102	B.Com. (Hons.)	NITANT	18ANDCBCOH000056	Nitant
103	B.Com. (Hons.)	PALAK CHITKARA	18ANDCBCOH000057	Palak
104	B.Com. (Hons.)	PARTH SACHDEVA	18ANDCBCOH000058	Parth
105	B.Com. (Hons.)	PAWAN	18ANDCBCOH000059	Pawan
106	B.Com. (Hons.)	PAWAN THAKUR	18ANDCBCOH000060	Pawan Thakur
107	B.Com. (Hons.)	PAYAL KUMARI	18ANDCBCOH000061	Payal
108	B.Com. (Hons.)	PIYUSH BANSAL	18ANDCBCOH000062	Piyush
109	B.Com. (Hons.)	SUBIN BABU	18ANDCBCOH000086	Subin Babu
110	B.Com. (Hons.)	SUMIT KUMAR	18ANDCBCOH000087	Sumit
111	B.Com. (Hons.)	TANU	18ANDCBCOH000088	Tanu
112	B.Com. (Hons.)	TUSHAR	18ANDCBCOH000089	Tushar
113	B.Com. (Hons.)	VAIBHAV MAHAJAN	18ANDCBCOH000090	Vaibhav
114	B.Com. (Hons.)	VANSH AGGARWAL	18ANDCBCOH000091	Vansh
115	B.Com. (Hons.)	VIVEK TANEJA	18ANDCBCOH000094	Vivek Taneja
116	B.Com. (Hons.)	VYOM VASHISHTH	18ANDCBCOH000095	Vyom
117	B.Com. (Hons.)	WARIS ANSARI	18ANDCBCOH000096	Waris Ansari
118	B.Com. (Hons.)	ABHISHEK PANDEY	18ANDCBCOH000003	Abhishek Pandey
119	B.Com. (Hons.)	ABHISHEK VERMA	18ANDCBCOH000004	Abhishek
120	B.Com. (Hons.)	ADITYA BHATT	18ANDCBCOH000005	Aditya Bhatt

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lets talk session on "stock Markets" January 17, 2020

41	B.Com. (Hons.)	Yash Agarwal	19ANDCBCOH000096	
42	B.Com. (Hons.)	YASH GUPTA	19ANDCBCOH000097	
43	B.Com. (Hons.)	ANKIT RAJ	17ANDCBCOH000012	
44	B.Com. (Hons.)	ANKITA MEENA	17ANDCBCOH000013	
45	B.Com. (Hons.)	ANMOL GARG	17ANDCBCOH000014	
46	B.Com. (Hons.)	ANUPAM SAINI	17ANDCBCOH000015	
47	B.Com. (Hons.)	ANUSHKA KATIYAR	17ANDCBCOH000016	
48	B.Com. (Hons.)	APOORVI PALIWAL	17ANDCBCOH000017	
49	B.Com. (Hons.)	ASHI GARG	17ANDCBCOH000018	
50	B.Com. (Hons.)	ASHISH	17ANDCBCOH000019	
51	B.Com. (Hons.)	AYUSH KUMAR	17ANDCBCOH000020	
52	B.Com. (Hons.)	EKTA DWIVEDI	17ANDCBCOH000029	
53	B.Com. (Hons.)	GANESH DUTT	17ANDCBCOH000030	
54	B.Com. (Hons.)	HEMANT	17ANDCBCOH000031	
55	B.Com. (Hons.)	HIMANSHI	17ANDCBCOH000032	
56	B.Com. (Hons.)	HIMANSHU NEGI	17ANDCBCOH000033	
57	B.Com. (Hons.)	HUZAIR ANSARI	17ANDCBCOH000034	
58	B.Com. (Hons.)	JASPREET SINGH	17ANDCBCOH000035	
59	B.Com. (Hons.)	JATIN KALRA	17ANDCBCOH000036	
60	B.Com. (Hons.)	JAY	17ANDCBCOH000037	
61	B.Com. (Hons.)	JHANAVI GHILDIYAL	17ANDCBCOH000038	
62	B.Com. (Hons.)	JITENDER MITTAL	17ANDCBCOH000039	
63	B.Com. (Hons.)	JOYCE TIRKEY	17ANDCBCOH000040	
64	B.Com. (Hons.)	KANCHAN GARIYA	17ANDCBCOH000041	
65	B.Com. (Hons.)	KAPIL KUMAR	17ANDCBCOH000042	
66	B.Com. (Hons.)	KASHISH GAUR	17ANDCBCOH000043	
67	B.Com. (Hons.)	KAVITA CHAURASIA	17ANDCBCOH000044	
68	B.Com. (Hons.)	KIRTI	17ANDCBCOH000045	
69	B.Com. (Hons.)	KUMARI ASHU	17ANDCBCOH000046	
70	B.Com. (Hons.)	MADHU	17ANDCBCOH000047	
71	B.Com. (Hons.)	MANAN JAIN	17ANDCBCOH000048	
72	B.Com. (Hons.)	SACHIN JAIN	17ANDCBCOH000074	
73	B.Com. (Hons.)	SAKSHI GOYAL	17ANDCBCOH000075	
74	B.Com. (Hons.)	SAMARTH BEHL	17ANDCBCOH000076	
75	B.Com. (Hons.)	SAMEN SINGH	17ANDCBCOH000077	
76	B.Com. (Hons.)	SHALINI	17ANDCBCOH000078	
77	B.Com. (Hons.)	SHIVAM	17ANDCBCOH000079	
78	B.Com. (Hons.)	SHIVAM NARANG	17ANDCBCOH000080	
79	B.Com. (Hons.)	SHIVAM SETHI	17ANDCBCOH000081	
80	B.Com. (Hons.)	SHIVANGI GUPTA	17ANDCBCOH000082	
81	B.Com. (Hons.)	SHYAM SHAKTI	17ANDCBCOH000083	
82	B.Com. (Hons.)	SIDDHANT RAJ	17ANDCBCOH000084	
83	B.Com. (Hons.)	SIDDHARTH JAIN	17ANDCBCOH000085	
84	B.Com. (Hons.)	SNEHIL KUMAR	17ANDCBCOH000086	
85	B.Com. (Hons.)	SONU	17ANDCBCOH000087	
86	B.Com. (Hons.)	SUMIT PRAJAPAT	17ANDCBCOH000088	
87	B.Com. (Hons.)	SURAJ KUMAR	17ANDCBCOH000089	

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Resource person – C.A Neeraj Arora (Contact Number- 09810113555)

Poster -

2020-2021

Title -Webinar on 'Stop Worrying and Start Living and Earning': Career Vs Job: Road Map

Date- August 27, 2020

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor – Dr. Shalu Mahajan

Student Coordinators – Ms. Pratishta Bisht and Mr. Vansh Aggarwal

Report

"Job vs. Career" by CA Pankaj Goel

A webinar was organised on 'Job vs. Career' with CA Pankaj Goel on August 27, 2020 by the department of Commerce. He described everything with several real-life examples to make a better understanding amongst everyone. He explained the importance of finishing our education and setting our targets before applying for jobs and starting earning. He also informed us about various career opportunities that could be pursued after doing different courses and gave us a wide variety of advice regarding the process of choosing the right path for the future. He stressed more on having greater knowledge and pursuing various courses rather than going for a job and starting earning right away. Audience was given a platform to ask their career related questions or any other problem regarding the webinar. It was an eye opener event for the audience as they received solutions to their problems in very less time. It was an enriching experience for everyone present.

Photographs

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce
Webinar on 'Stop Worrying and Start Living and earning'; Career Vs Job: Road Map
August 27, 2020

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Lakshay Singh	lakshays738@gmail.com	9999231906	Banarsidas Chandiwala Institute of Professional Studies
Vanshika Chawla	vanshikachawla138@gmail.com	7838568878	Mata Sundri College
Dinesh Kumar Bastia	Dineshgee5678@gmail.com	7011275591	Acharya Narendra Dev college
Ajay yadav	yadavajay1110002@gmail.com	7678357743	Motilal Nehru college
Nishant Singh Chauhan	nishant.chauhan386@gmail.com	9012026155	Dayalbagh Educational Institute (Deemed University),Agra
Diya Nagar	diyanagar6@gmail.com	8851145237	Vivekananda college Delhi University

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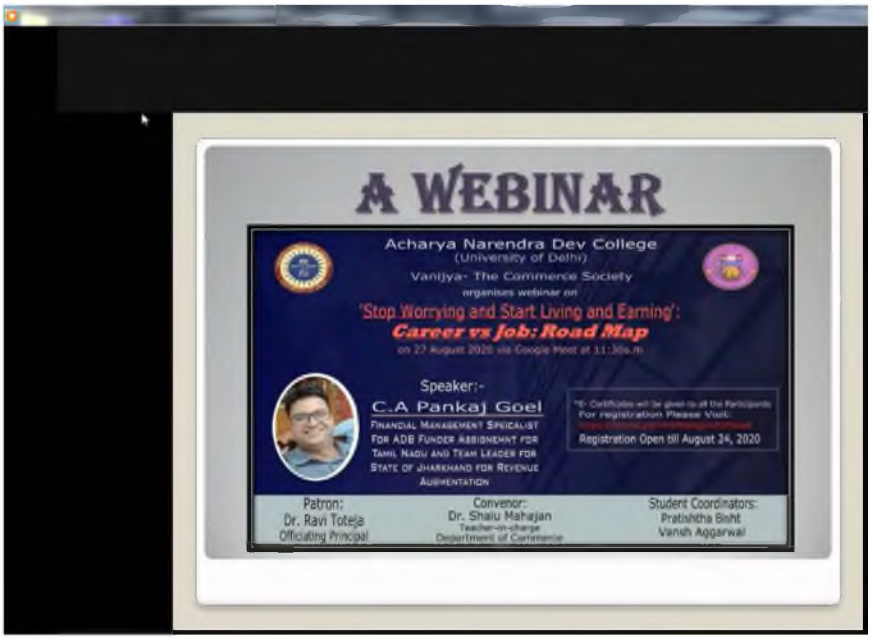
Roshani	roshnai20800@gmail.com	9717945440	Kalindi College
ARJUN SINGH	rajputsingharjun03@gmail.com	8626955052	Wazir Ram Singh Govt. College Dehri (HP)
DR.MANISHA VERMA	manisha.verma.hrc@gmail.com	9810422410	HANS RAJ COLLEGE, UNIVERSITY OF DELHI
Mohit khanna	khannamohit1712@gmail.com	9354343381	Sri Aurobindo college e
SHIVANI BISHT	SHIVANIBSHT4@GMAIL.COM	8285778792	Banarasidas Chandiwala Institute Of Professional Studies
Manya Sharma	manyaasha03@gmail.com	8920701784	Dyal Singh College (M), DU
Dr. Reena Talwar	intouchreena@gmail.com	9810271903	Bharati College, Delhi University
Sakshi Singh	sakshisinghchouhan@gmail.com	8561896061	Gargi College. Delhi University
Anjali Dohare	adohare17@gmail.com	7408412225	Bharati college of Delhi university
Jaspreet Kaur	jaspreetkaurji18@gmail.com	7827540457	Mata Sundri College for Women
Dinesh Yadav	yadavdineshcool@gmail.com	8588883730	Sol Delhi University
Dr. Munshi Lal Yadav	munshilaldv@gmal.com	9450875476	Swami Dharma banchu College of Education
Dr. Parul Goel	ignou.parul@gmail.com	9599097021	Delhi University

Resource person – C.A Pankaj Goel (Contact Number- 9811860116)

Poster



Title - Webinar on 'Top Trends Driving Digital Marketing Strategy'

Date- October 9, 2020

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor -Dr. Shalu Mahajan

Co-Convenor -Dr. Jitender Goel

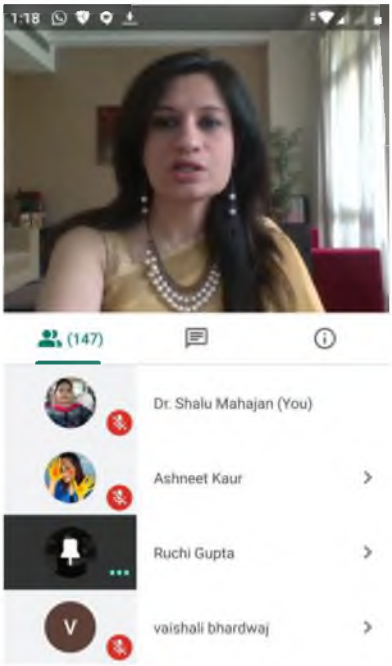
Student Coordinators- Mr. Tarush Bajra and Ms. Teesha Rautela

Report

"Top Trends Driving Digital Marketing Strategies" By Dr. Ruchi Gupta

With the increasing significance of Digital Marketing, a webinar by Dr. Ruchi Gupta was organised on the topic "Top Trends Driving Digital Marketing Strategies" via Google Meet on October 9, 2020 by the department of Commerce, Acharya Narendra Dev College (University of Delhi). A multimedia presentation was parted explaining digital marketing and the practical approach to engage the audience. She emphasised on the pace of increasing digitisation and how it helps in growing as an influencer. She explained the concept of micro-celebrity as a micro-influencer who is a person famous within a niche group of users on a social media platform. Micro-celebrities often present themselves as public figures. The webinar was very enlightening.

Photographs



Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Webinar on 'Top Trends Driving Digital Marketing Strategy'

October 9, 2020

S.No.	Course Name	Participant's Name	Enrollment_No	Signature
1	B.Com. (Hons.)	NIHARIKA GUPTA	18ANDCBCOH000053	Niharika.
2	B.Com. (Hons.)	NIKHIL RATRA	18ANDCBCOH000054	Nikhil
3	B.Com. (Hons.)	NIPUN ARORA	18ANDCBCOH000055	[illegible]
4	B.Com. (Hons.)	NITANT	18ANDCBCOH000056	Nitant
5	B.Com. (Hons.)	PALAK CHITKARA	18ANDCBCOH000057	Palak
6	B.Com. (Hons.)	PARTH SACHDEVA	18ANDCBCOH000058	Parth
7	B.Com. (Hons.)	DEVANSH KOTNALA	18ANDCBCOH000026	Devansh.
8	B.Com. (Hons.)	DEVENDER	18ANDCBCOH000027	Devender
9	B.Com. (Hons.)	DHRUV RISHI	18ANDCBCOH000028	Dhruv
10	B.Com. (Hons.)	EKTA RANI	18ANDCBCOH000029	Ekta
11	B.Com. (Hons.)	FAGUNI GHAI	18ANDCBCOH000030	Faguni
12	B.Com. (Hons.)	HARSHIT KUMAR GARG	18ANDCBCOH000031	Harshit Garg.
13	B.Com. (Hons.)	HARSHIT GULATI	18ANDCBCOH000032	Harshit
14	B.Com. (Hons.)	MAHEK GOEL	18ANDCBCOH000045	Mahek
15	B.Com. (Hons.)	MAMTA	18ANDCBCOH000046	Mamta.
16	B.Com. (Hons.)	MANAS GAMBHIR	18ANDCBCOH000047	Meenu
17	B.Com. (Hons.)	MANSI MALPANI	18ANDCBCOH000048	Mansi
18	B.Com. (Hons.)	MEENU	18ANDCBCOH000049	Meenu
19	B.Com. (Hons.)	MOKSH MAHORE	18ANDCBCOH000050	Moksh
20	B.Com. (Hons.)	TANU	18ANDCBCOH000088	Tanu
21	B.Com. (Hons.)	TUSHAR	18ANDCBCOH000089	Tushar
22	B.Com. (Hons.)	VAIBHAV MAHAJAN	18ANDCBCOH000090	Vaibhav
23	B.Com. (Hons.)	VANSH AGGARWAL	18ANDCBCOH000091	Vansh
24	B.Com. (Hons.)	VANSH BHUTANI	18ANDCBCOH000092	Vansh
25	B.Com. (Hons.)	VANSH GUJRAL	18ANDCBCOH000093	[illegible]
26	B.Com. (Hons.)	VIVEK TANEJA	18ANDCBCOH000094	Vivek
27	B.Com. (Hons.)	VYOM VASHISHTH	18ANDCBCOH000095	Vyom Vashishth.
28	B.Com. (Hons.)	ABHISHEK PANDEY	18ANDCBCOH000003	Abhishek Pandey.
29	B.Com. (Hons.)	ABHISHEK VERMA	18ANDCBCOH000004	Abhishek
30	B.Com. (Hons.)	ADITYA BHATT	18ANDCBCOH000005	Aditya.
31	B.Com. (Hons.)	ADITYA PRAKASH PRAJAPATI	18ANDCBCOH000006	Aditya
32	B.Com. (Hons.)	ADITYA RAJ CHOUHAN	18ANDCBCOH000007	Aditya
33	B.Com. (Hons.)	AHMED USAID QADRI	18ANDCBCOH000008	Ahmed
34	B.Com. (Hons.)	AJAY KUMAR ARYA	18ANDCBCOH000009	Ajay
35	B.Com. (Hons.)	PRAKHAR PRAKASH YADAV	18ANDCBCOH000064	[illegible]
36	B.Com. (Hons.)	PRASHANT	18ANDCBCOH000065	Prashant
37	B.Com. (Hons.)	PRATISHTHA BISHT	18ANDCBCOH000066	Pratishtha
38	B.Com. (Hons.)	PRINCE GAUTAM	18ANDCBCOH000067	Prince
39	B.Com. (Hons.)	PUNEET CHOUDHARY	18ANDCBCOH000068	Puneet
40	B.Com. (Hons.)	RAGHAV AGARWAL	18ANDCBCOH000069	Raghav

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Top Trends Driving Digital Marketing Strategy
October 9, 2020.

41	B.Com. (Hons.)	RAGHAV GUPTA	18ANDCBCOH000070	
42	B.Com. (Hons.)	BIBIN JOSEPH	19ANDCBCOH000015	
43	B.Com. (Hons.)	chandni	19ANDCBCOH000016	
44	B.Com. (Hons.)	Chirayu Mittal	19ANDCBCOH000017	
45	B.Com. (Hons.)	DEEPAK KUMAR	19ANDCBCOH000018	
46	B.Com. (Hons.)	deepak kushwaha	19ANDCBCOH000019	
47	B.Com. (Hons.)	Devender Kumar	19ANDCBCOH000020	
48	B.Com. (Hons.)	DINESH KUMAR BASTIA	19ANDCBCOH000021	
49	B.Com. (Hons.)	HITIKA KOHLI	19ANDCBCOH000031	
50	B.Com. (Hons.)	ISHA JAIN	19ANDCBCOH000032	
51	B.Com. (Hons.)	Jagriti	19ANDCBCOH000033	
52	B.Com. (Hons.)	JAI KUMAR SEHGAL	19ANDCBCOH000034	
53	B.Com. (Hons.)	Janavi Seth	19ANDCBCOH000035	
54	B.Com. (Hons.)	KANCHAN TOMAR	19ANDCBCOH000036	
55	B.Com. (Hons.)	Keshav Agarwal	19ANDCBCOH000037	
56	B.Com. (Hons.)	KIRTIKA CHOUDHARY	19ANDCBCOH000038	
57	B.Com. (Hons.)	MEENAKSHI	19ANDCBCOH000050	
58	B.Com. (Hons.)	Mohit Pandey	19ANDCBCOH000051	
59	B.Com. (Hons.)	Nabya Kumari	19ANDCBCOH000052	
60	B.Com. (Hons.)	NEERAJ PATEL	19ANDCBCOH000053	
61	B.Com. (Hons.)	NEHA	19ANDCBCOH000054	
62	B.Com. (Hons.)	NIKITA SAGAR	19ANDCBCOH000055	
63	B.Com. (Hons.)	Niskarsh	19ANDCBCOH000056	
64	B.Com. (Hons.)	KSHITIJ SRIVASTAVA	19ANDCBCOH000041	
65	B.Com. (Hons.)	Kuldeep Singh Rawat	19ANDCBCOH000042	
66	B.Com. (Hons.)	KUNAL GARG	19ANDCBCOH000043	
67	B.Com. (Hons.)	Love Kumar	19ANDCBCOH000045	
68	B.Com. (Hons.)	Madhav Agarwal	19ANDCBCOH000046	
69	B.Com. (Hons.)	MANISH	19ANDCBCOH000047	
70	B.Com. (Hons.)	PUNEET	19ANDCBCOH000064	
71	B.Com. (Hons.)	RADHIKA SETIA	19ANDCBCOH000065	
72	B.Com. (Hons.)	RAHUL YADAV	19ANDCBCOH000066	
73	B.Com. (Hons.)	Rishav Gupta	19ANDCBCOH000068	
74	B.Com. (Hons.)	RISHU SINGH	19ANDCBCOH000069	
75	B.Com. (Hons.)	Sonam Prajapati	19ANDCBCOH000085	
76	B.Com. (Hons.)	Sudha Saroj	19ANDCBCOH000086	
77	B.Com. (Hons.)	SUDHIR	19ANDCBCOH000087	
78	B.Com. (Hons.)	Tanya Gupta	19ANDCBCOH000088	
79	B.Com. (Hons.)	TARUSH BAJRA	19ANDCBCOH000089	

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Resource person - Dr. Ruchi Gupta Asst Prof Asst Prof. (SBSC) (Contact Number – 9810427590)

Poster

Title- Webinar on "Insurance for Youth"

Date- November 6, 2020

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor – Ms. Sangeeta Relan

Co-Convenor- Dr. Jitender Goel

Student Coordinators- Ms. Tanya Gupta and Ms. Vaishali Bharadwaj

Report

"Insurance for youth" by Mr Rajesh Relan

The Department of Commerce of the college hosted a webinar on the topic 'Insurance For Youth' via google meet. The resource person was Mr. Rajesh Relan (Former C.E.O of PNB met life insurance). The interactive session was aimed at putting light on the importance of considering insurance as a prospective investment. The guest discussed the benefits of insurance and also how it offers a promising career. All the points which he highlighted can indeed benefit the youth of today. The session turned out to be an interactive one.

Photographs

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce
The Webinar on "Insurance for Youth"
November 6, 2020

S.No.	Participants	Joined	Left	Duration
1	Mr. Jitender Goel	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
2	AARTHY.T 19MCO001	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
3	Abhishek Kumar	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
4	ABIRAMI.V 19MCO002	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
5	AISWARYA.S 19MCO004	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
6	Anubhav Vardhan	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
7	Arpita Narang	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
8	As A man thinketh	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
9	ASHISH KUMAR	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
10	ASWATHY UNNI 19MCO007	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
11	BARKKAVI.S 19mco008	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
12	BHARGAVEE SHARMA	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
13	Bharti Malik	11-6-2020 12:39:26	11-6-2020 12:51:30	00:12:04
14	BRINAANTONY 19MCO010	11-6-2020 12:42:02	11-6-2020 12:51:30	00:09:28
15	Deepali	11-6-2020 12:42:02	11-6-2020 12:51:30	00:09:28
16	Dinesh Yadav	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
17	Divya Pitale	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
18	Dr. Anjim Sabiha	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
19	Dr. B.M. Khatri	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
20	Dr. Sandeep Kumar Goel	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
21	Dr. Shalu Mahajan	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
22	ESWARANATHAN.S 19MCO015	11-6-2020 12:42:29	11-6-2020 12:51:30	00:09:01
23	Ganesh Dhongadi	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
24	HARIPRIYA.R 19MCO017	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
25	Harsha Singhal	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
26	HARSHINI.M 19mco018	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
27	Ishmehar Singh Sahni	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
28	KABILAMBIKA.S 19MCO020	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
29	KARTHIYAKENI.K 19MCO022	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
30	Kinshul Singhal	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
31	Kuldeep Rawat	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
32	Kunal Garg	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
33	M-J plays	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
34	MADHUVARSHINI.K 19MCO025	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
35	Manisha Rao	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
36	MITHUN.P M 19MCO027	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
37	Mr. Ankit Singh	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
38	Ms. Anuradha Sarin	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
39	Ms. Hanisha Bhagat	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
40	Ms. Rupali Pabreja	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
41	Ms. Sadhna Gupta	11-6-2020 12:42:30	11-6-2020 12:51:30	00:09:00
42	Ms. Sangeeta Relan	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
43	Muskan	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
44	Narender Khatodia	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
45	NAVEEN.M 19MCO029	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
46	NEELAVENI.M 19MCO030	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59

47	NEHA NEHA	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
48	Neha Rajput	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
49	Nisha Chhikara 5081	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
50	nishant chauhan	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
51	NITHYA.G 19MCO031	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
52	OSD IoE	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
53	Parth Singh	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
54	Piyush Verma	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
55	POORNIMA.S 19MCO032	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
56	Pratyush Kumar singh	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
57	RADHIKA.J 19MCO033	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
58	Raghav Juneja	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
59	Rajesh Relan	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
60	RAMJEE RAMJEE	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
61	ranjitha arunachalam	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
62	reena bajaj	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
63	Rishav Gupta	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
64	Rudra Goyal	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
65	SAISOWMIYA.R 19MCO037	11-6-2020 12:42:31	11-6-2020 12:51:30	00:08:59
66	Sanya Aggarwal	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
67	Sarita Singh	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
68	SAVITHA.S 19MCO041	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
69	Shashi Sindal	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
70	Shaykh Reem	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
71	Shivani Faasal	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
72	Shobhit Srivastava	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
73	Sivabagyam KR	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
74	SIVASATHYA.V 19MCO042	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
75	Sonam	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
76	Soumya Sharma	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
77	SOUNDARYA.C.S.K 19MCO043	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
78	SRISHTI AGGARWAL	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58
79	SUGANYA.P 19MCO044	11-6-2020 12:42:32	11-6-2020 12:51:30	00:08:58

Resource person – Mr. Rajesh Relan, Chairmanof Eco Money Insurance (Contact Number -9811203114)

Poster

ACHARYA NARENDRA DEV COLLEGE
(UNIVERSITY OF DELHI)
NAAC Accreditation Grade 'A' | NIRF 2020 All India Ranking-18
vanijya
The Commerce Society of ANDC
is organising a Webinar on
"INSURANCE FOR THE YOUTH"
Speaker
MR. RAJESH RELAN
CHAIRMAN (ECOMONEY INSURANCE). FORMER MD AND CEO OF PNB METLIFE INDIA AND WAS ASSOCIATED WITH AVIVA AND OLD MUTUAL PLC. HAS 30 YEARS OF EXPERIENCE IN FINANCIAL SERVICES THAT INCLUDES TWO DECADES OF EXPERIENCE IN INDIAN AND INTERNATIONAL INSURANCE SECTORS.
E-certificates will be given to all participants
(once they fill the feedback form)
Schedule
• 6TH NOVEMBER,2020
• FRIDAY, 11.30 AM
• ON GOOGLE MEET
PATRON
Dr. Ravi Toteja
(Officiating Principal)
TEACHER INCHARGE
Dr. Shalu Mahajan
CONVENOR
Ms. Sangeeta Relan
CO-CONVENER
Dr. Jitender Goel
STUDENT COORDINATOR- Tanya Gupta and Vaishali Bharadwaj

Title - Workshop on "E-Filing of ITR 1", Bodhini, Academic Events and Research Committee, Department of Commerce, Acharya Narendra Dev College

Date- November 10, 2020

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor -Dr. Sandeep Kumar Goel

Co-Convenor -Dr. Jitender Goel

Student Coordinators- Ms. Teesha Rautela and Mr. Aditya Prakash

Report

"E-Filing of ITR1 Workshop" by Dr Surinder Kaur and CA Yask Sain

With the objective of initiating people towards e filing of return, a webinar on was organised on "E-Filing of ITR1 Workshop" November 10, 2020. The webinar followed a two way approach. On one side, the participants were introduced to the process of e filing of returns and other relevant provisions through presentation slides showing step by step procedure of e filing of returns. This made participants comfortable with the Income Tax website and how they can move from one step to another. This was followed by actual filing of returns on the Income Tax India website during the webinar and online payment of taxes. The webinar was a great success and ended with the Q&A session between the resource persons and the audience.

Photographs

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

"Workshop on "E-Filing of ITR 1", Bodhini, Academic Events and Research Committee, Department of Commerce, Acharya Narendra Dev College "

November 10, 2020

S.No.	Name	E-mail Address	Institution	Contact Details
1	lakshita	lakshitasingh45@gmail.com	ramanujan	9625589659
2	Dr. Sandeep Kumar Goel	sandeepgoel@andc.du.ac.in	Acharya Narendra Dev College	9811880884
3	Dr. Shafaq Zareen	shafaqzareen@yahoo.co.in	Vivekananda College, University of Delhi	9990867809
4	Dr. Jitender Goel	jitendergoel@andc.du.ac.in	Acharya Narendra Dev College	9899670930
5	Harshdeep Singh	harshdeep2712@gmail.com	SGTB Khalsa College	8860082805
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Poster

Title- Webinar on "How to Publish Research Papers in Scopus/ Indexed Journals?"

Date- December 12, 2020

Organizing Committee members

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor - Dr. Sandeep Kumar Goel

Co-Convenor - Dr. Surinder Kaur

Teacher in Charge- Dr. Shalu Mahajan

Student Coordinators- Ms. Mansi Malpani and Ms. Payal Kumari

Report

"How to Publish Research Papers in Scopus/ Indexed Journals?" By Prof. Amit Kumar Singh

Besides writing a good research paper, it is equally important to get the work published in the right journals as it gives academic satisfaction and a sense of recognition. It is also crucial for exchange of ideas globally, fostering community networks, acquisition of research funding, advancement in career. It allows you to become an effective communicator. Therefore a webinar was organised on "How to Publish Research Papers in Scopus/ Indexed Journals?" on December 12, 2020. The webinar threw light on various categories of research journals and their relative importance in academics. Participants were guided through a step by step approach on how to go about for publication in good journals and challenges associated with these.

Photographs

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce
Webinar on "How to Publish Research Papers in Scopus/ Indexed Journals?"
December 12, 2020

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Resource person Details Prof. Amit Kumar Singh, Associate Professor, Department of Commerce, Delhi School of Economics, University of Delhi. (Contact Number – 9810992326)

Poster

Title - Webinar on "An Overview of Indian Contract Act, 1872"

Date- January 16, 2021

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor- Dr. Shalu Mahajan

Co-convenor- Dr. Jitender Goel

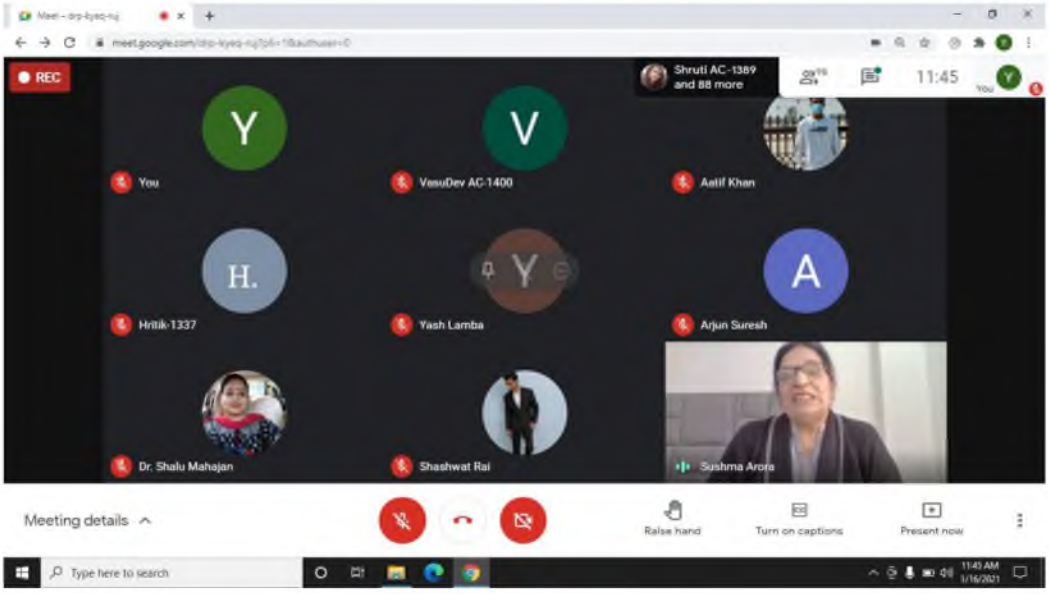
Student Coordinators- Ms. Pratishtha Bisht and Ms. Teesha Rautel

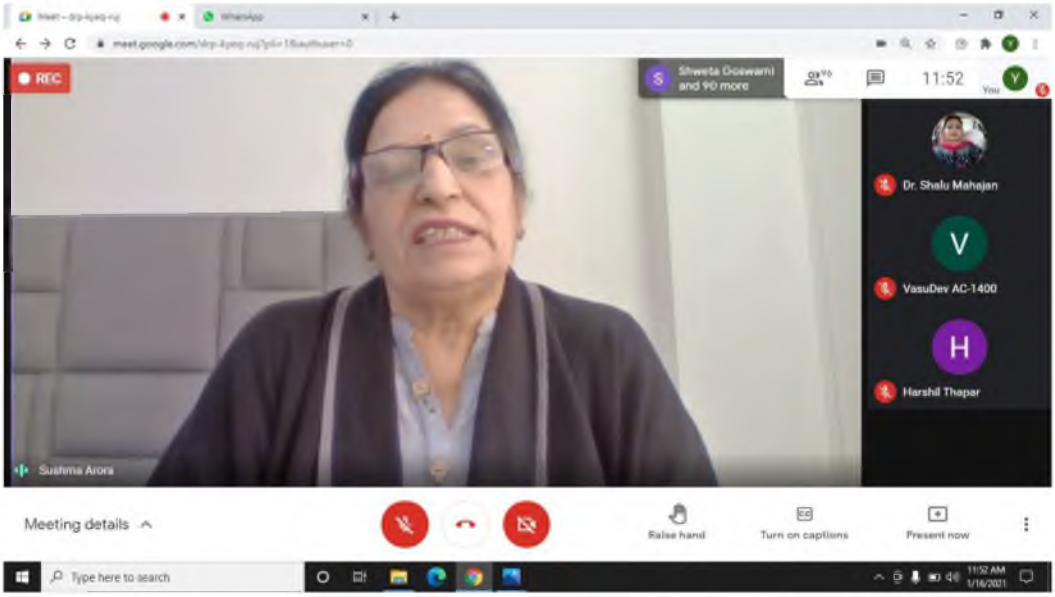
Report

"Indian Contract Act" by Dr. Sushma Arora

A webinar on the Indian Contract Act 1872 was organised exclusively for the first-year students of the department January 16, 2021. It was conducted by Dr Sushma Arora, Associate Professor, Daulat Ram College, University of Delhi. The webinar was extremely informative and enlightening. The speaker spoke on various relevant topics such as Lawful consideration, Acceptance of contract. Enforcement of contracts as well as the concept of Free consent. She explained the topics by giving examples and case studies which made her talk interesting and engaging. The students also got an opportunity to ask questions and get their doubts clarified.

Photographs





Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Webinar on an overview of Indian contract Act,1872

January 16, 2021

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Overview of Indian Contract Act, 1872

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Poster

Title - Talk under the first series "In Conversation with our Alumni" on "Early Investment- Secured Future"

Date- January 28, 2021

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor - Dr. Surinder Kaur

Co-Convenor- Ms. Sangeeta Relan

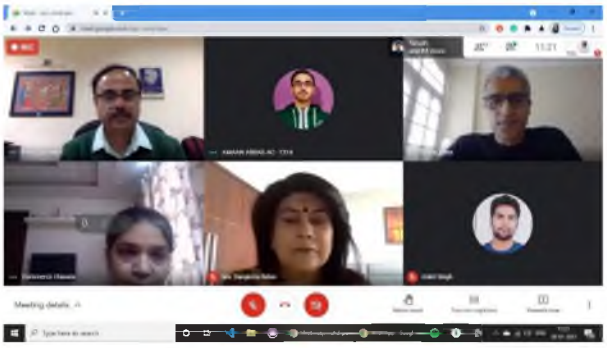
Student Coordinators- Mr. Ankit Kumar and Ms. Niharika Gupta

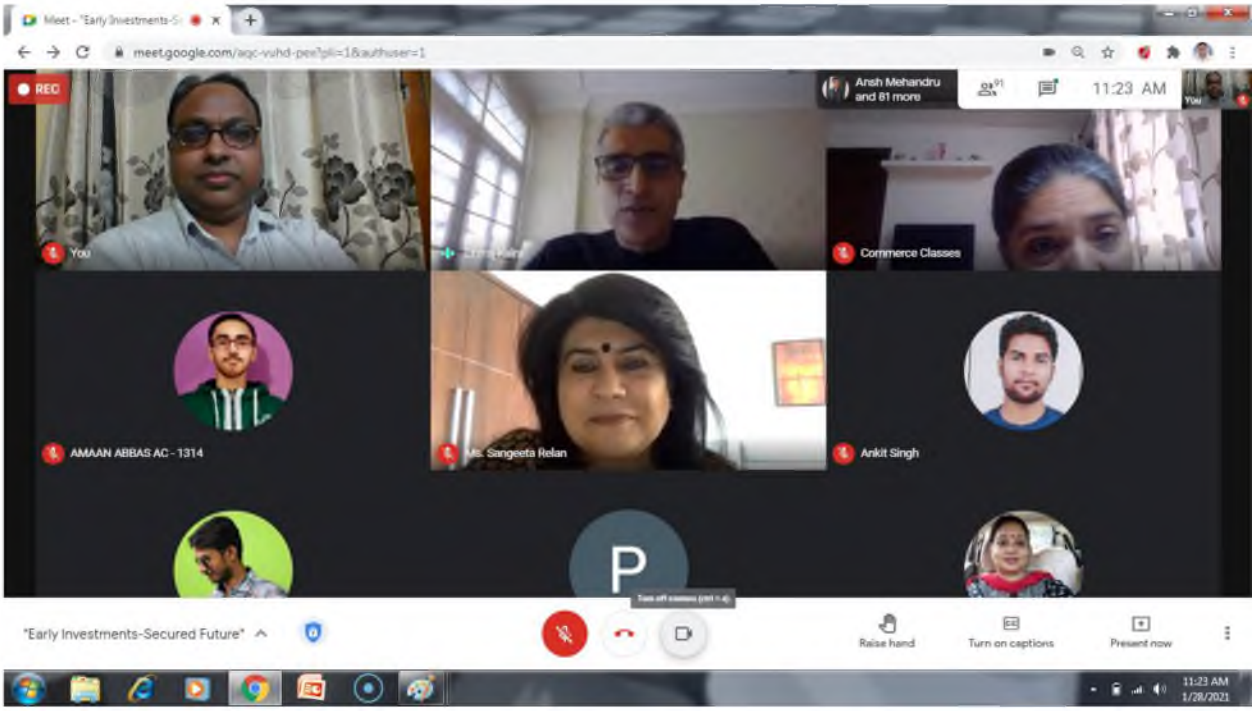
Report

In Conversation with our Alumni: Mr Dhiraj Kalra (Batch 1996)

The department of Commerce organised its first event and laid the foundation of the series "In Conversation with our Alumni on January 28. 2021. The first Guest in this series was Mr Dhiraj Kalra from the 1996 batch currently working as a Senior Director of Operations at Paisabazaar. He was invited to talk on a highly engaging topic "Early investment- Secured future". The event started with the introduction of newly elected council members of Bodhini through a very intriguing video. After this. Prof. Ravi Toteja, the Officiating Principal welcomed the Guest and graced the occasion with his kind words. Subsequently. Principal Sir, the honourable Guest and Chief editor Dr Surinder Kaur unveiled the newly made Brochure of the Commerce Department. Then the Convenor of the series. After this. Mr Dhiraj took charge and gave us his fruitful insights on the topic by sharing his own experiences and guiding us through his prepared presentation. He very precisely explained the importance of early investment for youngsters like college students Furthermore, there was a live Q/A session with our resource person who cleared the doubts of the participants. The guest was facilitated with the Digital memento as a token of appreciation to the guest. The moment was a bit nostalgic as it was a formal vote of thanks and a reunion of a teachers with the old student.

Photographs





Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Organised talk under the first series "In Conversation with our Alumni" on "Early Investment- Secured Future"

January 28, 2021

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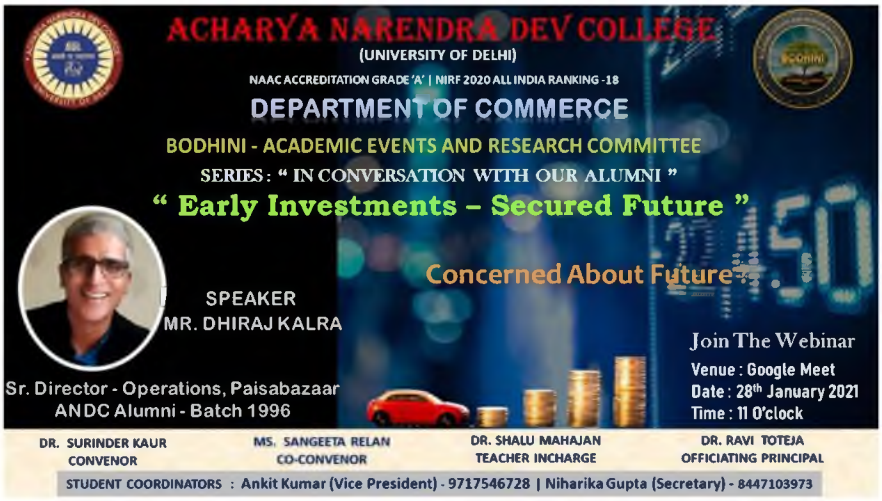

Title- Two week (online) Interdisciplinary FDP on "From Research to Publication" jointly organized by Department of Commerce, Acharya Narendra Dev College and Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi

Date- April 5-17, 2021

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor- Dr. Surinder Kaur

Co-convenor- Dr. Shalu Mahajan

Member- Dr. Jitender Goel

Member- CA Yask Sain

Report

Two-week long online Faculty Development Programme on "From Research to Publication" 5th April -17th April 2021

The two-week long online Faculty Development Programme on "From Research to Publication" from 5th April -17th April 2021 was organized by the Department of Commerce, Acharya Narendra Dev College. University of Delhi, in association with Hansraj College and the core team of Mahatma Hansraj Faculty Development Centre- Dr Jyoti Bhola, Mr Ashutosh Yadav, Mr Gaurav Bhatt and Mr Amit Chauhan under the aegis of Pandit Madan Mohan Malviya National Mission on Teachers and Teaching. Acharya Narendra Dev College FDP team comprised of Dr Surinder Kaur as its Convener and Dr Shalu Mahajan as coordinator and Dr Jitender Goel and CA Yask Sain from the Department of Commerce as its members, who ensured that the entire programme was carried out smoothly in an seamless manner.

The Inaugural Session was held on 5th April 2021 at 1:00 p.m. Dr Surinder Kaur, Convener of the FDP, welcomed the guests and the participants. The topic of the FDP was introduced and the significance and objectives of the programme were outlined. The session opened with the welcome address delivered by Prof. Ravi Toteja, Chief Patron of the FDP and Officiating principal of ANDC. Prof. Toteja spoke on the increasing relevance of research and publication in the wake of the new education policy (NEP). Prof. Syed Mohd. Anwar Alam. Guest of Honor and chairman of the Governing Body. ANDC also addressed the session and spoke on the relevance of research and publication in the life and career of an academician.

Prof. Suman Kundu. Director. University of Delhi South Campus presided over the inauguration session and delivered the keynote address in the session as well. He highly appreciated the list of topics such as research philosophy, types of research, research methods, analysis and interpretation of data, research paper structure, ethical issues in research and role of mentor included in the FDP and found these highly relevant in the journey of research to publication.

Over 120 participants from across the country attended the two-week programme. Every day there were two sessions of one-hour duration. 24 eminent speakers were invited to discuss a wide array of topics related to the Sampling criteria, Hypothesis Testing, R tool, Research methods, design and problems. How to construct Questionnaire and conduct interviews, Interpretation of data, Research paper Structure, Report Writing, Plagiarism Check and role of mentor.

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce
"Two week (online) Interdisciplinary FDP on "From Research to Publication" jointly organized by Department of Commerce, Acharya Narendra Dev College and Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi"
April 5-17, 2021

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2021-2022

Title - An Insight into Currency Derivatives

Date- September 11, 2021

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor(Bodhini)- Dr. Surinder Kaur

Convenor IQAC- Prof. Sarita Kumar

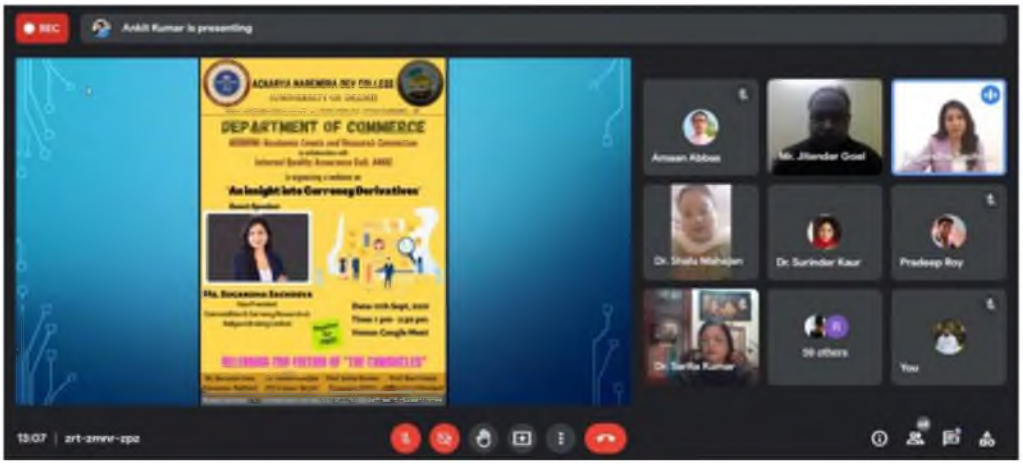
Student Coordinators- Mr. Tarush Bajra and Mr. Ayush Goyal

Report

"An Insight into Currency Derivatives" by Ms. Sugandha Sachdeva, the Vice President of Commodities and Currency Research at Religare Broking Limited

The Department of Commerce, in collaboration with Internal Quality Assurance Cell. AND organized a webinar on "An Insight into Currency Derivatives" on September 11. 2021. The resource person for the event was Ms. Sugandha Sachdeva, the Vice President of Commodities and Currency Research at Religare Broking Limited". The Webinar was extremely illuminating and educative. The speaker verbalised various pertinent topics like Future Contracts, International Finances, Stock Market, Derivatives Market and other relevant concepts. Furthermore, the speaker also presented several research reports. Certificate of participation was provided to all the attendees of the webinar. The esteemed guest speaker also released the second edition of the semi-annual Newsletter of the Department of Commerce "The Chronicles". It was more of an interactive session with the students. The students got an opportunity to clear their doubts and a platform to ask questions and share their ideas related to currency derivatives. The whole session was really captivating and absorbing.

Photographs


REC
Ankit Kumar is presenting
DEPARTMENT OF COMMERCE
Amaan Abbas
Mr. Jitender Goel
Dr. Shefa Mahajan
Dr. Surinder Kaur
Pradeep Roy
Dr. Sarika Kumar
You
13:07 | zrt-zmnr-zpz

REC
Ankit Kumar is presenting
The Chronicles
Dr. Sarika Kumar
Mr. Jitender Goel
Amaan Abbas
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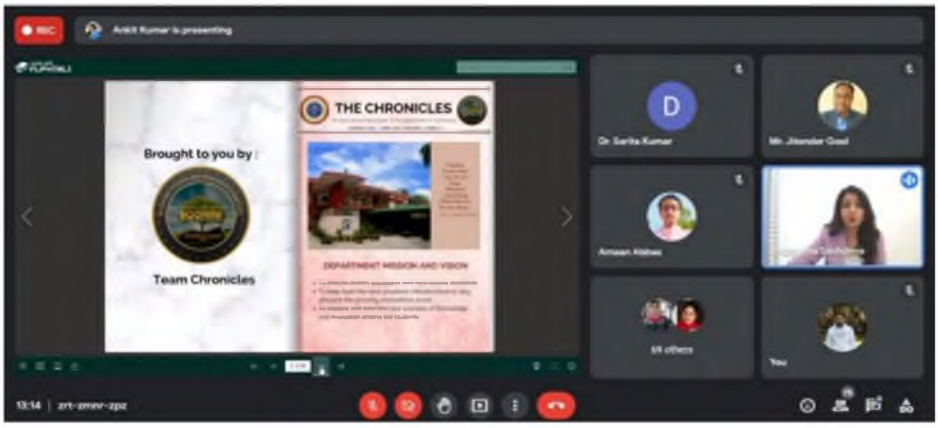
REC
Ankit Kumar is presenting
THE CHRONICLES
Brought to you by
Team Chronicles
Dr. Sarika Kumar
Mr. Jitender Goel
Amaan Abbas
You
13:14 | zrt-zmnr-zpz

Attendance Record

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UNIVERSITY OF DELHI
Department of Commerce
An Insight into Currency Derivatives
September 11, 2021

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Resource person Details – Ms. Sugandha Sachdeva, Vice President of Commodities and Currency Research at Religare Broking Limited (Contact Number-98910 20063)

Poster

Title- Career Opportunities in MNCs

Date- October 9, 2021

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor IQAC- Prof. Sarita Kumar

Convenor- career counselling & placement cell- Dr. Harita Ahuja

Student Coordinator Mr. Ved Vaibhav Deo

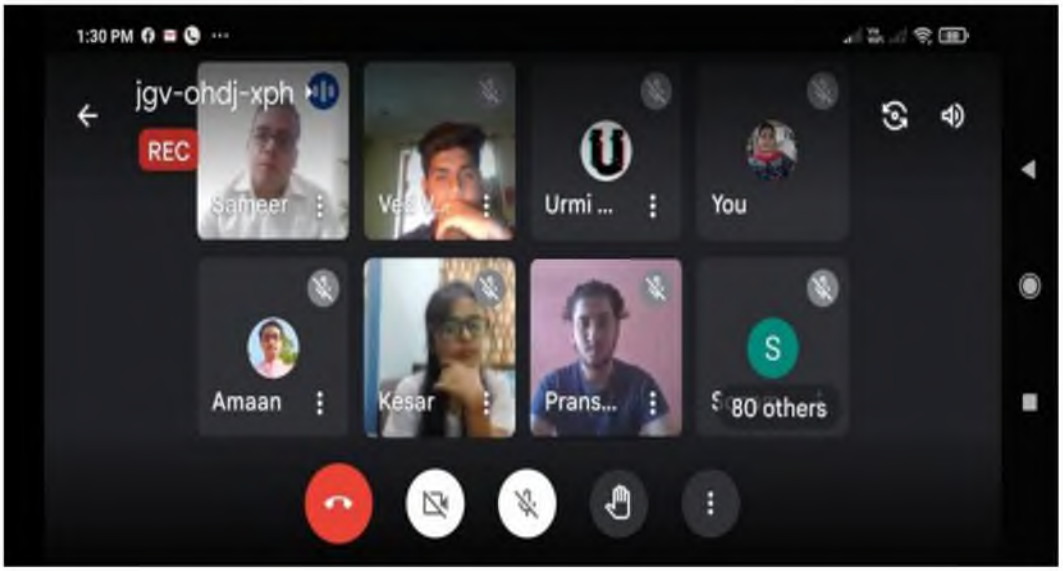
Report

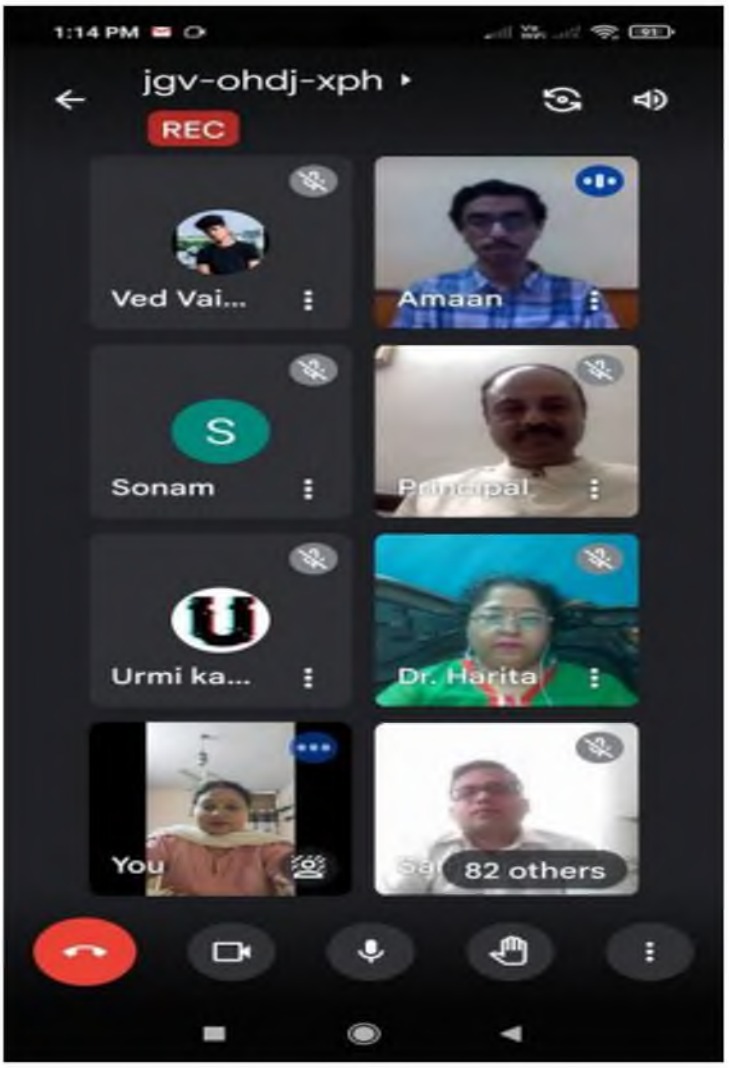
"Career Opportunities in MNCs" by CA Sameer Mahajan, Vice President at controller's Division, Goldman Sachs

An interactive session on Career Opportunities in MNC Banks was taken by Guest Speaker CA Sameer Mahajan who is Vice President at Controller's Division, Goldman Sachs. The webinar was conducted on 9th October 2021 at 1 PM on Google Meet platform. The webinar was conducted by Training Learning and Placement Cell of the Department of Commerce in collaboration with IQAC. Career counselling and Placement Cell of Acharya Narendra Dev College. The webinar was hosted by Amaan Abbas, the event commenced with unveiling the logo of Training Learning and Placement Cell and Mr Ravi Toteja, officiating principal of ANDC expressed his views on the occasion. Professor Sarita Kumar, convener of the internal quality assurance cell spoke a few words and appreciated the efforts of TLPC in the areas of participation and opportunities they are providing. Dr Harita Ahuja, Convener of Career Counselling and Placement cell of the college delivered a small speech on how the cell will help the commerce department students. CA Sameer Mahajan started the webinar and talked about MNC Banks and gave a good insight about the opportunities available there. He talked about operations, technology and accounting and taxation and opportunities for various professionals like Chartered Accountant, Company Secretary, lawyers and MBA's etc in these fields. At the end CA Sameer Mahajan answered the queries of the participants and the cell gave gratitude to him. There were more than eighty participants in the meet and many were

attending the webinar from YouTube live. Every participant felt enlightened by attending the webinar.

Photographs





Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Career Opportunities in MNCs

October 9, 2021

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Career Opportunities in MNC's, October 9, 2021

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Career Opportunities in MNCs, October 9, 2021

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94	B.Com. (Hons.)	RAHUL YADAV	19ANDCBCOH000066	Rahul Yadav
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103	B.Com. (Hons.)	KSHITIJ SRIVASTAVA	19ANDCBCOH000041	Kshitij
104	B.Com. (Hons.)	Kuldeep Singh Rawat	19ANDCBCOH000042	Kuldeep
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108	B.Com. (Hons.)	MANISH	19ANDCBCOH000047	Manish
109	B.Com. (Hons.)	MANISH BAINSLA	19ANDCBCOH000048	Manish
110	B.Com. (Hons.)	MANISHA	19ANDCBCOH000049	Manisha
111	B.Com. (Hons.)	MEENAKSHI	19ANDCBCOH000050	Meenakshi
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Resource person - CA Sameer Mahajan (Contact Number- 9886660407)

Poster

Title Workshop on "Ace Canva"

Date- February 04-06, 2022

Organizing Committee

Department of Commerce

Student Coordinators- Ms. Malika and Mr. Amandeep

Report

Ace Canva by Dr Surinder Kaur and Mr Ayush Goyal

Bodhini, the Commerce Society of Acharya Narendra Dev College organized various programs and events throughout the academic session 2021-22 with a motive to nourish students' knowledge and intellectual growth. The year 2022 commenced with a workshop series titled Ace the Skill Week to augment the students' performance in a particular skill. Under this program, the first skill considered was Canva, a design software built to create posters. presentations. videos. etc. It was a 3-day webinar held from 4th-6th February 2022 conducted by the joint secretary of Bodhini (2021-2022), Mr. Ayush Goyal. Students from various colleges registered and enthusiastically participated in the skill development course. The webinar covered the basics at the beginning and reached the advanced level in the fullness of the time. E-certificates were provided to all the participants as a token of encouragement. The team of Bodhini feels proud to organize such a successful event and would like to convey thanks to the principal and management for their timely advice and cooperation.

Attendance Record

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UNIVERSITY OF DELHI
Department of Commerce
"Workshop on Ace Canva"
April 6, 2022

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<u>Poster</u>

<u>Title -</u> Workshop on "Ace Excel"

Date- March 07-09, 2022

Organizing Committee

Department of Commerce

Student Coordinator- Ms. Anshika and Mr. Kartik

Report

"Ace Excel" by Dr Shalu Mahajan and Mr. Tarush Bajra

Bodhini AERC, the Commerce Society of Acharya Narendra Dev College organized an insightful and comprehensive offline workshop on MS Excel under the academic ambit of "Ace the Skill Week". Mr. Tarush Bajra, member of the Bodhini (2021-2022) core committees, led the three-day workshop that took place from 7th March 2022 to 9th March 2022 in the Seminar Hall. The workshop began with an explanation of the prerequisite understanding of Microsoft Excel and its significance in the modern corporate environment. The technical capabilities and operations of MS Excel were then explained, followed by a brief review of the overall concept before moving on to the advanced features and procedural elements of MS Excel. The doubts of the students were embraced cheerfully and attended to at the end of every session by the chair. Besides, the participants were conferred e-certificates as well. The workshop was flooded with a series of positive and appreciative feedback from the students and faculty members, turning it to be a massive success.

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
University of Delhi
Depaartment of Commerce

Workshop on " ACE EXCEL"

March 07, 2022

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Poster

Title - Alumni series on "career options after graduation"

Date- April 01, 2022

Organizing Committee

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Convenor -Dr. Surinder Kaur

Co-Convenor -Ms. Sangeeta Relan

Teacher in Charge- Dr. Shalu Mahajan

Student Coordinators- Mr. Ankit Kumar and Mr. Yash Lamba

Report

"Career Options after Graduation" by Mr. Nitin Deveshwar, founder of Mantec India Securicor Pvt. Ltd and alumni of the batch of 2001

Students of Acharya Narendra Dev College got an opportunity to attend an extensive and informative session of the series 'In Conversation with our Alumni' on Career options after Graduation on April 1, 2022. The speaker for the session was Mr. Nitin Deveshvar, founder of Mantec India Securicor Pvt. Ltd and alumni of the batch of 2001, Acharya Narendra Dev College. In this session, Mr. Nitin made the students aware of the wide range of employment opportunities available after graduation. He also talked about his life experiences and the road he took to build such a well-known business. In addition to it, he patiently resolved every query the students had. Thereafter, the semi-annual newsletter was unveiled by the respected speaker and he was given a memento and a copy of the newsletter. The event was a huge success because of the hard work of team Bodhini and the cooperation of everyone associated with it.

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

Alumni series on "career options after graduation"

April 1, 2022

S.No.	Course Name	Participant's Name	Enrollment_No / Roll No.	Signature
1	B.Com. (Hons.)	Anushruti Singh	19ANDCBCOH000011	
2	B.Com. (Hons.)	BHARAT	19ANDCBCOH000012	
3	B.Com. (Hons.)	BHARTI	19ANDCBCOH000013	
4	B.Com. (Hons.)	Bharti Saini	19ANDCBCOH000014	
5	B.Com. (Hons.)	BIBIN JOSEPH	19ANDCBCOH000015	Bibin
6	B.Com. (Hons.)	chandni	19ANDCBCOH000016	
7	B.Com. (Hons.)	Chirayu Mittal	19ANDCBCOH000017	
8	B.Com. (Hons.)	DEEPAK KUMAR	19ANDCBCOH000018	
9	B.Com. (Hons.)	deepak kushwaha	19ANDCBCOH000019	Deepak
10	B.Com. (Hons.)	Devender Kumar	19ANDCBCOH000020	
11	B.Com. (Hons.)	Niskarsh	19ANDCBCOH000056	Nishkarsh
12	B.Com. (Hons.)	NITIN NEGI	19ANDCBCOH000057	
13	B.Com. (Hons.)	Parth Narayan Singh	19ANDCBCOH000058	
14	B.Com. (Hons.)	Piyush Verma	19ANDCBCOH000059	
15	B.Com. (Hons.)	Pooja	19ANDCBCOH000060	
16	B.Com. (Hons.)	Pradeep Roy	19ANDCBCOH000061	
17	B.Com. (Hons.)	PRIYA ARORA	19ANDCBCOH000062	Priya
18	B.Com. (Hons.)	PRIYANSHU SETHI	19ANDCBCOH000063	
19	B.Com. (Hons.)	Sagar Mehra	20ANDCBCOH000082	
20	B.Com. (Hons.)	Sam Watts	20ANDCBCOH000083	Sam Watts
21	B.Com. (Hons.)	Sambhav Rastogi	20ANDCBCOH000084	
22	B.Com. (Hons.)	SHASHANK SHISHIR SINHA	20ANDCBCOH000085	Shashank
23	B.Com. (Hons.)	Shashwat Rai	20ANDCBCOH000086	
24	B.Com. (Hons.)	Shikcha Rathore	20ANDCBCOH000087	Shikcha
25	B.Com. (Hons.)	Shivam Bhardwaj	20ANDCBCOH000088	Shivam
26	B.Com. (Hons.)	Shivam Kumar	20ANDCBCOH000089	
27	B.Com. (Hons.)	Shriniwas Vinayak Deshmukh	20ANDCBCOH000090	Shriniwas
28	B.Com. (Hons.)	Shruti	20ANDCBCOH000091	
29	B.Com. (Hons.)	Naman Khanna	20ANDCBCOH000062	
30	B.Com. (Hons.)	NEHA	20ANDCBCOH000063	Neha
31	B.Com. (Hons.)	Nikita Lohia	20ANDCBCOH000064	
32	B.Com. (Hons.)	NISHANT MISHRA	20ANDCBCOH000065	Nishant
33	B.Com. (Hons.)	NISHANT SHARMA	20ANDCBCOH000066	
34	B.Com. (Hons.)	Nitin Kumar	20ANDCBCOH000067	
35	B.Com. (Hons.)	NITIN KUMAR AGGARWAL	20ANDCBCOH000068	Nitin
36	B.Com. (Hons.)	PHOOLWATI	20ANDCBCOH000069	Phoolwati
37	B.Com. (Hons.)	Pranshu Gupta	20ANDCBCOH000070	
38	B.Com. (Hons.)	Himanshi Agarwal	20ANDCBCOH000037	Himanshi
39	B.Com. (Hons.)	HITESH	20ANDCBCOH000038	Hitesh
40	B.Com. (Hons.)	Hitesh Dikshit	20ANDCBCOH000039	Hitesh

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Career options after graduation April 1, 2022

41	B.Com. (Hons.)	HRITIK KUMAR GAUTAM	20ANDCBCOH000040	Hritik
42	B.Com. (Hons.)	ISHIKA MISHRA	20ANDCBCOH000041	Ishika Mishra
43	B.Com. (Hons.)	JATIN PAL	20ANDCBCOH000042	Jatin
44	B.Com. (Hons.)	JAYANT WADHWA	20ANDCBCOH000043	
45	B.Com. (Hons.)	Juhi Mahavar	20ANDCBCOH000044	Juhi
46	B.Com. (Hons.)	KALPANA SHARMA	20ANDCBCOH000045	Kanak
47	B.Com. (Hons.)	kanak goel	20ANDCBCOH000046	Kanak goel
48	B.Com. (Hons.)	kanika	20ANDCBCOH000047	
49	B.Com. (Hons.)	Karan Bhar	20ANDCBCOH000048	Karan
50	B.Com. (Hons.)	KHUSHAL WALECHA	20ANDCBCOH000052	
51	B.Com. (Hons.)	Khushboo Sharma	20ANDCBCOH000053	Khushboo Sharma
52	B.Com. (Hons.)	KHUSHI RAINA	20ANDCBCOH000054	
53	B.Com. (Hons.)	KIRTI KUMARI	20ANDCBCOH000055	Kirti
54	B.Com. (Hons.)	KOUSHIKI MISHRA	20ANDCBCOH000056	Koushiki Mishra
55	B.Com. (Hons.)	Krish	20ANDCBCOH000057	
56	B.Com. (Hons.)	Kunal Bhatia	20ANDCBCOH000058	
57	B.Com. (Hons.)	SUSHILA YADAV	AD-1462	Sushila
58	B.Com. (Hons.)	TANISHKA RONAK	AD-1464	Tanishka
59	B.Com. (Hons.)	TUSHAR MITTAL	AD-1465	
60	B.Com. (Hons.)	UTHARA PRARATH	AD-1466	Uthara
61	B.Com. (Hons.)	UTTAM SRIVASTAVA	AD-1467	Uttam
62	B.Com. (Hons.)	VAIBHAV MARWAH	AD-1468	Vaibhav
63	B.Com. (Hons.)	VAIBHAV SEHGAL	AD-1469	Vaibhav
64	B.Com. (Hons.)	VANSH AGGARWAL	AD-1470	Vansh
65	B.Com. (Hons.)	SARTHAK GARG	AD-1439	Sarthak Garg
66	B.Com. (Hons.)	SATVIK GABA	AD-1440	Satvik
67	B.Com. (Hons.)	SHACHEE PRAKASH	AD-1441	Sachee
68	B.Com. (Hons.)	SHASHANK SINGH	AD-1442	Shashank Singh
69	B.Com. (Hons.)	SHASHI MAURYA	AD-1443	Shashi
70	B.Com. (Hons.)	SHAURYA GOYAL	AD-1444	Shaurya
71	B.Com. (Hons.)	SHIVAM KAPOOR	AD-1445	Shivam
72	B.Com. (Hons.)	SHIVAM SINGH	AD-1446	Shivam
73	B.Com. (Hons.)	SHIVANGI SHARMA	AD-1447	Shivangi
74	B.Com. (Hons.)	SHIWANI	AD-1448	Shiwani
75	B.Com. (Hons.)	PARTH TALWAR	AD-1410	
76	B.Com. (Hons.)	PAYAL	AD-1411	Payal
77	B.Com. (Hons.)	POOJA	AD-1412	Pooja
78	B.Com. (Hons.)	POONAM	AD-1413	Poonam
79	B.Com. (Hons.)	POONAM BEHERA	AD-1414	Poonam
80	B.Com. (Hons.)	PRACHI	AD-1415	Prachi
81	B.Com. (Hons.)	PRACHI BANSAL	AD-1416	Prachi
82	B.Com. (Hons.)	PRAGYA JHA	AD-1417	Pragya
83	B.Com. (Hons.)	PRATHAM KAUSHIK	AD-1418	Pratham
84	B.Com. (Hons.)	PRIYA JHA	AD-1419	Priya
85	B.Com. (Hons.)	PRIYANSHU BARJATIA	AD-1420	Priyanshu
86	B.Com. (Hons.)	PRIYANSHU GOEL	AD-1421	Priyanshu
87	B.Com. (Hons.)	RAHUL SAHNI	AD-1422	Rahul

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Career options after graduation April 1, 2022

88	B.Com. (Hons.)	RAKSHIT MITTAL	AD-1423	
89	B.Com. (Hons.)	KSHITIJ CHOUDHRY	AD-1376	
90	B.Com. (Hons.)	KULDEEP NISHAD	AD-1377	
91	B.Com. (Hons.)	KUNAL GURUB	AD-1378	
92	B.Com. (Hons.)	KUNAL KUMAR	AD-1379	
93	B.Com. (Hons.)	LAKSHYA SABHARWAL	AD-1380	
94	B.Com. (Hons.)	M D KAIF	AD-1381	
95	B.Com. (Hons.)	MAAHIR KOHLI	AD-1382	Madhur Kohli
96	B.Com. (Hons.)	MADHAV GOYAL	AD-1383	Madhav
97	B.Com. (Hons.)	MADHU KUMARI	AD-1384	
98	B.Com. (Hons.)	MADHURIMA BISHT	AD-1385	
99	B.Com. (Hons.)	KHUSHI	AD-1371	
100	B.Com. (Hons.)	KHUSHI KAPOOR	AD-1372	Khushi Kapoor
101	B.Com. (Hons.)	KOMAL	AD-1373	
102	B.Com. (Hons.)	KRISH AGARWAL	AD-1374	
103	B.Com. (Hons.)	KRITIN PANDEY	AD-1375	
104	B.Com. (Hons.)	KSHITIJ CHOUDHRY	AD-1376	Kshitij
105	B.Com. (Hons.)	KULDEEP NISHAD	AD-1377	
106	B.Com. (Hons.)	TANISHA GAKHER	AD-1463	
107	B.Com. (Hons.)	GEETA	AD-1356	
108	B.Com. (Hons.)	GORANSH BHARAL	AD-1357	
109	B.Com. (Hons.)	GUNGUN TYAGI	AD-1358	

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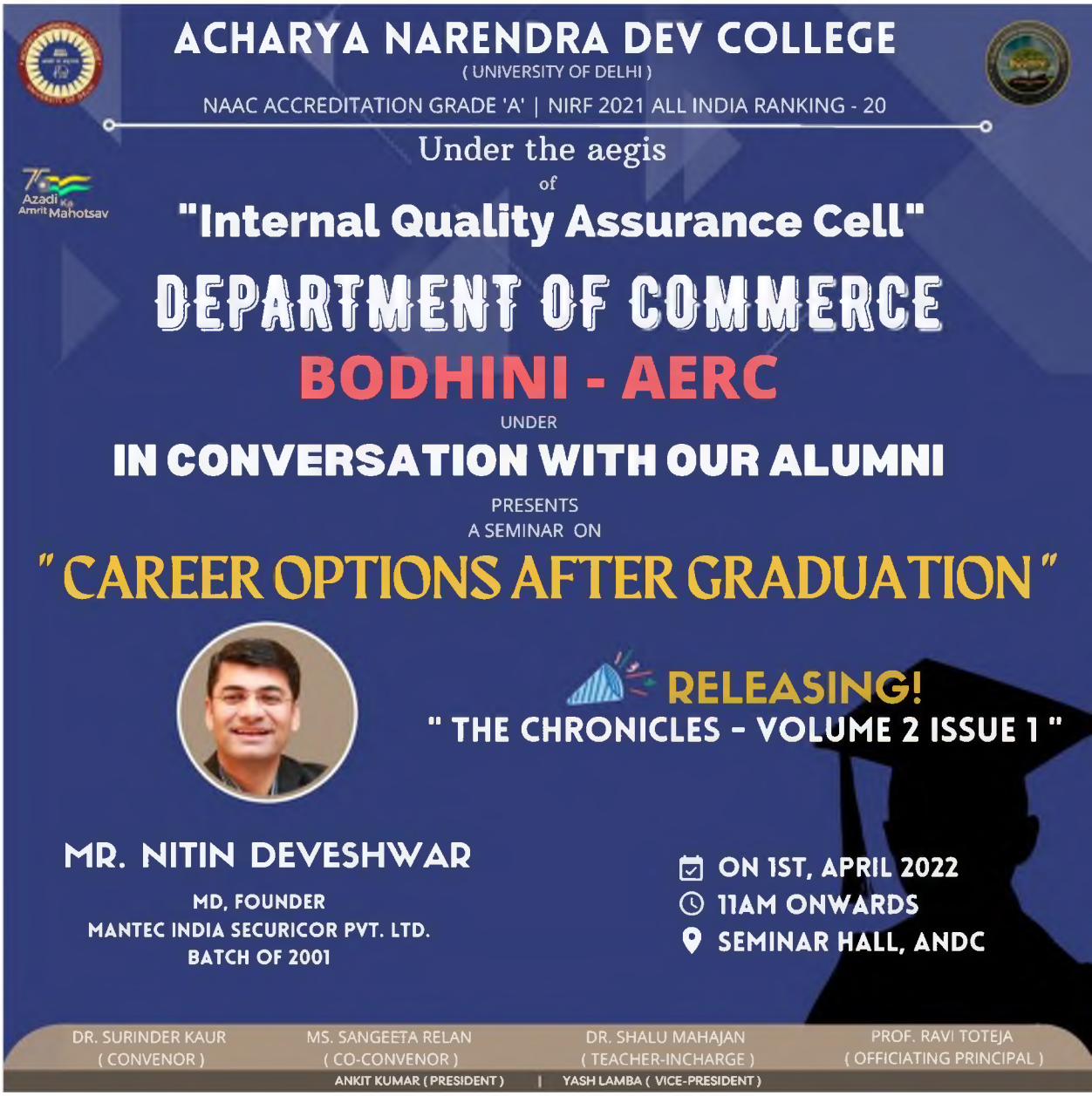
Resource person- Mr. Nitin Deveshwar MD, Founder Mantech India Securicor Prt Ltd (Contact Number-9810225238)

Poster



Title - Workshop on "Ace Google"

Date- April 06-08, 2022

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Teacher in Charge- Dr. Shalu Mahajan

Convenor, Bodhini - Dr. Surinder Kaur

Convenor IQAC – Prof. Sarita Kumar

Student Coordinators- Ms. Malika Khanna and Mr. Lakshya Sabharwal

Report

"Ace Google" by Dr. Jitender Goel and Mr Ankit Kumar

As a part of the 'ACE THE SKILL WEEK workshop series, Bodhini, The Commerce Society of Acharya Narendra Dev College organized a virtual workshop on google workspace on the 7th and 8th of April, 2022. The objective was to make the participants aware of the best tools for communication, collaboration, security and organization. The workshop commenced with inspiring words by our resource person, Dr. Jitender Goel and Mr Ankit Kumar, president of Bodhini The session equipped the students with the knowledge of essential software tools like Google Sheets, Google Docs. Google Forms, etc. The advantage of applying these tools in the real world was also made clear. The students were able to gain practical knowledge from the speaker's experience. Participants were also provided with e-certificates; it was truly an interactive insightful and enlightening session.

Photographs Not Available

Attendance Record

ACHARYA NARENDRA DEV COLLEGE
UNIVERSITY OF DELHI
Department of Commerce

"Workshop on Ace Google"

April 6, 2022

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45	Anshu	anshukumar7834816334@gmail.com

46	Aman Kalra	kalrapayal4@gmail.com
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90	Prachi dubey	Prachidubey296@gmail.com
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102	Harsh soni	soniharsh040302@gmail.com
103	Kalpana Sharma	Kalpusharma0014@gmail.com
104	Kanak Goel	kanakgoel18@gmail.com
105	Jayant Wadhwa	Jayantwadhwa2002@gmail.com

Resource persons

Dr. Jitender Goel, Assistant Professor ANDC, DU (Contact Number – 9899670930)

Mr Ankit Kumar (Contact Number – 9717546728)

Poster

Title - Workshop on "Application of Cost Accounting Standards in the Preparation of Cost Statement"

Date- April 20, 2022

Organizing Committee

Patron- Dr. Ravi Toteja (Officiating Principal)

Convenor -Dr. Sandeep Kumar Goel

Co-Convenor – Ms. Anuradha Sarin

Teacher in Charge- Dr. Shalu Mahajan

Convenor-IQAC- Dr. Sada Nand Prasad

Report

Application of Cost Accounting Standards" by Prof. Rajiv Kumar Goel, Delhi College of Arts and Commerce

The Department of Commerce in collaboration with the Internal Quality Assurance Cell ANDC, organized a workshop on "Application of Cost Accounting Standards in the preparation of cost statement" on 20th April 2022 to familiarize students with the preparation of cost sheets in accordance with Cost Accounting Standards. The resource person for the workshop was Prof. Rajiv Kumar Goel from Delhi College of Arts and Commerce, University of Delhi. In this workshop, Mr. Rajiv covered the relevance of Cost Accounting standards while preparing the cost sheet along with an explanation of the difference between financial statements and cost sheets. Further, he shared the format of a cost statement with the students and gave them some questions for practice. The students were also highly interactive during the entire session. The workshop ended with a vote of thanks.

Attendance Record

Acharya Narendra Dev College
University of Delhi
Department of Commerce
organises
Workshop on "Application of Cost Accounting Standards in the Preparation of Cost Statement"
April 20, 2022

S.No.	Course	Applicant Name	Roll No	Mobile	Signature
1	B.Com (Hons)	Aadya Agrawal	AC-1302	8193986319	Aadya
2	B.Com (Hons)	Aatif Khan	AC-1415	9162473249	Aatif
3	B.Com (Hons)	AAYUSHI CHACHRA	AC-1304	8864816181	Ayushi
4	B.Com (Hons)	Abdul Basit	AC-1306	8459442450	Abdul
5	B.Com (Hons)	AJEET SINGH RATHOR	AC-1309	9650170448	Ajeet Singh Rathor
6	B.Com (Hons)	Akshat Mishra	AC-1312	9319910283	Akshat
7	B.Com (Hons)	Akshat Sinha	AC-1313	8585905087	Akshat
8	B.Com (Hons)	ANSHUL	AC-1316	8506976747	Anshul
9	B.Com (Hons)	Archit Singhal	AC-1318	9873839222	Archit
10	B.Com (Hons)	Arjun Suresh	AC-1301	9953780200	Arjun Suresh
11	B.Com (Hons)	Aryan Garg	AC-1320	9812343922	Aryan
12	B.Com (Hons)	AYUSH KUMAR	AC-1409	9555046775	Ayush Kumar
13	B.Com (Hons)	CHAITANYA GOYAL	AC-1416	9871205202	Chaitanya
14	B.Com (Hons)	CHANCHAL	AC-1322	9205909198	Chanchal
15	B.Com (Hons)	CHHAVI GUPTA	AC-1324	9711168491	Chhavi Gupta
16	B.Com (Hons)	Dhaval Arora	AC-1327	8800710230	Dhaval
17	B.Com (Hons)	Harsh Verma	AC-1329	9811914616	Harsh
18	B.Com (Hons)	Harsh Kumar	AC-1417	7011879304	Harsh
19	B.Com (Hons)	HARSH SONI	AC-1331	8700096959	Harsh Soni
20	B.Com (Hons)	HARSHITA AGARWAL	AC-1333	7982112073	Harshita
21	B.Com (Hons)	Himanshi Agarwal	AC-1334	7206090485	Himanshi
22	B.Com (Hons)	HITESH	AC-1335	7419192122	Hitesh
23	B.Com (Hons)	Hitesh Dikshit	AC-1336	8295543905	Hitesh
24	B.Com (Hons)	HRITIK KUMAR GAUTAM	AC-1337	8745026645	Hritik
25	B.Com (Hons)	ISHIKA MISHRA	AC-1338	9667143566	Ishika
26	B.Com (Hons)	JATIN PAL	AC-1339	8868909233	Jatin Pal
27	B.Com (Hons)	JAYANT WADHWA	AC-1340	7535919937	Jayant
28	B.Com (Hons)	Juhi Mahavar	AC-1341	9818189665	Juhi Mahavar
29	B.Com (Hons)	KALPANA SHARMA	AC-1342	9773619605	Kalpana
30	B.Com (Hons)	kanika	AC-1344	8076509293	Kanika
31	B.Com (Hons)	KARAN JAIN	AC-1346	9968948591	Karan
32	B.Com (Hons)	KESHAV SAREEN	AC-1349	9971265152	Keshav Sareen
33	B.Com (Hons)	KHUSHAL WALECHA	AC-1350	8059538888	Khushal
34	B.Com (Hons)	KHUSHI RAINA	AC-1418	9627573657	Khushi Raina
35	B.Com (Hons)	KIRTI KUMARI	AC-1352	8130020338	Kirti Kumari
36	B.Com (Hons)	Krish	AC-1412	8826876431	Krish
37	B.Com (Hons)	Kunal Bhatia	AC-1354	8368450017	Kunal Bhatia
38	B.Com (Hons)	LAKSHAY SAGAR	AC-1356	9999858829	Lakshay

Cost Accounting Standards in the preparation of Cost Statement
April 20, 2022

39	B.Com (Hons)	LIVANSH CHUTANI	AC-1357	9050139077	Livansh
40	B.Com (Hons)	MANSI NEGI	AC-1360	8307691817	Mansi Negi
41	B.Com (Hons)	Naman Khanna	AC-1363	8979598236	Naman Khanna
42	B.Com (Hons)	NEHA	AC-1419	8860056686	Neha
43	B.Com (Hons)	Nikita Lohia	AC-1367	9267961399	Nikita Lohia
44	B.Com (Hons)	NISHANT MISHRA	AC-1368	9997012243	Nishant Mishra
45	B.Com (Hons)	NISHANT SHARMA	AC-1369	9560140377	[illegible]
46	B.Com (Hons)	Nitin Kumar	AC-1427	9458282541	[illegible]
47	B.Com (Hons)	PHOOLWATI	AC-1371	9953208448	Phoolwati
48	B.Com (Hons)	PRAPHUL	AC-1373	8929088297	Praphul
49	B.Com (Hons)	Prateek	AC-1420	8810633726	Prateek
50	B.Com (Hons)	Riya Bhasin	AC-1375	9871618373	Riya Bhasin
51	B.Com (Hons)	Rohit	AC-1376	8527936174	Rohit
52	B.Com (Hons)	Ronak Dugar	AC-1377	8368545620	Ronak Dugar
53	B.Com (Hons)	Rythm Verma	AC-1380	7906075481	[illegible]
54	B.Com (Hons)	Sachin Kumar	AC-1382	8130235746	Sachin Kumar
55	B.Com (Hons)	Shashwat Rai	AC-1428	6206211532	[illegible]
56	B.Com (Hons)	Shikcha Rathore	AC-1386	7455872206	Shikcha Rathore
57	B.Com (Hons)	Shriniwas Vinayak Deshmukh	AC-1388	7972341585	Shriniwas
58	B.Com (Hons)	TAKSHAK	AC-1392	9518627981	[illegible]
59	B.Com (Hons)	Tanishq Bahl	AC-1393	9136001141	Tanishq
60	B.Com (Hons)	Tripti jain	AC-1395	7404777987	Tripti Jain
61	B.Com (Hons)	Utkarsh Jain	AC-1425	9999669444	Utkarsh Jain
62	B.Com (Hons)	Vansh Gupta	AC-1398	9211667685	Vansh
63	B.Com (Hons)	Vanshika Goel	AC-1399	9810067972	Vanshika Goel
64	B.Com (Hons)	Vasu Dev	AC-1400	9868361761	Vasu
65	B.Com (Hons)	Ved Vaibhav Deo	AC-1401	9971004362	Ved Vaibhav
66	B.Com (Hons)	Versha	AC-1402	8168016318	Versha
67	B.Com (Hons)	YASH JAIN	AC-1404	9205095853	Yash Jain
68	B.Com (Hons)	Yash Lamba	AC-1405	8447445336	Yash Lamba
69	B.Com (Hons)	YASHENDRA SINGH KUSHWAHA	AC-1426	8707722475	Yashendra
70	B.Com (Hons)	Kush Kumar	AC-1355	8130801012	Kush Kumar
71	B.Com (Hons)	AASHISH	AB-1301	9899540815	Aashish
72	B.Com (Hons)	AAYUSH GOYAL	AB-1411	9990504041	Aayush Goyal
73	B.Com (Hons)	AMISHA AMBARDAR	AB-1305	9891620885	Amisha
74	B.Com (Hons)	Amit Kumar	AB-1415	7982380112	Amit Kumar
75	B.Com (Hons)	ANKIT KUMAR	AB-1307	9717546728	Ankit Kumar
76	B.Com (Hons)	Anushruti Singh	AB-1401	8969185346	Anushruti
77	B.Com (Hons)	BHARTI	AB-1312	8178351907	Bharti
78	B.Com (Hons)	Bharti Saini	AB-1313	9718483136	Bharti Saini
79	B.Com (Hons)	chandni	AB-1388	9717389786	Chandni
80	B.Com (Hons)	Chirayu Mittal	AB-1315	6398910079	Chirayu Mittal
81	B.Com (Hons)	DEEPAK KUMAR	AB-1316	8528019559	Deepak Kumar
82	B.Com (Hons)	deepak kushwaha	AB-1317	8700070824	Deepak
83	B.Com (Hons)	Devender Kumar	AB-1389	7678322005	Devender Kr.
84	B.Com (Hons)	DINESH KUMAR BASTIA	AB-1404	8744051755	Dinesh Kr Bastia
85	B.Com (Hons)	FAIZAN NEZAMI	AB-1420	8287474639	Faizan Nizami

Cost Accounting standards in the preparation of cost statement

April 20, 2022

86	B.Com (Hons)	GUNJAN	AB-1321	7291854406	
87	B.Com (Hons)	ISHA JAIN	AB-1426	9811969476	
88	B.Com (Hons)	Janavi Seth	AB-1330	9911212602	
89	B.Com (Hons)	KANCHAN TOMAR	AB-1334	8279879979	
90	B.Com (Hons)	Komal Bansal	AB-1429	9871432058	
91	B.Com (Hons)	KSHITIJ SRIVASTAVA	AB-1410	9968096365	
92	B.Com (Hons)	Love Kumar	AB-1431	8377860556	
93	B.Com (Hons)	Madhav Agarwal	AB-1343	9897426868	
94	B.Com (Hons)	MANISHA	AB-1344	9205531430	
95	B.Com (Hons)	Mohit Pandey	AB-1433	9711180065	
96	B.Com (Hons)	NEERAJ PATEL	AB-1399	7503454552	
97	B.Com (Hons)	Niskarsh	AB-1409	8448911780	
98	B.Com (Hons)	Piyush Verma	AB-1386	9582184028	
99	B.Com (Hons)	Pooja	AB-1350	8929714650	
100	B.Com (Hons)	AMISHA AMBARDAR	AB-1305	9891620885	
101	B.Com (Hons)	BHARTI	AB-1312	8178351907	
102	B.Com (Hons)	Devender Kumar	AB-1389	7678322005	
103	B.Com (Hons)	Akshat Mishra	AC-1312	9319910283	
104	B.Com (Hons)	Archit Singhal	AC-1318	9873839222	
105	B.Com (Hons)	AYUSH KUMAR	AC-1409	9555046775	
106	B.Com (Hons)	Dhaval Arora	AC-1327	8800710230	
107	B.Com (Hons)	Harsh Kumar	AC-1417	7011879304	
108	B.Com (Hons)	HARSHITA AGARWAL	AC-1333	7982112073	
109	B.Com (Hons)	Himanshi Agarwal	AC-1334	7206090485	

Resource person - Prof Rajeev Kumar Goel, Department of Commerce , Delhi College of Arts and Commerce, University of Delhi. (Contact Number-9810061130)

Poster

DEPARTMENT OF PHYSICS

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Physics

(under the aegis DBT STAR College scheme)

is privileged to host

Dr. Soumya Mitra

Senior Scientist II, Abbvie Bioresearch Center, Worcester, MA, USA

Former faculty at University of Rochester, Rochester, NY USA

The Department cordially invites all students and colleagues to an interactive session on

"Applications of Biomedical Imaging in Drug Discovery and Treatment Monitoring"

Date: 26 September 2017 (Tuesday)

Time: 1.30 p.m.

Venue: College Conference Centre

Event Photographs

Report

Dr. Soumya Mitra is a Senior Scientist – Grade II, Abbvie Bioresearch Center, Worcester, MA, USA and a former faculty member at University of Rochester, Rochester, NY, USA. He delivered a talk titled "Applications of Biomedical Imaging in Drug Discover and Treatment Monitoring". The talk mainly focused on how molecular imaging has advanced in recent years from providing just anatomical and physiological information to more functional information on disease targets and drug kinetics. This progress has been driven by integrated and innovative research in imaging, sensor technology, miniaturization techniques, chemistry and computer modeling amongst many other subjects. These new advances, particularly in the area of optical molecular imaging, have enabled translation of preclinical findings in cells and animal models to the clinic. Optical imaging is proving to be an attractive imaging modality for drug development as it allows transition of research from bench to bedside without carrying the radioactivity concerns associated with nuclear imaging modalities such as PET or SPECT. SPECT (Single Photon Emission Computed Tomography) is a diagnostic imaging technique used in nuclear medicine to detect and visualize functional abnormalities in organs and tissues. SPECT is particularly useful in imaging the brain, heart, bones, and other organs.

The need for SPECT arises from the limitations of other imaging techniques, such as X-rays, CT (Computed Tomography) scans, and MRI (Magnetic Resonance Imaging). While these techniques provide detailed images of the body's structures, they do not provide information about how organs and tissues function? SPECT is also useful for monitoring the effectiveness of treatments and therapies, as it can show changes in the distribution of the tracer over time. SPECT, on the other hand, can provide functional information by measuring the distribution of a radiopharmaceutical tracer in the body. The tracer emits gamma rays, which can be detected by a gamma camera to create images of the body's functions. These images can help diagnose a range of medical conditions, such as cardiovascular disease, brain disorders, and cancer.

In summary, the need for SPECT arises from the need to diagnose and monitor a range of medical conditions that cannot be diagnosed with other imaging techniques. SPECT provides functional information that can complement the structural information provided by other imaging techniques, leading to more accurate diagnoses and better treatment outcomes. Optical imaging is currently being used in the clinic for guided surgery as well as detection of cancerous tissue. The talk provided the audience a flavor of how advances in optical imaging are being used to drive better patient centric outcomes

Seminar on "Applications of Biomedical imaging in Drug Discovery and Treatment monitoring".

Date:- 26/9/17

Time:- 1:30 pm

Speaker:- Dr. Soumya Mitra.

	List of participants		
S. No.	Name	Roll No	Course
1	AAKANKSHA CHOUDHARY	YO-801	BSc (H) Physics 1st Year
2	PRASHANK BHARDWAJ	YO-930	BSc Physical Sc (Electronics) 1st Year
3	SOHIT	YO-843	BSc (H) Physics 1st Year
4	SABYASACHI PHUKAN	YO-836	BSc (H) Physics 1st Year
5	PIYUSH YADAV	YO-928	BSc Physical Sc (Electronics) 1st Year
6	SUMONA KUMAR	YO-949	BSc Physical Sc (Electronics) 1st Year
7	VIKAS KUMAR SAHNI	YO-850	BSc (H) Physics 1st Year
8	PRIYANSHU RANJAN SINGH	YO-931	BSc Physical Sc (Electronics) 1st Year
9	KOMAL PRAKASH	YO-921	BSc Physical Sc (Electronics) 1st Year
10	GAURAV KUMAR	YO-821	BSc (H) Physics 1st Year
11	VIMAL KUMAR PANDEY	YO-857	BSc (H) Physics 1st Year
12	UTTAM SINGH	YO-952	BSc Physical Sc (Electronics) 1st Year
13	DIVYA KATHURIA	YO-914	BSc Physical Sc (Electronics) 1st Year
14	AKSHITA JAIN	YO-809	BSc (H) Physics 1st Year
15	DEVESH KUMAR	YO-819	BSc (H) Physics 1st Year
16	RASHMI LAMBHA	YO-936	BSc Physical Sc (Electronics) 1st Year
17	MOHIT	YO-828	BSc (H) Physics 1st Year
18	SATYAM RASTOGI	YO-940	BSc Physical Sc (Electronics) 1st Year
19	SATYAM BANSAL	YO-839	BSc (H) Physics 1st Year
20	PRAKHAR YADAV	YO-929	BSc Physical Sc (Electronics) 1st Year
21	ANKIT LASPAL	YO-812	BSc (H) Physics 1st Year
22	ASHISH KUMAR YADAV	YO-911	BSc Physical Sc (Electronics) 1st Year
23	DEEPANSHU RATHAUR	YO-817	BSc (H) Physics 1st Year
24	KUSHAGRA TYAGI	YO-923	BSc Physical Sc (Electronics) 1st Year
25	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics 1st Year
26	MEHTAB MAJID	YO-827	BSc (H) Physics 1st Year
27	RAMSWARUP THALORE	YO-935	BSc Physical Sc (Electronics) 1st Year
28	ANJALI	YO-810	BSc (H) Physics 1st Year
29	MOHIT KUMAR	YO-829	BSc (H) Physics 1st Year
30	AMIT KUMAR	YO-909	BSc Physical Sc (Electronics) 1st Year
31	NARENDER SINGH	YO-853	BSc (H) Physics 1st Year
32	AAKASH SIROHI	YO-901	BSc Physical Sc (Electronics) 1st Year
33	GYANESH SINGH	YO-822	BSc (H) Physics 1st Year
34	DEV RAJPUT	YO-818	BSc (H) Physics 1st Year
35	KESHAV KUMAR	YO-920	BSc Physical Sc (Electronics) 1st Year
36	SANDEEP	YO-838	BSc (H) Physics 1st Year
37	MOHIT SHARMA	YO-924	BSc Physical Sc (Electronics) 1st Year
38	SAIM	YO-854	BSc (H) Physics 1st Year
39	DEVESH SHARMA	YO-913	BSc Physical Sc (Electronics) 1st Year
40	HIMANSHU	YO-916	BSc Physical Sc (Electronics) 1st Year
41	AKANSHA	YO-906	BSc Physical Sc (Electronics) 1st Year
42	SHIVAM TIWARI	YO-841	BSc (H) Physics 1st Year

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43	SHIVA GIRI	YO-942	BSc Physical Sc (Electronics) 1st Year
44	AASTHA	YO-802	BSc (H) Physics 1st Year
45	DIVYANSHI TYAGI	YO-820	BSc (H) Physics 1st Year
46	NEERAJ	YO-926	BSc Physical Sc (Electronics) 1st Year
47	KRISHNA SHARMA	YO-922	BSc Physical Sc (Electronics) 1st Year
48	RAJENDRA PRASAD	YO-832	BSc (H) Physics 1st Year
49	AKHILESH PANDAY	YO-807	BSc (H) Physics 1st Year
50	AFSHEEN ASHRAF	YO-905	BSc Physical Sc (Electronics) 1st Year
51	HIMANSHU KASHYAP	YO-823	BSc (H) Physics 1st Year
52	SUBHANSHI	YO-947	BSc Physical Sc (Electronics) 1st Year
53	ADITYA GHILDIYAL	YO-805	BSc (H) Physics 1st Year
54	JITENDER KUMAR	YO-918	BSc Physical Sc (Electronics) 1st Year
55	ROHIT KUMAR	YO-937	BSc Physical Sc (Electronics) 1st Year
56	SAURAV	YO-941	BSc Physical Sc (Electronics) 1st Year
57	ABHISHEK MANISH	YO-803	BSc (H) Physics 1st Year
58	ABHISHEK VERMA	YO-804	BSc (H) Physics 1st Year
59	VIKHYAT SHARMA	YO-852	BSc (H) Physics 1st Year
60	AKSHAY KUMAR	YO-808	BSc (H) Physics 1st Year
61	ABHISHEK AGARWAL	YO-902	BSc Physical Sc (Electronics) 1st Year
62	SACHIN UPRETI	YO-837	BSc (H) Physics 1st Year
63	HIMANSHU MANTRI	YO-825	BSc (H) Physics 1st Year
64	SHIVANI MEENA	YO-943	BSc Physical Sc (Electronics) 1st Year
65	ADITYA SUBRAMANIAM	YO-904	BSc Physical Sc (Electronics) 1st Year
66	SONIKA	YO-844	BSc (H) Physics 1st Year
67	VIKAS KUMAR SAHU	YO-851	BSc (H) Physics 1st Year
68	ARGHA SENGUPTA	YO-910	BSc Physical Sc (Electronics) 1st Year
69	MUSKAN DULET	YO-925	BSc Physical Sc (Electronics) 1st Year
70	ITISHA JAIN	YO-826	BSc (H) Physics 1st Year
71	YASVANT SINGH	YO-955	BSc Physical Sc (Electronics) 1st Year
72	AMIT KASANA	YO-958	BSc Physical Sc (Electronics) 1st Year

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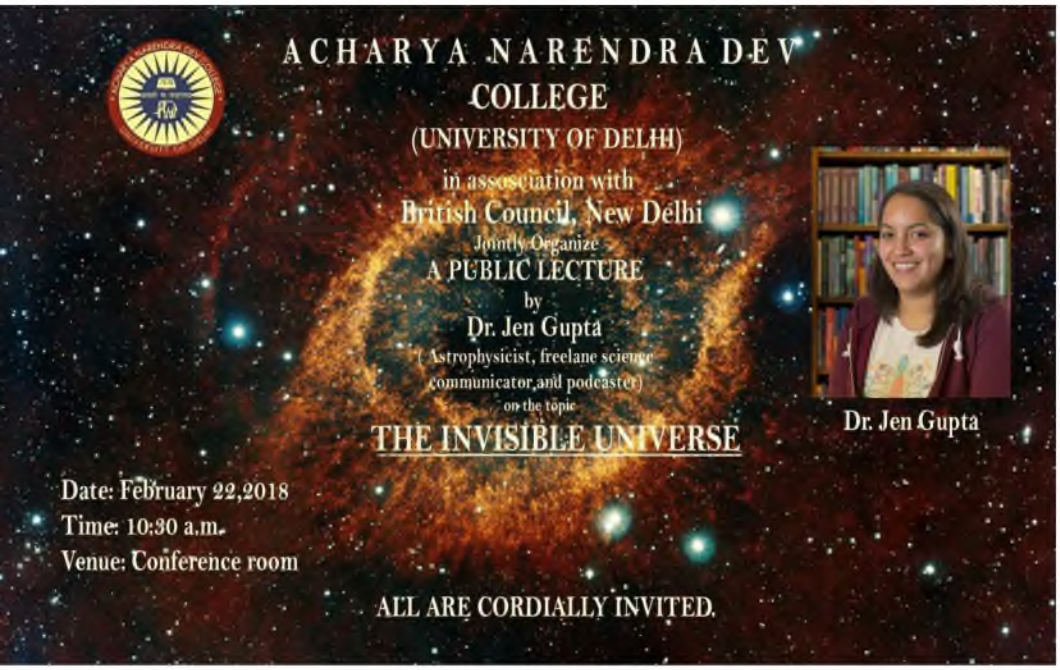

Report

The North-East Cell at ANDC:

The North-east cell at ANDC had a nascent beginning in the last academic year. However, the cell is already showing signs of maturity and the students of this cell have shown great organizational skills which were amply displayed in the current academic year. To begin with, the cell organized a grand welcome of the new entrants to the college on September 16, 2017. This was an occasion to know each other and breaking barriers. During this event a cultural programme too was organized wherein the students belonging to the North-East states of India displayed the unique and vibrant culture of these states. During this meet, the students also discussed the various activities to be organized throughout the year in the college. For smooth operation of the cell, it was decided to have an elected executive body of the cell. The cell unanimously elected a President, Secretary, Treasurer and three executive members to be their representatives.

The North-East Cell organized a football match in the college on the 26 th September 2017 between the teams from the NorthEast Cell and the rest of the college. It was an exciting match – won by the rest of the college team. This sporting activity was undertaken under the aegis of "Ek Bharat, Shrestha Bharat" scheme of the Govt. Taking forward the emphasis on the state of Assam in the "Ek Bharat, Shrestha Bharat" scheme of the Ministry of HRD, the North- East Cell of the college presented 'Bihu -the group dance' on the occasion of the Alumni meet of the college on February 18, 2018. This was highly appreciated by the Alumni and other audience present in the college. The North-East Cell went on to present a more complex version of the Assam's 'Bihu' dance in the competitive event of the Annual Fest of the College also, which too was highly appreciated.

Public Lecture by Dr. Jen Gupta:

The Department of Physics in Association with the British Council, New Delhi organized a public lecture by Dr Jen Gupta on February 22, 2018 in the conference Hall of the college. Dr Jen Gupta is an astrophysicist and a Science Communicator based in the Institute of Cosmology and Gravitation at the University of Portsmouth, UK where she is the SEPnet/Ogden Physics Outreach and Public Engagement Manager . Her talk titled "The Invisible Universe" was a part of the flagship programme- 'Great talks' of the British Council, New Delhi. Her talk delved into the enormousness of the Universe which can be explored by probing it by the probes other than the visible range viz., x-ray, UV and infrared. Her lecture, which was supplemented by beautiful images of the various astronomical objects, evoked great interest and curiosity among the students, which led to a very intense interaction between the speaker and the students.

Seminar on "The Invisible Universe"
Date:- 22/2/18 ; Time:- 10:30am Speaker: Dr. Ien Gupta

	List of participants		
S. No.	Name	Roll No	Course
1	AAKANKSHA CHOUDHARY	YO-801	BSc (H) Physics 2nd Year
2	JANAID IQBAL	XO-817	BSc (H) Physics 3rd Year
3	DIVYANSHI TYAGI	YO-820	BSc (H) Physics 2nd Year
4	SONIKA	YO-844	BSc (H) Physics 2nd Year
5	SHALINI	XO-832	BSc (H) Physics 3rd Year
6	SANKET VERMA	ZO-849	BSc (H) Physics 1st Year
7	RAVIKANT	XO-830	BSc (H) Physics 3rd Year
8	HIMANSHU KASHYAP	YO-823	BSc (H) Physics 2nd Year
9	SUBHASH CHANDRAVANSHI	ZO-858	BSc (H) Physics 1st Year
10	MEHTAB MAJID	YO-827	BSc (H) Physics 2nd Year
11	VIDIT VERMA	ZO-864	BSc (H) Physics 1st Year
12	AMAN KUMAR	ZO-810	BSc (H) Physics 1st Year
13	SIDDHARTHA SAXENA	XO-836	BSc (H) Physics 3rd Year
14	TUSHAR MISHRA	ZO-861	BSc (H) Physics 1st Year
15	VRINDA AGGARWAL	XO-846	BSc (H) Physics 3rd Year
16	ANKIT LASPAL	YO-812	BSc (H) Physics 2nd Year
17	Prashant Mishra	ZO-840	BSc (H) Physics 1st Year
18	NITIN JOSHI	ZO-838	BSc (H) Physics 1st Year
19	VIKAS KUMAR SAHU	YO-851	BSc (H) Physics 2nd Year
20	SIMRAN SIDHANTI	ZO-856	BSc (H) Physics 1st Year
21	SHILPA K	XO-833	BSc (H) Physics 3rd Year
22	HIMANSHU MANTRI	YO-825	BSc (H) Physics 2nd Year
23	SHIVAM TIWARI	YO-841	BSc (H) Physics 2nd Year
24	SHUBHAM GANGWAR	XO-835	BSc (H) Physics 3rd Year
25	ABHIJEET KUMAR TIWARI	ZO-802	BSc (H) Physics 1st Year
26	JITENDRA KUMAR	XO-818	BSc (H) Physics 3rd Year
27	SHALINI BISHT	ZO-850	BSc (H) Physics 1st Year
28	SACHIN UPRETI	YO-837	BSc (H) Physics 2nd Year
29	RAKESH KUMAR GAUTAM	XO-850	BSc (H) Physics 3rd Year
30	SHIVANG SHARMA	ZO-852	BSc (H) Physics 1st Year
31	AKHILESH PANDAY	YO-807	BSc (H) Physics 2nd Year
32	SHIVANK SHARMA	ZO-853	BSc (H) Physics 1st Year
33	KOMAL GUPTA	XO-821	BSc (H) Physics 3rd Year
34	VIMAL KUMAR PANDEY	YO-857	BSc (H) Physics 2nd Year
35	AKSHITA JAIN	YO-809	BSc (H) Physics 2nd Year
36	ANJALI	YO-810	BSc (H) Physics 2nd Year
37	KSHITIJ GAUTAM	ZO-831	BSc (H) Physics 1st Year
38	PRATYUSH	XO-849	BSc (H) Physics 3rd Year
39	SWATI BHATT	XO-838	BSc (H) Physics 3rd Year
40	SATYAM DUBEY	YO-840	BSc (H) Physics 2nd Year
41	VIKAS KUMAR SAHNI	YO-850	BSc (H) Physics 2nd Year
42	GYANESH SINGH	YO-822	BSc (H) Physics 2nd Year
43	SHIVRAT SACHDEVA	ZO-855	BSc (H) Physics 1st Year
44	DEVESH KUMAR	YO-819	BSc (H) Physics 2nd Year

Pawan Kumar

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45	NISHANT SAINI	ZO-835	BSc (H) Physics 1st Year
46	AASTHA	YO-802	BSc (H) Physics 2nd Year
47	PANKAJ ALMIA	XO-824	BSc (H) Physics 3rd Year
48	SAHIL KUMAR	ZO-848	BSc (H) Physics 1st Year
49	KM KIRAN	XO-820	BSc (H) Physics 3rd Year
50	VIKHYAT SHARMA	YO-852	BSc (H) Physics 2nd Year
51	MOHD SHOAIB MALIK	ZO-833	BSc (H) Physics 1st Year
52	TAPNESH MISHRA	XO-839	BSc (H) Physics 3rd Year
53	SAIM	YO-854	BSc (H) Physics 2nd Year
54	MOHAMMAD NAZIM	ZO-832	BSc (H) Physics 1st Year
55	ANSHUMAN	XO-847	BSc (H) Physics 3rd Year
56	SABYASACHI PHUKAN	YO-836	BSc (H) Physics 2nd Year
57	ITISHA JAIN	YO-826	BSc (H) Physics 2nd Year
58	SURESH SINGH DHAMI	ZO-859	BSc (H) Physics 1st Year
59	PREMSHANKAR JHA	XO-827	BSc (H) Physics 3rd Year
60	DEEPAK KUMAR	ZO-825	BSc (H) Physics 1st Year
61	AMAN TRIPATHI	XO-805	BSc (H) Physics 3rd Year
62	GAURAV ATTRISH	ZO-826	BSc (H) Physics 1st Year
63	MUSKAN MISHRA	XO-823	BSc (H) Physics 3rd Year
64	AKSHAY KUMAR	YO-808	BSc (H) Physics 2nd Year
65	PRAJWAL UPADHYAY	ZO-839	BSc (H) Physics 1st Year
66	ANUBHAV SINGH	XO-808	BSc (H) Physics 3rd Year
67	ANVIKSHA BHARDWAJ	XO-809	BSc (H) Physics 3rd Year
68	PRIYANSHI VERMA	XO-828	BSc (H) Physics 3rd Year
69	VEDAVYAS S A	ZO-863	BSc (H) Physics 1st Year
70	ALISHA BISWAL	ZO-809	BSc (H) Physics 1st Year
71	AMRIT DUTTA	ZO-812	BSc (H) Physics 1st Year
72	NIHARIKA PANT	ZO-834	BSc (H) Physics 1st Year
73	SHIPRA SUPRABHA	ZO-851	BSc (H) Physics 1st Year
74	ANKUR BADOLA	ZO-813	BSc (H) Physics 1st Year
75	MAYANK PANDEY	XO-822	BSc (H) Physics 3rd Year
76	NITESH GANGWAR	ZO-836	BSc (H) Physics 1st Year
77	SUSHIL KUMAR SINGH	XO-837	BSc (H) Physics 3rd Year
78	UTKARSH SHARMA	XO-840	BSc (H) Physics 3rd Year
79	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics 2nd Year
80	ANKIT KUMAR	ZO-874	BSc (H) Physics 1st Year
81	ANUDEEP A S	ZO-814	BSc (H) Physics 1st Year
82	SHIVAM SHARMA	XO-834	BSc (H) Physics 3rd Year
83	SIDDHARTH GANGWAR	XO-845	BSc (H) Physics 3rd Year
84	VAIBHAV GAUTAM	XO-841	BSc (H) Physics 3rd Year
85	SOHIT	YO-843	BSc (H) Physics 2nd Year
86	SHIVANSHU TRIPATHI	ZO-854	BSc (H) Physics 1st Year
87	AMAN SRIVASTAVA	XO-804	BSc (H) Physics 3rd Year

Hands – on workshop on

ARDUINO

Basic Programming & Applications

[under the aegis DBT STAR College scheme]

11 – 12 April 2018

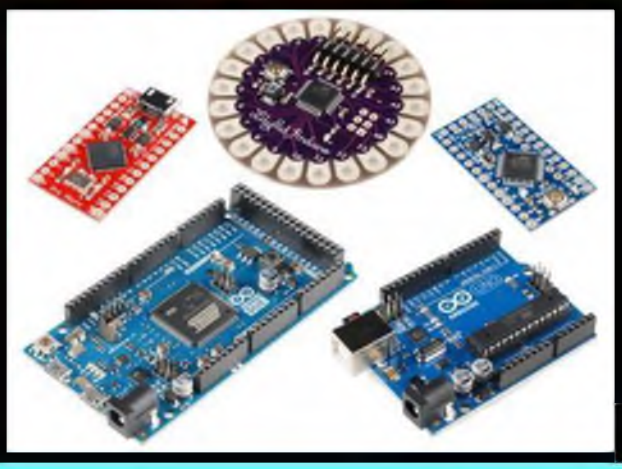
Onsite registration Fee – Rs. 350/-
Limited seats – 20 (first come first serve basis)
Lunch and tea will be provided
Workshop begins at 8:45 a.m.

Requisites

a) Bring your own laptop (Linux/Windows)
b) Active participation on both days
c) USB pen drive for softwares (> 1 GB)

Deliverables

a) Certificate of participation
b) Free software
c) Hands-on Arduino Uno
d) Hard-copy manual



Convener
Dr. Arijit Chowdhuri

Coordinator
Dr. V. Bhasker Raj

Student Coordinator
Jatinder Pal Singh
8745006080

Student Coordinator
Priya Chopra
9891277465

organized by - Department of Physics
Acharya Narendra Dev College, (University of Delhi)
Govindpuri, Kalkaji, New Delhi - 110 019

Report

Arduino is an open-source platform for building and programming electronic devices. It consists of a physical board with a microcontroller and a software development environment for creating and uploading code to the board. The board typically has a variety of inputs and outputs, including digital and analog pins, USB ports, and wireless communication capabilities, making it versatile and customizable for a wide range of applications.

Arduino was developed to make it easier for people to build and prototype electronic devices, even if they have little to no background in electronics or programming. Its open-source nature has also made it a popular tool for makers, students, and hobbyists, as well as professionals in various fields.

The Arduino software development environment includes a code editor, compiler, and libraries that make it easy to write, upload, and test code on the board. The code is written in a simplified version of C/C++ programming language, making it accessible to beginners and experienced programmers alike.

Some of the applications of Arduino include robotics, home automation, environmental monitoring, and wearable technology. Its low cost, ease of use, and open-source nature have made it a popular platform for innovation and experimentation, and it has sparked a growing community of developers and enthusiasts around the world.

Some of the many reasons why learning about Arduino, assumes importance include :

a) Creating electronic projects: Arduino allows you to create a wide variety of electronic projects, from simple LED displays to complex robotics projects. By learning Arduino, you can develop the skills to create your own electronic devices and bring your ideas to life.

b) Advancing your career: If you work in a field related to electronics or programming, learning Arduino can be a valuable skill that sets you apart from others in your industry. It can also help you develop the skills you need to take on more challenging projects and advance your career.

c) Building your knowledge of electronics and programming: Arduino is an excellent platform for learning about electronics and programming, as it provides a practical and hands-on approach to these topics. By learning Arduino, you can gain a deeper understanding of these subjects and apply your knowledge to other areas of your life and work.

Hands on workshop on ARDUINO, Basic Programming & Application
Date:- 11-12 April 2018 ; Time:- 8:45am onwards

List of participants

S. No.	Name	Roll No	Course
1	ANVIKSHA BHARDWAJ	XO-809	BSc (H) Physics 2nd year
2	DIVYANSHI TYAGI	YO-820	BSc (H) Physics 1st year
3	ROHIT KUMAR	XO-851	BSc (H) Physics 2nd year
4	RAKESH KUMAR GAUTAM	XO-850	BSc (H) Physics 2nd year
5	CHANDAN CHAUDHARY	XO-813	BSc (H) Physics 2nd year
6	DEV RAJPUT	YO-818	BSc (H) Physics 1st year
7	NICKY NELSON MURMU	YO-830	BSc (H) Physics 1st year
8	GYANESH SINGH	YO-822	BSc (H) Physics 1st year
9	AWNEESH KUMAR	YO-815	BSc (H) Physics 1st year
10	SATYAM BANSAL	YO-839	BSc (H) Physics 1st year
11	HIMANSHU MANTRI	YO-825	BSc (H) Physics 1st year
12	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics 1st year
13	SHALINI	XO-832	BSc (H) Physics 2nd year
14	PREMSHANKAR JHA	XO-827	BSc (H) Physics 2nd year
15	SATYAM DUBEY	YO-840	BSc (H) Physics 1st year
16	MUSKAN MISHRA	XO-823	BSc (H) Physics 2nd year
17	PRIYANSHI VERMA	XO-828	BSc (H) Physics 2nd year
18	MAYANK PANDEY	XO-822	BSc (H) Physics 2nd year
19	DEVESH KUMAR	YO-819	BSc (H) Physics 1st year
20	JANAID IQBAL	XO-817	BSc (H) Physics 2nd year
21	ARYAMAN GIR	XO-848	BSc (H) Physics 2nd year
22	PANKAJ ALMIA	XO-824	BSc (H) Physics 2nd year
23	GAURAV KUMAR	YO-821	BSc (H) Physics 1st year
24	MOHIT	YO-828	BSc (H) Physics 1st year
25	JITENDRA KUMAR	XO-818	BSc (H) Physics 2nd year
26	ITISHA JAIN	YO-826	BSc (H) Physics 1st year
27.	SHIVAM TIWARI	YO-841	BSc (H) Physics 1st year
28	SAIM	YO-854	BSc (H) Physics 1st year
29	RAJENDER KUMAR	YO-855	BSc (H) Physics 1st year
30	ASHISH KUMAR	XO-810	BSc (H) Physics 2nd year
31	NARENDER SINGH	YO-853	BSc (H) Physics 1st year
32	RAVINDER CHAUHAN	YO-835	BSc (H) Physics 1st year
33	DEEPANSHU RATHAUR	YO-817	BSc (H) Physics 1st year
34	RAJENDRA PRASAD	YO-832	BSc (H) Physics 1st year
35	MEHTAB MAJID	YO-827	BSc (H) Physics 1st year
36	DILKUSH YADAV	XO-815	BSc (H) Physics 2nd year
37	SABYASACHI PHUKAN	YO-836	BSc (H) Physics 1st year
38	PRATYUSH	XO-849	BSc (H) Physics 2nd year
39	SACHIN UPRETI	YO-837	BSc (H) Physics 1st year
40	KOMAL GUPTA	XO-821	BSc (H) Physics 2nd year
41	KM KIRAN	XO-820	BSc (H) Physics 2nd year
42	RAKESH KUMAR	YO-833	BSc (H) Physics 1st year
43	CHAITANYA GUPTA	YO-816	BSc (H) Physics 1st year
44	RAVIKANT	XO-830	BSc (H) Physics 2nd year
45	MOHIT KUMAR	YO-829	BSc (H) Physics 1st year
46	CHAITANYA RAJ	XO-812	BSc (H) Physics 2nd year
47	HIMANSHU KASHYAP	YO-823	BSc (H) Physics 1st year

1/2

48	SANDEEP	YO-838	BSc (H) Physics 1st year
49	HITESHWAR PARSAD	XO-816	BSc (H) Physics 2nd year
50	SANGEETA	XO-831	BSc (H) Physics 2nd year

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(University of Delhi)
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Department of Physics

(under the aegis of DBT STAR College scheme)

in collaboration with

Joy of Learning Foundation, Delhi

cordially invites students and colleagues to an interactive session on

'Paradigm shift in Physics Education through hands-on techniques in Optics'

Date: 05 & 07 September 2018 (Wednesday & Friday)
Time: 10.00 a.m.
Venue: Seminar Hall (new block)

Patron: Dr. Savithri Singh
Convener: Dr. Arijit Chowdhuri
Coordinators: Dr. Manisha Verma and Dr. Sanjeeta Rani

Event Photographs

Report

The Hands-on workshop involved clearing the concept of Total Internal Reflection (TIR). It is a phenomenon that occurs when light travels from a medium with a higher refractive index to a medium with a lower refractive index, and the angle of incidence is greater than the critical angle. In this case, the light is completely reflected back into the medium with the higher refractive index, rather than being transmitted into the medium with the lower refractive index. The critical angle is the angle of incidence at which the refracted angle becomes 90 degrees. If the angle of incidence is greater than the critical angle, the light is completely reflected back into the medium with the higher refractive index. This phenomenon is useful in a variety of applications, including optical fibers, prisms, and binoculars. One of the most common applications of total internal reflection is in optical fibers. Optical fibers are long, thin strands of glass or plastic that are used to transmit light over long distances. The fiber consists of a core, which has a higher refractive index than the surrounding cladding, and a protective outer coating. When light is introduced into the fiber at one end, it is transmitted through the core by total internal reflection. The light reflects off the boundary between the core and the cladding, which prevents it from escaping the fiber. The light can be transmitted over long distances with little or no loss of signal, making optical fibers ideal for use in telecommunications, medical equipment, and other applications where high-speed, low-loss transmission is critical. Prisms are another example of how total internal reflection can be used. A prism is a piece of glass or other transparent material with flat, polished surfaces that refract and reflect light. When light enters a prism at an angle greater than the critical angle, it is reflected back into the prism and undergoes multiple reflections before exiting at a different angle. This allows prisms to be used to split light into its component colors, as well as for other optical applications. In conclusion, total internal reflection is a useful phenomenon that occurs when light travels from a medium with a higher refractive index to a medium with a lower refractive index at an angle greater than the critical angle. This phenomenon is used in a wide range of applications, including optical fibers, prisms, and binoculars, and plays a critical role in modern technology and communication.

In the workshop TIR was investigated using pen LASERs. LASER stands for "Light Amplification by Stimulated Emission of Radiation." It is a device that emits a beam of light through a process of optical amplification based on the stimulated emission of photons. LASERs produce a coherent and monochromatic beam of light that can be focused into a narrow beam and used for a variety of applications, including cutting and welding, medical procedures, and communication technologies. The properties of LASERs, such as their high intensity and directional beam, make them a powerful tool in many fields of science and technology, and they continue to be an important area of research and development today.

Workshop on "Paradigm shift in Physics Education through hands on Techniques in optics" ; Date:- 5 & 7 Sept 2018 ; Time - 10 am onwards

	List of participants		
S. No.	Name	Roll No	Course
1	UTTAM SINGH	YO-952	BSc Prog 2nd year
2	ABHIJEET KUMAR TIWARI	ZO-802	BSc (H) Physics 1st year
3	VAIBHAV PANWAR	XO-947	BSc Prog 3rd year
4	ANKUR SHIVHARE	YO-813	BSc (H) Physics IInd year
5	SUMIT KARAN DEV	YO-948	BSc Prog 2nd year
6	AKANSHA	YO-906	BSc Prog 2nd year
7	ARCHIT SINGH	ZO-912	BSc Prog 1st year
8	AKSHAY PRATAP SINGH	ZO-904	BSc Prog 1st year
9	AMAN MISHRA	ZO-907	BSc Prog 1st year
10	TWINKLE NAGPAL	XO-944	BSc Prog 3rd year
11	AKASH BHATIA	XO-801	BSc (H) Physics IIIrd year
12	VAISHALI VASHISHTHA	ZO-940	BSc Prog 1st year
13	SHARYAURAI RIANG	ZO-935	BSc Prog 1st year
14	ASHISH KUMAR	XO-810	BSc (H) Physics IIIrd year
15	NARENDER SINGH	YO-853	BSc (H) Physics IInd year
16	SHIVRAT SACHDEVA	ZO-855	BSc (H) Physics 1st year
17	MANPREET YADAV	ZO-926	BSc Prog 1st year
18	KESHANT LOMAS	ZO-922	BSc Prog 1st year
19	ANUDEEP A S	ZO-814	BSc (H) Physics 1st year
20	SWATI BHATT	XO-838	BSc (H) Physics IIIrd year
21	ARVIND KUMAR SHARMA	XO-912	BSc Prog 3rd year
22	AKASH GUPTA	XO-802	BSc (H) Physics IIIrd year
23	NIHARIKA PANT	ZO-834	BSc (H) Physics 1st year
24	SIMRAN	ZO-939	BSc Prog 1st year
25	YUKTA KANDPAL	ZO-873	BSc (H) Physics 1st year
26	KOMAL GUPTA	XO-821	BSc (H) Physics IIIrd year
27	VAIBHAV SHARMA	YO-856	BSc (H) Physics IInd year
28	JITENDER KUMAR	YO-918	BSc Prog 2nd year
29	DHEERAJ KUMAR	YO-858	BSc (H) Physics IInd year
30	PRADEEP MANJHU	ZO-930	BSc Prog 1st year
31	ABHISHEK MANISH	YO-803	BSc (H) Physics IInd year
32	VRINDA AGGARWAL	XO-846	BSc (H) Physics IIIrd year
33	SUMONA KUMAR	YO-949	BSc Prog 2nd year
34	SAHIL KUMAR	ZO-848	BSc (H) Physics 1st year
35	ANIKET GUPTA	ZO-909	BSc Prog 1st year
36	VIKHYAT SHARMA	YO-852	BSc (H) Physics IInd year
37	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics IInd year
38	MUSKAN DULET	YO-925	BSc Prog 2nd year
39	PRAVEEN KUMAR	XO-930	BSc Prog 3rd year
40	DIKSHA	XO-916	BSc Prog 3rd year
41	LAKSHAY CHOUDHARY	XO-923	BSc Prog 3rd year
42	ABHINAV KUMAR THAKUR	XO-901	BSc Prog 3rd year
43	JANAID IQBAL	XO-817	BSc (H) Physics IIIrd year
44	ASHUTOSH DUBEY	XO-959	BSc Prog 3rd year
45	YACVANT SINGH	YO-955	BSc Prog 2nd year
46	DEVESH KUMAR	YO-819	BSc (H) Physics IInd year
47	SAKSHI	ZO-934	BSc Prog 1st year

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48	KUMARI SHIVANI	XO-954	BSc Prog 3rd year
49	RAJENDER KUMAR	YO-855	BSc (H) Physics IInd year
50	AKASH KUMAR	YO-907	BSc Prog 2nd year
51	ATUL	XO-957	BSc Prog 3rd year
52	NITESH GANGWAR	ZO-836	BSc (H) Physics 1st year
53	DEVESH SHARMA	YO-913	BSc Prog 2nd year
54	VINEET KUMAR SINGH	ZO-944	BSc Prog 1st year
55	SATYAM RASTOGI	YO-940	BSc Prog 2nd year
56	SHIVANK SHARMA	ZO-853	BSc (H) Physics 1st year
57	DIVYA KATHURIA	YO-914	BSc Prog 2nd year
58	JATIN UPRETI	ZO-919	BSc Prog 1st year
59	SURESH SINGH DHAMI	ZO-859	BSc (H) Physics 1st year
60	TARUN MEENA	YO-848	BSc (H) Physics IInd year
61	UMAN DANGI	YO-950	BSc Prog 2nd year
62	VAIBHAV GAUTAM	XO-841	BSc (H) Physics IIIrd year
63	SHUBHAM	ZO-938	BSc Prog 1st year
64	JAGMOHAN	XO-921	BSc Prog 3rd year
65	PRAKHAR YADAV	YO-929	BSc Prog 2nd year
66	ANJALI	YO-810	BSc (H) Physics IInd year
67	ABHISHEK MANDAL	ZO-804	BSc (H) Physics 1st year
68	PRIYANSHU RANJAN SINGH	YO-931	BSc Prog 2nd year
69	CHAITANYA RAJ	XO-812	BSc (H) Physics IIIrd year
70	YOGESH KUMAR SHUKLA	XO-842	BSc (H) Physics IIIrd year
71	SHILPA K	XO-833	BSc (H) Physics IIIrd year
72	YASVANT SINGH	YO-955	BSc Prog 2nd year
73	AMIT KUMAR	YO-909	BSc Prog 2nd year
74	TUSHAR MISHRA	ZO-861	BSc (H) Physics 1st year
75	VINOD JAKHAR	ZO-867	BSc (H) Physics 1st year
76	CHANDERDEEP	ZO-823	BSc (H) Physics 1st year
77	DOLLY VERMA	XO-918	BSc Prog 3rd year
78	DHEERAJ KUMAR	ZO-949	BSc Prog 1st year
79	VIVEK KUMAR	ZO-869	BSc (H) Physics 1st year
80	JATIN SAGAR	ZO-948	BSc Prog 1st year
81	BRIJNANDAN KUMAR RAY	ZO-822	BSc (H) Physics 1st year
82	VIPUL KUMAR	ZO-945	BSc Prog 1st year
83	RAJEEV SHARAN PANDEY	YO-933	BSc Prog 2nd year
84	ANKUSH CHAUHAN	XO-910	BSc Prog 3rd year
85	UTTAM SINGH	YO-952-	BSc Prog 2nd year
86	HITESHWAR PARSHAD	XO-816	BSc (H) Physics IIIrd year
87	SOHIT	YO-843	BSc (H) Physics IInd year
88	RASHMI LAMBHA	YO-936	BSc Prog 2nd year
89	ADARSH PRASAD	XO-903	BSc Prog 3rd year
90	Gaurav KUMAR Gautam	ZO-916	BSc Prog 1st year
91	Prashant Mishra	ZO-840	BSc (H) Physics 1st year
92	KARTIK KAY	ZO-920	BSc Prog 1st year
93	CHANDAN CHAUDHARY	XO-813	BSc (H) Physics IIIrd year
94	KESHAV KUMAR	YO-920	BSc Prog 2nd year
95	PANKAJ ALMIA	XO-824	BSc (H) Physics IIIrd year
96	VIREN TYAGI	ZO-868	BSc (H) Physics 1st year
97	AKSHAY KUMAR	YO-808	BSc (H) Physics IInd year

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98	AJAY KUMAR	ZO-901	BSc Prog 1st year
99	VIKASH TOMAR	ZO-865	BSc (H) Physics 1st year
100	DEBOJYATI KONER	ZO-824	BSc (H) Physics 1st year
101	KRISHNA SHARMA	YO-922	BSc Prog 2nd year
102	MEHTAB MAJID	YO-827	BSc (H) Physics IInd year
103	SUBHANSHI	YO-947	BSc Prog 2nd year
104	DEEPANSHU RATHAUR	YO-817	BSc (H) Physics IInd year
105	SIMRAN SIDHANTI	ZO-856	BSc (H) Physics 1st year
106	ANUBHAV SINGH	XO-808	BSc (H) Physics IIIrd year
107	SHUBHAM VERMA	XO-939	BSc Prog 3rd year
108	AKHILESH KUMAR	ZO-807	BSc (H) Physics 1st year
109	SHIVANSHU FULORIA	YO-944	BSc Prog 2nd year
110	NITIN JOSHI	ZO-838	BSc (H) Physics 1st year
111	SANKET VERMA	ZO-849	BSc (H) Physics 1st year
112	ALISHA BISWAL	ZO-809	BSc (H) Physics 1st year
113	ROHIT KUMAR	XO-851	BSc (H) Physics IIIrd year
114	NIKHIL SINGH	YO-927	BSc Prog 2nd year
115	MAYANK PANDEY	XO-822	BSc (H) Physics IIIrd year
116	KSHITIJ GAUTAM	ZO-831	BSc (H) Physics 1st year
117	HIMANSHU MANTRI	YO-825	BSc (H) Physics IInd year
118	SHREYANSH	XO-936	BSc Prog 3rd year
119	SIDDHARTH	XO-844	BSc (H) Physics IIIrd year
120	ARNAV KHOKHAR	ZO-913	BSc Prog 1st year
121	AMIT KASANA	YO-958	BSc Prog 2nd year
122	ARYAMAN GIR	XO-848	BSc (H) Physics IIIrd year
123	PIYUSH YADAV	YO-928	BSc Prog 2nd year
124	SAIM	YO-854	BSc (H) Physics IInd year
125	ANVIKSHA BHARDWAJ	XO-809	BSc (H) Physics IIIrd year
126	SANGEETA	XO-831	BSc (H) Physics IIIrd year
127	SUBHASH CHANDRAVANSHI	ZO-858	BSc (H) Physics 1st year
128	DEEPAK KUMAR	ZO-825	BSc (H) Physics 1st year
129	GOURAV GUPTA	ZO-917	BSc Prog 1st year
130	PRIYANKA	XO-952	BSc Prog 3rd year
131	ANURAG YADAV	XO-911	BSc Prog 3rd year
132	ASHISH YADAV	ZO-914	BSc Prog 1st year
133	SABYASACHI PHUKAN	YO-836	BSc (H) Physics IInd year
134	MOHD SHOAIB MALIK	ZO-833	BSc (H) Physics 1st year
135	AASTHA	YO-802	BSc (H) Physics IInd year
136	YUVRAJ SEHGAL	ZO-947	BSc Prog 1st year
137	PRIYANSHI VERMA	XO-828	BSc (H) Physics IIIrd year
138	AKASH BABU	ZO-805	BSc (H) Physics 1st year
139	SHAZIA TABASSUM	ZO-936	BSc Prog 1st year
140	ABHINAV TYAGI	ZO-803	BSc (H) Physics 1st year
141	VISHAL KUMAR	ZO-946	BSc Prog 1st year
142	ASHISH KUMAR	ZO-818	BSc (H) Physics 1st year
143	TAPNESH MISHRA	XO-839	BSc (H) Physics IIIrd year
144	MUSKAN MISHRA	XO-823	BSc (H) Physics IIIrd year
145	SHUBHAM GANGWAR	XO-835	BSc (H) Physics IIIrd year
146	AFSHEEN ASHRAF	YO-905	BSc Prog 2nd year
147	ANKIT LASPAL	YO-812	BSc (H) Physics IInd year

3/4

148	HARISH MAHLAWAT	XO-956	BSc Prog 3rd year
149	KAPIL POSWAL	XO-922	BSc Prog 3rd year
150	PRASHANK BHARDWAJ	YO-930	BSc Prog 2nd year

ACHARYA NARENDRA DEV COLLEGE

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is privileged to host

Prof. Hark Hoe Tan

Professor at Research School of Physics and Engineering,
at Australian National University, AUSTRALIA

The Department cordially invites all students and Colleagues to an interactive session on

"Nanotechnology – applications in Optoelectronics and Renewable Energy"

Date: 31 January 2019 (Thursday)

Time: 10.45 a.m.

Venue: Laboratory 3, Department of Physics

GPS Map Camera
New Delhi, Delhi, India
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New Delhi, Delhi 110019, India
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Long 77.26386°
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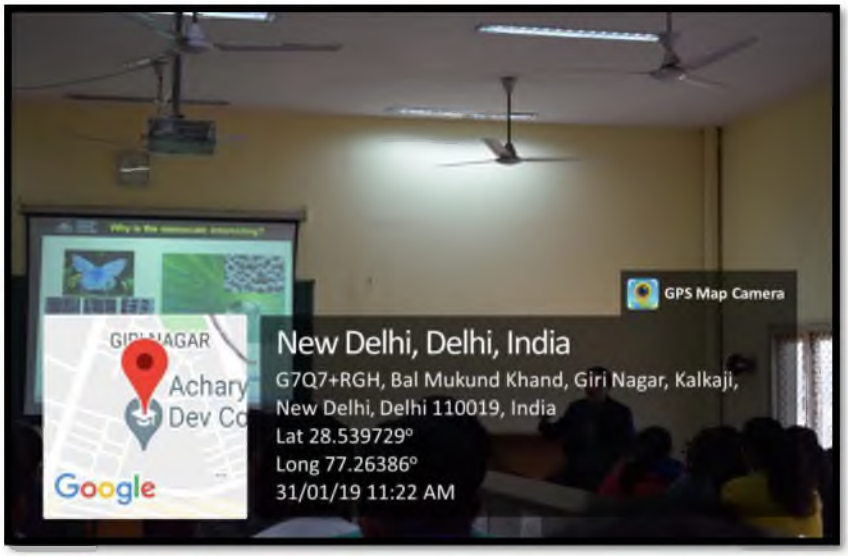
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Professor Hark Hoe Tan explained that nanotechnology refers to the engineering of materials and devices on the nanoscale, typically on the order of one to a few hundred nanometers. Optoelectronics is a branch of electronics that deals with the interaction of light and electricity. The combination of nanotechnology and optoelectronics has led to a wide range of new applications and technologies. One major application of nanotechnology in optoelectronics is in the development of new materials with novel optical properties. For example, quantum dots, which are nanoscale particles that emit light at specific wavelengths, can be used to create highly efficient light-emitting diodes (LEDs) and solar cells. Nanoparticles of metals such as gold and silver can be used to enhance the light absorption and emission properties of other materials, leading to improved efficiency and performance. Another area of research is the development of nanoscale photonic devices, such as waveguides, modulators, and filters, that can be used to manipulate light on the nanoscale. These devices can be integrated with electronics to create highly compact and efficient optoelectronic systems for use in applications such as telecommunications and sensing. Nanotechnology is also being used to improve the performance of existing optoelectronic devices, such as photodetectors and lasers. For example, the use of nanoscale structures can improve the sensitivity and speed of photodetectors, while nanoscale coatings can enhance the performance of lasers. Overall, the application of nanotechnology in optoelectronics is an exciting area of research with significant potential for advancing a wide range of technologies and application.

Professor Tan also explained that Nanotechnology has the potential to revolutionize the renewable energy sector by improving the efficiency and costeffectiveness of renewable energy sources such as solar, wind, and hydro power. One key application of nanotechnology in renewable energy is in the development of more efficient solar cells. Nanomaterials such as quantum dots and nanowires can be used to create highly efficient solar cells that are capable of converting a greater percentage of sunlight into electricity. Additionally, nanomaterials can be used to improve the durability and lifespan of solar panels, reducing the need for maintenance and replacement. Nanotechnology can also be used to improve the performance of energy storage devices such as batteries and capacitors. Nanomaterials can be used to increase the surface area of electrodes, which can improve the energy density and charge/discharge rates of these devices. In the wind energy sector, nanomaterials can be used to create stronger and more lightweight turbine blades, improving the efficiency and reducing the cost of wind energy. Nanomaterials can also be used to improve the durability of wind turbine components, reducing maintenance costs and downtime. Finally, in the field of hydro power, nanotechnology can be used to improve the efficiency of water turbines by reducing friction and improving the transfer of energy from water to electricity. Overall, the integration of nanotechnology into renewable energy systems has the potential to make clean energy sources more efficient and cost-effective, helping to reduce our dependence on fossil fuels and mitigate the impacts of climate change.

Seminar on "Nanotechnology applications in optoelectronics & Renewable Energy" — Professor H. Hoe Tan - 31/01/2019
ANU, Australia
10:45 a.m.

List of participants

S. No.	Name	Roll No	Course
1	UTKARSH SHARMA	XO-840	BSc (H) Physics IIIrd year
2	NARENDER SINGH	YO-853	BSc (H) Physics IInd year
3	VIKAS KUMAR SAHU	YO-851	BSc (H) Physics IInd year
4	ASHISH KUMAR	XO-810	BSc (H) Physics IIIrd year
5	RAAYESHA AMIN	ZO-844	BSc (H) Physics 1st year
6	MUSKAN MISHRA	XO-823	BSc (H) Physics IIIrd year
7	VIDIT VERMA	ZO-864	BSc (H) Physics 1st year
8	RAJENDER KUMAR	YO-855	BSc (H) Physics IInd year
9	MAYANK PANDEY	XO-822	BSc (H) Physics IIIrd year
10	SANDEEP	YO-838	BSc (H) Physics IInd year
11	ARPITA DEBNATH	ZO-816	BSc (H) Physics 1st year
12	HIMANSHU KASHYAP	YO-823	BSc (H) Physics IInd year
13	SHALINI	XO-832	BSc (H) Physics IIIrd year
14	ABHISHEK MANDAL	ZO-804	BSc (H) Physics 1st year
15	VEDAVYAS S A	ZO-863	BSc (H) Physics 1st year
16	VAIBHAV SHARMA	YO-856	BSc (H) Physics IInd year
17	AKSHAY KUMAR	YO-808	BSc (H) Physics IInd year
18	ARUN KUMAR SOLANIA	ZO-817	BSc (H) Physics 1st year
19	SHIPRA SUPRABHA	ZO-851	BSc (H) Physics 1st year
20	KANT PRATAP	ZO-827	BSc (H) Physics 1st year
21	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics IInd year
22	AASTHA	YO-802	BSc (H) Physics IInd year
23	VIREN TYAGI	ZO-868	BSc (H) Physics 1st year
24	NISHANT SAINI	ZO-835	BSc (H) Physics 1st year
25	VINEET KUMAR	ZO-866	BSc (H) Physics 1st year
26	SHIVRAT SACHDEVA	ZO-855	BSc (H) Physics 1st year
27	RAJENDRA PRASAD	YO-832	BSc (H) Physics IInd year
28	DHEERAJ KUMAR	YO-858	BSc (H) Physics IInd year
29	MOHD SHOAIB MALIK	ZO-833	BSc (H) Physics 1st year
30	SWATI BHATT	XO-838	BSc (H) Physics IIIrd year
31	ASHISH NAINWAL	ZO-819	BSc (H) Physics 1st year
32	AKSHITA JAIN	YO-809	BSc (H) Physics IInd year
33	HIMANSHU MANTRI	YO-825	BSc (H) Physics IInd year
34	AKASH BHATIA	XO-801	BSc (H) Physics IIIrd year
35	JANAID IQBAL	XO-817	BSc (H) Physics IIIrd year
36	ROHIT KUMAR	XO-851	BSc (H) Physics IIIrd year
37	KARAN SHARMA	ZO-829	BSc (H) Physics 1st year
38	YOGESH KUMAR SHUKLA	XO-842	BSc (H) Physics IIIrd year
39	ANKUR BADOLA	ZO-813	BSc (H) Physics 1st year
40	SIDDHARTH GANGWAR	XO-845	BSc (H) Physics IIIrd year
41	AKHILESH PANDAY	YO-807	BSc (H) Physics IInd year
42	SIDDHARTH	XO-844	BSc (H) Physics IIIrd year
43	DEVESH KUMAR	YO-819	BSc (H) Physics IInd year
44	PRIYANSHI VERMA	XO-828	BSc (H) Physics IIIrd year
45	AMAN TRIPATHI	XO-805	BSc (H) Physics IIIrd year
46	ANKIT SINGH	XO-807	BSc (H) Physics IIIrd year
47	ASHISH KUMAR	ZO-818	BSc (H) Physics 1st year

1/2

48	SONIKA	YO-844	BSc (H) Physics IInd year
49	ANJALI	YO-810	BSc (H) Physics IInd year
50	ANSHUMAN	XO-847	BSc (H) Physics IIIrd year
51	SHUBHAM GANGWAR	XO-835	BSc (H) Physics IIIrd year
52	VRINDA AGGARWAL	XO-846	BSc (H) Physics IIIrd year
53	AMAN SRIVASTAVA	XO-804	BSc (H) Physics IIIrd year
54	ALISHA BISWAL	ZO-809	BSc (H) Physics 1st year
55	AWNEESH KUMAR	YO-815	BSc (H) Physics IInd year
56	ANKIT LASPAL	YO-812	BSc (H) Physics IInd year
57	AMAN KUMAR	ZO-810	BSc (H) Physics 1st year
58	VINOD JAKHAR	ZO-867	BSc (H) Physics 1st year
59	SACHIN UPRETI	YO-837	BSc (H) Physics IInd year
60	CHAITANYA RAJ	XO-812	BSc (H) Physics IIIrd year
61	SANKET VERMA	ZO-849	BSc (H) Physics 1st year
62	SIDDHARTHA SAXENA	XO-836	BSc (H) Physics IIIrd year
63	ANURAG KUMAR	ZO-815	BSc (H) Physics 1st year
64	DEEPANSHU RATHAUR	YO-817	BSc (H) Physics IInd year
65	PREMSHANKAR JHA	XO-827	BSc (H) Physics IIIrd year
66	SAHIL KUMAR	ZO-848	BSc (H) Physics 1st year
67	SUBHASH CHANDRAVANSHI	ZO-858	BSc (H) Physics 1st year
68	MOHAMMAD NAZIM	ZO-832	BSc (H) Physics 1st year
69	RAVIKANT	XO-830	BSc (H) Physics IIIrd year
70	VIMAL KUMAR PANDEY	YO-857	BSc (H) Physics IInd year
71	SATYAM BANSAL	YO-839	BSc (H) Physics IInd year
72	AMAN KUMAR	XO-803	BSc (H) Physics IIIrd year
73	ITISHA JAIN	YO-826	BSc (H) Physics IInd year
74	RAKESH KUMAR	ZO-845	BSc (H) Physics 1st year
75	RAKESH KUMAR	YO-833	BSc (H) Physics IInd year
76	SHIVAM TIWARI	YO-841	BSc (H) Physics IInd year

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Physics

(under the aegis DBT STAR College scheme)

welcomes all students and colleagues at the inauguration of its society function PHYSENTROPY 2019 with Lecture series

Prof. Vinay Gupta - 'Functional Materials for Device Applications'

Dean Examinations & Professor at

Department of Physics & Astrophysics, University of Delhi

Mr. Sujit Kumar – 'MoS_2: a promising 2D Material'

a) Visiting Scholar at National Device Laboratory, Taiwan

b) Taiwan Semiconductor Manufacturing Company (TSMC)

Ms. Phalguni Mathur – 'MIMO antennas for 5G and IoT'

a) Research Scholar at Bharathiar University, Coimbatore

b) Specialist in Microwave Electronics and RADAR Systems

15 March 2019	10.00 a.m.	Laboratory - III

Event Photographs

Professor Vinay Gupta explained that Functional materials refer to materials that exhibit specific physical, chemical, or electronic properties that can be harnessed for practical applications. These materials are essential for the development of many modern devices, including sensors, actuators, solar cells, batteries, and electronic components. One of the key areas of research in functional materials is the development of materials for electronic device applications. This includes materials such as semiconductors, which are used to create transistors and other electronic components. Other important materials include conductive polymers, which are used for flexible electronics, and transparent conductive oxides, which are used in touch screens and displays. Functional materials are also essential for the development of sensors and actuators. For example, piezoelectric materials, which generate a voltage in response to mechanical stress, can be used in sensors for pressure and vibration detection. Similarly, shape-memory alloys and polymers can be used in actuators to convert electrical signals into mechanical motion. In the energy sector, functional materials are essential for the development of renewable energy technologies such as solar cells and batteries. For example, the use of organic or hybrid materials in solar cells can lead to improved efficiency and reduced cost. Similarly, the development of advanced materials for lithium-ion batteries can improve their energy density and lifespan. Functional materials are also important in the field of biomedicine, where they are used in a wide range of applications, from drug delivery systems to tissue engineering. For example, biocompatible polymers can be used to create scaffolds for tissue regeneration, while magnetic nanoparticles can be used for targeted drug delivery. Overall, the development of functional materials is a critical area of research with broad applications in many different fields. Advances in this area have the potential to revolutionize the development of new technologies and improve the efficiency and performance of existing devices.

Mr. Sujit Kumar with his vast experience in TSMC propounded that Molybdenum sulfide (MoS2) is a two-dimensional (2D) material that has been attracting significant attention in the field of materials science in recent years. This material belongs to the family of transition metal dichalcogenides (TMDs) and has unique electronic and optical properties. MoS2 has a layered structure, consisting of a hexagonal lattice of sulfur atoms sandwiched between two layers of molybdenum atoms. Due to its 2D nature, MoS2 exhibits remarkable mechanical flexibility and high surface area, which makes it attractive for a wide range of applications, including catalysis, energy storage, and electronic devices. One of the most promising applications of MoS2 is in the field of electronics. MoS2 is a semiconductor, which means that it can be used to create transistors and other electronic components. MoS2 transistors have been shown to have excellent electrical properties, such as high on-off current ratios and low leakage current. In addition, MoS2 is compatible with existing semiconductor fabrication techniques, making it an attractive material for use in next-generation electronics.

Ms. Phalguni Mathur on the other hand explained how 5G MIMO antennas are a critical component of 5G wireless technology, which promises to deliver faster data rates, lower latency, and increased connectivity compared to previous generations of wireless

technology. MIMO stands for Multiple Input Multiple Output, and refers to a technology that uses multiple antennas at both the transmitter and receiver to improve communication efficiency and reliability. In 5G wireless networks, MIMO technology is used to increase the capacity and coverage of the network, and to support advanced applications such as augmented reality and virtual reality. 5G MIMO antennas can support a variety of different frequencies and bandwidths, and can be configured in different ways to meet the specific needs of different applications. One of the key advantages of 5G MIMO antennas is their ability to support beamforming, a technique that allows the antenna to direct its signal towards a specific receiver. This can improve signal strength and reduce interference, making it easier to achieve high data rates and reliable connectivity in a wide range of environments.

Seminar on 'Functional Materials for Device Applications'
Date:- 15/3/19 ; Time:- 10 am. Speakers: Prof. Vinay Gupta
Mr. Sujit Kumar
Ms Phalguni Mathur

	List of participants		
S. No.	Name	Roll No	Course
1	AKSHITA JAIN	YO-809	BSc (H) Physics IInd year
2	SABYASACHI PHUKAN	YO-836	BSc (H) Physics IInd year
3	SHIVANK SHARMA	ZO-853	BSc (H) Physics 1st year
4	SATYAM DUBEY	YO-840	BSc (H) Physics IInd year
5	VIKAS DWIVEDI	ZO-943	BSc Prog 1st year
6	SANDEEP	YO-838	BSc (H) Physics IInd year
7	PRAVIN BHIMASHANKAR KAMALE	ZO-842	BSc (H) Physics 1st year
8	ABHIJEET KUMAR TIWARI	ZO-802	BSc (H) Physics 1st year
9	ASHISH YADAV	ZO-914	BSc Prog 1st year
10	ARPITA DEBNATH	ZO-816	BSc (H) Physics 1st year
11	SAIM	YO-854	BSc (H) Physics IInd year
12	ASHISH KUMAR	XO-810	BSc (H) Physics IIIrd year
13	ANSHUMAN	XO-847	BSc (H) Physics IIIrd year
14	ROHIT KUMAR	XO-851	BSc (H) Physics IIIrd year
15	PREMSHANKAR JHA	XO-827	BSc (H) Physics IIIrd year
16	RASHID ALI RATHER	ZO-846	BSc (H) Physics 1st year
17	JANAID IQBAL	XO-817	BSc (H) Physics IIIrd year
18	SHIVANSHU TRIPATHI	ZO-854	BSc (H) Physics 1st year
19	HIMANSHU MANTRI	YO-825	BSc (H) Physics IInd year
20	MUSKAN DULET	YO-925	BSc Prog 2nd year
21	SOUMYA AGARWAL	XO-942	BSc Prog 3rd year
22	MOHAMMAD NAZIM	ZO-832	BSc (H) Physics 1st year
23	ASHUTOSH SHARMA	ZO-820	BSc (H) Physics 1st year
24	SHUBHAM	ZO-938	BSc Prog 1st year
25	ANKUSH CHAUHAN	XO-910	BSc Prog 3rd year
26	DILKUSH YADAV	XO-815	BSc (H) Physics IIIrd year
27	CHANDAN CHAUDHARY	XO-813	BSc (H) Physics IIIrd year
28	DEEPAK KUMAR	ZO-825	BSc (H) Physics 1st year
29	ABHISHEK VERMA	YO-804	BSc (H) Physics IInd year
30	PANKAJ ALMIA	XO-824	BSc (H) Physics IIIrd year
31	REYA NEGI	ZO-847	BSc (H) Physics 1st year
32	SONIKA	YO-844	BSc (H) Physics IInd year
33	SANKET VERMA	ZO-849	BSc (H) Physics 1st year
34	JITENDRA KUMAR	XO-818	BSc (H) Physics IIIrd year
35	MOHIT	YO-828	BSc (H) Physics IInd year
36	VAIBHAV SHARMA	YO-856	BSc (H) Physics IInd year
37	RAJENDER KUMAR	YO-855	BSc (H) Physics IInd year
38	SURENDER KUMAR	YO-846	BSc (H) Physics IInd year
39	ANVIKSHA BHARDWAJ	XO-809	BSc (H) Physics IIIrd year
40	AWNEESH KUMAR	YO-815	BSc (H) Physics IInd year
41	VAIBHAV GAUTAM	XO-841	BSc (H) Physics IIIrd year
42	DIVYA CHAKSHU SHARMA	ZO-915	BSc Prog 1st year
43	UTKARSH SHARMA	XO-840	BSc (H) Physics IIIrd year
44	DHEERAJ KUMAR	YO-858	BSc (H) Physics IInd year
45	AMIT KUMAR RAM	XO-908	BSc Prog 3rd year
46	JATIN UPRETI	ZO-919	BSc Prog 1st year
47	VAISHALI VASHISHTHA	ZO-940	BSc Prog 1st year

1/2

48	AMRIT DUTTA	ZO-812	BSc (H) Physics 1st year
49	SIMRAN	ZO-939	BSc Prog 1st year
50	PRAVEEN SINGH	ZO-841	BSc (H) Physics 1st year
51	AASTHA	YO-802	BSc (H) Physics IInd year
52	VIREN TYAGI	ZO-868	BSc (H) Physics 1st year
53	SATYAM RASTOGI	YO-940	BSc Prog 2nd year
54	SATYAM BANSAL	YO-839	BSc (H) Physics IInd year
55	VIVEK KUMAR	ZO-869	BSc (H) Physics 1st year
56	HIMANSHU KASHYAP	YO-823	BSc (H) Physics IInd year
57	KHUSHBOO GUPTA	ZO-830	BSc (H) Physics 1st year
58	DIVYANSHI TYAGI	YO-820	BSc (H) Physics IInd year
59	SIDDHARTH	XO-844	BSc (H) Physics IIIrd year
60	SUMONA KUMAR	YO-949	BSc Prog 2nd year
61	ITISHA JAIN	YO-826	BSc (H) Physics IInd year
62	SHUBHAM VERMA	XO-939	BSc Prog 3rd year
63	ASHUTOSH DUBEY	XO-959	BSc Prog 3rd year
64	AMAN KUMAR	ZO-906	BSc Prog 1st year
65	SHILPA K	XO-833	BSc (H) Physics IIIrd year
66	AAKANKSHA CHOUDHARY	YO-801	BSc (H) Physics IInd year
67	RAMNEEK GHINTALA	ZO-932	BSc Prog 1st year
68	NITIN JOSHI	ZO-838	BSc (H) Physics 1st year
69	ANKIT KUMAR	ZO-874	BSc (H) Physics 1st year
70	ABHINAV TYAGI	ZO-803	BSc (H) Physics 1st year
71	NARENDER SINGH	YO-853	BSc (H) Physics IInd year
72	VIDIT VERMA	ZO-864	BSc (H) Physics 1st year
73	SHUBHAM KUMAR RAO	YO-842	BSc (H) Physics IInd year
74	AJAY KUMAR	ZO-901	BSc Prog 1st year
75	ARYAMAN GIR	XO-848	BSc (H) Physics IIIrd year
76	SHALINI BISHT	ZO-850	BSc (H) Physics 1st year
77	SANGEETA	XO-831	BSc (H) Physics IIIrd year
78	KANT PRATAP	ZO-827	BSc (H) Physics 1st year
79	SHIVANG SHARMA	ZO-852	BSc (H) Physics 1st year
80	CHANDERDEEP	ZO-823	BSc (H) Physics 1st year
81	UTTAM SINGH	YO-952	BSc Prog 2nd year
82	ANKIT SINGH	XO-807	BSc (H) Physics IIIrd year
83	ANJALI DHAMI	ZO-910	BSc Prog 1st year

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ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

Grade "A" by NAAC | DBT Star College

organized by Departments of Botany, Chemistry, Physics & Zoology under the aegis of DBT Star College Scheme

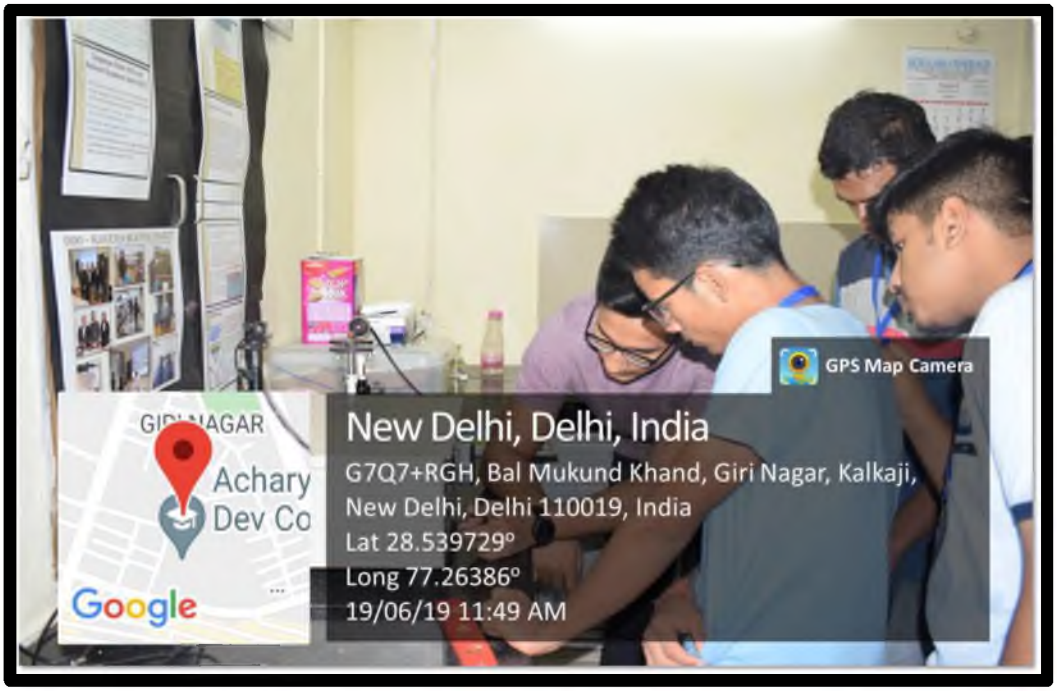
June 18 – 24, 2019

Venue: Zoology Laboratory
Time: 9.15 a.m.

Interdisciplinary workshop

"Learning Science by Doing Science"

Event Photographs



Report

In today's world, a major chunk of researchers are focusing on the material science and its applications. Materials such as semiconductors, metals, composites, nanotech materials, carbons or high-tech ceramics make our lives easier. They are sources of industrial growth and technological changes. Thus, material science is an interdisciplinary field incorporating elements of applied physics, life sciences and chemistry. The applications of material science research are enormous. It includes enhancing the physical, structural and chemical properties of building materials, modulating the optical properties of materials for sensors, solar cells, and LEDs, varying the ferroelectric and ferromagnetic properties of thin films for memory applications, enhancing electrical properties for high speed conduction materials and many more. Now before final fabrication of any material in bulk, thin film or nanomaterial (nanofilm, nanowire/nanorod and nano dot) form, its characterization is very vital. A 1967 report of the National Materials Advisory Board (NMAB) on "The Characterization of Materials" gives the definition of characterization as follows: "Characterization describes those features of the composition and structure (including defects) of a material that are significant for a particular preparation, study of properties, or use, and suffice for the reproduction of the material.

There are lot of characterization tools available like XRD (for structural properties), UV Visible/FTIR/Raman spectroscopy (for optical properties), Hall measurement, Vibrating Sample Magnetometer (for magnetic properties etc.). Although all characterization tools have their own significance but optical methods have their unique place amongst all. Different characterization tools are available in the market to study optical properties like absorbance, reflectance, dielectric constant, refractive index etc of different materials. In this workshop we are focussing on 2 different highly popular and sophisticated optical characterization tools: UV-Visible Spectroscopy and Surface Plasmon Resonance (SPR). Also, SPR is not just a characterization tool but has been widely used as a powerful technique for physical, chemical and biological sensing applications. Overall Surface Plasmon Resonance (SPR) is seen to be a powerful characterization tool that is widely used in biotechnology and materials science. It is based on the detection of changes in the refractive index of a material when it interacts with a surface plasmon wave, and can be used to study biomolecular interactions, material binding events, and more.

List of Participants from Physics Department

Workshop on 'Learning Science by doing Science – Interdisciplinary – List of Physics Students

18–24 June 2019

S. No.	Name	Roll No	Course
1	ANUDEEP A S	Z0-814	B.Sc. (H) Physics 1st year
2	KSHITIJ GAUTAM	Z0-831	B.Sc. (H) Physics 1st year
3	MOHD SHOAIB MALIK	Z0-833	B.Sc. (H) Physics 1st year
4	SHIVRAT SACHDEVA	Z0-855	B.Sc. (H) Physics 1st year
5	SIMRAN SIDHANTI	Z0-856	B.Sc. (H) Physics 1st year
6	SOHIT	Y0-843	B.Sc. (H) Physics 2nd year
7	SONIKA	Y0-844	B.Sc. (H) Physics 2nd year
8	VIKHYAT SHARMA	Y0-852	B.Sc. (H) Physics 2nd year

Conferences/Workshops/Seminars for the year 2019-20

Event Photographs

GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
23/08/19 11:40 AM
Google

GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
26/08/19 11:26 AM
Google

GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
26/08/19 10:09 AM
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GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
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Programme

Inter-College hands-on workshop on

SURFACE PLASMON RESONANCE (SPR) & UV-VISIBLE SPECTROSCOPY:

Basic working principles and Environmental Applications

[organized by Departments of Physics & Botany, under aegis of STAR College scheme]

23 - 27 August 2019

Venue: Physics Laboratory - III

Tentative Programme

23 August 2019 (Friday)	
0845 - 0945	Registration
1000 - 1015	Introduction to STAR Initiative - Dr. Ravi Toteja, Principal
1015 - 1115	Basics of UV-Vis spectroscopy in determining chlorophyll content - Dr. Yash Mangla
1115 - 1130	Tea
1130 - 1230	Basics of Surface Plasmon Resonance (SPR) - Dr. Ayushi Paliwal
1230 - 1300	BREAK
1300 - 1415	Hands - on session 1 (SPR / UV-Vis)
1415 - 1430	Tea
1430 - 1545	Hands - on session 2 (SPR / UV-Vis)

26 August 2019 (Monday)		
1000 - 1100	Physical, Chemical and Biological applications of SPR	Dr. Prashant Pradhan
1100 - 1115	Tea	
1115 - 1230	Hands - on session 3 (UV-Vis / SPR)	
1230 - 1300	BREAK	
1300 - 1415	Hands - on session 4 (UV-Vis / SPR)	
1415 - 1430	Tea	
1430 - 1500	Technical Discussion	

27 August 2019 (Tuesday)		
1000 - 1100	Role of bacteriophages in managing pollution due to antibiotics	Dr. Urmi Bajpai
1100 - 1120	Tea	
1120 - 1150	Discussion and feedback session	
1150 - 1300	Certificate distribution and vote of thanks	

Report

Surface Plasmon Resonance (SPR) is a powerful optical technique that is widely used in various fields, including biosensors, drug discovery, and materials science. SPR is based on the interaction between an electromagnetic field and the oscillation of electrons at the interface between a metal and a dielectric material. One of the main applications of SPR is in biosensing. SPR biosensors are used to detect and quantify biomolecules, such as proteins, DNA, and cells, in real-time and label-

free. SPR biosensors can provide highly sensitive and specific detection of biomolecules, and they have been widely used in various fields, such as medical diagnosis, drug discovery, and food safety. Another application of SPR is in the study of material properties. SPR can be used to investigate the optical and electronic properties of thin films, nanoparticles, and other nanostructures. SPR can provide information about the refractive index, thickness, and composition of the materials, as well as their interaction with the surrounding environment. Furthermore, SPR has been used in the development of plasmonic devices, such as plasmonic waveguides, filters, and modulators. Plasmonic devices can manipulate the light at the nanoscale, leading to potential applications in photonics, data storage, and optical computing. In summary, SPR is a versatile and powerful technique that has a wide range of applications in biosensing, materials science, and photonics. The development of SPR-based technologies is expected to continue to advance these fields and enable new applications in the future.

UV-Visible spectroscopy is a widely used technique in chemistry, biochemistry, and materials science for the analysis of molecules and materials. UV-Visible spectroscopy measures the absorption of light in the UV and visible regions of the electromagnetic spectrum, which provides information about the electronic structure and properties of the samples. One of the main applications of UV-Visible spectroscopy is in the determination of concentration and purity of samples. UV-Visible spectroscopy can be used to quantify the amount of a substance in a sample based on its absorbance at a specific wavelength. This method is commonly used in pharmaceutical and biotech industries to monitor the concentration of active ingredients and impurities in drugs and biologics. UV-Visible spectroscopy is also widely used in the study of chemical reactions and kinetics. The absorbance changes of a reactant or product over time can be monitored using UV-Visible spectroscopy, which provides information about the rate and mechanism of the reaction. In addition, UV-Visible spectroscopy is a valuable tool for the characterization of materials, such as pigments, dyes, and polymers. The absorption spectra of these materials can provide information about their electronic and optical properties, such as the color, stability, and reactivity. Furthermore, UVVisible spectroscopy is used in the study of biological molecules, such as proteins, nucleic acids, and enzymes. The absorption spectra of these molecules can provide information about their structure, conformation, and interactions. In summary, UVVisible spectroscopy is a versatile and widely used technique that has a broad range of applications in chemistry, biochemistry, and materials science. The development of new methods and instrumentation is expected to further expand the applications of UVVisible spectroscopy in the future.

List of Participants

Workshop on SPR and UV-Vis spectroscopy
Basic working principle and Environmental applications

23-27 August 2019

S. No.	Name	Roll No	Course
1	VEDAVYAS S A	ZO-863	B.Sc. (Hons) Physics 2nd year
2	HARSH CHAUDHARY	YO-712	B.Sc. (Hons) Physics 3rd year
3	SHIVANG SHARMA	ZO-852	B.Sc. (Hons) Physics 2nd year
4	MANISH	AB-819	B.Sc. (Hons) Physics 1st year
5	LAXMI	YO-719	B.Sc. (Hons) Physics 3rd year
6	NILESH SINGH	YO-726	B.Sc. (Hons) Physics 3rd year
7	DEEPAK KUMAR GOSWAMI	YO-710	B.Sc. (Hons) Physics 3rd year
8	NITESH GANGWAR	ZO-836	B.Sc. (Hons) Physics 2nd year
9	SUBHASH CHANDRAVANSHI	ZO-858	B.Sc. (Hons) Physics 2nd year
10	ASHISH KUMAR	AB-808	B.Sc. (Hons) Physics 1st year
11	ASHISH NAINWAL	ZO-819	B.Sc. (Hons) Physics 2nd year
12	SONU KUMAR	AB-854	B.Sc. (Hons) Physics 1st year
13	SHUBHAM VERMA	YO-763	B.Sc. (Hons) Physics 3rd year
14	NIDHA HIND K	AB-825	B.Sc. (Hons) Physics 1st year
15	SONU PAL	YO-746	B.Sc. (Hons) Physics 3rd year
16	NADISH PATEL	YO-756	B.Sc. (Hons) Physics 3rd year
17	RISHABH PAL	AB-844	B.Sc. (Hons) Physics 1st year
18	KANT PRATAP	ZO-827	B.Sc. (Hons) Physics 2nd year
19	BINDU	AB-809	B.Sc. (Hons) Physics 1st year
20	ANKIT YADAV	AB-848	B.Sc. (Hons) Physics 1st year
21	ANURAG KUMAR	ZO-815	B.Sc. (Hons) Physics 2nd year
22	ABHINAV TYAGI	ZO-803	B.Sc. (Hons) Physics 2nd year
23	SHAGUN KUMAR	YO-743	B.Sc. (Hons) Physics 3rd year
24	BISHWA RANJAN DAS	AB-810	B.Sc. (Hons) Physics 1st year
25	SACHIN VERMA	YO-739	B.Sc. (Hons) Physics 3rd year
26	GAURAV ATTRISH	ZO-826	B.Sc. (Hons) Physics 2nd year
27	ABHISHEK MANDAL	ZO-804	B.Sc. (Hons) Physics 2nd year
28	BRIJNANDAN KUMAR RAY	ZO-822	B.Sc. (Hons) Physics 2nd year
29	SURESH SINGH DHAMI	ZO-859	B.Sc. (Hons) Physics 2nd year
30	AANCHAL GUPTA	YO-701	B.Sc. (Hons) Physics 3rd year
31	ANSHUL SEMWAL	YO-706	B.Sc. (Hons) Physics 3rd year
32	NISHANK	YO-728	B.Sc. (Hons) Physics 3rd year
33	ASHISH KUMAR	ZO-818	B.Sc. (Hons) Physics 2nd year
34	NIHAL SINGH	YO-725	B.Sc. (Hons) Physics 3rd year
35	ANKUR BADOLA	ZO-813	B.Sc. (Hons) Physics 2nd year
1	ABHISHEK	AB-801	B.Sc. (Hons) Physics 1st year
2	Manoj Verma	AB-852	B.Sc. (Hons) Physics 1st year
3	VIVEK PATWAL	YO-748	B.Sc. (Hons) Physics 3rd year
4	NANDITA MAHATO	YO-724	B.Sc. (Hons) Physics 3rd year
5	KALYANI	YO-715	B.Sc. (Hons) Physics 3rd year
6	MOHD SHOAIB MALIK	ZO-833	B.Sc. (Hons) Physics 2nd year
7	AKSHIT AGGARWAL	ZO-808	B.Sc. (Hons) Physics 2nd year
8	ARPITA DEBNATH	ZO-816	B.Sc. (Hons) Physics 2nd year
9	CHANDERDEEP	ZO-823	B.Sc. (Hons) Physics 2nd year
10	MOHAMMAD NAZIM	ZO-832	B.Sc. (Hons) Physics 2nd year
11	VIKASH TOMAR	ZO-865	B.Sc. (Hons) Physics 2nd year
12	PRAJWAL UPADHYAY	ZO-839	B.Sc. (Hons) Physics 2nd year
13	PRABHAT KUMAR TIWARI	AB-851	B.Sc. (Hons) Physics 1st year
14	ANKIT KUMAR	ZO-874	B.Sc. (Hons) Physics 2nd year

1/4

15	VIKAS	AB-838	B.Sc. (Hons) Physics 1st year
16	MEENAKSHI KUMARI	AB-822	B.Sc. (Hons) Physics 1st year
17	YASHIKA SARASWAT	AB-839	B.Sc. (Hons) Physics 1st year
18	MAHAK GUPTA	YO-720	B.Sc. (Hons) Physics 3rd year
19	Bhawana Yadav	AB-843	B.Sc. (Hons) Physics 1st year
20	POONAM	YO-731	B.Sc. (Hons) Physics 3rd year
21	SANKET VERMA	ZO-849	B.Sc. (Hons) Physics 2nd year
22	AKASH BABU	ZO-805	B.Sc. (Hons) Physics 2nd year
23	SURBHI KHAJURIA	AB-836	B.Sc. (Hons) Physics 1st year
24	KAJAL	AB-816	B.Sc. (Hons) Physics 1st year
25	AJAY KUMAR	AB-802	B.Sc. (Hons) Physics 1st year
26	ARUN KUMAR SOLANIA	ZO-817	B.Sc. (Hons) Physics 2nd year
27	MOHD SARIF SALMANI	YO-723	B.Sc. (Hons) Physics 3rd year
28	RAKESH KUMAR	ZO-845	B.Sc. (Hons) Physics 2nd year
29	MANOJ KUMAR SAHU	YO-721	B.Sc. (Hons) Physics 3rd year
30	DEEPAK RAO	AB-811	B.Sc. (Hons) Physics 1st year
31	SHIVANK SHARMA	ZO-853	B.Sc. (Hons) Physics 2nd year
32	KHUSHBOO GUPTA	ZO-830	B.Sc. (Hons) Physics 2nd year
33	RAAYESHA AMIN	ZO-844	B.Sc. (Hons) Physics 2nd year
34	KARAN SHARMA	ZO-829	B.Sc. (Hons) Physics 2nd year
35	KAILASH	YO-753	B.Sc. (Hons) Physics 3rd year
36	SHWETABH ROY	AB-842	B.Sc. (Hons) Physics 1st year
37	SANJAY KUMAR MEENA	YO-758	B.Sc. (Hons) Physics 3rd year
38	LAKHVEER RANA	YO-718	B.Sc. (Hons) Physics 3rd year
39	shivangi pandey	AB-856	B.Sc. (Hons) Physics 1st year
40	SANJNA BHARDWAJ	YO-741	B.Sc. (Hons) Physics 3rd year
41	GAURAV YADAV	YO-761	B.Sc. (Hons) Physics 3rd year
42	DEVANSH SRIVASTAVA	YO-711	B.Sc. (Hons) Physics 3rd year
43	PALLVI	AB-827	B.Sc. (Hons) Physics 1st year
44	MANISHA GOND	AB-821	B.Sc. (Hons) Physics 1st year
45	HARSHIT TIWARI	YO-714	B.Sc. (Hons) Physics 3rd year
46	NITIN JOSHI	ZO-838	B.Sc. (Hons) Physics 2nd year
47	VIVEK KUMAR	ZO-869	B.Sc. (Hons) Physics 2nd year
48	SHIVRAT SACHDEVA	ZO-855	B.Sc. (Hons) Physics 2nd year
49	PRIYANKA SHARMA	ZO-843	B.Sc. (Hons) Physics 2nd year
50	PRATHAM PACHAURI	AB-829	B.Sc. (Hons) Physics 1st year
51	NISHCHAL JAIN	YO-729	B.Sc. (Hons) Physics 3rd year
52	AMRIT DUTTA	ZO-812	B.Sc. (Hons) Physics 2nd year
53	VIDIT VERMA	ZO-864	B.Sc. (Hons) Physics 2nd year
54	RACHNA SHARMA	YO-749	B.Sc. (Hons) Physics 3rd year
55	AMAR CHAND GAHLOT	YO-751	B.Sc. (Hons) Physics 3rd year
56	VIREN TYAGI	ZO-868	B.Sc. (Hons) Physics 2nd year
57	BANSHI LAL	ZO-821	B.Sc. (Hons) Physics 2nd year
58	PRAVIN BHIMASHANKAR KAMALE	ZO-842	B.Sc. (Hons) Physics 2nd year
59	KUNAL KUMAR	AB-817	B.Sc. (Hons) Physics 1st year
60	AKHILESH KUMAR	ZO-807	B.Sc. (Hons) Physics 2nd year
61	NISHANT SAINI	ZO-835	B.Sc. (Hons) Physics 2nd year
62	RAVINDRA NATH THAKUR	YO-734	B.Sc. (Hons) Physics 3rd year
63	SHIVANSHU TRIPATHI	ZO-854	B.Sc. (Hons) Physics 2nd year
64	KARAN BAJAJ	ZO-828	B.Sc. (Hons) Physics 2nd year

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65	UJJWAL KUMAR	YO-759	B.Sc. (Hons) Physics 3rd year
66	GHANSHYAM	YO-754	B.Sc. (Hons) Physics 3rd year
67	SACHIN MISHRA	YO-738	B.Sc. (Hons) Physics 3rd year
68	REYA NEGI	ZO-847	B.Sc. (Hons) Physics 2nd year
69	ATUL RAJPUT	YO-709	B.Sc. (Hons) Physics 3rd year
70	ARUL BAGGA	AB-849	B.Sc. (Hons) Physics 1st year
71	SOMSUVRA DAS	AB-834	B.Sc. (Hons) Physics 1st year
72	SHWETA RATHORE	AB-833	B.Sc. (Hons) Physics 1st year
73	SIMRAN SIDHANTI	ZO-856	B.Sc. (Hons) Physics 2nd year
74	KSHITIJ GAUTAM	ZO-831	B.Sc. (Hons) Physics 2nd year
75	RITESH	YO-755	B.Sc. (Hons) Physics 3rd year
76	TUSHAR MISHRA	ZO-861	B.Sc. (Hons) Physics 2nd year
77	SACHIN GUPTA	AB-831	B.Sc. (Hons) Physics 1st year
78	KUSHAL SHARMA	AB-818	B.Sc. (Hons) Physics 1st year
79	YUKTA KANDPAL	ZO-873	B.Sc. (Hons) Physics 2nd year
80	ANUDEEP A S	ZO-814	B.Sc. (Hons) Physics 2nd year
81	KAMAL KUMAR VERMA	YO-716	B.Sc. (Hons) Physics 3rd year
82	NEERAJ MAURYA	YO-762	B.Sc. (Hons) Physics 3rd year
83	AMAN KUMAR	ZO-810	B.Sc. (Hons) Physics 2nd year
84	TUSHAR RATRA	AB-837	B.Sc. (Hons) Physics 1st year
85	SHIPRA SUPRABHA	ZO-851	B.Sc. (Hons) Physics 2nd year
86	PRANSHU MAHALA	AB-828	B.Sc. (Hons) Physics 1st year
87	VINOD JAKHAR	ZO-867	B.Sc. (Hons) Physics 2nd year
88	RAKHSHANDA NAUREEN ANSARI	AB-855	B.Sc. (Hons) Physics 1st year
89	PRATHAM MAKHIJA	AB-846	B.Sc. (Hons) Physics 1st year
90	GAURAV	AB-814	B.Sc. (Hons) Physics 1st year
91	AMAN VATS	AB-804	B.Sc. (Hons) Physics 1st year
92	SUNEEL KUMAR	AB-835	B.Sc. (Hons) Physics 1st year
93	NEHA NEGI	AB-824	B.Sc. (Hons) Physics 1st year
94	SACHIN KUMAR YADAV	YO-737	B.Sc. (Hons) Physics 3rd year
95	ASHI KUMAR	YO-708	B.Sc. (Hons) Physics 3rd year
96	SAHIL KUMAR	ZO-848	B.Sc. (Hons) Physics 2nd year
97	VIPUL MISHRA	YO-747	B.Sc. (Hons) Physics 3rd year
98	SHIKHA KATIYAR	YO-745	B.Sc. (Hons) Physics 3rd year
99	SHALINI BISHT	ZO-850	B.Sc. (Hons) Physics 2nd year
100	RITU	YO-736	B.Sc. (Hons) Physics 3rd year
101	NITIN KUMAR	YO-730	B.Sc. (Hons) Physics 3rd year
102	DHEERAJ KUMAR	AB-812	B.Sc. (Hons) Physics 1st year
103	VINEET KUMAR	ZO-866	B.Sc. (Hons) Physics 2nd year
104	DIVESH SINGH RAWAT	YO-752	B.Sc. (Hons) Physics 3rd year
105	PRAJJWAL GOEL	AB-853	B.Sc. (Hons) Physics 1st year
106	ABHISHEK SRIVASTAVA	YO-702	B.Sc. (Hons) Physics 3rd year
107	Prashant Mishra	ZO-840	B.Sc. (Hons) Physics 2nd year
108	HARSH KUMAR	YO-713	B.Sc. (Hons) Physics 3rd year
109	RASHID ALI RATHER	ZO-846	B.Sc. (Hons) Physics 2nd year
110	ASHUTOSH SHARMA	ZO-820	B.Sc. (Hons) Physics 2nd year
111	ABHIJEET KUMAR TIWARI	ZO-802	B.Sc. (Hons) Physics 2nd year
112	Dinesh Singh	AB-850	B.Sc. (Hons) Physics 1st year
113	DEBOJYATI KONER	ZO-824	B.Sc. (Hons) Physics 2nd year
114	PRAVEEN SINGH	ZO-841	B.Sc. (Hons) Physics 2nd year

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115	NAIPAL SINGH	YO-760	B.Sc. (Hons) Physics 3rd year
116	ANKIT VERMA	YO-705	B.Sc. (Hons) Physics 3rd year
117	MANISH KUMAR	AB-820	B.Sc. (Hons) Physics 1st year
118	DEEPAK KUMAR	ZO-825	B.Sc. (Hons) Physics 2nd year
119	Abhishek Binjola	AB-845	B.Sc. (Hons) Physics 1st year
120	Aliya Siddiqui	AB-840	B.Sc. (Hons) Physics 1st year
121	NIKHIL SHARMA	AB-826	B.Sc. (Hons) Physics 1st year
122	AJEET KUMAR	AB-803	B.Sc. (Hons) Physics 1st year
123	ALISHA BISWAL	ZO-809	B.Sc. (Hons) Physics 2nd year

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ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Physics

(under the aegis DBT STAR College scheme)

is privileged to host

Ms. Priya Chopra

Bonn-Cologne Graduate School of Physics and Astronomy (BCGS), Bonn, GERMANY

The Department cordially invites all students and colleagues to an interactive session on

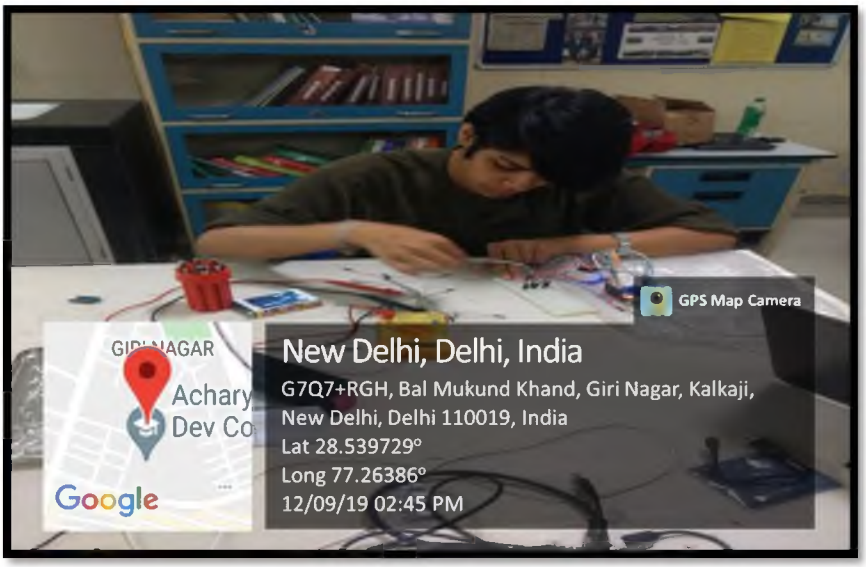
"Quartz Crystal Microbalance (QCM) for environmental monitoring and gas detection"

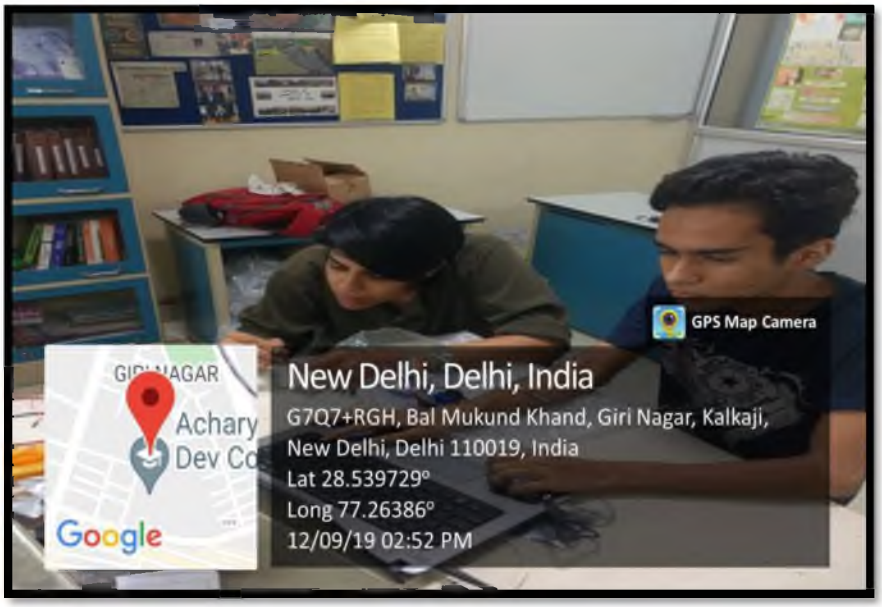
Date: 12 September 2019 (Thursday)

Time: 1.30 p.m.

Venue: College Conference Centre

Event Photographs





Report

Ms. Priya Chopra dwelled upon how Quartz Crystal Microbalance (QCM) was a highly sensitive analytical technique that is used to measure changes in the mass of a thin film or adsorbed material on the surface of a quartz crystal. The technique is based on the piezoelectric effect of quartz crystals, which generate an electrical signal when subjected to mechanical stress. A typical QCM consists of a quartz crystal that is coated with a thin film of the material of interest. The crystal is then oscillated at a specific frequency, which is determined by the mass of the film and its properties. When the film is exposed to a gas or liquid, the mass of the film changes, which causes a shift in the frequency of the crystal oscillation. The shift in frequency is directly proportional to the mass of the material that is adsorbed on the surface of the crystal. QCM has a wide range of applications in materials science, chemistry, and biology. It can be used to study the adsorption and desorption of molecules on a surface, the formation and growth of thin films, and the interaction of biomolecules with surfaces. QCM is also used in the development of sensors, biosensors, and drug discovery platforms. In summary, QCM is a highly sensitive analytical technique that is used to measure changes in the mass of a thin film or adsorbed material on the surface of a quartz crystal. Its wide range of applications makes it a valuable tool in materials science, chemistry, and biology.

One of the main applications of QCM is in the study of surface interactions. QCM can be used to measure the adsorption and desorption of molecules on a surface, the formation and growth of thin films, and the interaction of biomolecules with surfaces. QCM can provide information about the mass, thickness, and viscoelastic properties of the films, as well as the kinetics and thermodynamics of the interactions. QCM is also used in the development of sensors and biosensors. QCM sensors can be designed to detect various analytes, such as gases, liquids, and biomolecules, based on the changes in the mass of the sensor surface. QCM biosensors can provide highly sensitive and specific detection of biomolecules, such as proteins, DNA, and cells, in real-time and label-free. Furthermore, QCM is used in the study of materials properties, such as viscosity, density, and elasticity. QCM can provide information about the viscoelastic properties of films and coatings, as well as the adsorption and diffusion of molecules in porous materials. In addition, QCM is used in the development of drug discovery platforms. QCM can be used to study the interactions of drugs with their targets, as well

as the binding kinetics and affinity of drug candidates. QCM can also be used to study the permeation and transport of drugs through biological membranes. In summary, QCM is a versatile and highly sensitive analytical technique that has a wide range of applications in materials science, chemistry, and biology. The development of new methods and instrumentation is expected to further expand the applications of QCM in the future.

List of Participants

Seminar on SCM for environmental monitoring and gas detection

12 September 2019

Participant List Ms. Priya Chopra, Bonn-Cologne, Germany

S. No.	Name	Roll No	Course
1	PRAGATI	AB-932	BSc Prog 1st year
2	SURBHI KHAJURIA	AB-836	B.Sc. (Hons) Physics 1st year
3	SUMONA KUMAR	YO-949	BSc Prog 3rd year
4	AKANSHA	YO-906	BSc Prog 3rd year
5	PRANSHU MAHALA	AB-828	B.Sc. (Hons) Physics 1st year
6	ABHINAV TYAGI	ZO-803	B.Sc. (Hons) Physics 2nd year
7	RAVINDRA NATH THAKUR	YO-734	B.Sc. (Hons) Physics 3rd year
8	HARSHIT TIWARI	YO-714	B.Sc. (Hons) Physics 3rd year
9	ASHI KUMAR	YO-708	B.Sc. (Hons) Physics 3rd year
10	Manoj Verma	AB-852	B.Sc. (Hons) Physics 1st year
11	DEEPAK KUMAR GOSWAMI	YO-710	B.Sc. (Hons) Physics 3rd year
12	ANSHUL SEMWAL	YO-706	B.Sc. (Hons) Physics 3rd year
13	ABHISHEK MANDAL	ZO-804	B.Sc. (Hons) Physics 2nd year
14	ABHIJEET KUMAR TIWARI	ZO-802	B.Sc. (Hons) Physics 2nd year
15	PRAKHAR YADAV	YO-929	BSc Prog 3rd year
16	ASHISH YADAV	ZO-914	BSc Prog 2nd year
17	UJJWAL KUMAR	YO-759	B.Sc. (Hons) Physics 3rd year
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22	KRISHNA SHARMA	YO-922	BSc Prog 3rd year
23	KALYANI	YO-715	B.Sc. (Hons) Physics 3rd year
24	YASVANT SINGH	YO-955	BSc Prog 3rd year
25	GAURAV ATTRISH	ZO-826	B.Sc. (Hons) Physics 2nd year
26	HANSHA KANWAR	AB-913	BSc Prog 1st year
27	NIKHIL SINGH	YO-927	BSc Prog 3rd year
28	VAISHALI VASHISHTHA	ZO-940	BSc Prog 2nd year
29	NIKHIL SHARMA	AB-826	B.Sc. (Hons) Physics 1st year
30	BANSHI LAL	ZO-821	B.Sc. (Hons) Physics 2nd year
31	KAMAL KUMAR VERMA	YO-716	B.Sc. (Hons) Physics 3rd year
32	LATIKA GAUTAM	AB-923	BSc Prog 1st year
33	AMIT KASANA	YO-958	BSc Prog 3rd year
34	SHIVAM SHAKYA	ZO-937	BSc Prog 2nd year
35	UJJWAL KUMAR	AB-948	BSc Prog 1st year
36	shivangi pandey	AB-856	B.Sc. (Hons) Physics 1st year
37	SHIPRA SUPRABHA	ZO-851	B.Sc. (Hons) Physics 2nd year
38	VIKALP BAJPAI	ZO-942	BSc Prog 2nd year
39	ANKIT KUMAR	ZO-874	B.Sc. (Hons) Physics 2nd year
40	SURESH SINGH DHAMI	ZO-859	B.Sc. (Hons) Physics 2nd year
41	DHEERAJ KUMAR	AB-812	B.Sc. (Hons) Physics 1st year
42	DIKSHA GUPTA	AB-908	BSc Prog 1st year
43	GAURAV	AB-814	B.Sc. (Hons) Physics 1st year
44	KESHAV KUMAR	YO-920	BSc Prog 3rd year
45	AANCHAL GUPTA	YO-701	B.Sc. (Hons) Physics 3rd year

46	LAKHVEER RANA	YO-718	B.Sc. (Hons) Physics 3rd year
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48	GAURAV YADAV	YO-761	B.Sc. (Hons) Physics 3rd year
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53	AMAR CHAND GAHLOT	YO-751	B.Sc. (Hons) Physics 3rd year
54	ARUN KUMAR SOLANIA	ZO-817	B.Sc. (Hons) Physics 2nd year
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56	SONU KUMAR	AB-854	B.Sc. (Hons) Physics 1st year
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59	ANSHUMAN	ZO-911	BSc Prog 2nd year
60	JATIN SAGAR	ZO-948	BSc Prog 2nd year
61	VIKASH TOMAR	ZO-865	B.Sc. (Hons) Physics 2nd year
62	GAURAV KUMAR GAUTAM	ZO-916	BSc Prog 2nd year
63	ANKIT YADAV	AB-848	B.Sc. (Hons) Physics 1st year
64	DHEERAJ KUMAR	ZO-949	BSc Prog 2nd year
65	PIYUSH AGARWAL	AB-931	BSc Prog 1st year
66	LOVENEET	ZO-924	BSc Prog 2nd year
67	KOMAL PRAKASH	YO-921	BSc Prog 3rd year
68	MEENAKSHI KUMARI	AB-822	B.Sc. (Hons) Physics 1st year
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75	RACHNA SHARMA	YO-749	B.Sc. (Hons) Physics 3rd year
76	KM YASHODHARA DEVI	YO-717	B.Sc. (Hons) Physics 3rd year
77	RAMNEEK GHINTALA	ZO-932	BSc Prog 2nd year
78	SUMIT PRATAP SINGH	AB-953	BSc Prog 1st year

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ACHARYA NARENDRA DEV COLLEGE

University of Delhi

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presents

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NEW FRONTIERS IN SCIENCE

Dr Archna Pandey
Dr Seema Makhija
Coordinators

Dr Ravi Toteja
Patron

Dr Ravneet Kaur
Dr Harita Ahuja
Convenors

22
October
2019

For Details Visit
http://andcollege.du.ac.in/

Event Photographs

Report

Interdisciplinary science is a field that integrates knowledge from different disciplines to address complex problems and challenges. New frontiers in interdisciplinary science are emerging as researchers from various fields collaborate to tackle critical issues that require a holistic and integrated approach. Here are some examples of new frontiers in interdisciplinary science:

Artificial Intelligence and Neuroscience: The integration of artificial intelligence (AI) and neuroscience has led to new frontiers in the study of the brain and behavior. Researchers are using AI to analyze complex brain data and develop predictive models of brain activity. This has the potential to revolutionize the diagnosis and treatment of neurological disorders and mental illness.

Materials Science and Energy: The development of new materials for energy storage and conversion is a crucial area of research for the transition to a sustainable and renewable energy system. Materials scientists are working with energy experts to develop new materials for batteries, solar cells, and fuel cells, which could significantly improve energy efficiency and reduce carbon emissions.

Environmental Science and Public Health: The intersection of environmental science and public health has become increasingly important as the impact of environmental pollution on human health becomes more evident. Researchers are studying the effects of air pollution, water contamination, and climate change on human health, and developing strategies to mitigate the risks and improve public health outcomes.

Social Science and Data Science: The integration of social science and data science has led to new frontiers in understanding human behavior and society. Researchers are using big data and machine learning techniques to analyze social media, online behavior, and demographic trends, which could provide insights into issues such as inequality, political polarization, and social cohesion.

Biomedical Engineering and Regenerative Medicine: The field of regenerative medicine is rapidly evolving, and researchers are using biomedical engineering techniques to develop new therapies and treatments for tissue and organ repair. This could have significant implications for the treatment of a wide range of diseases and injuries, including cancer, heart disease, and spinal cord injuries.

In summary, new frontiers in interdisciplinary science are emerging as researchers from different fields collaborate to address complex problems and challenges. These new frontiers have the potential to revolutionize our understanding of the world and provide innovative solutions to some of the most pressing issues facing society today. As interdisciplinary research continues to evolve, it is likely that we will see even more exciting and impactful developments in the future.

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

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Department of Physics

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is privileged to host

Mr. Bishal K. Das

Department of Ecology, Faculty of Environmental Science,
Czech University of Life Science, Prague, CZECH REPUBLIC

The Department cordially invites all students and colleagues to an interactive session on

"Do I see myself doing Science ?"

Date: 09 January 2020 (Thursday)

Time: 10.45 a.m.

Venue: Physics Laboratory – III

Event Photographs

GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
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GPS Map Camera
New Delhi, Delhi, India
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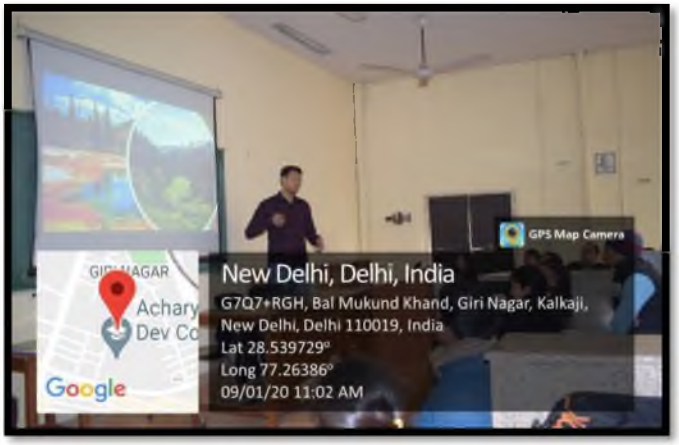
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New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
Lat 28.539729°
Long 77.26386°
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GPS Map Camera
New Delhi, Delhi, India
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New Delhi, Delhi 110019, India
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Long 77.26386°
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Report

Mr. Bishal K. das expounded upon the need to study interdisciplinary science. Interdisciplinary science is becoming increasingly important in addressing complex problems and challenges that cannot be solved by a single discipline alone. Here are some reasons why studying interdisciplinary science is essential:

a) Tackling Complex Problems: Interdisciplinary science enables researchers to approach complex problems from multiple perspectives and to integrate knowledge and techniques from different fields. This can lead to innovative solutions that would not be possible through a single-discipline approach.

b) Fostering Creativity and Innovation: Interdisciplinary science encourages creativity and innovation by breaking down traditional disciplinary boundaries and promoting collaboration and communication between researchers from different fields. This can lead to new ideas, approaches, and discoveries that have the potential to revolutionize our understanding of the world.

c) Addressing Societal Challenges: Interdisciplinary science is essential for addressing societal challenges, such as climate change, public health, and energy sustainability, which require an integrated approach involving multiple disciplines. By studying interdisciplinary science, researchers can develop solutions that consider the social, economic, and environmental factors involved in these challenges.

d) Career Opportunities: Interdisciplinary science is a rapidly growing field, and studying interdisciplinary science can provide opportunities for a wide range of careers in academia, industry, government, and non-profit organizations. Interdisciplinary scientists are in high demand, as they can bring a unique set of skills and perspectives to a variety of fields.

e) Personal and Professional Growth: Studying interdisciplinary science can also lead to personal and professional growth by providing opportunities for personal development, building new skills, and expanding your knowledge and understanding of the world.

In conclusion, the need to study interdisciplinary science has become increasingly important as the challenges facing our society become more complex and require an integrated approach. Studying interdisciplinary science can foster creativity, innovation, and collaboration, while also providing opportunities for personal and professional growth. By pursuing interdisciplinary research, we can develop solutions that can have a significant impact on society and help us build a better future.

List of Participants

Seminar on 'Do I see myself doing science'
– Mr. Bishal K. Das, Czech University – 11:00 a.m.
January 9, 2020

S. No.	Name	Roll No	Coure
1	AFSHEEN ASHRAF	YO-905	BSc Prog 3rd year
2	LAKHVEER RANA	YO-718	B.Sc. (Hons) Physics 3rd year
3	ARCHIT SINGH	ZO-912	BSc Prog 2nd year
4	SHUBHAM VERMA	YO-763	B.Sc. (Hons) Physics 3rd year
5	ABHIJEET KUMAR TIWARI	ZO-802	B.Sc. (Hons) Physics 2nd year
6	SONU KUMAR	AB-854	B.Sc. (Hons) Physics 1st year
7	VIKAS DWIVEDI	ZO-943	BSc Prog 2nd year
8	ABHISHEK MANDAL	ZO-804	B.Sc. (Hons) Physics 2nd year
9	KARTIK KAY	ZO-920	BSc Prog 2nd year
10	SHWETA TIWARI	AB-947	BSc Prog 1st year
11	ARUN KUMAR SOLANIA	ZO-817	B.Sc. (Hons) Physics 2nd year
12	LOVENEET	ZO-924	BSc Prog 2nd year
13	AKSHIT AGGARWAL	ZO-808	B.Sc. (Hons) Physics 2nd year
14	SOMSUVRA DAS	AB-834	B.Sc. (Hons) Physics 1st year
15	SUNEEL KUMAR	AB-835	B.Sc. (Hons) Physics 1st year
16	RASHMI LAMBHA	YO-936	BSc Prog 3rd year
17	DHEERAJ KUMAR	ZO-949	BSc Prog 2nd year
18	PRINCE	ZO-931	BSc Prog 2nd year
19	JATIN SAGAR	ZO-948	BSc Prog 2nd year
20	ARUL BAGGA	AB-849	B.Sc. (Hons) Physics 1st year
21	PANKAJ PANDEY	ZO-929	BSc Prog 2nd year
22	AMAN MISHRA	ZO-907	BSc Prog 2nd year
23	PRAJWAL UPADHYAY	ZO-839	B.Sc. (Hons) Physics 2nd year
24	SACHIN GUPTA	AB-831	B.Sc. (Hons) Physics 1st year
25	SHIKHA KATIYAR	YO-745	B.Sc. (Hons) Physics 3rd year
26	VIKASH TOMAR	ZO-865	B.Sc. (Hons) Physics 2nd year
27	JITENDER KUMAR	YO-918	BSc Prog 3rd year
28	SAKSHI	ZO-934	BSc Prog 2nd year
29	ANKIT VERMA	YO-705	B.Sc. (Hons) Physics 3rd year
30	NIDHA HIND K	AB-825	B.Sc. (Hons) Physics 1st year
31	ABHINAV TYAGI	ZO-803	B.Sc. (Hons) Physics 2nd year
32	LAXMI	YO-719	B.Sc. (Hons) Physics 3rd year
33	MANISH	AB-819	B.Sc. (Hons) Physics 1st year
34	ANURAG KUMAR	ZO-815	B.Sc. (Hons) Physics 2nd year
35	AKHILESH KUMAR	ZO-807	B.Sc. (Hons) Physics 2nd year
36	TUSHAR RATRA	AB-837	B.Sc. (Hons) Physics 1st year
37	AKASH KUMAR	ZO-903	BSc Prog 2nd year
38	RACHNA SHARMA	YO-749	B.Sc. (Hons) Physics 3rd year
39	DHEERAJ KUMAR	AB-812	B.Sc. (Hons) Physics 1st year
40	PRAVEEN SINGH	ZO-841	B.Sc. (Hons) Physics 2nd year
41	VINEET KUMAR SINGH	ZO-944	BSc Prog 2nd year
42	NITIN JOSHI	ZO-838	B.Sc. (Hons) Physics 2nd year
43	MANISH KUMAR	AB-820	B.Sc. (Hons) Physics 1st year
44	ASHUTOSH GAIROLA	AB-905	BSc Prog 1st year
45	ANKIT YADAV	AB-848	B.Sc. (Hons) Physics 1st year
46	NANDITA MAHATO	YO-724	B.Sc. (Hons) Physics 3rd year
47	DEEPAK KUMAR GOSWAMI	YO-710	B.Sc. (Hons) Physics 3rd year
48	MUKUL KUMAR	ZO-927	BSc Prog 2nd year
49	Manoj Verma	AB-852	B.Sc. (Hons) Physics 1st year

1/2

50	ABHISHEK DUBEY	AB-901	BSc Prog 1st year
51	ankit singh	AB-957	BSc Prog 1st year
52	AMAN KUMAR	ZO-810	B.Sc. (Hons) Physics 2nd year
53	NIRMAL KUMAR	YO-727	B.Sc. (Hons) Physics 3rd year
54	KUNAL KUMAR	AB-817	B.Sc. (Hons) Physics 1st year
55	KOMAL PRAKASH	YO-921	BSc Prog 3rd year
56	NISHANK	YO-728	B.Sc. (Hons) Physics 3rd year
57	AMAN KUMAR	ZO-906	BSc Prog 2nd year
58	NITESH GANGWAR	ZO-836	B.Sc. (Hons) Physics 2nd year
59	SANJAY KUMAR MEENA	YO-758	B.Sc. (Hons) Physics 3rd year
60	GAURAV	AB-814	B.Sc. (Hons) Physics 1st year
61	UTTAM SINGH	YO-952	BSc Prog 3rd year
62	RAMSWARUP THALORE	YO-935	BSc Prog 3rd year
63	HANSHA KANWAR	AB-913	BSc Prog 1st year
64	PRIYANKA SHARMA	ZO-843	B.Sc. (Hons) Physics 2nd year
65	SHIVANK SHARMA	ZO-853	B.Sc. (Hons) Physics 2nd year
66	BRIJNANDAN KUMAR RAY	ZO-822	B.Sc. (Hons) Physics 2nd year
67	SONU PAL	YO-746	B.Sc. (Hons) Physics 3rd year
68	Abhishek Binjola	AB-845	B.Sc. (Hons) Physics 1st year
69	VINOD JAKHAR	ZO-867	B.Sc. (Hons) Physics 2nd year
70	RAAYESHA AMIN	ZO-844	B.Sc. (Hons) Physics 2nd year
71	ALISHA BISWAL	ZO-809	B.Sc. (Hons) Physics 2nd year
72	ANKUR BADOLA	ZO-813	B.Sc. (Hons) Physics 2nd year
73	PRAVIN BHIMASHANKAR KAMALE	ZO-842	B.Sc. (Hons) Physics 2nd year
74	SHALINI BISHT	ZO-850	B.Sc. (Hons) Physics 2nd year
75	KAILASH	YO-753	B.Sc. (Hons) Physics 3rd year

2/2

ACHARYA NARENDRA DEV COLLEGE

(University of Delhi)

NAAC accredited 'A' grade

Department of Physics

(under the aegis DBT STAR College scheme)

is privileged to host

Professor Kedar Singh

Dean, School of Physical Sciences,

Jawaharlal Nehru University, New Delhi (INDIA)

"Materials for Future Generation Photovoltaic Solar Cells"

The Department cordially invites all students and colleagues to an interactive session on

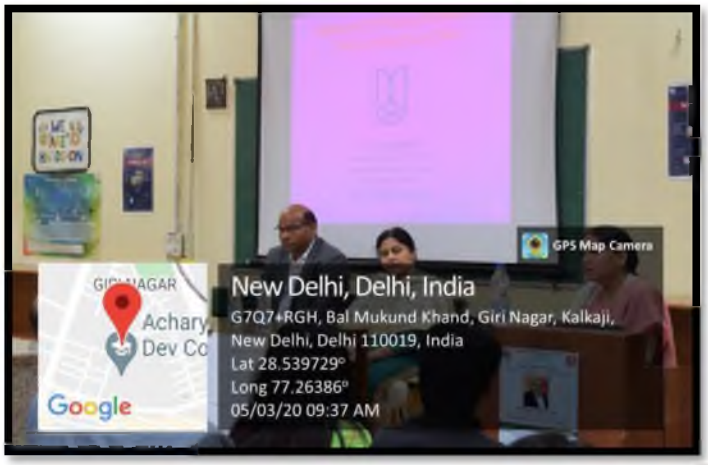
Date: 05 March, 2020 (Thursday)

Time: 9:30 a.m.

Venue: Physics Laboratory – III

Organizer: Department of Physics, ANDC

Event Photographs


GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
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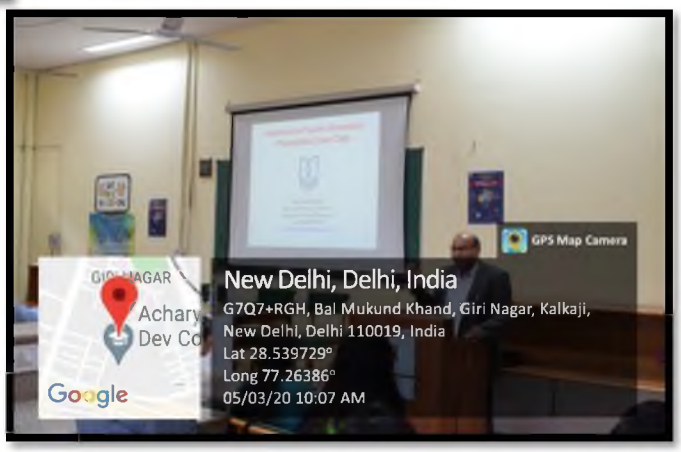
GPS Map Camera
New Delhi, Delhi, India
G7Q7+RGH, Bal Mukund Khand, Giri Nagar, Kalkaji,
New Delhi, Delhi 110019, India
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Long 77.26386°
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GPS Map Camera
New Delhi, Delhi, India
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New Delhi, Delhi 110019, India
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GPS Map Camera
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New Delhi, Delhi 110019, India
Lat 28.539729°
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Events organized

Report

Professor Kedar Singh explained that photovoltaic solar cells are devices that convert sunlight into electrical energy. They are made of semiconducting materials, which absorb photons from the sun and release electrons, creating an electric current. The efficiency of photovoltaic solar cells has improved over the years, and they have become an increasingly important source of renewable energy. However, there is still a lot of room for improvement, and research is ongoing to develop new materials for future generation photovoltaic solar cells.

One of the most promising materials for photovoltaic solar cells is perovskite. Perovskite is a mineral with a unique crystal structure that allows it to absorb light and convert it into electricity. Perovskite solar cells have shown a great potential for high efficiency and low cost. They can be fabricated using solution-based techniques, which are much cheaper than the traditional

semiconductor manufacturing processes. However, perovskite solar cells are still facing some challenges, such as stability and durability issues, and researchers are working on improving their performance.

Another material that has been gaining attention for photovoltaic solar cells is organic semiconductors. Organic semiconductors are made of carbon-based molecules, which can be processed from solution to form thin films. They have shown great potential for low-cost, lightweight, and flexible solar cells, which can be integrated into various applications, such as wearable devices, building-integrated photovoltaics, and portable electronics. However, organic solar cells still have lower efficiency than their inorganic counterparts, and researchers are working on improving their stability and lifetime.

In addition to perovskite and organic semiconductors, there are other materials that are being explored for future generation photovoltaic solar cells, such as quantum dots, metal halide perovskites, and two-dimensional materials. Quantum dots are tiny particles that can absorb light and emit it at different wavelengths, making them suitable for multi-junction solar cells that can harvest a wide range of sunlight. Metal halide perovskites are a class of materials that have similar properties to the traditional perovskite, but with improved stability and durability. Two-dimensional materials, such as graphene and transition metal dichalcogenides, have unique electronic and optical properties that can be tuned for solar energy conversion.

In conclusion, the development of new materials for photovoltaic solar cells is crucial for advancing the efficiency, cost-effectiveness, and applicability of solar energy. Perovskite, organic semiconductors, quantum dots, metal halide perovskites, and twodimensional materials are some of the promising candidates for future generation photovoltaic solar cells. However, there are still many challenges to overcome, such as stability, scalability, and compatibility with existing infrastructure. Nevertheless, the progress in materials science and engineering is expected to drive the growth of the photovoltaic solar cell industry and contribute to a sustainable energy future.

List of Participants

Professor Kedar Singh, SMS, J.N.U.
5th March 2020 — Materials for 'future' generation solar cells
— 11:30 a.m. Lab - III

S. No.	Name	Roll No	Course
1	NISHCHAL JAIN	YO-729	B.Sc. (Hons) Physics 3rd year
2	TUSHAR RATRA	AB-837	B.Sc. (Hons) Physics 1st year
3	ABHISHEK AGARWAL	YO-902	BSc Prog 3rd year
4	GHANSHYAM	YO-754	B.Sc. (Hons) Physics 3rd year
5	MANISHA GOND	AB-821	B.Sc. (Hons) Physics 1st year
6	LAKHVEER RANA	YO-718	B.Sc. (Hons) Physics 3rd year
7	AMAN THOLIA	AB-903	BSc Prog 1st year
8	ANKIT VERMA	YO-705	B.Sc. (Hons) Physics 3rd year
9	SHIVANSHU TRIPATHI	ZO-854	B.Sc. (Hons) Physics 2nd year
10	PRIYANKA SHARMA	ZO-843	B.Sc. (Hons) Physics 2nd year
11	MOHD SHOAIB MALIK	ZO-833	B.Sc. (Hons) Physics 2nd year
12	ATUL RAJPUT	YO-709	B.Sc. (Hons) Physics 3rd year
13	KALYANI	YO-715	B.Sc. (Hons) Physics 3rd year
14	VIPUL MISHRA	YO-747	B.Sc. (Hons) Physics 3rd year
15	ARCHIT SINGH	ZO-912	BSc Prog 2nd year
16	VIDIT VERMA	ZO-864	B.Sc. (Hons) Physics 2nd year
17	VINOD JAKHAR	ZO-867	B.Sc. (Hons) Physics 2nd year
18	PRATHAM MAKHIJA	AB-846	B.Sc. (Hons) Physics 1st year
19	KAJAL	AB-816	B.Sc. (Hons) Physics 1st year
20	PARAG TYAGI	AB-930	BSc Prog 1st year
21	ANUDEEP A S	ZO-814	B.Sc. (Hons) Physics 2nd year
22	TUSHAR MISHRA	ZO-861	B.Sc. (Hons) Physics 2nd year
23	NIDHA HIND K	AB-825	B.Sc. (Hons) Physics 1st year
24	SACHIN MISHRA	YO-738	B.Sc. (Hons) Physics 3rd year
25	MOHD SARIF SALMANI	YO-723	B.Sc. (Hons) Physics 3rd year
26	VIREN TYAGI	ZO-868	B.Sc. (Hons) Physics 2nd year
27	DEBOJYATI KONER	ZO-824	B.Sc. (Hons) Physics 2nd year
28	DIVESH SINGH RAWAT	YO-752	B.Sc. (Hons) Physics 3rd year
29	AJEET KUMAR	AB-803	B.Sc. (Hons) Physics 1st year
30	VIVEK PATWAL	YO-748	B.Sc. (Hons) Physics 3rd year
31	ABHIJEET KUMAR TIWARI	ZO-802	B.Sc. (Hons) Physics 2nd year
32	RITU	YO-736	B.Sc. (Hons) Physics 3rd year
33	VIPUL KUMAR	ZO-945	BSc Prog 2nd year
34	SHIPRA SUPRABHA	ZO-851	B.Sc. (Hons) Physics 2nd year
35	MD AZAD	AB-926	BSc Prog 1st year
36	MANISH	AB-819	B.Sc. (Hons) Physics 1st year
37	AAKASH SIROHI	YO-901	BSc Prog 3rd year
38	VINEET KUMAR	ZO-866	B.Sc. (Hons) Physics 2nd year
39	YASHIKA SARASWAT	AB-839	B.Sc. (Hons) Physics 1st year
40	KESHAV KUMAR	YO-920	BSc Prog 3rd year
41	PANKAJ PANDEY	ZO-929	BSc Prog 2nd year
42	SONU PAL	YO-746	B.Sc. (Hons) Physics 3rd year
43	MEENAKSHI KUMARI	AB-822	B.Sc. (Hons) Physics 1st year
44	ANKIT YADAV	AB-848	B.Sc. (Hons) Physics 1st year
45	YUKTA KANDPAL	ZO-873	B.Sc. (Hons) Physics 2nd year
46	PALLVI	AB-827	B.Sc. (Hons) Physics 1st year
47	BINDU	AB-809	B.Sc. (Hons) Physics 1st year
48	NIHAL SINGH	YO-725	B.Sc. (Hons) Physics 3rd year
49	DHEERAJ KUMAR	AB-812	B.Sc. (Hons) Physics 1st year

1/2

50	MOHAMMAD NAZIM	ZO-832	B.Sc. (Hons) Physics 2nd year
51	AMAN KUMAR	ZO-810	B.Sc. (Hons) Physics 2nd year
52	PIYUSH YADAV	YO-928	BSc Prog 3rd year
53	LATIKA GAUTAM	AB-923	BSc Prog 1st year
54	SHIVAM SHAKYA	ZO-937	BSc Prog 2nd year
55	GAURAV ATTRISH	ZO-826	B.Sc. (Hons) Physics 2nd year
56	PRAVIN BHIMASHANKAR KAMALE	ZO-842	B.Sc. (Hons) Physics 2nd year
57	VIVEK KUMAR	ZO-869	B.Sc. (Hons) Physics 2nd year
58	NEERAJ MAURYA	YO-762	B.Sc. (Hons) Physics 3rd year
59	HARSH KUMAR	YO-713	B.Sc. (Hons) Physics 3rd year
60	ANKUR BADOLA	ZO-813	B.Sc. (Hons) Physics 2nd year
61	KARAN SHARMA	ZO-829	B.Sc. (Hons) Physics 2nd year
62	SAHIL KUMAR	ZO-848	B.Sc. (Hons) Physics 2nd year
63	UJJWAL KUMAR	YO-759	B.Sc. (Hons) Physics 3rd year
64	RASHID ALI RATHER	ZO-846	B.Sc. (Hons) Physics 2nd year
65	SHWETA TIWARI	AB-947	BSc Prog 1st year
66	LAXMI	YO-719	B.Sc. (Hons) Physics 3rd year
67	MAHAK GUPTA	YO-720	B.Sc. (Hons) Physics 3rd year
68	RAMSWARUP THALORE	YO-935	BSc Prog 3rd year
69	RITESH	YO-755	B.Sc. (Hons) Physics 3rd year
70	MANOJ KUMAR SAHU	YO-721	B.Sc. (Hons) Physics 3rd year
71	SHALINI BISHT	ZO-850	B.Sc. (Hons) Physics 2nd year
72	SHUBHAM VERMA	YO-763	B.Sc. (Hons) Physics 3rd year
73	ABHISHEK MANDAL	ZO-804	B.Sc. (Hons) Physics 2nd year
74	NAIPAL SINGH	YO-760	B.Sc. (Hons) Physics 3rd year

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DEPARTMENT OF BOTANY

Conferences/Workshops/Seminars for the year 2017-18

WORKSHOP

MICROBIAL TECHNIQUES RBPT BASED WORKSHOP

12-14 MARCH 2018
Professor Pawan Kumar Dhar
Dean, School of Biotechnology
Jawahar Lal Nehru University
Email Id: pawandhar@mail.jnu.ac.in

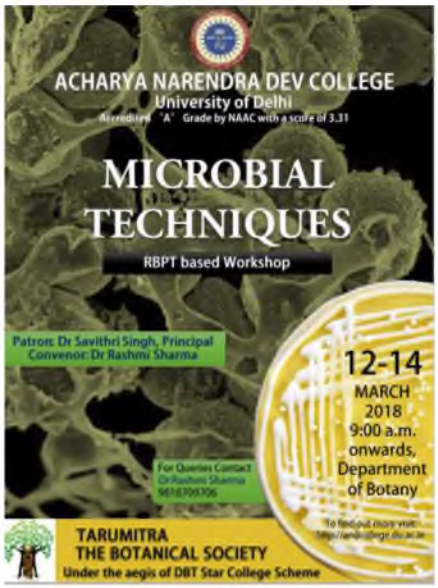
Department organized a three day workshop on "Microbial Techniques" based on RBPT (Research Based Pedagogical Tools) under the aegis of DBT star college scheme.

Participants were given hands-on experience of Luria Bertani (LB) and LB agar media
preparation, autoclaving and laminar hood, use for inoculation, spreading and streaking of bacteria (*E. coli*) in LB and LB agar plates respectively. Lectures on preparation of competent cells, transformation and screening techniques were delivered by various faculty members. The process was also demonstrated through a video film. This was followed by hands-on preparation of the competent cells by the participants. Hands-on transformation of *E. coli* and inoculation on selection and screening media was performed by the students.

The concluding session was based on RBPT and was conducted by Dr Rashmi Sharma, wherein the participants were given an opportunity to represent their learning, understanding and applications of the microbial techniques on a poster. Participants were divided into random group of three and each group was asked to prepare one poster on application of their learning and experience gained during the workshop
for which they were allotted 3 hours and allowed access to study material from library and internet to ease their task. The posters were all displayed together and evaluated by a committee. Each member of the respective group actively participated and openly defended their ideas and proposed application of the techniques they learnt in the workshop.

ACHARYA NARENDRA DEV COLLEGE
University of Delhi
MICROBIAL TECHNIQUES
RBPT based workshop
Organized by
TARUMITRA
THE BOTANICAL SOCIETY
12-14
Under the aegis of DBT Star College Scheme

Patron
Convenor
Dr. Rashmi Sharma
Co-Convenor
Dr. Anita Narang


ACHARYA NARENDRA DEV COLLEGE
University of Delhi
Accredited "A" Grade by NAAC with a score of 3.31
MICROBIAL TECHNIQUES
RBPT based Workshop
Patron: Dr Savithri Singh, Principal
Convenor: Dr Rashmi Sharma
12-14
MARCH
2018
9:00 a.m.
onwards,
Department
of Botany
TARUMITRA
THE BOTANICAL SOCIETY
Under the aegis of DBT Star College Scheme

Objective and Scope

The Primary objective of the workshop is to gain the insight of various basic techniques used in microbial laboratory by hands-on training and practical demonstrations. The workshop will provide the right exposure to the students at the undergraduate level and it is highly relevant in terms of advances in the contemporary era of microbial biotechnology. It's also a rare opportunity for students from non-biological courses to join in and gain hands on insight into the world of bacteria!

Focus Area

In addition to thee multifarious roles "bacteria" are an ideal candidate for genetic engineering. They are relatively simple, single celled organisms with DNA not bound in any organelle. Available as an inexhaustible supply, they are easy to reproduce and so can be manipulated under laboratory conditions. The workshop will provide up-to-date knowledge in the field of practical microbiology with special reference to bacteria. It will encompass the basics of the laboratory techniques starting with setting up a bacterial culture up to bacterial transformation.

Topics to be covered

- Introduction to microbiological lab-work: Sterilization, disinfecting, steps and instruments/ equipment used for microbial culture
- Media: Different types and preparation
- Bacterial culture: Basic of characterization, classification and identification of bacteria, streaking, plating, incubation, evaluation of culture and storage of cultures
- Bacterial Transformation: Preparation of competent cell, transformation by heat shock method followed by blue white screening to identify positive transformants.
- Applications in genomics, industry
- Plasmid DNA isolation

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

Accredited "A" Grade by NAAC with a score of 3.31

REGISTRATION FORM

LIMITED SEATS

NAME: _____

Name and Address of Institution/College : _____

_____

_____

_____

M/F: _____ Course _____

Contact Number: _____

E-mail ID: _____

Signature: _____ Signature of TIC _____

Payment Details

UTR No./ Transfer ID _____

Transfer Date: _____

Remitter Bank Name/Branch _____

Amount: Rs.

NEFT /Online Banking Details

Beneficiary Name: Acharya Narendra Dev College

Bank: Punjab National Bank, Krishna Market , Kalkaji, New Delhi-110019

IFSC code: PUNB0015600 Account Number: 0156000100399145

Last date for Registration: 1st March 2019

Note: From each college/institution only 5 students are allowed after written permission of their respective Teacher-in-charge

ACHARYA NARENDRA DEV COLLEGE

Research Based Pedagogy Tools (RBPT) based workshop on "Microbial Techniques"

March 12-14, 2018

S.No.	Course	Roll_No	Name
1	B.Sc. (Hons) BOTANY	WO-004	A.C PRAKRITI
2	B.Sc. (Hons) BOTANY	WO-059	AARTI KUMARI
3	B.Sc. (Hons) BOTANY	WO-044	AARTI RAJPUT
4	B.Sc. (Hons) BOTANY	WO-069	ADIL
5	B.Sc. (Hons) BOTANY	WO-066	ANAND KUMAR BHARTI
6	B.Sc. (Hons) BOTANY	WO-056	ANKITA
7	B.Sc. (Hons) BOTANY	WO-012	APURVA MALIK
8	B.Sc. (Hons) BOTANY	WO-043	ARUN KUMAR
9	B.Sc. (Hons) BOTANY	WO-034	DOLLY
10	B.Sc. (Hons) BOTANY	WO-060	HUIREM JAYASHANGKAR SINGH

11	B.Sc. (Hons) BOTANY	WO-023	JASMINE
12	B.Sc. (Hons) BOTANY	WO-003	KHUSH MUTHA
13	B.Sc. (Hons) BOTANY	WO-032	LAVI PATHAK
14	B.Sc. (Hons) BOTANY	WO-030	LYANGMIT LEPCHA
15	B.Sc. (Hons) BOTANY	WO-064	MAYANK KATIYAR
16	B.Sc. (Hons) BOTANY	WO-062	MEGHA YADAV
17	B.Sc. (Hons) BOTANY	WO-047	MUKUL SHARMA
18	B.Sc. (Hons) BOTANY	WO-022	NEHA LAUR
19	B.Sc. (Hons) BOTANY	WO-038	PARUL DEV
20	B.Sc. (Hons) BOTANY	WO-013	PRACHI SINGH
21	B.Sc. (Hons) BOTANY	WO-033	PRAGYA RUSTAGI
22	B.Sc. (Hons) BOTANY	WO-045	PRATYAKSH SINGH
23	B.Sc. (Hons) BOTANY	WO-015	PRITAM KASHYAP
24	B.Sc. (Hons) BOTANY	WO-058	PRIYANKA KARNWAL
25	B.Sc. (Hons) BOTANY	WO-035	RAHUL KUMAR MEENA
26	B.Sc. (Hons) BOTANY	WO-042	RAM TIRTH
27	B.Sc. (Hons) BOTANY	WO-001	RINKI KUMARI
28	B.Sc. (Hons) BOTANY	WO-017	RISHABH MIRCHANDANI
29	B.Sc. (Hons) BOTANY	WO-061	RITU GUPTA
30	B.Sc. (Hons) BOTANY	WO-055	SAIF ALI
31	B.Sc. (Hons) BOTANY	WO-072	SALTANAT HUSSAIN
32	B.Sc. (Hons) BOTANY	WO-011	SARANYA NAIR
33	B.Sc. (Hons) BOTANY	WO-049	SHAFIQUR RAHMAN
34	B.Sc. (Hons) BOTANY	WO-025	SHALLY LOHIYA
35	B.Sc. (Hons) BOTANY	WO-068	SHAMBHAVI KUSHWAHA
36	B.Sc. (Hons) BOTANY	WO-031	SHASHANK KUMAR
37	B.Sc. (Hons) BOTANY	WO-002	SHASHIKANT PANDIT
38	B.Sc. (Hons) BOTANY	WO-054	TWINKLE GARG
39	B.Sc. (Hons) BOTANY	WO-048	UTKARSH GARG
40	B.Sc. (Hons) BOTANY	WO-016	VAISHNAVI TRIPATHI
41	B.Sc. (Hons) BOTANY	WO-027	VYAKHYA SHARMA
42	B.Sc. (Hons) BOTANY	WO-073	YOGESH YADAV
43	B.Sc. LIFE SCIENCE	XO-602	ABHINAV MATHUR
44	B.Sc. LIFE SCIENCE	XO-605	Aditya Khandelwal
45	B.Sc. LIFE SCIENCE	XO-604	ADITYA KUMAR
46	B.Sc. LIFE SCIENCE	XO-698	AKANSHA MARTOLIA
47	B.Sc. LIFE SCIENCE	XO-606	Akash Kumar
48	B.Sc. LIFE SCIENCE	XO-607	ALISHA YADAV
49	B.Sc. LIFE SCIENCE	XO-610	ANISUR RAHMAN
50	B.Sc. LIFE SCIENCE	XO-611	ANNU YADAV
51	B.Sc. LIFE SCIENCE	XO-612	ANUJ KUMAR PANDEY
52	B.Sc. LIFE SCIENCE	XO-613	ARCHANA KASHYAP
53	B.Sc. LIFE SCIENCE	XO-614	ARIBAM BIKU SHARMA
54	B.Sc. LIFE SCIENCE	XO-616	Bhawna

55	B.Sc. LIFE SCIENCE	XO-617	BONTI DAS
56	B.Sc. LIFE SCIENCE	XO-618	Chaarvi Dwivedi
57	B.Sc. LIFE SCIENCE	XO-619	CHANPREET KAUR
58	B.Sc. LIFE SCIENCE	XO-620	Deepak Singh
59	B.Sc. LIFE SCIENCE	XO-625	Ginni Khullar
60	B.Sc. LIFE SCIENCE	XO-626	GULNAR PARVEEN
61	B.Sc. LIFE SCIENCE	XO-627	HARI OM
62	B.Sc. LIFE SCIENCE	XO-629	ISHA AGGARWAL
63	B.Sc. LIFE SCIENCE	XO-631	JIGYASA PANDEY
64	B.Sc. LIFE SCIENCE	XO-632	JULIE DEY NAYEK
65	B.Sc. LIFE SCIENCE	XO-634	LAKSHAY ROHILLA
66	B.Sc. LIFE SCIENCE	XO-635	LAKSHITA BHATI
67	B.Sc. LIFE SCIENCE	XO-636	Lavanya Rawat
68	B.Sc. LIFE SCIENCE	XO-637	MAHIMA
69	B.Sc. LIFE SCIENCE	XO-639	MANISH KOHLI
70	B.Sc. LIFE SCIENCE	XO-640	MANSI YADAV
71	B.Sc. LIFE SCIENCE	XO-641	Martin Chongtham
72	B.Sc. LIFE SCIENCE	XO-642	mayank bajaj
73	B.Sc. LIFE SCIENCE	XO-643	MEGHA SHARMA
74	B.Sc. LIFE SCIENCE	XO-644	MILLIONAIRAE LAISHRAM
75	B.Sc. LIFE SCIENCE	XO-645	MOHD EZAZ ALI
76	B.Sc. LIFE SCIENCE	XO-647	MOHIT SINGH
77	B.Sc. LIFE SCIENCE	XO-646	Mohit Yadav
78	B.Sc. LIFE SCIENCE	XO-648	MONIKA SINGH
79	B.Sc. LIFE SCIENCE	XO-649	MUNENDRA KUMAR
80	B.Sc. LIFE SCIENCE	XO-697	NAVIN CHAND RAMOLA
81	B.Sc. LIFE SCIENCE	XO-650	Nazir Hussain
82	B.Sc. LIFE SCIENCE	XO-652	NEHA SHARMA
83	B.Sc. LIFE SCIENCE	XO-696	NITISH KUMAR
84	B.Sc. LIFE SCIENCE	XO-653	Pooja Rana
85	B.Sc. LIFE SCIENCE	XO-654	PRACHI SINGH
86	B.Sc. LIFE SCIENCE	XO-655	PREETI
87	B.Sc. LIFE SCIENCE	XO-656	PRIYANKA
88	B.Sc. LIFE SCIENCE	XO-657	Priyanka yadav
89	B.Sc. LIFE SCIENCE	XO-658	PRIYANSHU
90	B.Sc. LIFE SCIENCE	XO-659	RADHIKA SATIJA

Ashukla

Seminars

Biodiversity and the Need for its Conservation'

Dr. Rita Singh
Email: ritasingh@ipu.ac.in
Phone No. 9818792414
University School of Environment Management (USEM),
Guru Gobind Singh Indraprastha University (GGSIPU), New Delhi
November 2, 2017

On November 2, 2017 Professor Rita Singh from University School of Environment Management, Guru Gobind Singh Indraprastha University (GGSIPU), New Delhi enlightened the students by her lecture entitled 'Biodiversity and the Need for its Conservation'. She highlighted the importance of biological diversity in the maintenance of the equilibrium of the eco-system, traditional knowledge of India in shaping future research.

Dr. Savithri Singh

ACHARYA NARENDRA DEV COLLEGE

Biodiversity and the Need for its Conversation
November 2, 2017

S.No.	Course	Roll_No	Name
1	B.Sc. (Hons) BOTANY	XO-062	MAHIMA KUWARBI
2	B.Sc. (Hons) BOTANY	XO-022	MANASH KUMAR BEHERA
3	B.Sc. (Hons) BOTANY	XO-023	MANJUL SINGH
4	B.Sc. (Hons) BOTANY	XO-024	MANOHAR SINGH BISHT
5	B.Sc. (Hons) BOTANY	XO-025	MANOJ KUMAR
6	B.Sc. (Hons) BOTANY	XO-026	MANSI NEGI
7	B.Sc. (Hons) BOTANY	XO-027	MEDHA JHA
8	B.Sc. (Hons) BOTANY	WO-004	A.C PRAKRITI
9	B.Sc. (Hons) BOTANY	WO-059	AARTI KUMARI
10	B.Sc. (Hons) BOTANY	WO-044	AARTI RAJPUT
11	B.Sc. (Hons) BOTANY	WO-069	ADIL
12	B.Sc. (Hons) BOTANY	WO-066	ANAND KUMAR BHARTI
13	B.Sc. (Hons) BOTANY	WO-056	ANKITA
14	B.Sc. (Hons) BOTANY	WO-012	APURVA MALIK
15	B.Sc. (Hons) BOTANY	WO-043	ARUN KUMAR
16	B.Sc. (Hons) BOTANY	WO-034	DOLLY
17	B.Sc. (Hons) BOTANY	WO-060	HUIREM JAYASHANGKAR SINGH
18	B.Sc. (Hons) BOTANY	WO-023	JASMINE
19	B.Sc. (Hons) BOTANY	WO-003	KHUSH MUTHA

20	B.Sc. (Hons) BOTANY	WO-032	LAVI PATHAK
21	B.Sc. (Hons) BOTANY	WO-030	LYANGMIT LEPCHA
22	B.Sc. (Hons) BOTANY	WO-064	MAYANK KATIYAR
23	B.Sc. (Hons) BOTANY	WO-062	MEGHA YADAV
24	B.Sc. (Hons) BOTANY	WO-047	MUKUL SHARMA
25	B.Sc. (Hons) BOTANY	WO-022	NEHA LAUR
26	B.Sc. (Hons) BOTANY	WO-038	PARUL DEV
27	B.Sc. (Hons) BOTANY	XO-027	MEDHA JHA
28	B.Sc. (Hons) BOTANY	WO-004	A.C PRAKRITI
29	B.Sc. (Hons) BOTANY	WO-059	AARTI KUMARI
30	B.Sc. (Hons) BOTANY	WO-044	AARTI RAJPUT
31	B.Sc. (Hons) BOTANY	WO-069	ADIL
32	B.Sc. (Hons) BOTANY	WO-066	ANAND KUMAR BHARTI
33	B.Sc. (Hons) BOTANY	WO-056	ANKITA
34	B.Sc. (Hons) BOTANY	WO-012	APURVA MALIK
35	B.Sc. (Hons) BOTANY	WO-043	ARUN KUMAR
36	B.Sc. (Hons) BOTANY	WO-034	DOLLY
37	B.Sc. (Hons) BOTANY	WO-060	HUIREM JAYASHANGKAR SINGH
38	B.Sc. (Hons) BOTANY	WO-023	JASMINE
39	B.Sc. (Hons) BOTANY	WO-003	KHUSH MUTHA
40	B.Sc. (Hons) BOTANY	WO-032	LAVI PATHAK
41	B.Sc. (Hons) BOTANY	WO-030	LYANGMIT LEPCHA
42	B.Sc. (Hons) BOTANY	WO-064	MAYANK KATIYAR
43	B.Sc. (Hons) BOTANY	WO-062	MEGHA YADAV

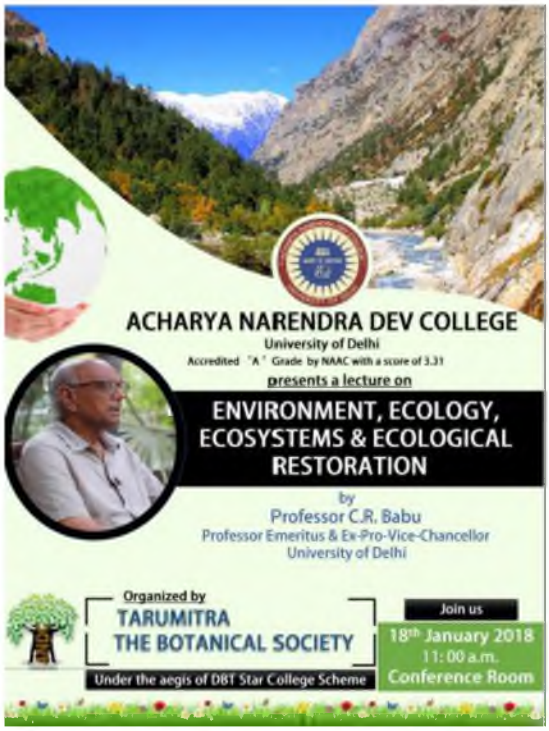
44	B.Sc. (Hons) BOTANY	WO-047	MUKUL SHARMA
45	B.Sc. (Hons) BOTANY	WO-022	NEHA LAUR
46	B.Sc. (Hons) BOTANY	WO-038	PARUL DEV
47	B.Sc. (Hons) BOTANY	WO-013	PRACHI SINGH
48	B.Sc. (Hons) BOTANY	XO-062	MAHIMA KUWARBI
49	B.Sc. (Hons) BOTANY	XO-022	MANASH KUMAR BEHERA
50	B.Sc. (Hons) BOTANY	XO-023	MANJUL SINGH
51	B.Sc. (Hons) BOTANY	XO-024	MANOHAR SINGH BISHT
52	B.Sc. (Hons) BOTANY	XO-025	MANOJ KUMAR
53	B.Sc. (Hons) BOTANY	XO-026	MANSI NEGI
54	B.Sc. (Hons) BOTANY	XO-019	JAYA
55	B.Sc. (Hons) BOTANY	XO-020	KHUMANTHEM RONALDO SINGH

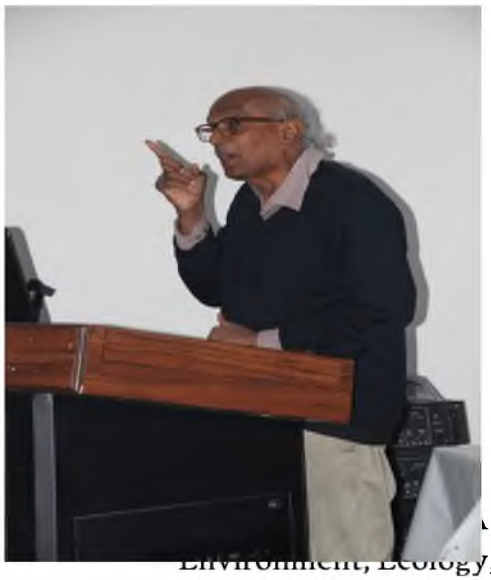
Environment, Ecology, Ecosystems and & Ecological Restoration'

Professor C R Babu
Email: crbabu26@gmail.com
Phone No. 9810586709
Professor Emeritus and Ex-Pro Vice Chancellor University of Delhi

18 Jan 2018

The lecture entitled 'Environment, Ecology, Ecosystems and & Ecological Restoration' by Professor Emeritus C.R. Babu on January 18, 2018 created an euphoria by showing the phenomenal efforts in transforming the degraded forest and wetlands in Delhi, particularly the Biodiversity Park and Neela Hauz Lake near JNU. He is a renowned scientist working on several diverse aspects of conservation Biology, environment management, and restoration in India and abroad. During his talk, he highlighted the role of a functional ecosystem in solving many challenging problems of pollution and global climate change.





A NARENDRA DEV COLLEGE
Environment, Ecology, Ecosystems and Ecological Restoration,
January 18, 2018

S.No.	Course	Roll_No	Name
1	B.Sc. (Hons) BOTANY	XO-020	KHUMANTHEM RONALDO SINGH
2	B.Sc. (Hons) BOTANY	XO-059	KM DIVYA PAWAR
3	B.Sc. (Hons) BOTANY	XO-062	MAHIMA KUWARBI
4	B.Sc. (Hons) BOTANY	XO-022	MANASH KUMAR BEHERA
5	B.Sc. (Hons) BOTANY	XO-023	MANJUL SINGH
6	B.Sc. (Hons) BOTANY	XO-024	MANOHAR SINGH BISHT
7	B.Sc. (Hons) BOTANY	XO-025	MANOJ KUMAR
8	B.Sc. (Hons) BOTANY	XO-026	MANSI NEGI
9	B.Sc. (Hons) BOTANY	XO-027	MEDHA JHA
10	B.Sc. (Hons) BOTANY	WO-004	A.C PRAKRITI
11	B.Sc. (Hons) BOTANY	WO-059	AARTI KUMARI
12	B.Sc. (Hons) BOTANY	WO-044	AARTI RAJPUT
13	B.Sc. (Hons) BOTANY	WO-069	ADIL
14	B.Sc. (Hons) BOTANY	WO-066	ANAND KUMAR BHARTI
15	B.Sc. (Hons) BOTANY	WO-056	ANKITA
16	B.Sc. (Hons) BOTANY	WO-012	APURVA MALIK

17	B.Sc. (Hons) BOTANY	WO-043	ARUN KUMAR
18	B.Sc. (Hons) BOTANY	WO-034	DOLLY
19	B.Sc. (Hons) BOTANY	WO-060	HUIREM JAYASHANGKAR SINGH
20	B.Sc. (Hons) BOTANY	WO-023	JASMINE
21	B.Sc. (Hons) BOTANY	WO-003	KHUSH MUTHA
22	B.Sc. (Hons) BOTANY	WO-032	LAVI PATHAK
23	B.Sc. (Hons) BOTANY	WO-030	LYANGMIT LEPCHA
24	B.Sc. (Hons) BOTANY	WO-064	MAYANK KATIYAR
25	B.Sc. (Hons) BOTANY	WO-062	MEGHA YADAV
26	B.Sc. (Hons) BOTANY	WO-047	MUKUL SHARMA
27	B.Sc. (Hons) BOTANY	WO-022	NEHA LAUR
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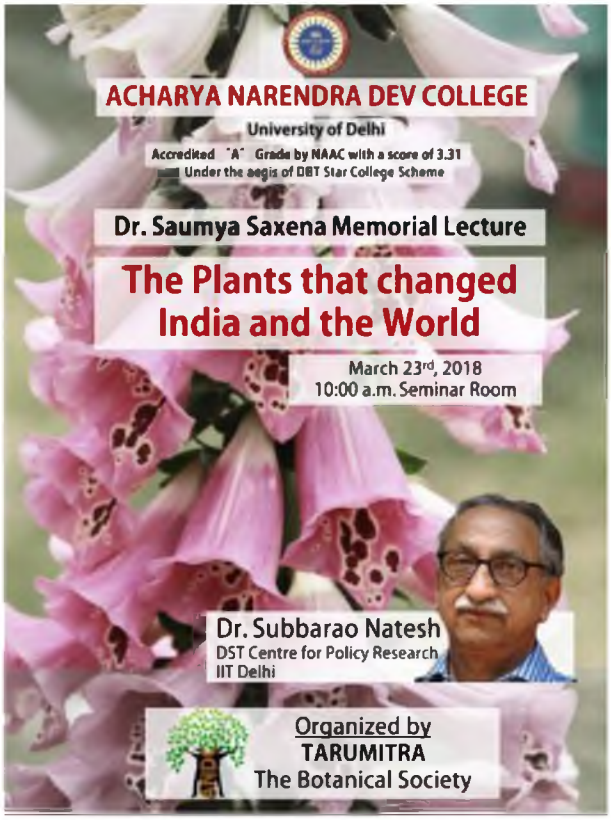
29	B.Sc. (Hons) BOTANY	WO-013	PRACHI SINGH
30	B.Sc. LIFE SCIENCE	XO-625	Ginni Khullar
31	B.Sc. LIFE SCIENCE	XO-626	GULNAR PARVEEN
32	B.Sc. LIFE SCIENCE	XO-627	HARI OM
33	B.Sc. LIFE SCIENCE	XO-629	ISHA AGGARWAL
34	B.Sc. LIFE SCIENCE	XO-631	JIGYASA PANDEY
35	B.Sc. LIFE SCIENCE	XO-632	JULIE DEY NAYEK
36	B.Sc. LIFE SCIENCE	XO-634	LAKSHAY ROHILLA
37	B.Sc. LIFE SCIENCE	XO-635	LAKSHITA BHATI
38	B.Sc. LIFE SCIENCE	XO-636	Lavanya Rawat
39	B.Sc. LIFE SCIENCE	XO-637	MAHIMA
40	B.Sc. LIFE SCIENCE	XO-639	MANISH KOHLI
41	B.Sc. LIFE SCIENCE	XO-640	MANSI YADAV
42	B.Sc. LIFE SCIENCE	XO-641	Martin Chongtham

Ashukla

'The Plants that Changed India and the World'
Dr. Subbarao Natesh
DST Centre for Policy Research
IIT Delhi
Email:
Phone No.
23 March 2018
The department organized Dr. Saumya Saxena Memorial Lecture and invited Dr. S. Natesh. He mesmerised the audience with his talk on 'The plant that changed India and the world' where he explained the importance of various plants from history in creating the future of India and the world. He invigorated the students and the faculty with his talk.


ACHARYA NARENDRA DEV COLLEGE
University of Delhi
Accredited "A" Grade by NAAC with a score of 3.31
Under the aegis of DBT Star College Scheme
Dr. Saumya Saxena Memorial Lecture
The Plants that changed India and the World
March 23rd, 2018
10:00 a.m. Seminar Room
Dr. Subbarao Natesh
DST Centre for Policy Research
IIT Delhi
Organized by
TARUMITRA
The Botanical Society

ACHARYA NARENDRA DEV COLLEGE

Saumya Saxena Memorial Lecture 'The Plants that changed India and the world'

March 23, 2018

S.No.	Course	Roll_No	Name
1	B.Sc. (Hons) BOTANY	XO-002	ABHIMANYU
2	B.Sc. (Hons) BOTANY	XO-003	AISWARYA PATNAIK
3	B.Sc. (Hons) BOTANY	XO-004	AKANKSHA YADAV
4	B.Sc. (Hons) BOTANY	XO-005	ANJALI ANAND
5	B.Sc. (Hons) BOTANY	XO-006	ARUN KUMAR VERMA
6	B.Sc. (Hons) BOTANY	XO-057	CHARVEE
7	B.Sc. (Hons) BOTANY	XO-008	CHONGOM ALVINA AIMOL
8	B.Sc. (Hons) BOTANY	XO-009	COMMANDER SALAM

9	B.Sc. (Hons) BOTANY	XO-011	DEEPAK MEENA
10	B.Sc. (Hons) BOTANY	XO-012	DEVENDRA CHOUDHARY
11	B.Sc. (Hons) BOTANY	XO-058	ESHA DIWAKAR
12	B.Sc. (Hons) BOTANY	XO-014	GAURAV YADAV
13	B.Sc. (Hons) BOTANY	XO-015	GUNEET
14	B.Sc. (Hons) BOTANY	XO-016	HEMANT SINGH
15	B.Sc. (Hons) BOTANY	XO-018	JANISH MALIK
16	B.Sc. (Hons) BOTANY	XO-019	JAYA
17	B.Sc. (Hons) BOTANY	XO-020	KHUMANTHEM RONALDO SINGH
18	B.Sc. (Hons) BOTANY	XO-059	KM DIVYA PAWAR
19	B.Sc. (Hons) BOTANY	XO-062	MAHIMA KUWARBI
20	B.Sc. (Hons) BOTANY	XO-022	MANASH KUMAR BEHERA
21	B.Sc. (Hons) BOTANY	XO-023	MANJUL SINGH
22	B.Sc. (Hons) BOTANY	XO-024	MANOHAR SINGH BISHT
23	B.Sc. (Hons) BOTANY	XO-025	MANOJ KUMAR
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29	B.Sc. (Hons) BOTANY	WO-069	ADIL
30	B.Sc. (Hons) BOTANY	WO-066	ANAND KUMAR BHARTI
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32	B.Sc. (Hons) BOTANY	WO-012	APURVA MALIK

33	B.Sc. (Hons) BOTANY	WO-043	ARUN KUMAR
34	B.Sc. (Hons) BOTANY	WO-034	DOLLY
35	B.Sc. (Hons) BOTANY	WO-060	HUIREM JAYASHANGKAR SINGH
36	B.Sc. (Hons) BOTANY	WO-023	JASMINE
37	B.Sc. (Hons) BOTANY	WO-003	KHUSH MUTHA
38	B.Sc. (Hons) BOTANY	WO-032	LAVI PATHAK
39	B.Sc. (Hons) BOTANY	WO-030	LYANGMIT LEPCHA
40	B.Sc. (Hons) BOTANY	WO-064	MAYANK KATIYAR
41	B.Sc. (Hons) BOTANY	WO-062	MEGHA YADAV
42	B.Sc. (Hons) BOTANY	WO-047	MUKUL SHARMA
43	B.Sc. (Hons) BOTANY	WO-022	NEHA LAUR
44	B.Sc. (Hons) BOTANY	WO-038	PARUL DEV
45	B.Sc. (Hons) BOTANY	WO-013	PRACHI SINGH

Conferences/Workshops/Seminars for the year 2018-19

Interesting advances in haemoglobin Research: Beyond the Textbook
October 11, 2018
Professor Suman Kundu
Department of Biochemistry
South Campus
University of Delhi
Email: suman.kundu@south.du.ac.in
Phone No. 91-11-24117460

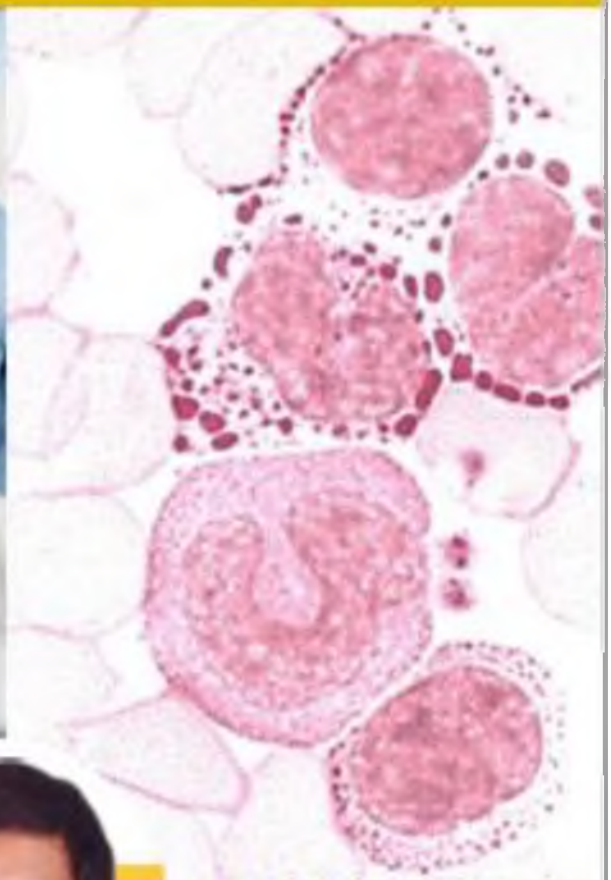
Tarumitra the botanical society of the college organized a lecture on 'Interesting Advances in Haemoglobin Research' by Professor Suman Kundu. He put light on unexplored areas in blood research and its importance in the normal wellbeing. He also explained about how blood maintains the homeostasis.

TARUMITRA
The Botanical Society
of
ACHARYA NARENDRA DEV COLLEGE
University of Delhi

Accredited "A" Grade by NAAC with a score of 3.31 | DBT Star College

Organizes a Talk on

Interesting Advances in Haemoglobin Research: Beyond the Textbook



Professor Suman Kundu
Department of Biochemistry,
South Campus
University of Delhi

11th October 2018; 11:00 a.m.
Venue: Seminar Hall

Hemoglobin is in some ways the most
interesting of all substances.....
Linus Pauling, 1936

ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Interesting Advances in Haemoglobin Research: Beyond the Textbook

October 11, 2018

1.	Dr. M.S.Rajeswari	Faculty	A.N.D.C
2.	Dr. Anupama Shukla	Faculty	A.N.D.C
3.	Dr. Anita Narang	Faculty	A.N.D.C
4.	Dr. Charu K Gupta	Faculty	A.N.D.C
5.	Dr. Geetika Kalra	Faculty	A.N.D.C
6.	Dr.Yasheshwar	Faculty	A.N.D.C
7.	Dr. Rashmi Sharma	Faculty	A.N.D.C
8.	Dr. Yash Mangla	Faculty	A.N.D.C
9.	Dr. Manoj Singh	Faculty	A.N.D.C
10.	Dr. Sumit Sahni	Faculty	A.N.D.C
11.	Dr. Anita Thakur	Faculty	A.N.D.C
12.	Dr. Vineet K Singh	Faculty	A.N.D.C
13.	DIVYA SHARMA	YO-012	B.Sc (H) Botany 2nd Year
14.	ESHA DIWAKAR	YO-013	B.Sc (H) Botany 2nd Year
15.	GAURAV YADAV	XO-058	B.Sc (H) Botany 3rd Year
16.	HARDIK	XO-014	B.Sc (H) Botany 3rd Year
17.	HEMANT SINGH	YO-015	B.Sc (H) Botany 2nd Year
18.	HITESH	XO-016	B.Sc (H) Botany 3rd Year
19.	JANISH MALIK	YO-058	B.Sc (H) Botany 2nd Year
20.	ALOK YADAV	XO-018	B.Sc (H) Botany 3rd Year

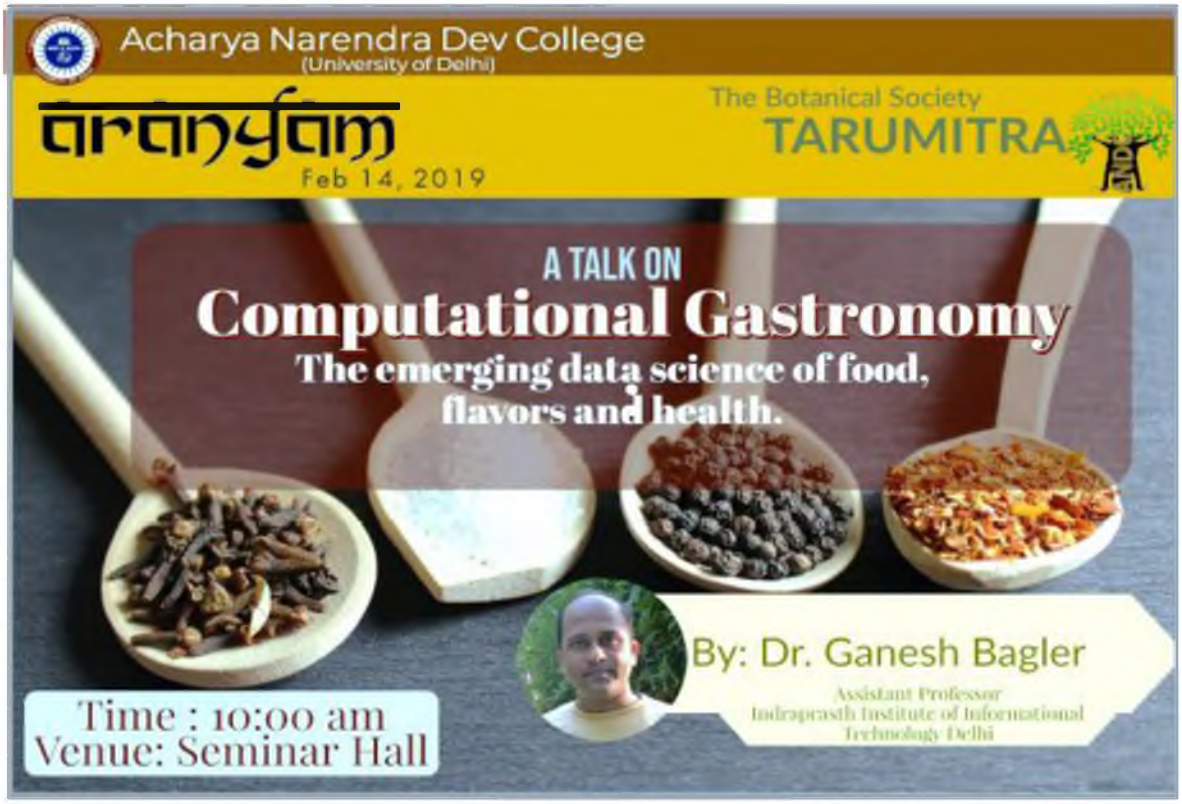
21.	MANJUL SINGH	YO-057	B.Sc (H) Botany 2nd Year
22.	BARSHA CHANGKAKOTI	XO-023	B.Sc (H) Botany 3rd Year
23.	KUSUM	YO-007	B.Sc (H) Botany 2nd Year
24.	MAHIMA KUWARBI	YO-064	B.Sc (H) Botany 2nd Year
25.	MANASH KUMAR BEHERA	XO-062	B.Sc (H) Botany 3rd Year
26.	MANISHA	XO-022	B.Sc (H) Botany 3rd Year
27.	MANISHA KUMARI	YO-020	B.Sc (H) Botany 2nd Year
28.	CHARVEE	YO-021	B.Sc (H) Botany 2nd Year
29.	DEEPAK MEENA	XO-011	B.Sc (H) Botany 3rd Year
30.	MANOJ KUMAR	XO-057	B.Sc (H) Botany 3rd Year
31.	MANSI NEGI	XO-025	B.Sc (H) Botany 3rd Year
32.	MANSI PANT	XO-026	B.Sc (H) Botany 3rd Year
33.	MEDHA JHA	YO-022	B.Sc (H) Botany 2nd Year
34.	MOHD SHAD	XO-027	B.Sc (H) Botany 3rd Year
35.	MOUMI DAS	YO-023	B.Sc (H) Botany 2nd Year
36.	MUSKAN JAIN	YO-024	B.Sc (H) Botany 2nd Year
37.	NASHRA NAAZ	YO-025	B.Sc (H) Botany 2nd Year
38.	NEELAKSHI THAKUR	XO-063	B.Sc (H) Botany 3rd Year
39.	NIKITA HANDIQUE	YO-026	B.Sc (H) Botany 2nd Year
40.	NISHIKA GUPTA	XO-033	B.Sc (H) Botany 3rd Year
41.	PIYUSH VERMA	XO-060	B.Sc (H) Botany 3rd Year

42.	POOJA VERMA	YO-029	B.Sc (H) Botany 2nd Year
43.	PRATEEK KUMAR	XO-036	B.Sc (H) Botany 3rd Year
44.	PREETI SINGH	YO-031	B.Sc (H) Botany 2nd Year
45.	PRIYA HASIJA	YO-062	B.Sc (H) Botany 2nd Year
46.	PRONAY SARKAR	XO-037	B.Sc (H) Botany 3rd Year
47.	RITIKA TULSEJA	YO-059	B.Sc (H) Botany 2nd Year
48.	AMIT	XO-064	B.Sc (H) Botany 3rd Year
49.	AMIT KUMAR	YO-004	B.Sc (H) Botany 2nd Year
50.	SHAROOK EDAKKADAMBAN	YO-005	B.Sc (H) Botany 2nd Year
51.	SHIVANGI PANDEY	YO-040	B.Sc (H) Botany 2nd Year
52.	SHIVANI	XO-043	B.Sc (H) Botany 3rd Year
53.	SHREYA PRAKASH	XO-045	B.Sc (H) Botany 3rd Year
54.	SUJATA KUMARI	YO-060	B.Sc (H) Botany 2nd Year
55.	TEJ SINGH MEENA	XO-051	B.Sc (H) Botany 3rd Year
56.	UPASANA RATRI	YO-054	B.Sc (H) Botany 2nd Year
57.	VINAY KHAMPA	YO-044	B.Sc (H) Botany 2nd Year
58.	ABHIMANYU	YO-047	B.Sc (H) Botany 2nd Year
59.	ABHISHEK KUMAR	XO-002	B.Sc (H) Botany 3rd Year
60.	AISWARYA PATNAIK	YO-051	B.Sc (H) Botany 2nd Year
61.	BHASKAR JYOTI PARASAR	XO-003	B.Sc (H) Botany 3rd Year
62.	DEEPAK KUMAR	YO-008	B.Sc (H) Botany 2nd Year
63.	DIVESH BISHT	XO-011	B.Sc (H) Botany 3rd Year

Computational Gastronomy: The emerging data science of food, flavors and health
February 14, 2019

Dr. Ganesh Bagler
Assistant Professor
Indraprastha Institute of Informational Technology, Delhi
Email: bagler@iiitd.ac.in
Phone: 011-26907443

A lecture was organized by 'Tarumitra' the botanical society on 'Computational Gastronomy' by Dr. Ganesh Bagler. The lecture explained the chemistry behind the food and culinary science. Dr. Bagler explained the chemistry and interaction of various spices, their synergestic and antagonistic nature. He also demonstrated the mobile app he developed where one can explore the nature, indication and contraindication of various food materials.



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

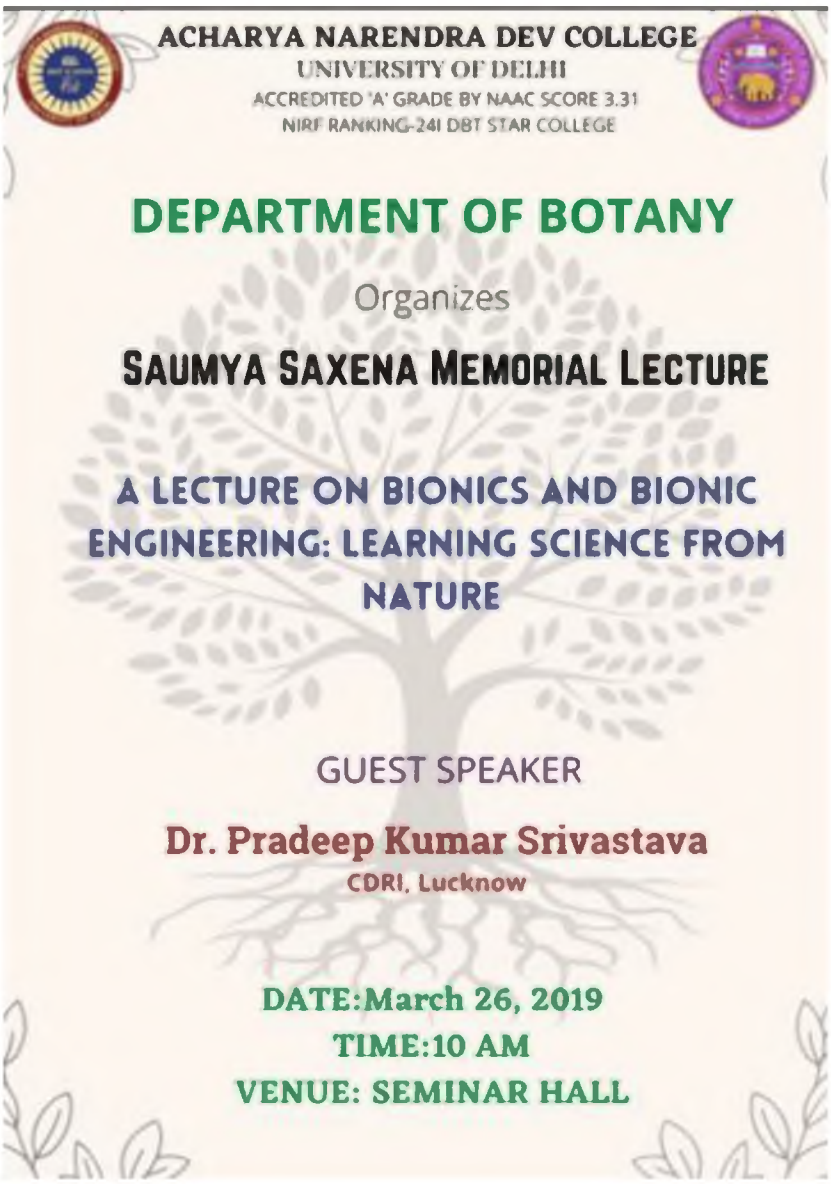
Computational Gastronomy
February 14, 2019

1.	DR. ANUPAMA SHUKLA	FACULTY
2.	DR. ANITA NARANG	FACULTY
3.	DR. CHARU K GUPTA	FACULTY
4.	DR. MANOJ SINGH	FACULTY
5.	DR. SUMIT SAHNI	FACULTY
6.	DR. ANITA THAKUR	FACULTY
7.	DR. VINEET K SINGH	FACULTY
8.	DR. GEETIKA KALRA	FACULTY
9.	ANURAG KUMAR PAL	ZO-059
10.	BEERU VERMA	ZO-009
11.	BHASKAR JYOTI PARASAR	YO-008
12.	CHANDRA PRAKASH TIWARI	ZO-011
13.	CHARVEE	XO-057
14.	CHETNA	YO-009
15.	CHONGOM ALVINA AIMOL	XO-008
16.	CHONGOM ALVINA AIMOL	XO-008
17.	DEEPAK	ZO-012
18.	ABHIMANYU	XO-002
19.	ABHISHEK KUMAR	YO-051
20.	AISWARYA PATNAIK	XO-003
21.	AJAY KUMAR	ZO-057

22.	DIKSHA GUPTA	ZO-065
23.	DIKSHA TIWARI	YO-011
24.	DIVESH BISHT	YO-012
25.	ESHA DIWAKAR	XO-058
26.	GAURAV YADAV	XO-014
27.	HARDIK	YO-015
28.	HARSHITA SHARMA	ZO-068
29.	HEMANT SINGH	XO-016
30.	JANISH MALIK	XO-018
31.	JATIN	ZO-070
32.	ANJALI MEENA	ZO-004
33.	ANJANA	ZO-005
34.	MANASH KUMAR BEHERA	XO-022
35.	MANOJ KUMAR	XO-025
36.	MANSI NEGI	XO-026
37.	Muskan Bhatia	ZO-025
38.	NEELAKSHI THAKUR	YO-026
39.	NEELAM	ZO-026
40.	NEHA	ZO-027
41.	NITIMA CHAURASIA	XO-035
42.	PIYUSH VERMA	YO-029
43.	POOJA VERMA	XO-036
44.	PRATYUSH GUPTA	ZO-048
45.	PREETI SAI	ZO-079
46.	PRIYA HASIJA	XO-037
47.	RITIKA TULSEJA	XO-064
48.	SAMRIDHI UPPADHYAY	YO-038
49.	SHIVANGI PANDEY	XO-043
50.	SHIVANI	XO-045
51.	SHIVANI	XO-046
52.	SMRITY JHA	ZO-038
53.	SOMYA MAHESHWARI	ZO-042
54.	VIKRAMJEET SINGH	YO-055
55.	VINITA SINGH	XO-053
56.	VIVEK DAS	YO-049
57.	YOGITA BHATT	XO-054

A lecture on Bionics and Bionic Engineering: Learning Science from Nature
March 26, 2019
Dr. Pardeep Kumar Srivastava
Former Dy. Director (Sr. Principal Scientist)
Central Drug Research Institute, Lucknow, Uttar Pradesh
Email: 9415117548
Phone: pkscdri@gmail.com

Organized Dr. Saumya Saxena Memorial Lecture on March 26, 2019. Dr. Pradeep Kumar Srivastava from Central Drug Research Institute, Lucknow delivered a talk on 'Bionics and Bionic Engineering: Learning Science from Nature'. He introduced the students to Scientoons and Scientoonics.



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Dr. Saumya Saxena Memorial Lecture - Bionics and Bionic Engineering: Learning Science from Nature
March 26, 2019

S.No	Name	ANDC Roll No	Class
1.	Dr. Anupama Shukla	Faculty	A.N.D.C
2.	Dr. Anita Narang	Faculty	A.N.D.C
3.	Dr. Charu K Gupta	Faculty	A.N.D.C
4.	Dr. Geetika Kalra	Faculty	A.N.D.C
5.	Dr.Yasheshwar	Faculty	A.N.D.C
6.	Dr. Rashmi Sharma	Faculty	A.N.D.C
7.	Dr. Yash Mangla	Faculty	A.N.D.C
8.	Dr. Manoj Singh	Faculty	A.N.D.C
9.	Dr. Sumit Sahni	Faculty	A.N.D.C
10.	Dr. Anita Thakur	Faculty	A.N.D.C
11.	Dr. Vineet K Singh	Faculty	A.N.D.C
12.	DEEPAK KUMAR	ZO-013	B.Sc (H) Botany 1st Year
13.	DEEPAK MISHRA	ZO-063	B.Sc (H) Botany 1st Year
14.	MANOJ KUMAR	XO-025	B.Sc (H) Botany 3rd Year
15.	MANSI NEGI	XO-026	B.Sc (H) Botany 3rd Year
16.	MEDHA JHA	XO-027	B.Sc (H) Botany 3rd Year

17.	MOUMI DAS	YO-024	B.Sc (H) Botany 2nd Year
18.	MREGANK GARG	XO-029	B.Sc (H) Botany 3rd Year
19.	MUSKAN JAIN	YO-025	B.Sc (H) Botany 2nd Year
20.	NASHRA NAAZ	XO-063	B.Sc (H) Botany 3rd Year
21.	NEELAKSHI THAKUR	YO-026	B.Sc (H) Botany 2nd Year
22.	NIKITA HANDIQUE	XO-033	B.Sc (H) Botany 3rd Year
23.	NISHIKA GUPTA	XO-060	B.Sc (H) Botany 3rd Year
24.	NITIMA CHAURASIA	XO-035	B.Sc (H) Botany 3rd Year
25.	PIYUSH VERMA	YO-029	B.Sc (H) Botany 2nd Year
26.	POOJA VERMA	XO-036	B.Sc (H) Botany 3rd Year
27.	PRARTHNA NANDA	YO-030	B.Sc (H) Botany 2nd Year
28.	PRATEEK KUMAR	YO-031	B.Sc (H) Botany 2nd Year
29.	PREETI SAI	ZO-079	B.Sc (H) Botany 1st Year
30.	PREETI SINGH	YO-062	B.Sc (H) Botany 2nd Year
31.	PREETI SINGH	YO-062	B.Sc (H) Botany 2nd Year
32.	PRERAK YADAV	ZO-080	B.Sc (H) Botany 1st Year
33.	PRIYA HASIJA	XO-037	B.Sc (H) Botany 3rd Year
34.	PRONAY SARKAR	YO-059	B.Sc (H) Botany 2nd Year
35.	PRONAY SARKAR	YO-059	B.Sc (H) Botany 2nd Year
36.	RACHEL SOCHUI MAHEO	YO-034	B.Sc (H) Botany 2nd Year
37.	RAJAT KACHARI	ZO-033	B.Sc (H) Botany 1st Year
38.	RAJAT SHARMA	ZO-034	B.Sc (H) Botany 1st Year
39.	RINKI	ZO-081	B.Sc (H) Botany 1st Year
40	RITIKA	ZO-082	B.Sc (H) Botany 1st Year
41.	RITIKA TULSEJA	XO-064	B.Sc (H) Botany 3rd Year
42.	RITU JHA	ZO-083	B.Sc (H) Botany 1st Year
43.	ROBIN KHAN	ZO-084	B.Sc (H) Botany 1st Year
44.	RUPNI MINJ ORAON	ZO-035	B.Sc (H) Botany 1st Year
45.	SACHIN SHUKLA	YO-037	B.Sc (H) Botany 2nd Year
46.	SHIVALI	ZO-085	B.Sc (H) Botany 1st Year
47.	SHIVAM SINGH	ZO-051	B.Sc (H) Botany 1st Year

48.	SHIVANGI PANDEY	XO-043	B.Sc (H) Botany 3rd Year
49	SHIVANGI TYAGI	ZO-086	B.Sc (H) Botany 1st Year
50.	SHIVANI PAL	ZO-087	B.Sc (H) Botany 1st Year
51.	SHREYA PANDEY	ZO-088	B.Sc (H) Botany 1st Year
52.	SHREYA SAXENA	ZO-630	B.Sc LifeSciences 1st year
53.	SHUBHANGI PANDEY	XO-049	B.Sc (H) Botany 3rd Year
54.	SHUBHANKAR SINGH	ZO-697	B.Sc LifeSciences 1st year
55.	SHWETA GUPTA	ZO-698	B.Sc LifeSciences 1st year
56.	SIMMI	ZO-037	B.Sc (H) Botany 1st Year
57.	SIMRANJEET KAUR	ZO-699	B.Sc LifeSciences 1st year
58.	SMRITY JHA	ZO-038	B.Sc (H) Botany 1st Year
59.	AASTHA TAKKAR	ZO-055	B.Sc (H) Botany 1st Year
60	ABHISHEK KUMAR	YO-051	B.Sc (H) Botany 2nd Year
61.	AISWARYA PATNAIK	XO-003	B.Sc (H) Botany 3rd Year
62.	AKANKSHA YADAV	XO-004	B.Sc (H) Botany 3rd Year
63.	AKANSHA MARTOLIA	XO-698	B.Sc LifeSciences 3rd year
64	VIBHA GUPTA	ZO-039	B.Sc (H) Botany 1st Year
65.	VIJAY KUMAR	XO-055	B.Sc (H) Botany 3rd Year
66	VIKRAMJEET SINGH	YO-055	B.Sc (H) Botany 2nd Year
67.	VINAY KHAMPA	YO-047	B.Sc (H) Botany 2nd Year
68.	VINITA SINGH	XO-053	B.Sc (H) Botany 3rd Year
69	VIVEK DAS	YO-049	B.Sc (H) Botany 2nd Year
70.	YASH GUPTA	YO-050	B.Sc (H) Botany 2nd Year
71.	YASH NAAVARIYA	ZO-040	B.Sc (H) Botany 1st Year
72.	YOGITA BHATT	XO-054	B.Sc (H) Botany 3rd Year

Conferences/Workshops/Seminars for the year 2019-20

Tarumitra Inaugural Lecture Series

September 25 2019

Dr. C V Srikanth
Professor
Regional Centre for Biotechnology
NCR Biotech Science Cluster
3rd Milestone, Faridabad-Gurgaon Expressway
P.O. Box No. 3, Faridabad - 121 001
Haryana (NCR Delhi), India
Email: cvsrikanth@rcb.res.in
Phone No.: 91 129-2848820

Dr. Vandana Mishra
Department of Environmental Studies,
Laboratory of Bioresources & Environmental
Biotechnology,
University of Delhi, Delhi-110 007, INDIA
Email: mistletoe_h@hotmail.com
Phone No.: 9871260287

Under the inaugural function of botanical society talks by alumni were organised. Dr. CV Srikanth, Associate Professor, Regional Centre of Biotechnology, Faridabad, Haryana deliberated his views on 'Being in Biomedical Research in India: From a Rat race to taking up real challenge of combating diseases. He discussed with students about the advantages of being in scientific career, the various perks and how to go ahead among our pears.

Dr. Vanadana Mishra, Assistant Professor, Department of Environmental Studies, University of Delhi, another departmental alumni put her views on a very interested topic ' Biopropecting: A path from ecology to entrepreneurship' where she explained how various scientists took cues from nature and animals to solve big problems of modern world. She gave many examples like vacuum gloves from gecko, strongest fibres from spider web etc. Her views enthused the students to go for higher studies in science to explore the beauty of biological sciences.

ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Biomedical Research in India: from a Rat Race to Taking-up the Real Challenge of Combating Disease

September 25,2019

S.No	Name	ANDC Roll No	Class
1.	ADITI	AB-001	B.Sc (H) Botany 1 yr
2.	AJITA OJHA	AB-050	B.Sc (H) Botany 1 yr
3.	Amit Kumar	AB-045	B.Sc (H) Botany 1 yr
4.	ANJALI SONI	AB-003	B.Sc (H) Botany 1 yr
5.	Ankit	AB-044	B.Sc (H) Botany 1 yr

6.	ANUSHIKA KALOO	AB-004	B.Sc (H) Botany 1 yr
7.	DEVANGNA SHARMA	AB-048	B.Sc (H) Botany 1 yr
8.	HITESH KALA	AB-012	B.Sc (H) Botany 1 yr
9.	JATIN	AB-014	B.Sc (H) Botany 1 yr
10.	KIRTI PANDEY	AB-047	B.Sc (H) Botany 1 yr
11.	KOMAL SINGH NETAM	AB-016	B.Sc (H) Botany 1 yr
12.	MOHINI KUMARI	AB-018	B.Sc (H) Botany 1 yr
13.	NITESH	AB-021	B.Sc (H) Botany 1 yr
14.	PARAM KUMAR	AB-022	B.Sc (H) Botany 1 yr
15.	PRAGYA MUNI	AB-023	B.Sc (H) Botany 1 yr
16.	PRATIKSHA	AB-024	B.Sc (H) Botany 1 yr
17.	PREETI MAURYA	AB-025	B.Sc (H) Botany 1 yr
18.	SHIVANGI DEV	AB-034	B.Sc (H) Botany 1 yr
19.	SHWETA YADAV	AB-036	B.Sc (H) Botany 1 yr
20.	SUHANI SHARMA	AB-037	B.Sc (H) Botany 1 yr
21.	SUMAN	AB-038	B.Sc (H) Botany 1 yr
22.	TANUJ MALIK	AB-049	B.Sc (H) Botany 1 yr
23.	VISHAL KUMAR	AB-040	B.Sc (H) Botany 1 yr
24.	ABHISHEK	ZO-056	B.Sc (H) Botany 2 yr
25.	ABHISHEK PANDEY	ZO-002	B.Sc (H) Botany 2 yr
26.	ABHISHEK VISHWAKARMA	ZO-091	B.Sc (H) Botany 2 yr
27.	AJAY KUMAR	ZO-057	B.Sc (H) Botany 2 yr
28.	ANDALEEB ZAHRA	ZO-050	B.Sc (H) Botany 2 yr
29.	ANJALI MEENA	ZO-004	B.Sc (H) Botany 2 yr
30.	ANJANA	ZO-005	B.Sc (H) Botany 2 yr
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32.	ANKITA	ZO-058	B.Sc (H) Botany 2 yr
33.	ANURAG KUMAR PAL	ZO-059	B.Sc (H) Botany 2 yr
34.	APOORVA	ZO-060	B.Sc (H) Botany 2 yr
35.	ASHUTOSH SINGH	ZO-062	B.Sc (H) Botany 2 yr
36.	BEERU VERMA	ZO-009	B.Sc (H) Botany 2 yr
37.	CHANDRA PRAKASH TIWARI	ZO-011	B.Sc (H) Botany 2 yr
38.	DEEPAK KUMAR	ZO-013	B.Sc (H) Botany 2 yr
39.	HIMANSHU SINGH	ZO-017	B.Sc (H) Botany 2 yr
40.	ISHANK BEDWAL	ZO-069	B.Sc (H) Botany 2 yr
41.	JATIN	ZO-070	B.Sc (H) Botany 2 yr
42.	SMRITY JHA	ZO-038	B.Sc (H) Botany 2 yr
43.	SOMYA MAHESHWARI	ZO-042	B.Sc (H) Botany 2 yr
44.	VIBHA GUPTA	ZO-039	B.Sc (H) Botany 2 yr
45.	VINAY PANWAR	ZO-090	B.Sc (H) Botany 2 yr
46.	YASH NAAVARIYA	ZO-040	B.Sc (H) Botany 2 yr
47.	DIKSHA TIWARI	YO-011	B.Sc (H) Botany 3 yr

48.	DIVESH BISHT	YO-012	B.Sc (H) Botany 3 yr
49.	DIVYA SHARMA	YO-013	B.Sc (H) Botany 3 yr
50.	HARDIK	YO-015	B.Sc (H) Botany 3 yr
51.	HITESH	YO-058	B.Sc (H) Botany 3 yr
52.	MOUMI DAS	YO-024	B.Sc (H) Botany 3 yr
53.	MUSKAN JAIN	YO-025	B.Sc (H) Botany 3 yr
54.	NEELAKSHI THAKUR	YO-026	B.Sc (H) Botany 3 yr
55.	PIYUSH VERMA	YO-029	B.Sc (H) Botany 3 yr
56.	PRARTHNA NANDA	YO-030	B.Sc (H) Botany 3 yr
57.	AASTHA SINGH	ZO-640	Lifesciences 2 yr
58.	ABHIJEET KUMAR	ZO-601	Lifesciences 2 yr
59.	ABHISHEK KAUSHIK	ZO-637	Lifesciences 2 yr
60.	CHAVI VATS	ZO-664	Lifesciences 2 yr
61.	CHIRAG PULWANI	ZO-665	Lifesciences 2 yr
62.	DEEPAK PUNIA	ZO-666	Lifesciences 2 yr
63.	DEEPANSHU VATS	ZO-635	Lifesciences 2 yr
64.	DEV BAJAJ	ZO-610	Lifesciences 2 yr
65.	DEVESH RAWAT	ZO-667	Lifesciences 2 yr
66.	DHARMENDRA SHISHODIA	ZO-668	Lifesciences 2 yr
67.	RIYA	ZO-692	Lifesciences 2 yr
68.	ROHAN	ZO-693	Lifesciences 2 yr
69.	RUCHI KOTNALA	ZO-694	Lifesciences 2 yr
70.	RUPALI	ZO-695	Lifesciences 2 yr
71.	SAMIKSHA SINGH	ZO-626	Lifesciences 2 yr
72.	SHIVANI PANCHAL	YO-649	Lifesciences 3 yr
73.	Dr. Anupama Shukla	Faculty	A.N.D.C
74.	Dr. Anita Narang	Faculty	A.N.D.C
75.	Dr. Charu K Gupta	Faculty	A.N.D.C
76.	Dr. Geetika Kalra	Faculty	A.N.D.C
77.	Dr. Rashmi Sharma	Faculty	A.N.D.C
78.	Dr. Yash Mangla	Faculty	A.N.D.C
79.	Dr. Manoj Singh	Faculty	A.N.D.C
80.	Dr. Sumit Sahni	Faculty	A.N.D.C
81.	Dr. Anita Thakur	Faculty	A.N.D.C
82.	Dr. Vineet K Singh	Faculty	A.N.D.C
83.	KHUSHI SAXENA	AB-615	Lifesciences 1 yr

Hitchhiker's Guide to Integrative Systems Biology

February 25 2020

Dr. Amit Kumar Yadav

Senior Research Scientist

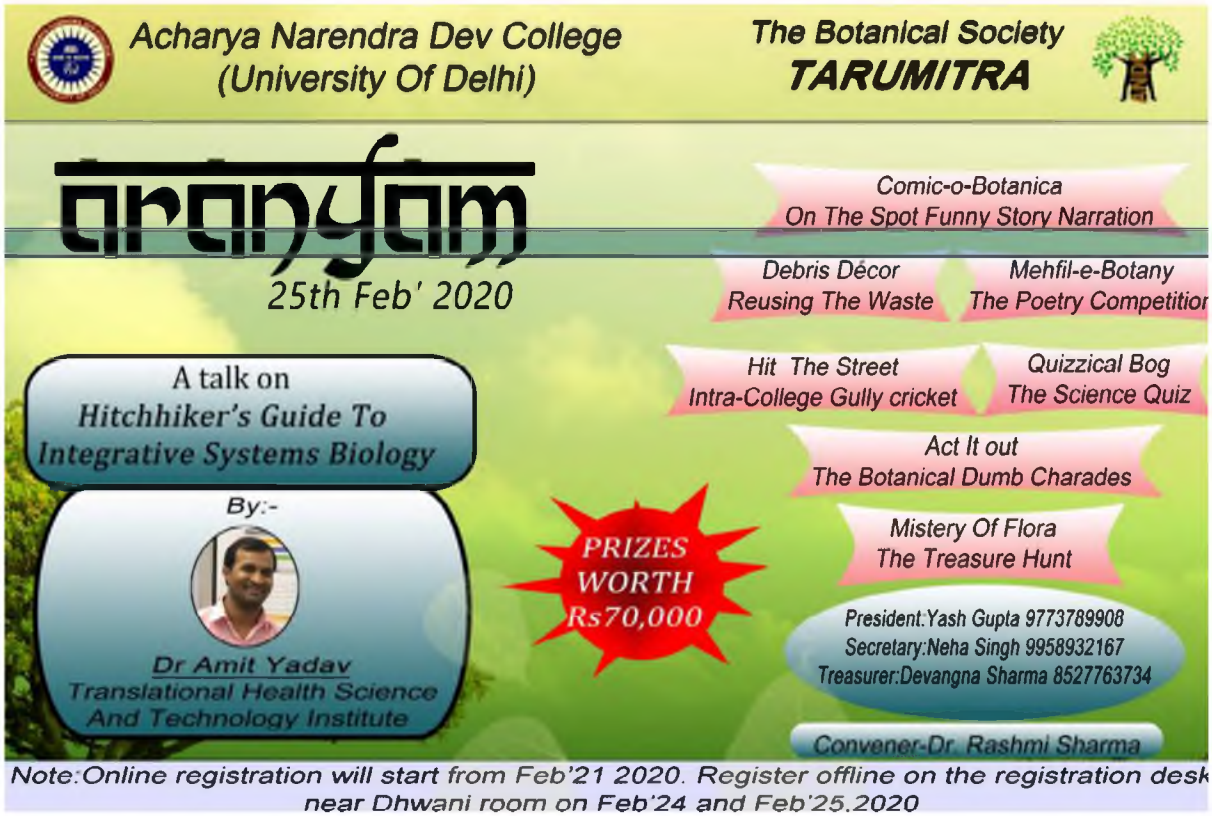
Translational Health Science and Technology Institute

Phone No.: 01292876490

Email: amit.yadav@thsti.res.in

Dr. Amit Kumar Yadav, is Ph.D. in Computational Systems Biology, Bioinformatics, Proteomics, Big Data, Omics, Data Integration and a Research Scientist at Translational Health Science and Technology Institute. An alumnus of the college he delivered a talk at the valedictory function of Tarumitra entitled, 'The Hitchhiker's Guide to Bioinformatics'.

He took students on a journey into the world of bioinformatics and illustrated how from a simple gene sequence drugs could be synthesised in silico. His talk enthused students and they asked him many questions regarding facilities at his institution and how could they also become part of his institute.



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Hitchhikers guide to Integrative System BiologyFebruary 25 2019

S.No	Name	ANDC Roll No	Clas s
1.	Dr. Anupama Shukla	Faculty	A.N.D.C
2.	Dr. Anita Narang	Faculty	A.N.D.C
3.	Dr. Charu K Gupta	Faculty	A.N.D.C
4.	Dr. Geetika Kalra	Faculty	A.N.D.C
5.	Dr. Rashmi Sharma	Faculty	A.N.D.C
6.	Dr. Vineet K Singh	Faculty	A.N.D.C
7.	Dr. Yash Mangla	Faculty	A.N.D.C
8.	Dr. Manoj Singh	Faculty	A.N.D.C
9.	Dr. Sumit Sahni	Faculty	A.N.D.C

10.	Dr. Anita Thakur	Faculty	A.N.D.C
11.	Amit Kumar	AB-045	B.Sc (H) Botany 1 yr
12.	PRAGYA MUNI	AB-023	B.Sc (H) Botany 1 yr
13.	PRATIKSHA	AB-024	B.Sc (H) Botany 1 yr
14.	PREETI MAURYA	AB-025	B.Sc (H) Botany 1 yr
15.	SHIVANGI DEV	AB-034	B.Sc (H) Botany 1 yr
16.	SHWETA YADAV	AB-036	B.Sc (H) Botany 1 yr
17.	SUHANI SHARMA	AB-037	B.Sc (H) Botany 1 yr
18.	TANUJ MALIK	AB-049	B.Sc (H) Botany 1 yr
19.	VISHAL KUMAR	AB-040	B.Sc (H) Botany 1 yr
20.	ABHISHEK	ZO-056	B.Sc (H) Botany 2 yr
21.	ABHISHEK PANDEY	ZO-002	B.Sc (H) Botany 2 yr
22.	ABHISHEK VISHWAKARMA	ZO-091	B.Sc (H) Botany 2 yr
23.	AJAY KUMAR	ZO-057	B.Sc (H) Botany 2 yr
24.	ANDALEEB ZAHRA	ZO-050	B.Sc (H) Botany 2 yr
25.	ANJALI MEENA	ZO-004	B.Sc (H) Botany 2 yr
26.	ANJANA	ZO-005	B.Sc (H) Botany 2 yr
27.	ANKIT CHAWRA	ZO-006	B.Sc (H) Botany 2 yr
28.	ANKITA	ZO-058	B.Sc (H) Botany 2 yr
29.	ANURAG KUMAR PAL	ZO-059	B.Sc (H) Botany 2 yr
30.	APOORVA	ZO-060	B.Sc (H) Botany 2 yr
31.	ASHUTOSH SINGH	ZO-062	B.Sc (H) Botany 2 yr
32.	BEERU VERMA	ZO-009	B.Sc (H) Botany 2 yr
33.	CHANDRA PRAKASH TIWARI	ZO-011	B.Sc (H) Botany 2 yr
34.	DEEPAK KUMAR	ZO-013	B.Sc (H) Botany 2 yr
35.	HIMANSHU SINGH	ZO-017	B.Sc (H) Botany 2 yr
36.	ISHANK BEDWAL	ZO-069	B.Sc (H) Botany 2 yr

37.	JATIN	ZO-070	B.Sc (H) Botany 2 yr
38.	SMRITY JHA	ZO-038	B.Sc (H) Botany 2 yr
39.	SOMYA MAHESHWARI	ZO-042	B.Sc (H) Botany 2 yr
40.	VIBHA GUPTA	ZO-039	B.Sc (H) Botany 2 yr
41.	VINAY PANWAR	ZO-090	B.Sc (H) Botany 2 yr
42.	YASH NAAVARIYA	ZO-040	B.Sc (H) Botany 2 yr
43.	RINKI	ZO-081	B.Sc (H) Botany 2 yr
44.	RITIKA	ZO-082	B.Sc (H) Botany 2 yr
45.	RITU JHA	ZO-083	B.Sc (H) Botany 2 yr
46.	DIKSHA TIWARI	YO-011	B.Sc (H) Botany 3 yr
47.	DIVESH BISHT	YO-012	B.Sc (H) Botany 3 yr
48.	DIVYA SHARMA	YO-013	B.Sc (H) Botany 3 yr
49.	HARDIK	YO-015	B.Sc (H) Botany 3 yr
50.	HITESH	YO-058	B.Sc (H) Botany 3 yr
51.	MOUMI DAS	YO-024	B.Sc (H) Botany 3 yr
52.	MUSKAN JAIN	YO-025	B.Sc (H) Botany 3 yr
53.	NEELAKSHI THAKUR	YO-026	B.Sc (H) Botany 3 yr
54.	PIYUSH VERMA	YO-029	B.Sc (H) Botany 3 yr
55.	PRARTHNA NANDA	YO-030	B.Sc (H) Botany 3 yr
56.	DIVESH BISHT	YO-012	B.Sc (H) Botany 3 yr
57.	DIVYA SHARMA	YO-013	B.Sc (H) Botany 3 yr
58.	HARDIK	YO-015	B.Sc (H) Botany 3 yr
59.	HITESH	YO-058	B.Sc (H) Botany 3 yr
60.	JONAKI SINGH	YO-018	B.Sc (H) Botany 3 yr
61.	VIKRAMJEET SINGH	YO-055	B.Sc (H) Botany 3 yr
62.	VINAY KHAMPA	YO-047	B.Sc (H) Botany 3 yr
63.	VIVEK DAS	YO-049	B.Sc (H) Botany 3 yr
64.	YASH GUPTA	YO-050	B.Sc (H) Botany 3 yr
65.	Inshul Bansal	AB-640	Lifesciences 1 yr
66.	KHUSHI SAXENA	AB-615	Lifesciences 1 yr
67.	KRITH UNNI KRISHNAN	AB-616	Lifesciences 1 yr
68.	RADHIKA VERMA	YO-671	Lifesciences 3 yr
69.	RAJAT	YO-639	Lifesciences 3 yr

Conferences/Workshops/Seminars for the year 2020-21

'Humans for Nature'
Padamshri Dr. Prakash Amte and Dr. Mandakini Amte
October 15, 2020
Email: aniketamte@gmail.com, sachinmukkawar83@gmail.com

Phone No.: 91-7588772858

Department of Botany organized webinar on 'Humans for Nature' by Dr Prakash Baba Amte who is physician by profession and is associated with Lok Biradari Prakalp, Anandvan, Maharashtra (a project for the development of tribal people, the Madia Gond in the forests of Gadchiroli district). The talk was focused on balance between human life and nature and natural resources. He discussed various case studies of his own experiences how humans can live in harmony with the nature and wild life without modern amenities. He discussed his journey as a doctor and social worker in treating and eradicating leprosy in the tribal population of forests of Maharashtra, Andhra Pradesh and Madhya Pradesh. He even performed many emergency surgical procedures without electricity. He and his family also run a large animal conservation facility in Hemalkasa in Gadchiroli district of Maharashtra where rare, protected, and endangered animals are cared and have freedom to roam. It was a wonderful experience to the students and faculty to interact with such a dignitary.

ACHARYA NARENDRA DEV COLLEGE

University of Delhi

NAAC Accreditation Grade 'A' | NIRF - 2020 All India Ranking 18th

"Tarumitra" the Botanical Society
under the aegis of DBT STAR College Scheme

presents

Inaugural Lecture on

"HUMANS FOR NATURE"

on October 15, 2020 at 03:30 p.m. by

Padma Shri

Dr Prakash Baba Amte

&

Dr Mandakini Amte

Social Workers, Ramon Magsaysay Awardees
and Founders of Lok Biradari Prakalp

Register at

https://forms.gle/SapseX28cAA2qbwVA

Dr Anita Narang
Teacher - in - charge

Dr Ravi Toteja
Officiating Principal

E-certificates will be provided
to all registered participants

facebook LIVE YouTube Live

ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Tarumitra Inaugural Talk on Humans for Nature delivered by Baba Amte 15th October, 2020

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March 23, 2021
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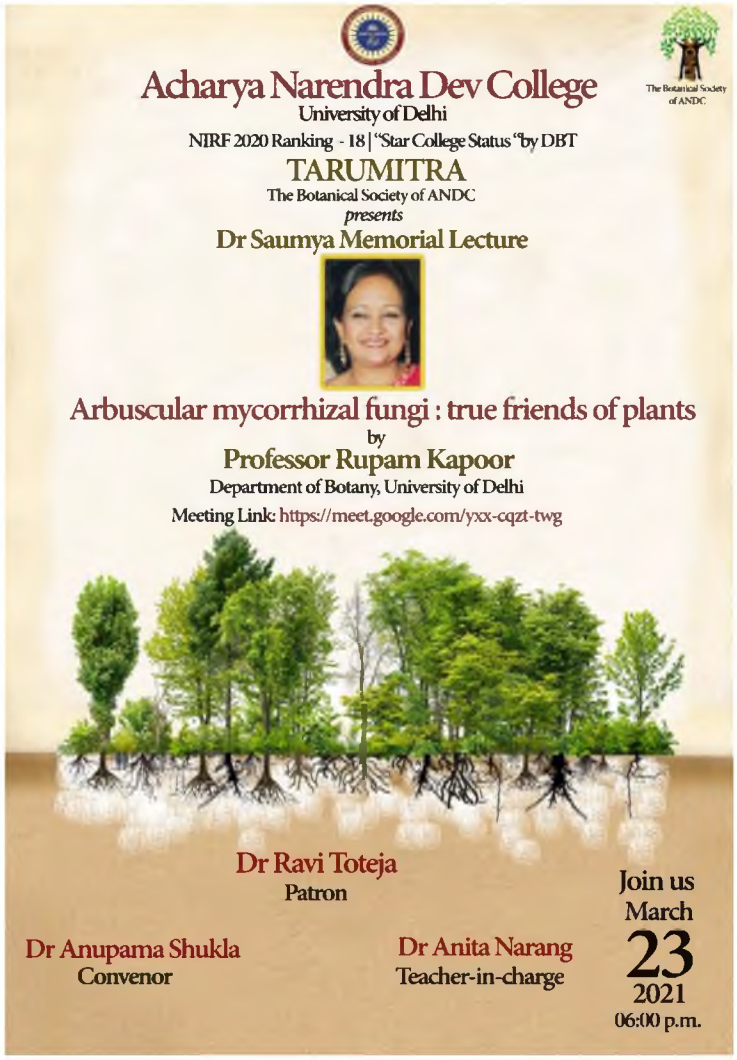
Tarumitra the botanical society invited Professor Roopam Kapoor to deliver a talk on 'Arbuscular Mycorrhizal Fungi: true friends of plants' where she discussed the importance of mycorrhiza (symbiont association of fungi and higher plants) for the growth and development of angiosperms and gymnosperms. She highlighted their role in evolution of angiosperms and mobilization of mineral nutrients from soil to plants. She explained her research in the field and its commercial application in bioaugmentation and bioremediation of pollution degraded lands.



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Saumya Memorial Lecture entitled 'Arbuscular Mycorrhizal Fungi: true friends of plants'
Prof. Roopam Kapoor, University of Delhi
March, 23, 2021

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79.	Dr. Yash Mangla	Faculty	A.N.D.C
80.	Dr. Manoj Singh	Faculty	A.N.D.C
81.	Dr. Sumit Sahni	Faculty	A.N.D.C
82.	Dr. Anita Thakur	Faculty	A.N.D.C
83.	Dr. Vineet K Singh	Faculty	A.N.D.C
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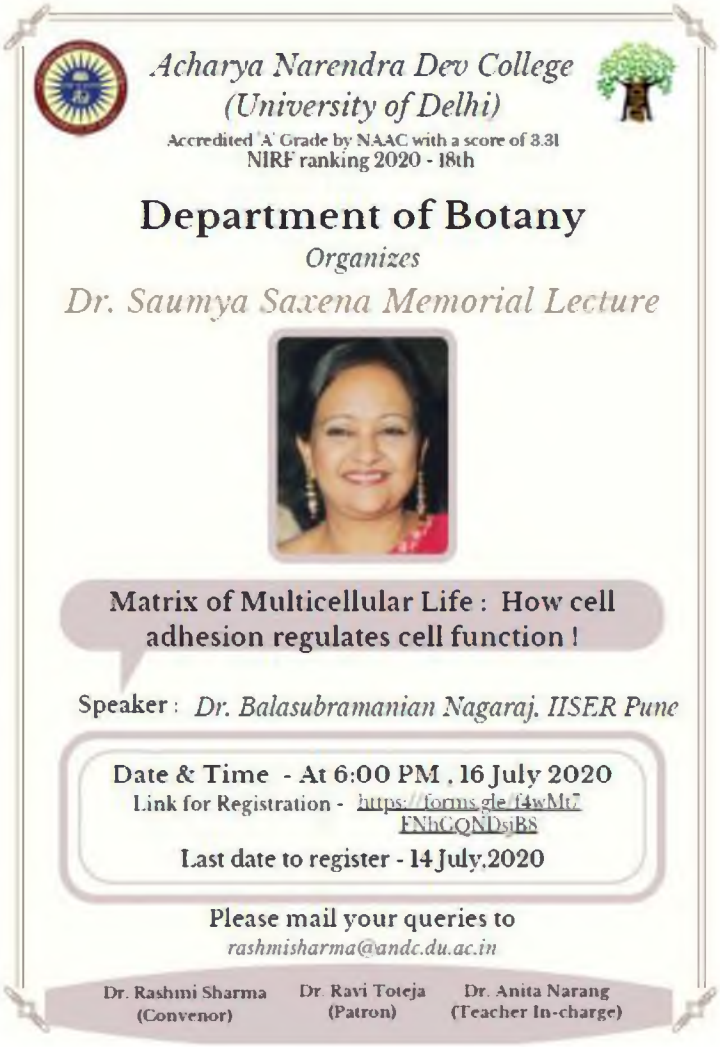
132	YASH NAAVARIYA	ZO-040	B.Sc (H) Botany Part III

Matrix of Multicellular Life: How cell adhesion regulates cell function
Dr. Balasubramanian Nagaraj
IISER, Pune
16 July 2020
Email: nagaraj@iiserpune.ac.in

Phone No. +91-20-25908202

The Department of Botany organised 'Dr Saumya Saxena Memorial Lecture' as webinar on 16 July 2020. Dr Balasubramanian Nagaraj, Associate Professor at IISER Pune was the speaker for the event. He talked on the topic 'Matrix of Multicellular Life: How Cell Adhesion regulates cell function'. Around 125 individuals attended the webinar which included Dr Saumya's colleagues from across the colleges under University of Delhi, her students and family members besides the faculty and students of our college.

Our principal Dr Ravi Toteja welcomed the other guests. Dr CV Srikanth, Associate Professor at Regional Centre for Biotechnology, student from the first batch of the department shared his experience with his teacher and mentor Dr Saumya Saxena. Dr Harsh Kumar, Dr Saumya Saxena's husband shared Dr Saumya's vision. He wished success to all the students participating in the webinar. Dr Rashmi Sharma was the moderator of the event and introduced the speaker Dr Nagaraj, facilitated the question-answer session post webinar and offered a vote of thanks to the audience for their active participation.



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

Dr. Saumya Saxena Memorial Lecture on Matrix of Multicellular Life: How cell adhesion regulates cell function ; by Dr. Balasubramanian Nagaraj (IISER, Pune) July 16, 2020

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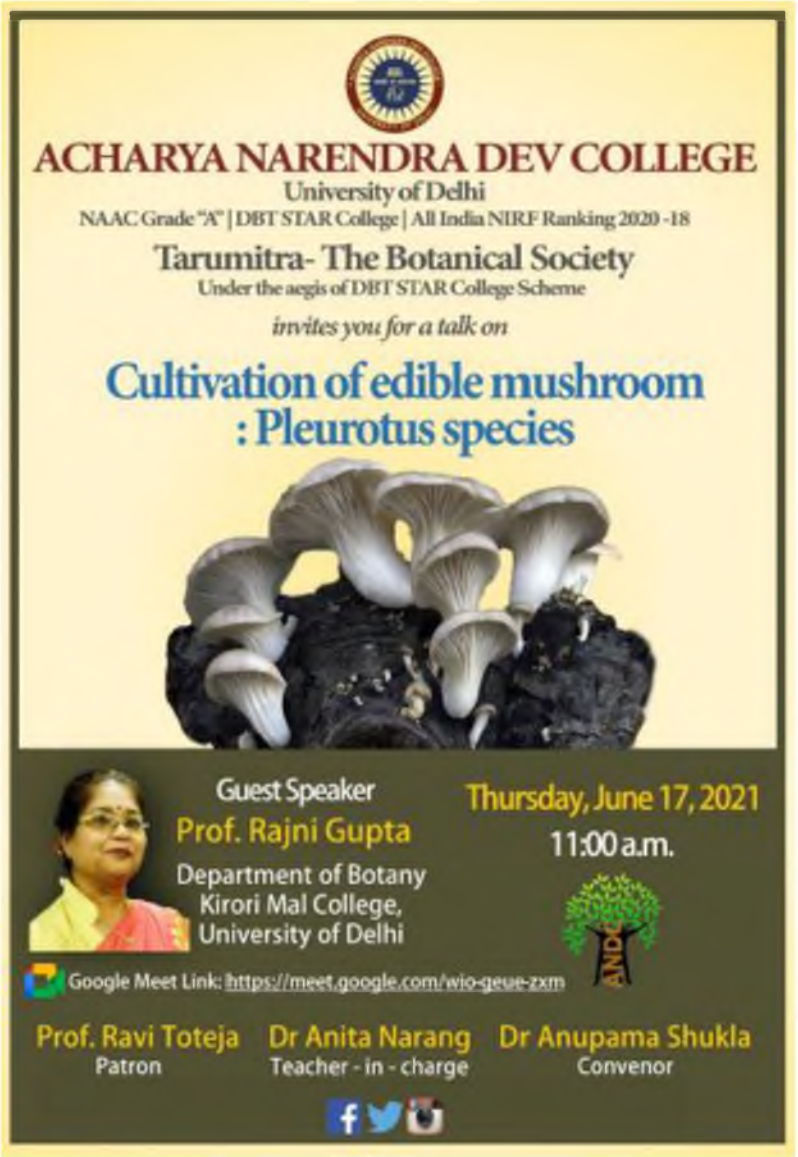
'Cultivation of edible mushroom : *Pleurotus* species'

Professor Rajni Gupta
Department of Botany
Kirori Mal College
University of Delhi
Email: rgupta@kmc.du.ac.in
Phone: 9873345150
June 17, 2021.

Tarumitra, the botanical society of Acharya Narendra Dev College has organized an online talk entitled "Cultivation of Edible Mushroom : Pleurotus species" on June 17, 2021 at 11.00 a.m. by
Professor Rajni Gupta, Department of Botany, Kirori Mal College, University of Delhi. Dr Gupta has excellently described about the process of cultivation of an economically valuable mushroom species
in a very simplified manner. She also discussed about the various aspects related to optimum growing conditions, use of different cost efficient substrates, economical and nutritional importance of the species. She also instill the essence of skill based learning in young listeners from varied field. After her lecture the students interacted with our guest speaker with their queries, where students felt that the session was very informative and interactive. Session ended with the vote of thanks by Dr Anita Narang (Teacher-in-charge)



ACHARYA NARENDRA DEV COLLEGE, UNIVERSITY OF DELHI

TARUMITRA-The Botanical Society
"Cultivation of edible mushroom: *Pleurotus* species
Prof. Rajni Gupta Department of Botany Kirori Mal College University of Delhi
June 17, 2021

S.No	Name	ANDC Roll No	Class
1.	Dr. Ravi Toteja	Officiating Principal	A.N.D.C
2.	Dr. Anupama Shukla	Faculty	A.N.D.C
3.	Dr. Anita Narang	Faculty	A.N.D.C
4.	Dr. Charu K Gupta	Faculty	A.N.D.C
5.	Dr. Geetika Kalra	Faculty	A.N.D.C
6.	Dr. Rashmi Sharma	Faculty	A.N.D.C
7.	Dr. Yash Mangla	Faculty	A.N.D.C
8.	Dr. Manoj Singh	Faculty	A.N.D.C
9.	Dr. Sumit Sahni	Faculty	A.N.D.C

10.	Dr. Anita Thakur	Faculty	A.N.D.C
11.	Dr. Vineet K Singh	Faculty	A.N.D.C
12.	DEEPALI SINGH	AC-012	B.Sc (H) Botany 1st year
13.	DEEPANSHU KUMAR	AC-616	B.Sc Lifesciences 1st year
14.	DEVANGNA SHARMA	AB-048	B.Sc (H) Botany 2nd year
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28.	MAYANK YADAV	AC-023	B.Sc (H) Botany 1st year
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66.	SUMITRA SHAH	AB-637	B.Sc Lifesciences 2nd year
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70.	VRIDHI SINGH	AC-051	B.Sc (H) Botany 1st year

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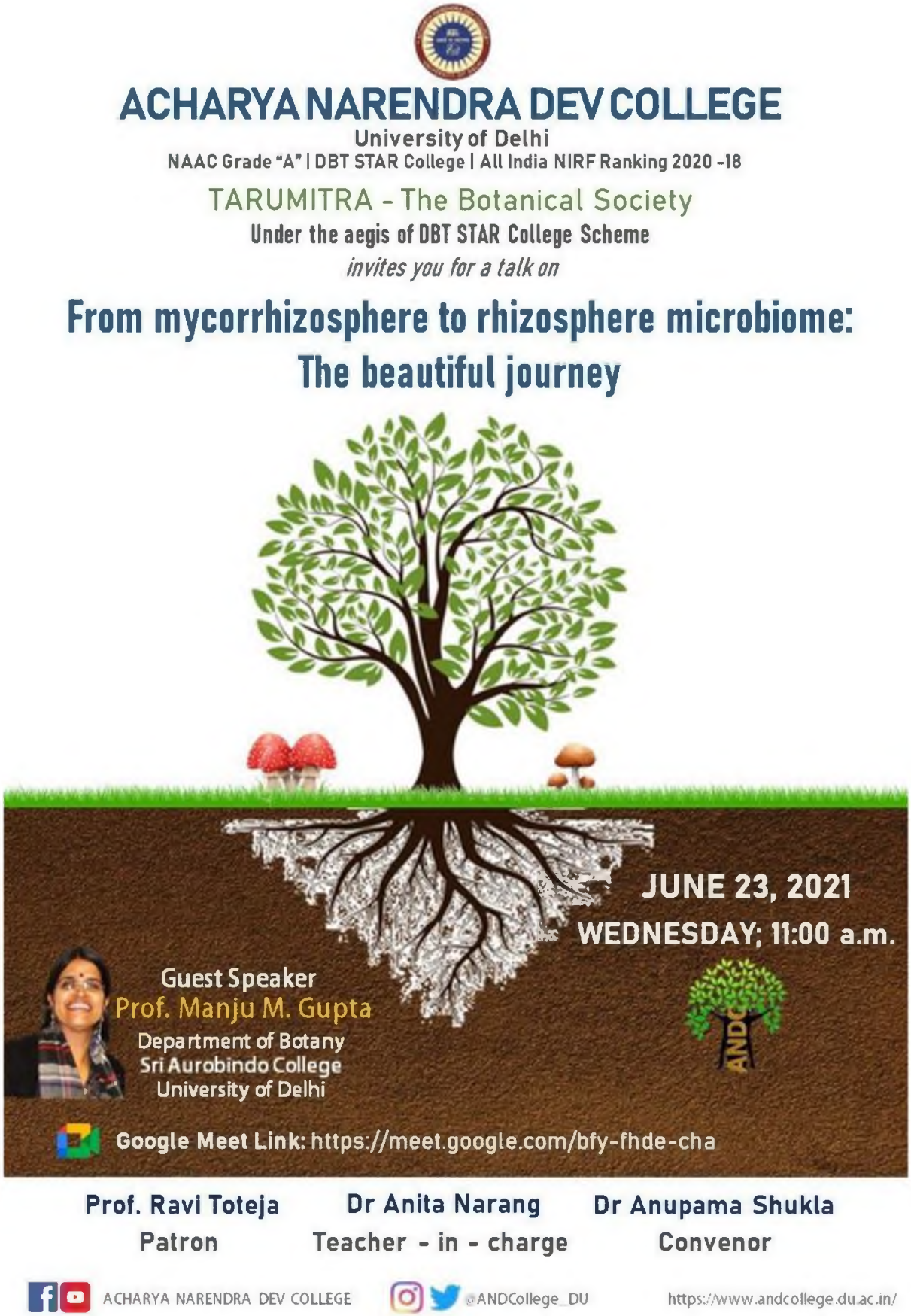
June 23, 2021

On June 23, 2021, a guest lecture was held on the topic of 'Mycorrhizosphere to rhizosphere microbiome: The beautiful journey' Professor Manju Gupta, Department of Botany, Sri Aurobindo College, University of Delhi. The lecture aimed to provide an overview of the role of mycorrhizal fungi in shaping the rhizosphere microbiome and its implications for plant growth and health. The lecture was attended by more than 70 participants from diverse academic backgrounds. The lecture highlighted that mycorrhizal fungi play a crucial role in shaping the rhizosphere microbiome. These fungi release a variety of compounds such as organic acids, enzymes, and extracellular polysaccharides that alter the physicochemical properties of the soil and create a suitable habitat for other microorganisms. In addition, mycorrhizal fungi also provide a carbon source to the rhizosphere microbiome, which enhances microbial growth and diversity. Furthermore, the rhizosphere microbiome plays a critical role in plant growth and health by facilitating nutrient uptake, improving soil structure, and protecting against pathogens. Professor Gupta shared her valuable research insights with students, which has increased curiosity among the students, which can be observed in the question answer session. Overall, the lecture provided an excellent opportunity for participants to learn about the latest research on this important topic. The lecture has ended in a vote of thanks by our teacher-in-charge.



Acharya Narendra Dev College, University Of Delhi

Tarumitra-The Botanical Society Organized Lecture On
" From Mycorrhizosphere To Rhizosphere Microbiome: The Beautiful Journey
By Prof. Manju M. Gupta, Sri Aurobindo College, University Of Delhi
June 23,2021

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5.	Dr. Geetika Kalra	Faculty
6.	Dr. Rashmi Sharma	Faculty
7.	Dr. Yash Mangla	Faculty
8.	Dr. Manoj Singh	Faculty
9.	Dr. Sumit Sahni	Faculty
10.	Dr. Anita Thakur	Faculty
11.	Dr. Vineet K Singh	Faculty
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13.	Suhani Sharma	AB-037
14.	Vishal Kumar	AB-040
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16.	Amit Kumar	AB-045
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18.	Kirti Pandey	AB-047
19.	Devangna Sharma	AB-048
20.	Tanuj Malik	AB-049
21.	Ajita Ojha	AB-050
22.	Divya Pal	AB-612
23.	Khushi Saxena	AB-615
24.	Krith Unni Krishnan	AB-616
25.	Sayantan Chatterjee	AB-634
26.	Shubhangi	AB-635
27.	Sumitra Shah	AB-637
28.	Inshul Bansal	AB-640
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30.	Suraj Kumar Gupta	AB-653
31.	Ananya Das	AC-004
32.	Anjali	AC-006
33.	Darshit Singh Rawat	AC-011
34.	Deepali Singh	AC-012
35.	Jay Kumar Sirmoria	AC-017
36.	Maniket Chauhan	AC-022
37.	Mayank Yadav	AC-023
38.	Mohd Afham	AC-024
39.	Mridula Rani	AC-025
40.	Mrityunjoy Chakraborty	AC-026
41.	Paarth Bhatnagar	AC-031

42.	Pratap	AC-032
43.	Pratham Singh Chauhan	AC-033
44.	Roopal Jha	AC-043
45.	Satyavrat	AC-045
46.	Seema	AC-046
47.	Vridhi Singh	AC-051
48.	Saurabh Sharma	AC-059
49.	Aashi Gupta	AC-601
50.	Aastha Srivastava	AC-602
51.	Abhishek Kumar Yadav	AC-603
52.	Balla Anjani Bhavani	AC-614
53.	Deepanshu Kumar	AC-616
54.	Raina Gupta	AC-642
55.	Sachin Rao	AC-644
56.	Sahil Chauhan	AC-645
57.	Himanshu Singh	ZO-017
58.	Nischay	ZO-029
59.	Rajat Kachari	ZO-033
60.	Pawan	ZO-046
61.	Shivam Singh	ZO-051
62.	Nitesh Verma	ZO-053
63.	Divya Bhatt	ZO-066
64.	Gaurav Rawat	ZO-067
65.	Harshita Sharma	ZO-068
66.	Pooja	ZO-077
67.	Preeti Sai	ZO-079
68.	Rinki	ZO-081
69.	Ritika	ZO-082
70.	Shivali	ZO-085

Conferences/Workshops/Seminars for the year 2020-21

Workshop

Workshop for the non-teaching staff on “Tools in Modern Biology”

April 26, 2022

Convenors: Professor Charu K Gupta, Dr, Rashmi Sharma

Coordinators cum Resource Persons: Dr. Sumit Sahni, Dr. Vineet Kumar Singh and Dr. Manoj Kumar Singh

Audience: Non teaching staff Acharya Narendra Dev College, No: 15

Department of Botany organized a One-Day workshop for the non teaching staff on to update them with all the new equipments purchased by the Department of Botany under DBT-STAR grant. The staff were given exposure of advance light microscope, Biosafety Level-II (BSL-II) cabinet, Double beam UV-Vis spectrophotometer, PCR machine and the parts thereof and Table top refrigerated centrifuge. The workshop was organized to enabled them to handle the instruments daily and for day to day maintenance and smooth functioning of these instruments.

आज़ादी का अमृत महोत्सव

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

ACCREDITED 'A' GRADE BY NAAC

NIRF 2021 RANKING -20

Under the aegis of DBT STAR Scheme and IQAC

Department of Botany

organizes a

Hands-on Training for Support Staff

on

Tools in Modern Biology

***Date*: April 26, 2022 *Time*: 11:00am–3:00pm**

- Microscopes
- Laminar Flow & Bio Safety Cabinet
- Spectrophotometer
- PCR and Centrifuge

PATRON
Prof. Ravi Toteja

CONVENORS
Prof Charu K Gupta
Dr Rashmi Sharma

COORDINATORS
Dr Sumit Sahni
Dr Vineet Kumar Singh
Dr Manoj Kumar Singh

Workshop on "Tools in Modern Biology" for Laboratory Staff
Department of Botany

April 26, 2022

Attendance List of Particpants

S.no.	Name	Department
1	Mr Rajveer Singh	Botany
2	Mr Vinod Kumar	Botany
3	Mr Ashok Kumar	Botany
4	Mr Arjun Kumar	Botany
5	Mr Mukesh Sharma	Botany
6	Mr Brijesh Kumar Sharma	Botany
7	Mr Mahinder Singh Rawat	Botany
8	Mr Nitin Goswami	Botany
9	Ms. Sangeeta Goswami	Botany
10	Mr. Harish Kumar	Botany
11	Mr. Jaikaran Singh Tomar	Botany
12	Ms. Kanika Chadha	Botany
13	Mr. Narendra Kumar	Botany
14	Mr. Tara Dutt Sharma	Zoology
15	Mr. Pramod Kumar Bhatt	Zoology

Seminars

'Challenges and strategic solutions for breaking the bias for better nutrition and health outcomes'

Ms Deepti Gulati
Industry Chair Professor
National Institute of Food Technology Entrepreneurship and Management (NIFTEM)
Sonepat, Haryana
Email: dgulati@niftem.ac.in
Phone:+91 1302281000

Department of Botany organized a talk on March 08, 2022 "Challenges and strategic solutions for breaking the bias for better nutrition and health outcomes" by Ms Deepti Gulati, Industry chair
Professor, NIFTEM, Sonepat and recipient of Outstanding Ambassador of Nutrition and Food Fortification Award", 2020, from ASSOCHAM, "Nutrition Leadership Award" 2019, from IIHMR University, and "Outstanding Alumni Achievement Award" 2018 from MS University of Baroda, Gujarat. . She talked about how improvement in life style impacts our health. She also inaugurated the Mushroom Culture facility of the Department.

Challenges and strategic solutions for breaking the bias for better nutrition and health outcomes
Organized by Tarumitra and Sashakt

March 8, 2022

Attendance of the Student Participants in the Seminar

S.No.	Name	Roll No	Class
1	Akanksha Singh	AC-060	Botany Part II
2	Jay Kumar Sirmoria	AC-017	Botany Part II
3	Mohd Afham	AC-024	Botany Part II
4	Mridula Rani	AC-025	Botany Part II
5	Maniket Chauhan	AC-022	Botany Part II
6	Mayank Yadav	AC-023	Botany Part II
7	Mrityunjoy Chakraborty	AC-026	Botany Part II
8	Ananya Das	AC-004	Botany Part II
9	Vridhi Singh	AC-051	Botany Part II
10	Shubhanshu Krishna	AC-058	Botany Part II
11	Kanchan	AC-018	Botany Part II
12	Shreya Singh	AC-048	Botany Part II
13	Shubham Karawasra	AC-063	Botany Part II
14	Sruthi S. Kumar	AC-049	Botany Part II
15	Rinki	AC-039	Botany Part II
16	Riya Dayal	AC-041	Botany Part II
17	Rohit	AC-042	Botany Part II
18	Yashraj Aditya	AC-052	Botany Part II
19	Aashi Gupta	AC-601	LS Part II
20	Aastha Srivastava	AC-602	LS Part II
21	Abhishek Kumar Yadav	AC-603	LS Part II

22	Nancy	AC-638	LS Part II
23	Nikita	AC-639	LS Part II
24	Parul Sharma	AC-640	LS Part II
25	Raina Gupta	AC-642	LS Part II
26	Sonam Wangmo	AC-653	LS Part II
27	Spalzes Dolker	AC-654	LS Part II
28	Srashti Nirala	AC-655	LS Part II
29	Subham	AC-656	LS Part II
30	Swati	AC-657	LS Part II
31	Vandana	AC-658	LS Part II
32	Vibha Shukla	AC-659	LS Part II
33	Vijay Kumar Yadav	AC-661	LS Part II
34	Adithya Suresh	AD-007	Botany Part I
35	Adiya Vatsa	AD-008	Botany Part I
36	Afshar Ajmeri	AD-009	Botany Part I
37	Akza K John	AD-010	Botany Part I
38	Alisha Khan	AD-011	Botany Part I
39	Aman Kumar	AD-012	Botany Part I
40	Anjali	AD-013	Botany Part I
41	Haemakshi Biswas	AD-025	Botany Part I
42	Harsheeta Tiwari	AD-026	Botany Part I
43	Javad C	AD-029	Botany Part I
44	Jay Kumar Meena	AD-030	Botany Part I
45	Jitesh Debbarma	AD-031	Botany Part I
46	Kalyani Banwar	AD-033	Botany Part I
47	Kanishka Chauhan	AD-034	Botany Part I
48	Karamjeet Kumar	AD-035	Botany Part I

49	Karan Saroj	AD-036	Botany Part I
50	Karan Yadav	AD-037	Botany Part I
51	Kavya	AD-039	Botany Part I
52	Khushi Mittal	AD-040	Botany Part I
53	Kirti Bhatnagar	AD-041	Botany Part I
54	Mitali Saini	AD-044	Botany Part I
55	S Ananya	AD-061	Botany Part I
56	Roja Sharma	AD-060	Botany Part I

'Biomarker discovery for cardiovascular diseases using multiomics approaches'
Prof. Mohammad Zahid Ashraf
Head, Department of Biotechnology,
Jamia Milia Islamia University,
New Delhi
March 23, 2022
Email: zashraf@jmi.ac.in
Phone : 9871426706
Department has organized Dr. Saumya Saxena Memorial talk 2022 on 'Biomarker discovery for cardiovascular diseases using multiomics approaches'. by Prof. Mohammad Zahid Ashraf, Head, Department of Biotechnology, Jamia Milia Islamia University, New Delhi on March 23, 2022.

Professor enlightened the gathering by progress made by medical science in early detection of cardiovascular disease and their cure. He also highlighted about his research on the various implication of high-altitude sickness and hypoglycemia in soldiers posted in Leh, Siachen glacier.

Dr Saumya Saxena Memorial Lecture 2022

'Biomarker discovery for cardiovascular diseases using multiomics approaches'

23rd March 2022

Attendance List of the Students in the Lecture

S.No.	Name	Roll No	Class
1	Abhishek	AD-005	Botany Part I
2	ABIN A S	AD-006	Botany Part I
3	ADITHYA SURESH	AD-007	Botany Part I
4	Adiya Vatsa	AD-008	Botany Part I
5	AFSHAR AJMERI	AD-009	Botany Part I
6	AKZA K JOHN	AD-010	Botany Part I
7	Alisha Khan	AD-011	Botany Part I
8	Dipesh Yadav	AD-080	Botany Part I
9	HAEMAKSHI BISWAS	AD-025	Botany Part I
10	HARSHEETA TIWARI	AD-026	Botany Part I
11	huirem bishwonath meitei	AD-027	Botany Part I
12	JANAK BAHADUR PATEL	AD-081	Botany Part I
13	JANGIDI RANJITH	AD-028	Botany Part I
14	JAVAD C	AD-029	Botany Part I
15	Jitesh Debbarma	AD-031	Botany Part I
16	Kalyani Banwar	AD-033	Botany Part I
17	Kanishka Chauhan	AD-034	Botany Part I
18	Karamjeet Kumar	AD-035	Botany Part I
19	KARAN SAROJ	AD-036	Botany Part I
20	KARAN YADAV	AD-037	Botany Part I
21	Kashish	AD-038	Botany Part I
22	Kavya	AD-039	Botany Part I
23	KHUSHI MITTAL	AD-040	Botany Part I
24	Kirti Bhatnagar	AD-041	Botany Part I
25	ILMA KHAN	AD-629	LS Part I
26	Ishika Kapoor	AD-630	LS Part I

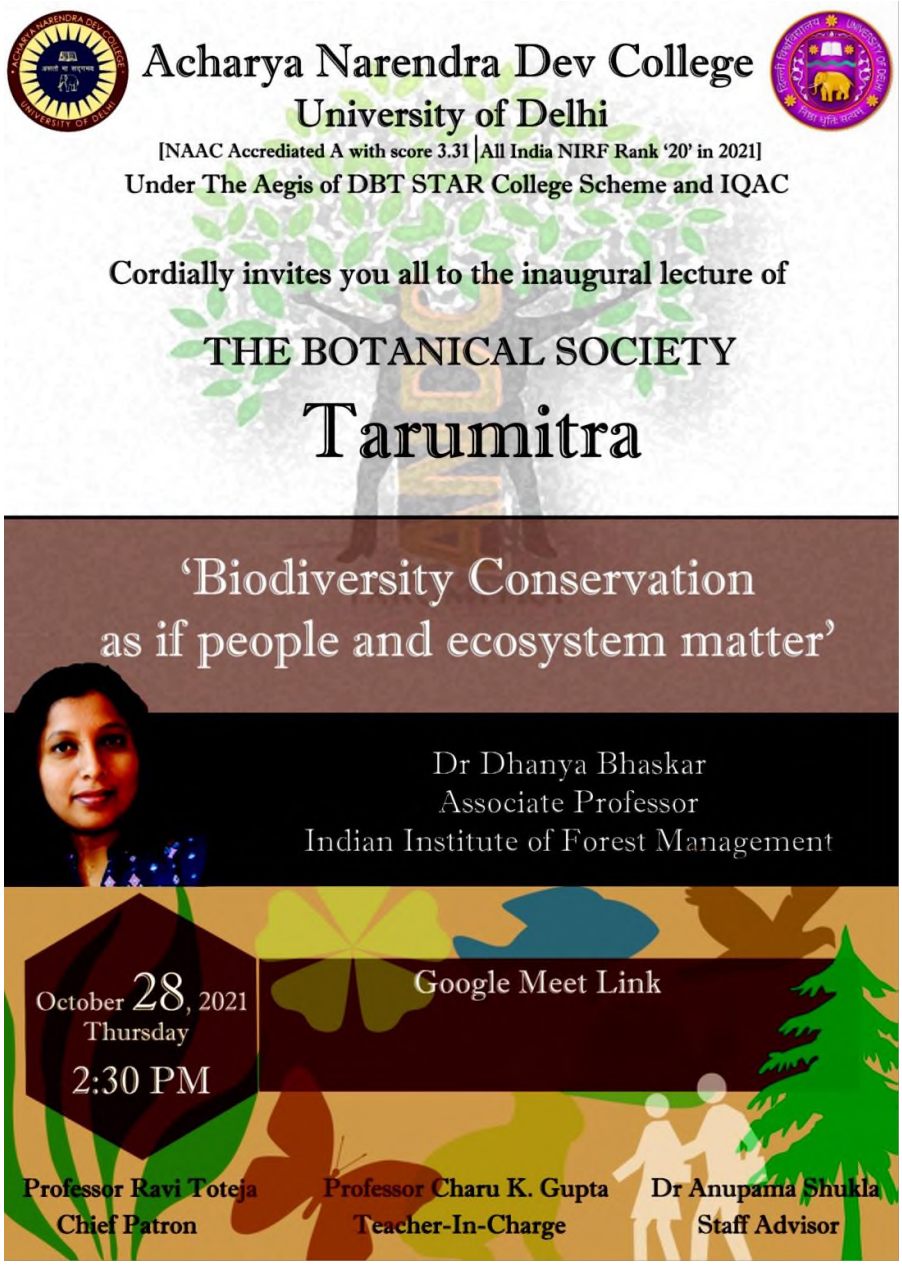
27	ISHITA GUPTA	AD-631	LS Part I
28	JATIN GARG	AD-632	LS Part I
29	KAPIL SHARMA	AD-634	LS Part I
30	Laraib Hassan	AD-641	LS Part I
31	Latasha	AD-642	LS Part I
32	Shreya Singh	AC-048	Botany Part II
33	shubham karawasra	AC-063	Botany Part II
34	SHUBHANSHU KRISHNA	AC-058	Botany Part II
35	Sruthi S. Kumar	AC-049	Botany Part II
36	Stanzin Gurmey	AC-061	Botany Part II
37	VRIDHI SINGH	AC-051	Botany Part II
38	Wasim Akram	AC-053	Botany Part II
39	yashraj Aditya	AC-052	Botany Part II
40	AAKIL KHAN	AC-055	Botany Part II
41	AISHWARY KUMAR CHATURVEDI	AC-003	Botany Part II
42	AKANKSHA SINGH	AC-060	Botany Part II
43	Ananya Das	AC-004	Botany Part II
44	ANUPRIYA SHARMA	AC-007	Botany Part II
45	ANURADHA TOMAR	AC-008	Botany Part II
46	Aparna Saji Kumar	AC-009	Botany Part II
47	AYAN CHANDRA	AC-010	Botany Part II
48	Darshit Singh Rawat	AC-011	Botany Part II
49	DEEPALI SINGH	AC-012	Botany Part II
50	GEETIKA JOSHI	AC-013	Botany Part II
51	JAY KUMAR SIRMORIA	AC-017	Botany Part II
52	KANCHAN	AC-018	Botany Part II
53	KANISHKA	AC-019	Botany Part II
54	LALIT PAL	AC-021	Botany Part II

55	MANIKET CHAUHAN	AC-022	Botany Part II
56	MAYANK YADAV	AC-023	Botany Part II
57	Mohd Afham	AC-024	Botany Part II
58	MRIDULA RANI	AC-025	Botany Part II
59	Mrityunjoy Chakraborty	AC-026	Botany Part II
60	NEERAJ	AC-027	Botany Part II
61	Rinki	AC-039	Botany Part II
62	Riya Dayal	AC-041	Botany Part II
63	ROHIT	AC-042	Botany Part II

'Biodiversity Conservation as if people and ecosystem matter'

Dr Dhanya Bhaskar
Associate Professor
Indian Institute of Forest Management
Bhopal
October 28, 2021
Email: dhanyab@iifm.ac.in
Phone: 91-755-2775716 Extn:443

Department of Botany under the aegis of its society organized a talk by Dr Dhanya Bhaskar, Associate Professor at Indian Institute of Forest Management, Bhopal on 'Biodiversity Conservation as if People and Ecosystem Matter' on October 28, 2021. This lecture was organized as an inaugural lecture of the Botanical Society 'Tarumitra'. The delivered talk was an impetus for young minds to think about biodiversity conservation and the role of human activities in sustainable development.



Biodiversity Conservation as if people and ecosystem matter By Dr Dhanya Bhasker

28 October 2021

List of Participants: 79

S.No.	Name	Roll No	Class
1	Prof Ravi Toteja		Principal
2	Prof Charu Khosla		Botany Department

3	Dr Yash Mangla		Botany Department
4	Dr Anita Narang		Botany Department
5	Dr Anupama Shukla		Botany Department
6	Dr Vineet K Singh		Botany Department
7	Dr Sumit Sahni		Botany Department
8	Dr Manoj K Singh		Botany Department
9	Dr Anita Thakur		Botany Department
10	Dr Rashmi Sharma		Botany Department
11	Dr Geetika Kalra		Botany Department
12	Aditi	Ab-001	Botany Part Iii
13	Ajita Ojha	Ab-050	Botany Part Iii
14	Amit Kumar	Ab-045	Botany Part Iii
15	Ankit	Ab-044	Botany Part Iii
16	Devangna Sharma	Ab-048	Botany Part Iii
17	Hitesh Kala	Ab-012	Botany Part Iii
18	Jatin	Ab-014	Botany Part Iii
19	Kirti Pandey	Ab-047	Botany Part Iii

20	Mohini Kumari	Ab-018	Botany Part Iii
21	N Khachuk Debbarma	Ab-019	Botany Part Iii
22	Nikhil Chauhan	Ab-046	Botany Part Iii
23	Nitesh	Ab-021	Botany Part Iii
24	Param Kumar	Ab-022	Botany Part Iii
25	Pragya Muni	Ab-023	Botany Part Iii
26	Pratiksha	Ab-024	Botany Part Iii
27	Preeti Maurya	Ab-025	Botany Part Iii
28	Shivangi Dev	Ab-034	Botany Part Iii
29	Shweta Yadav	Ab-036	Botany Part Iii
30	Suhani Sharma	Ab-037	Botany Part Iii
31	Tanuj Malik	Ab-049	Botany Part Iii
32	Akanksha Singh	Ac-060	Botany Part Ii
33	Jay Kumar Sirmoria	Ac-017	Botany Part Ii
34	Mohd Afham	Ac-024	Botany Part Ii
35	Mridula Rani	Ac-025	Botany Part Ii
36	Maniket Chauhan	Ac-022	Botany Part Ii

37	Mayank Yadav	Ac-023	Botany Part Ii
38	Mrityunjoy Chakraborty	Ac-026	Botany Part Ii
39	Ananya Das	Ac-004	Botany Part Ii
40	Vridhi Singh	Ac-051	Botany Part Ii
41	Shubhanshu Krishna	Ac-058	Botany Part Ii
42	Kanchan	Ac-018	Botany Part Ii
43	Shreya Singh	Ac-048	Botany Part Ii
44	Sruthi S. Kumar	Ac-049	Botany Part Ii
45	Rinki	Ac-039	Botany Part Ii
46	Riya Dayal	Ac-041	Botany Part Ii
47	Rohit	Ac-042	Botany Part Ii
48	Yashraj Aditya	Ac-052	Botany Part Ii
49	Aashi Gupta	Ac-601	Ls Part Ii
50	Aastha Srivastava	Ac-602	Ls Part Ii
51	Abhishek Kumar Yadav	Ac-603	Ls Part Ii
52	Nancy	Ac-638	Ls Part Ii
53	Nikita	Ac-639	Ls Part Ii

54	Srashti Nirala	Ac-655	Ls Part Ii
55	Subham	Ac-656	Ls Part Ii
56	Swati	Ac-657	Ls Part Ii
57	Vandana	Ac-658	Ls Part Ii
58	Vibha Shukla	Ac-659	Ls Part Ii
59	Vijay Kumar Yadav	Ac-661	Ls Part Ii
60	Ilma Khan	Ad-629	Ls Part I
61	Ishika Kapoor	Ad-630	Ls Part I
62	Ishita Gupta	Ad-631	Ls Part I
63	Jatin Garg	Ad-632	Ls Part I
64	Kapil Sharma	Ad-634	Ls Part I
65	Laraib Hassan	Ad-641	Ls Part I
66	Latasha	Ad-642	Ls Part I
67	Rimsha Mansoori	Ad-668	Ls Part I
68	Rishav Pratap Singh	Ad-669	Ls Part I
69	Riya Verma	Ad-670	Ls Part I
70	Umang Verma	Ad-689	Ls Part I

71	Urvashi Salvi	Ad-690	Ls Part I
72	Vishwa Deepak Srivastava	Ad-692	Ls Part I
73	Sania Anwar	Ad-676	Ls Part I
74	Adiya Vatsa	Ad-008	Botany Part I
75	Afshar Ajmeri	Ad-009	Botany Part I
76	Harsheeta Tiwari	Ad-026	Botany Part I
77	Huirem Bishwonath Meitei	Ad-027	Botany Part I
78	Jitesh Debbarma	Ad-031	Botany Part I
79	Kalyani Banwar	Ad-033	Botany Part I

Effects of Good Ozone and Bad Ozone on Human

Organizer: Dr Seema Gupta (Eco-Club Convener)

Resource Person: Dr Seema Sharma, Assistant Professor, Vivekananda College (University of Delhi)

Date: September 16, 2021

Number of Participants: 74

A webinar entitled 'Effects of Good Ozone and Bad Ozone on Human Life' was organized on September 16, 2021. Dr Seema Sharma, Assistant Professor,

Vivekananda College (University of Delhi) delivered a talk on this topic to summarize the impact of good and bad ozone.

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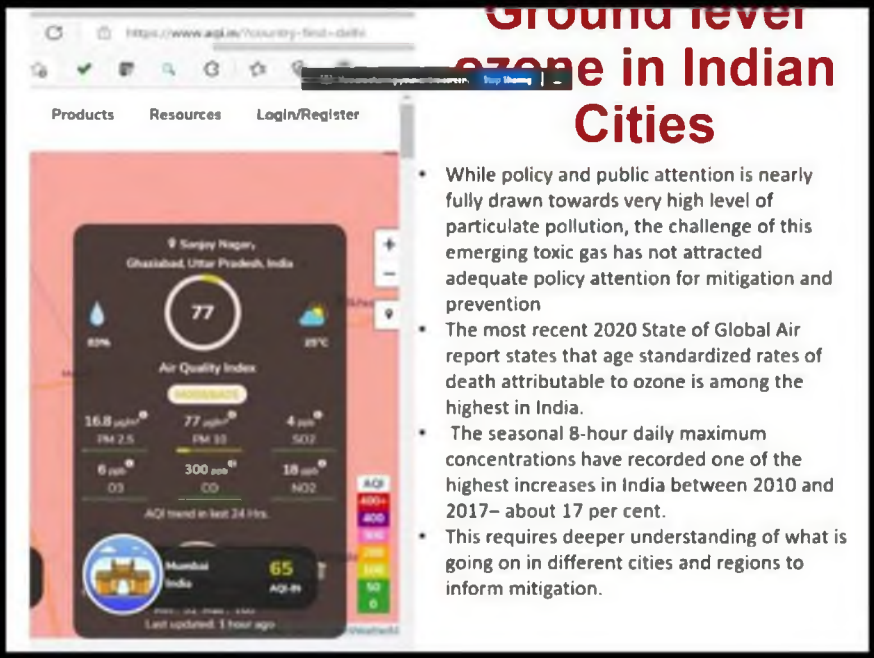

Nikhil is presenting

You

Seema

Dr. Gagan

33 others

16:09

About this call

People Information

Dr. Priti Goyal

Dr. Rashmi Thukral

Dr. Seema Gupta

Heena Parveen

Indu M

Khushi Agrawal

khushi Vashishtha

Mansi Parkash

Mr. Sanjay Kumar

Neeraj Patel

Nikhil Kumar

Nikhil Kumar

NITESH

Praphul Tyagi Zoology

Preeti Singh

PRIYANSH CHAUDHARY

RASHID

Rimpy Kaur Chowhan

Sanskriti

Sayantan Chatterjee

Seema Sharma

Sumit Kumar

Twishi Mishra

Vivek Yadav

About this call

People Information

ADD OTHERS

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IN CALL

Vridhi Singh (You)

Divya Yadav
Meeting host

Abhay pratap singh

AICHEA VICTORIA A SANGMA

Akanksha

akanksha singh

Akash Kumar Maurya

Akshat

Deeparati D

Diwakar Mahato

Dr. Gagan Dhawan

Dr. Gagan Dhawan

Dr. Priti Goyal

Dr. Rashmi Thukral

Dr. Seema Gupta

Heena Parveen

Indu M

Khushi Agrawal

About this call

People Information

Deeparati D
Diwakar Mahato
Dr. Gagan Dhawan
Dr. Gagan Dhawan
Dr. Priti Goyal
Dr. Rashmi Thukral
Dr. Seema Gupta
Heena Parveen
Indu M
Khushi Agrawal
khushi Vashishtha
Mansi Parkash
Mr. Sanjay Kumar
Neeraj Patel
Nikhil Kumar
Nikhil Kumar
NITESH
Praphul Tyagi Zoology
Preeti Singh
PRIYANSH CHAUDHARY
RASHID
Rimpy Kaur Chowhan
Sanskriti
Sayantan Chatterjee

Why Him, Why Not Her

Organizer: Dr Geetika Kalra (Sashakat Convener)

Resource Person: Riya Kushwaha

Date: September 16, 2021

Number of Participants: 56

The society has a committed group of enthusiastic students who organised an interactive webinar on ' Why him, why not her' by a budding author Riya Kushwaha who emphasized the need of equality between men and women in the society.

Energy Work to Declutter and Re-energize

Organizer: Dr Geetika Kalra (Sashakat Convener)

Resource Person: Ms Seema Sharma

Date: March 08, 2022

Number of Participants: 67

The college reopened and the society organised offline interactive talk by reiki masters, Ms. Seema Sharma on the topic 'Energy work to declutter and re-energize' on March 08, 2022. This was to address the mental health of our students who suffered quite a lot during the pandemic.

Menstrual Health

Organizer: Dr Geetika Kalra (Sashakat Convener)

Resource Person: 67

Date: July 13, 2020

Number of Participants:

"Managing Life in COVID Times: Yoga Shows the Way"

Organizer: Dr Geetika Kalra (Sashakat Convener)

Resource Person: Dr Hansa Yogendra

Date: May 29, 2021

Number of Participants: 76

Webinar on: Keeping up with its responsibilities regarding women's health, the Society organized a webinar by Dr Hansa Yogendra on 'Managing Life in Covid Times: Yoga shows the way' on May 29, 2021. The pandemic has reiterated the need for taking care of our body and mind as our supreme duty. The resource person, Dr

Hansa Yogendra, from The Yoga Institute, Mumbai Maharashtra, is a very well-known personality in the field of yoga. She enlightened the members on the ways, good health, both physical and mental, can be maintained by following simple food habits and yogic exercises. She emphasized on the need of pranayam in keeping the body healthy.76 participants joined the webinar on google meet and almost equal number watched the live streaming on YouTube.

Acharya Narendra Dev College
University of Delhi
NAAC Accreditation Grade 'A' | NIRF 2020 AIR 18
Sashakt:The Society for Women Empowerment
Under the aegis of DBT Star College Scheme
INVITES YOU FOR A WEBINAR
BY
Dr Hansaji Yogendra
The Yoga Institute
Our GuestSpeaker
TOPIC MANAGING LIFE IN COVID TIMES
YOGA SHOWS THE WAY
May 29, 2021; 6:30 pm
Registeration Link: https://forms.gle/Wrt4ELncaLupGcSF8
Dr Ravi Toteja
Officiating
Principal
Dr Geetika Kalra
Sashakt Convenor
Dr Rashmi Sharma
Department Star
Convenor

Talk on 'Empower HERstory'

Organizer: Dr Geetika Kalra (Sashakat Convener)

Resource Person: Ms. Anju Kumari

Date: October 29, 2018

Number of Participants: 67

Sashakt Committee organizedan interactive talk on Empower HER story on 29th October, 2018. The talk was delivered by Ms. Anju Kumari. She is an experienced corporate professional, motivational speaker and life skills trainer. The talk aimed to empower women and inspire them to achieve their goals and aspirations.She delivered an inspiring talk and was able to connect with the students with her strong motivational words. She could relate to the audience through real life experiences shared by her. She exuded energy and encouraged the students to reinvent themselves, love themselves first and follow their heart. During the talk, Ms. Kumari shared her personal story of overcoming challenges and adversity to pursue her dreams. She discussed the importance of education and how it helped her to break free from the constraints of her social and cultural background.Ms. Kumari also highlighted the need for gender equality and the role of women in shaping the future of society. She encouraged the audience to support and uplift each other, and to work towards creating a more inclusive and equitable world.

The talk was well-received by the audience, which consisted of students, faculty, and other members of the college community. It provided a platform for women to share their experiences and challenges, and to draw inspiration from Ms. Kumari's journey. Overall, the "Empower HER Story" talk by Ms. Anju Kumari was an insightful and motivational event that empowered women to overcome obstacles and achieve their full potential.

The talk was followed by interactive session where students' queries were answered. The talk aimed to empower women and inspire them to achieve their goals and aspirations.

3.3.1.1. Number of research papers in the Journals notified on UGC CARE list year wise during the last five years

ACHARYA NARENDRA DEV COLLEGE

UNIVERSITY OF DELHI

DBT STAR STATUS COLLEGE

All India NIRF 2022 Ranking-18, NAAC Score-3.31

Govindpuri, Kalkaji, New Delhi 110019

3.3 RESEARCH PUBLICATIONS AND AWARDS SUPPORTING DOCUMENT FOR 3.3.1.1

3.3.1.1: Number of research papers in the Journals listed year wise during last five years. (Institute wise)

S. No.	Year	Number of research papers
1	2017	44
2	2018	51
3	2019	42
4	2020	61
5	2021	68
6	2022	107
	Total	**373**

Dr. Sada Nand Prasad
Convenor, NAAC
Acharya Narendra Dev College

Prof. Ravi Toteja
Officiating Principal
Acharya Narendra Dev College

3.3 RESEARCH PUBLICATIONS AND AWARDS SUPPORTING DOCUMENT FOR 3.3.1.1

3.3.1.1: Number of research papers in the Journals listed year wise during last five years. (Teacher wise)

S. No.	Year	Number of research papers
1	2017	72
2	2018	95
3	2019	70
4	2020	118
5	2021	115
6	2022	172
	Total	**642**

Dr. Sada Nand Prasad
Convenor, NAAC
Acharya Narendra Dev College

Prof. Ravi Toteja
Officiating Principal
Acharya Narendra Dev College

SUPPORTING DOCUMENT FOR 3.3.1.1

3.3.1.1: Number of research papers in the Journals listed year wise during last five years. (Institute wise)

S. No.	Title of the Paper	Page No.
1	One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates	1
2	A robust replenishment model for deteriorating items considering ramp-type demand and inflation under fuzzy environment	2
3	Supply chain model with two storage facility for stock dependent demand incorporating learning and inflationary effect under crisp and fuzzy environment.	3
4	Inhibition of gut proteases and development of dengue vector, Aedes aegypti by Allium sativum protease inhibitor	4
5	Assessment of Achyranthes aspera induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of Aedes aegypti L. (Diptera: Culicidae)	5
6	A facile and rapid method for green synthesis of Achyranthes aspera stem extract-mediated silver nanocomposites with cidal potential against Aedes aegypti L. Saudi	6
7	Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora; Oxytrichidae) isolated from Sanjay lake, Delhi, India.	7
8	Diversity and abundance of ammonia-oxidizing bacteria and archaea in a freshwater recirculating aquaculture system	8
9	Beyond the "Code": a guide to the description and documentation of biodiversity in ciliated protists (Alveolata, Ciliophora)	9
10	Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India	10
11	Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater ciliates	11
12	Assessment of Particulate Matter (PM)concentrations at a typical construction site in Bangalore, India.	12

13	Distinct detection of liquor ammonia by ZnO/SAW sensor: study of complete sensing mechanism.	13
14	Sensitivity Enhancement Studies of SAW vapor sensor by oscillator tuning using Varactor diode	14
15	Alterations in the reactive oxygen species in peripheral blood of chronic myeloid leukemia patients from Northern India	15
16	An analysis upon various strategies for redesign and direct evolution of enzyme engineering	16
17	Comparative study of removal of Cu and Pb from aqueous solution by using modified rice husk ask as an adsorbent	17
18	Developing a low cost activated carbon from agricultural waste for the removal of heavy metal from cotaminated waste	18
19	Sportsmen's energy package Cordyceps sinensis: Medicinal importance and responsible phytochemical constituents	19
20	Online signature verification: A review	20
21	Comparative analysis on path planning algorithm's on mobile robot in image processing	21
22	Impact of DDA optimization on mobile robot path planning for mixed image in image processing	22
23	Target assignment in robotics and its distance optimality using DDA optimization in image processing	23
24	Mobile robot path planning approach: A review	24
25	Architecture based on environmental monitoring system using zigbee wireless sensor networks	25
26	Low power consumption in zigbee wireless networks: A, review	26
27	Society and Sex Work in *The Autobiography of a Sex Worker by* Nalini Jameela.	27
28	The White Woman's Gaze	28
29	Free and open source software: A key enabler for digital India	29
30	Nanosecond Laser- Cluster Interactions at 109-1012 W/cm2	30
31	Pulse compression and self focusing of Gaussian laser pulses in plasma having relativistic ponderomotive nonlinearity	31
32	Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film	32
33	Growth and characterization of sol-gel processed rectangular shaped nanostructured ferric oxide thin film followed by humidity and gas sensing	33

34	LPG detection using SnO_2, PANI-SnO_2 and Ag-SnO_2 composite film fabricated by Chemical route	34
35	Preparation of PANI doped TiO_2 nanocomposite thin film and its relevance as room temperature liquefied petroleum gas sensor	35
36	Development of Fe_2O_3-PANI nanocomposite thin film based sensor for NO_2 detection	36
37	Self-compression of two co-propagating laser pulse having relativistic nonlinearity in plasma	37
38	Partially synchronized states in an ensemble of chemo-mechanical oscillators	38
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315	Effect of variation in glancing angle deposition on resistive switching property of WO3 thin films for RRAM devices.	315
316	Ensemble-based unsupervised machine learning method for membership determination of open clusters using Mahalanobis distance.	316
317	Two-photon Bound to Bound Transitions under Strong Screening Potential.	317
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319	A novel RP-HPLC method for quantification of cholinesterase activity in human blood: An application for assessing organophosphate and carbamate insecticide exposure.	319

320	Morphological and physiological changes induced by Achyranthes aspera-mediated silver nanocomposites in Aedes aegypti larvae.	320
321	Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the Helicoverpa armigera Hübner gut enzymes.	321
322	An overview on non-Apis bees vis-à-vis the exploration of integrated taxonomic approach (Hymenoptera: Apoidea).	322
323	Metabolic detoxification and ace-1 target site mutations associated with acetamiprid resistance in Aedes aegypti L.	323
324	Evidence of breeding of Jamides Bochus (Stoll, [1782]) (Insecta: Lepidoptera: Lycaenidae) in New Delhi, India	324
325	Sighting of Ruddy Meadow Skimmer Neurothemis Intermedia (Rambur 1842) (Insecta: Odonata:Libellulidae) in New Delhi, India	325
326	Ovipositing record of Tailless Lineblue Prosotas Dubiosa , (Semper |1897|) (Insecta: Lepidoptera : Lycaenidae) from the vicinity of Delhi	326
327	Arbuscular mycorrhizal fungi and host plant relationship with respect to heavy metal remediation of soil.	327
328	Hydrothermally Fabricated Bio-nanocomposite of Guar gum as a Promising Adsorbent for Reactive Green 19 Dye from Wastewater.	328
329	Bibliometric Analysis of Peer-Reviewed Literature on Stress Factors Affecting Agricultural Productivity.	329
330	Impact of Covid-19 on Corporate Social Responsibility: A Study of Indian IT Sector.	330
331	Phool: Journey from waste to wealth	331
332	A Simulation-based Approach to Evaluate and Regulate the Reputation Score of a Software Agent in E-Market.	332
333	Study the Effect of Modified Newtonian Force on the Restricted 3-body Configuration in Non-Linear Sense.	333
334	Measuring complexity and chaos in three species food chain system with the Beddington-Deangelis functional response.	334
335	Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population.	335
336	Re-characterization of Potential Zoonotic Trematode Parasite Parasitizing Intestine of Snakehead Fish, (Channa striata) Utilizing Multiple Sequence Alignment Tools (MSA).	336
337	Impact of Climatic Change on Respiratory Health.	337
338	PCR primer design for mitochondrial cox-1 gene from Clinostomum complanatum towards diagnosis.	338

339	A Literature Review on Reckless and Hazardous Contraceptive Practices used since Primeval Times.	339
340	Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior Pituitary Hormones in Different Animal Groups	340
341	Monkeypox: Endemic to Epidemic A review of the current scenario of Monkeypox disease outbreak.	341
342	In vitro micropropagation of *Acacia holosericea* a. cunn. ex g. don through cotyledons.	342
343	Axenic propagation of a woody legume - Prosopis cineraria (L.) Duce through cotyledonary node explants	343
344	Synthesis, Characterization and Application of Novel Guar Gum-N,N-Dimethylaniline Resin for Waste Water Treatment.	344
345	Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior: An Empirical Analysis.	345
346	Antibiotic Resistance: A Global Health Crisis	346
347	Role of abiotic and biotic components in remediating environmental pollutants: A review	347
348	Estimation after selection from bivariate normal population with application to poultry feeds data.	348
349	Implementation of an Adaptive Artificial Neural Network with Fuzzy Expert System for Diagnoses the Breast and Prostate Cancer: A Hybrid Technique	349
350	Surface texturisation for the reduction of light reflection in ZnO/Si heterojunction.	350
351	Synthesis of ternary 0.49BF-0.20PMN-0.31PT ceramic at morphotropic phase boundary for excellent die-/piezo-/ferro-/pyro-electric response.	351
352	Recent Trends in Carbon Nanotube Electrodes for Flexible Supercapacitors: A Review of Smart Energy Storage Device Assembly and Performance.	352
353	In silico prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2.	353
354	Trifluoperazine (TFP)-mediated fluorescence imaging approach reveals a probable calmodulin (CaM)-independent calcium signaling accompanying differential protein phosphorylation in NaCl-stressed sunflower seedlings (Helianthus annuus L. var. KBSH44).	354

355	Breeding System and Response of the Pollinator to Floral Larceny and Florivory Define the Reproductive Success in Aerides odorata.	355
356	An Insight of Nanomaterials in Tissue Engineering from Fabrication to Applications.	356
357	Broadband light trapping in a-Si:H based plasmonic solar cells using Au core-Al2O3 shell composite nanospheres using FDTD method.	357
358	A Novel Framework for Assessing the Criticality of Retrieved Information.	358
359	Multiple ionisation and Coulomb explosion in terawatt photoexcitation of Xenon clusters: An experimental and theoretical study.	359
360	Genome-based reclassification of amycolatopsis eurytherma as a later heterotypic synonym of amycolatopsis thermoflava.	360
361	Endophytic Nanotechnology: An Approach to Study Scope and Potential Applications.	361
362	Synthesis, comparative in vitro antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 Mpro.	362
363	Structure, Transmission, Diagnostic Symptoms, Host and Entry Mechanism of COVID-19: A Review.	363
364	Computational identification and characterization of antigenic properties of Rv3899c of Mycobacterium tuberculosis and its interaction with human leukocyte antigen (HLA).	364
365	Taxonomically Characterized and Validated Bacterial Species Based on 16S rRNA Gene Sequences from India During the Last Decade.	365
366	Prediction of Transcription Factors and Their Involvement in Regulating Rifamycin Production in Amycolatopsis mediterranei S699.	366
367	PGPR-mediated induction of systemic resistance and physiochemical alterations in plants against the pathogens: Current perspectives	367
368	Recyclable Organocatalyst for One-Pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone Spirooxindoles.	368
369	A modified intuitionistic fuzzy c-means clustering approach to segment human brain MRI image.	369
370	Performance of chitosan derived activated carbon in supercapacitor.	370
371	Fe doped BaTiO3 sensitized by Fe3O4 nanoparticles for improved photoelectrochemical response.	371
372	DASC: data aware algorithm for scalable clustering.	372

373	Bioacoustics or pitfall traps: Comparison of a modern and traditional method to estimate Ensifera richness	373

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3.3.1 Number of papers published per teacher in the Journals notified on UGC website during the last five years (5)

S.No.	Title of paper	Name of the author/s	Department of	Name of journal	Year of	ISSN number	Link to the recognition in UGC	Link to paper/ abstract of the article	Provide the link to Journal website	Indicate Journal's indexing
	a	b	c	d	e	f	g	h	i	j
1	**One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates**	Zhang, X., **Dhawan, G.**, Muthengi, A., Liu, S., Wang, W., Legris, M., & Zhang, W.	Biomedical Science	Green Chemistry	2017	1463-9262	https://doi.org/10.1039/C7GC01380A	https://pubs.rsc.org/en/content/articlelanding/2017/GC/C7GC01380A	https://mjl.clarivate.com:/search-results?issn=1463-9262&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
2	**A robust replenishment model for deteriorating items considering ramp-type demand and inflation under fuzzy environment**	Sharma, A., Sharma, U., & **Singh, C.**	Mathematics	International Journal of Logistics Systems	2017	17427967	https://doi.org/10.1504/IJLSM.2017.086944	https://www.inderscienceonline.com/doi/abs/10.1504/IJLSM.2017.086944	https://www.scopus.com/sourceid/4700151504	Indexed in UGC Care List and SCOPUS
3	**Supply chain model with two storage facility for stock dependent demand incorporating learning and inflationary effect under crisp and fuzzy environment.**	**Singh, C.**, & Singh, S. R.	Mathematics	International Journal of Fuzzy System Applicatio	2017	2156-177X	10.4018/IJFSA.2017040105	https://www.igi-global.com/gateway/article/179322#pnlRecommendationForm	https://www.scopus.com/sourceid/21100301444	Indexed in UGC Care List and SCOPUS
4	**Inhibition of gut proteases and development of dengue vector, Aedes aegypti by Allium sativum protease inhibitor**	Shamsi, T. N., Parveen, R., Ahmad, A., Samal, R. R., **Kumar, S.**, & Fatima, S.	Zoology	Acta Ecologica Sinica	2017	1872-2032	https://doi.org/10.1016/j.chnaes.2018.01.002	https://www.sciencedirect.com/science/article/abs/pii/S1872203217301695	https://mjl.clarivate.com/search-results?issn=1000-0933&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
5	**Assessment of Achyranthes aspera induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of Aedes aegypti L. (Diptera: Culicidae)**	**Sharma, A.**, Kumar, S., & Tripathi, P.	Zoology	Journal of Parasitic Diseases	2017	0971-7196	https://doi.org/10.1007/s12639-017-0935-1	https://link.springer.com/article/10.1007/s12639-017-0935-1	https://mjl.clarivate.com:/search-results?issn=0971-7196&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
6	**A facile and rapid method for green synthesis of Achyranthes aspera stem extract-mediated silver nanocomposites with cidal potential against Aedes aegypti L.**	Sharma, A., **Kumar, S.**, & Tripathi, P	Zoology	Saudi Journal of Biological Sciences	2017	1319-562X	https://doi.org/10.1016/j.sjbs.2017.11.001	https://www.sciencedirect.com/science/article/pii/S1319562X17302759	https://mjl.clarivate.com:/search-results?issn=1319-562X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
7	**Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora; Oxytrichidae) isolated from Sanjay lake, Delhi,**	Gupta, R., **Abraham, J.** S., Sripoorna, S., Toteja, R., Makhija, S., & El-Serehy, H.	Zoology	Acta Protozoologica	2017	0065-1583	10.4467/16890027AP.17.008.7483	https://www.proquest.com/openview/14a339a68fe019b3b23e8a868614850f/1?pq-origsite=gscholar&c	https://mjl.clarivate.com:/search-results?issn=0065-1583&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

8	**Diversity and abundance of ammonia-oxidizing bacteria and archaea in a freshwater recirculating aquaculture system**	**Khangembam, C. D.**, Sharma, J. G., & Chakrabarti, R.	Zoology	Hayati Journal of Biosciences,	2017	2053-9711	https://doi.org/10.1016/j.hjb.2017.11.003	https://www.sciencedirect.com/science/article/pii/S1978301917301596	https://mjl.clarivate.com:/search-results?issn=2053-9711&hide_exact_match_fl=true	Indexed in UGC Care List and SCOPUS
9	**Beyond the "Code": a guide to the description and documentation of biodiversity in ciliated protists (Alveolata, Ciliophora)**	Warren, A., Patterson, D. J., Dunthorn, M., Clamp, J. C., Achilles-Day, U. E. M.,	Zoology	Journal of eukaryotic Microbiology,	2017	1066-5234	https://doi.org/10.1111/jeu.12391	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12391	https://mjl.clarivate.com:/search-results?issn=1066-5234&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
10	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	**Abraham, J.** S., Sripoorna, S., Choudhary, A., Toteja, R., Gupta, R., Makhija, S., &	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://www.ugc.ac.in/pdfnews/8919877	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
11	**Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater ciliates**	Toteja, R., Makhija, S., Sripoorna, S., **Abraham**, J. S. & Gupta, R	Zoology	Indian Journal of Experimental Biology	2017	0019-5189	https://nopr.niscpr.res.in/handle/123456789/42844 / https://www.ugc.ac.in/pdfne	http://nopr.niscpr.res.in/bitstream/123456789/42844/1/IJEB%2055%2810%29%20694-701.pdf	https://mjl.clarivate.com:/search-results?issn=0019-5189&hide_exact_match_fl=true	Indexed in UGC Care List and Web of Science
12	**Assessment of Particulate Matter (PM)concentrations at a typical construction site in Bangalore, India.**	Chowdhuri A and **Gupta C K**	Physics and Botany	International Research Journal of Environme	2017		https://doi.org/10.1016/j.snb.2016.07.040	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	**PEER REVIEWED**
13	**Distinct detection of liquor ammonia by ZnO/SAW sensor: study of complete sensing mechanism.**	**Raj V B,** Singh H, Nimal A T, Sharma MU, Tomar M and Gupta V	Physics	Sensors and Actuators B	2017	ISSN: 0020-0255	https://doi.org/10.1016/j.snb.2016.07.040	https://www.sciencedirect.com/science/article/pii/S0925400516310759	https://www.sciencedirect.com/science/article/pii/S0925400516310759	**SCOPUS INDEXED**
14	**Sensitivity Enhancement Studies of SAW vapor sensor by oscillator tuning using Varactor diode**	Singh H, Parmar Y, **Raj V B,** Pandya H M, Kumar J, Mishra M, Nimal A T and Sharma M U	Physics	IEEE Sensors	2017	ISSN:1530-437X	DOI: 10.1109/JSEN.2016.2647282	https://ieeexplore.ieee.org/document/7803545	https://ieeexplore.ieee.org/document/7803545/authors#authors	**SCOPUS INDEXED**

15	**Alterations in the reactive oxygen species in peripheral blood of chronic myeloid leukemia patients from Northern India**	**Jetly, S.,** Verma, N., Naidu, K., Faiq, M. A., Tulika, S., & Saluja, D.	Biomedical Science	Journal of clinical and diagnostic research	2017		doi: 10.7860/JCDR/2017/28565.10425	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5620896/	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5620896/	**SCOPUS INDEXED**
16	**An analysis upon various strategies for redesign and direct evolution of enzyme engineering**	Sharma, S. V., & **Hooda, S.**	Chemistry	Journal of Advances in Science and Technolog	2017	2230-9659	http://ignited.in/p/55520	http://ignited.in/p/55520	- http://ignited.in/p/55520	**PEER REVIEWED**
17	**Comparative study of removal of Cu and Pb from aqueous solution by using modified rice husk ask as an adsorbent**	Kumar, R., **Arya, D. K.,** Singh, N., & Vats, H. K.	Chemistry	International Journal of Chemistry and	2017	2278-8719	https://www.researchgate.net/publication/334446847_Comparative_study_of_Remo	https://www.researchgate.net/publication/334446847_Comparative_study_of_Removal_of_Cu_and_Pb_from_Aqueo	- https://www.researchgate.net/publication/334446847_Comparative_study_of_Re	**PEER REVIEWED**
18	**Developing a low cost activated carbon from agricultural waste for the removal of heavy metal from cotaminated waste**	Kumar, R., **Arya, D. K.,** Singh, N., & Vats, H. K.	Chemistry	International Journal of Applied Chemistry	2017	0973-1792	**https://www.ripublication.com/ijac17/ijacv13n3_06.pdf**	**https://www.ripublication.com/ijac17/ijacv13n3_06.pdf**	https://www.ripublication.com/ijac17/ijacv13n3_06.pdf	**PEER REVIEWED**
19	**Sportsmen's energy package Cordyceps sinensis: Medicinal importance and responsible phytochemical constituents**	Joshi, Y. C., Joshi, M. C., Chopra, V., Joshi, R. K., Sharma, R. Kant., & **Kumar, V.**	Chemistry	American Journal of Essential Oils and Natural	2017	2321-9114	**https://www.essencejournal.com/archives/2017/5/2/A/5-2-2**	**https://www.essencejournal.com/archives/2017/5/2/A/5-2-2**	https://www.essencejournal.com/archives/2017/5/2/A/5-2-2	**PEER REVIEWED**
20	**Online signature verification: A review**	Chaudhary, U., **Samal, C. K.,** & Kumar, V.	Computer Science	IOSR Journal of Computer Engineering	2017	2278-8727	UGC Journal No. 4899	https://www.researchgate.net/publication/303805873_Online_Signature_Verification_A_Review	https://www.researchgate.net/publication/303805873_Online_Signature_Verification_A_Review	**PEER REVIEWED**
21	**Comparative analysis on path planning algorithm's on mobile robot in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	Journal of Advance Engineering and Research	2017	2348-4470	https://issuu.com/editorijaerd/docs/comparative_analysis_on_path_planni	https://issuu.com/editorijaerd/docs/comparative_analysis_on_path_planni	https://issuu.com/editorijaerd/docs/comparative_analysis_on_path_planni	**PEER REVIEWED**

22	**Impact of DDA optimization on mobile robot path planning for mixed image in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	International Journal of Advanced Research	2017	0976-5697	https://doi.org/10.26483/ijarcs.v8i8.4624	o/index.php/Ijarcs/art	http://ijarcs.info/index.php/Ijarcs/article/view/4624	**PEER REVIEWED**
23	**Target assignment in robotics and its distance optimality using DDA optimization in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	International Journal of Science and Research	2017	2454-2008	https://ijsrm.humanjournals.com/wp-content/uploads/2017/10/4.Rama-Kanta-	https://ijsrm.humanjournals.com/wp-content/uploads/2017/10/4.Rama-Kanta-Choudhury-Chandra-Kanta-	https://ijsrm.humanjournals.com/wp-content/uploads/2017/10/4.Rama-Kanta-	**PEER REVIEWED**
24	**Mobile robot path planning approach: A review**	Choudhury, R. K., Kumar, S., & **Samal, C. K.**	Computer Science	International Journal of Advanced Scientific	2017	2455-6378	UGC Journal No. 63502	**https://ijasrm.com/issues/volume-2-issue-8/**	https://ijasrm.com/issues/volume-2-issue-8/	**PEER REVIEWED**
25	**Architecture based on environmental monitoring system using zigbee wireless sensor networks**	**Samal, C. K.** & Choudhury, R. K.	Computer Science	Journal of Advanced Scientific Research and	2017	2455-6378	UGC Journal No. 63502	**https://ijasrm.com/issues/volume-2-issue-8/**	https://ijasrm.com/issues/volume-2-issue-8/	**PEER REVIEWED**
26	**Low power consumption in zigbee wireless networks: A, review**	**Samal, C. K.,** Choudhury, R. K., Kumar, V., & Mishra, S.	Computer Science	International Journal of Advance Engineerin	2017	2348-4470	UGC Journal No. 44839	https://issuu.com/editorijaerd/docs/low_power_consumption_in_zigbee_wir	https://issuu.com/editorijaerd/docs/low_power_consumption_in_zigbee_wir	**PEER REVIEWED**
27	**Society and Sex Work in *The Autobiography of a Sex Worker by* Nalini Jameela.**	**Garg, M. K.**	English	Language in India	2017	1930-2940	http://www.languageinindia.com/july2017/v17i7july2017.pdf	http://www.languageinindia.com/july2017/v17i7july2017.pdf	http://www.languageinindia.com/july2017/v17i7july2017.pdf	**PEER REVIEWED**
28	**The White Woman's Gaze**	**Rakshit, J. D.**	English	International Journal of English Language, Literature	2017	2321-7065	http://www.ijellh.com/the-white-womans-gaze	http://www.ijellh.com/the-white-womans-gaze	http://www.ijellh.com/the-white-womans-gaze	**PEER REVIEWED**
29	**Free and open source software: A key enabler for digital India**	Ranjan Kumar, Subhash Kumar, Sanjay K. Tiwari	Physics	South Asia Journal of Multidisciplinary Studies,	2017	0973-4562	https://pubs.aip.org/aip/pop/article-split/24/8/082111/212250/Nanosecond-	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**

30	**Nanosecond Laser- Cluster Interactions at 109-1012 W/cm2**	**Rohtash Singh,** V. K. Tripathi, R. K. Vatsa, and D. Das	Physics	Phys. Plasmas 24, 082111	2017	1089-7674	https://doi.org/10.1063/1.4997452	https://pubs.aip.org/aip/pop/article-split/24/8/082111/212250/Nanosecond-laser-cluster-interactions-at-109-	https://pubs.aip.org/aip/pop/article-split/24/8/082111/212250/Nanosecond-laser-	**SCOPUS INDEXED**
31	**Pulse compression and self focusing of Gaussian laser pulses in plasma having relativistic ponderomotive nonlinearity**	S. Kumar, **P. K. Gupta,** R. K. Singh, S. Sharma, R. Uma and R. P. Sharma	Physics	Laser and particle beams 35, 429	2017	0263-0346	- https://doi.org/10.1017/S0263034617000416	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/pulsecompression-and-selffocusing-of-	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/pulsecompre	**SCOPUS INDEXED**
32	**Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film**	M. Singh, B.C. Yadav, A. Ranjan, **Rakesh Kumar Sonker**, M. Kaur	Physics	Sens. Act. B: Chemi. 249, 96-104	2017	1872-6291	https://doi.org/10.1016/j.snb.2017.04.075	https://www.sciencedirect.com/science/article/abs/pii/S0925400517306755	https://www.sciencedirect.com/science/article/abs/pii/S0925400517306755?via%3Dihub	**SCOPUS INDEXED**
33	**Growth and characterization of sol-gel processed rectangular shaped nanostructured ferric oxide thin film followed by humidity and gas sensing**	B.C. Yadav, K. S. Chauhan, S. Singh, **Rakesh Kumar Sonker**, S. Sikarwar and R. Kumar	Physics	J. Mater. Sci: Mater Electron., 28 , 5270-5280	2017	0957-4522	DOI 10.1007/s10854-016-6184-8	https://link.springer.com/article/10.1007/s10854-016-6184-8	https://link.springer.com/article/10.1007/s10854-016-6184-8	**SCOPUS INDEXED**
34	**LPG detection using SnO_2, PANI-SnO_2 and Ag-SnO_2 composite film fabricated by Chemical route**	**Rakesh Kumar Sonker,** S.R. Sabhajeet, B.C. Yadav, Rahul Johari	Physics	Int. J. Electroactive Mater. 5, 6-12	2017	1936-7317	http://dx.doi.org/10.1166/asl.2014.5476	https://www.electroactmater.com/download.php?pdf=5-1-6-12.pdf	https://www.electroactmater.com/download.php?pdf=5-1-6-12.pdfhttps://www.ingentaconne	**PEER REVIEWED**
35	**Preparation of PANI doped TiO_2 nanocomposite thin film and its relevance as room temperature liquefied petroleum gas sensor**	**Rakesh Kumar Sonker,** S.R. Sabhajeet, B. C. Yadav	Physics	J. Mater. Sci: Mater Electron., 28, 14471–14	2017	0957-4522	DOI 10.1007/s10854-017-7309-4	https://link.springer.com/article/10.1007/s10854-017-7309-4	https://link.springer.com/article/10.1007/s10854-017-7309-4	**SCOPUS INDEXED**
36	**Development of Fe_2O_3-PANI nanocomposite thin film based sensor for NO_2 detection**	**Rakesh Kumar Sonker,** B. C. Yadav	Physics	J. Taiwan Ins. of Chemical Eng., 77, 276-281	2017	1872-6291	https://doi.org/10.1016/j.jtice.2017.04.042	https://www.sciencedirect.com/science/article/abs/pii/S1876107017302262	https://www.sciencedirect.com/science/article/abs/pii/S1876107017302262	**SCOPUS INDEXED**
37	**Self-compression of two co-propagating laser pulse having relativistic nonlinearity in plasma**	S. Kumar, **P. K. Gupta,** R. K. Singh, S. Sharma, R. Uma and R. P. Sharma	Physics	Laser and particle beams 35,	2017	0263-0346	https://doi.org/10.1017/S0263034617000787	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/selfcompression-of-two-copropagating-	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/selfcompress	**SCOPUS INDEXED**

38	**Partially synchronized states in an ensemble of chemo-mechanical oscillators**	**P Kumar,** DK Verma, P Parmananda	Physics	Physics letters A	2017	0020-0255	https://doi.org/10.1016/j.physleta.2017.05.032	https://www.sciencedirect.com/science/article/pii/S0375960116311896	https://www.sciencedirect.com/science/article/pii/S0375960116311896	**SCOPUS INDEXED**
39	**Impact of *Ocimum basilicum* leaf essential oil on the survival and behaviour of an Indian strain of Dengue Vector, *Aedes aegypti L.***	**Kumar, S.,** Warikoo, R., Mishra, M., Samal, R. R., Rana, S., Panmei, K., Dagar, V. S., & Sharma, A.	Zoology	Vector Biology Journal	2017	2473-4810	https://doi.org/10.4172/2473-4810.1000122	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-thesurvival-and-	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-	**PEER REVIEWED**
40	***Pseudomonas aeruginosa:* Isolation, characterization and evaluation of larvicidal efficacy against *Aedes aegypti* L.**	Shukla, R. K., **Kumar, S.,** & Tripathi, P.	Zoology	European *Journal of Biomedical and Pharmace*	2017	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	**PEER REVIEWED**
41	**Bioprospecting xylanase enzymes from diverse ecological habitats**	Das, P., Kumar, P., Kumar M., Solanki, R., & **Kapur, M. K.**	Zoology	International Research Journal of Natural	2017	2349-4077	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLAN	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZYMES_FROM_DIVERS	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZY	**PEER REVIEWED**
42	**Purification and molecular characterization of chitinases from soil actinomycetes**	Das, P., Kumar, P., Kumar, M., Solanki, R., & **Kapur, M. K.**	Zoology	African Journal of Microbiology Research	2017	1996-0808	http://dx.doi.org/10.5897/AJMR2017.8612	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-0808	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-	**PEER REVIEWED**
43	**Crystal structure of UDP-N-acetylglucosamine-enolpyruvate reductase (MurB) from Mycobacterium tuberculosis**	Eniyan, K., Dharavath, S., Vijayan, R., **Bajpai, U.**, & Gourinath, S	Biomedical Science	Biochimica et Biophysica Acta (BBA)-Proteins	2018	15709639	https://doi.org/10.1016/j.bbapap.2017.11.013	https://www.sciencedirect.com/science/article/abs/pii/S1570963917302819?via%3Dihub	https://mjl.clarivate.com:/search-results?issn=1570-9639&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
44	**Isolation and characterization of bacteriophages from India, with lytic activity against Mycobacterium tuberculosis.**	**Bajpai, U.**, Mehta, A. K., Eniyan, K., Sinha, A., Ray, A., Virdi, S., Ahmad, S., Shah, A., Arora, D.,	Biomedical Science	Canadian Journal of Microbiology	2018	0008-4166	https://doi.org/10.1139/cjm-2017-0387	https://cdnsciencepub.com/doi/10.1139/cjm-2017-0387	https://mjl.clarivate.com:/search-results?issn=0008-4166&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
45	**Microwave assisted synthesis of spiro heterocyclic systems: A review**	**Khanna, P.**, Khanna, L., Thomas, S. J., Asiri, A. M., & Panda, S. S.	Chemistry	Current organic chemistry	2018	1385-2728	10.2174/1385272821666170818161517	https://www.eurekaselect.com/article/85367	https://mjl.clarivate.com:/search-results?issn=1385-2728&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

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47	**Controlling room temperature ferromagnetism and band gap in ZnO nanostructured thin films by varying angle of implantation**	Hariwal, V, R., Malik, H. K., **Negi, A.**, & Kandasami, A	Physics	RSC Advances	2018	2046-2069	https://doi.org/10.1039/C7RA10615G	https://pubs.rsc.org/en/content/articlelanding/2018/RA/C7RA10615G	https://mjl.clarivate.com:/search-results?issn=2046-2069&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
48	**Emamectin Benzoate: Potential larvicide and antifeedant agent against cotton boll worm Helicoverpa armigera (Lepidoptera: Noctuidae)**	Dagar, V. S., & **Kumar, S.**	Zoology	Journal of Applied and Natural Sciences	2018	2231-5209	https://doi.org/10.31018/jans.v10i2.1738	https://journals.ansfoundation.org/index.php/jans/article/view/1738	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
49	**Sld5 Ensures centrosomal resistance to congression forces by preserving centriolar satellites.**	Kaur, M., Devi, R., Ghosh, T., Khan, M. M., Kumar, P., Kar, P. A., **Sharma, A.**, Varshney, A.,	Zoology	Molecular and Cellular Biology,	2018	0270-7306	https://doi.org/10.1128/MCB.00371-17	https://journals.asm.org/doi/10.1128/MCB.00371-17	https://mjl.clarivate.com:/search-results?issn=0270-7306&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
50	**The study of effect of various temperatures on the abundance of ammonia oxidizing archaea and bacteria.**	**Khangembam, C. D.**, Singh, S. P., Sharma, J. G., & Chakrabarti, R.	Zoology	The Indian Journal of Animal Science	2018	0367-8318	10.56093/ijans.v88i5.80023	https://www.researchgate.net/profile/Rina-Chakrabarti/publication/325626070_Study_of_effect_of_v	https://mjl.clarivate.com:/search-results?issn=0367-8318&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
51	**Estimating the parameter of selected uniform population under the squared log error loss function**	**Meena, K.R.**, Mohd Arshad, & Gangopadhyay, A. K.	Mathematics	Communications in Statistics-Theory and	2018	1532-415X	https://doi.org/10.1080/03610926.2017.1324986	https://www.tandfonline.com/doi/abs/10.1080/03610926.2017.1324986?journalCode=lsta20	https://mjl.clarivate.com/search-results?issn=0361-0926&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science
52	**Cellular and molecular basis of heavy metal induced stress in ciliates: A review**	Sripoorna, S., Abraham, J. S., Maurya, S., **Makhija, S.**, Gupta, R., & Toteja, R.	Zoology	Current Science	2018	0011-3891	https://www.jstor.org/stable/26494927 / https://www.ugc.ac.in/pdfnews/8919877	https://www.currentscience.ac.in/Volumes/114/09/1858.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
53	**Floral contrivances and specialised pollination mechanism strongly influence mixed mating in Wrightia tomentosa (Apocynaceae).**	Barman, C., **Singh, V.K.**, Das, S. & Tandon, R.	Botany	Plant Biology	2018	Online ISSN: 1438-8677	i.org/10.1111/p	https://onlinelibrary.wiley.com/doi/10.1111/plb.12690	https://mjl.clarivate.com/search-results?issn=1435-8603&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

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55	**Heteroleptic metal(II) complexes of curcumin and 2,2'-bipyridine: Synthesis, characterization, molecular modeling and preliminary antimicrobial**	Lal S., Joshi M. C., **Hooda,S.** & Kumar,V.	Chemistry	Rev. Roum. Chim.	2018	ISSN: 0035-3930	-content/uploa	https://revroum.lew.ro/wp-content/uploads/2018/04/Art%2006.pdf	https://www.scopus.com/sourceid/21508	Indexed in UGC Care List, SCOPUS and Web of Science
56	**A highly selective sensor Cu2+ and Fe3+ ions in aqueous medium: Spectroscopic, computational and cell imaging studies.**	Lal S., Kumar S., **Hooda, S.** & Kumar P.	Chemistry	Journal of Photochemistry and Photobiology A:	2018	1010-6030	.1016/j.jphotoch	https://www.sciencedirect.com/science/article/abs/pii/S1010603018305501	https://www.scopus.com/sourceid/26966	Indexed in UGC Care List and SCOPUS
57	**A highly selective sensor Cu2+ and Fe3+ ions in aqueous medium: Spectroscopic, computational and cell imaging studies.**	**Lal S.**, Kumar S., Hooda, S. & Kumar P.	Chemistry	Journal of Photochemistry and Photobiology A:	2018	1010-6030	.1016/j.jphotoch	https://www.sciencedirect.com/science/article/abs/pii/S1010603018305501	https://www.scopus.com/sourceid/26966	Indexed in UGC Care List and SCOPUS
58	**Protective effects of Aporosa octandra bark extract against D-galactose induced cognitive impairment and oxidative stress in mice.**	Panda S.S., Girgis A-S., Prakash A., Khanna L., **Khanna, P.**, Shalaby El-S. M., Fawzy N.G. & Jain S.	Chemistry	Heliyon	2018	2405-8440(Online)	.0.1016/j.heliyo	https://www.cell.com/heliyon/fulltext/S2405-8440(18)34864-3?_returnURL=https%3A%2F%2Flinki	https://www.scopus.com/sourceid/21100411756	Indexed in UGC Care List, SCOPUS and Web of Science
59	**Social Centrality using network hierarchy and community structure.**	Saxena R., **Kaur, S.**, Bhatnagar V.	Computer Science	Data Mining and Knowledge	2018	1384-5810	/10.1007/s1061	https://link.springer.com/article/10.1007/s10618-018-0582-x#:~:text=Social%20centrality%20score%20of%20a of%2	https://mjl.clarivate.com:/search-results?issn=1384-5810&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
60	**Bandwidth Efficient Broadcast Protocols in MANETs: A Review**	**Samal, C. K.** , Choudhury R. K.	Computer Science	International Journal of Computer Sciences	2018	2347-2693	.26438/ijcse/v6	https://www.ijcseonline.org/pdf_paper_view.php?paper_id=1632&8-IJCSE-02736.pdf	UGC Listed Journal 2019, Journal No:63193 https://www.ijcseonline.org/	Indexed in UGC Care List, SCOPUS and Web of Science
61	**Structural and optical properties of electrochemically deposited ZnOnanorods by using graphene oxide and ITO as substrate material: A comparative study**	Chetna, Kumar, S., **Garg, A.,** Chowdhuri, A., Jain, A., & Kapoor, A.	Electronics, Physics	Materials Research Express	2018	2053-1591	.088/2053-1591	https://iopscience.iop.org/article/10.1088/2053-1591/aad7a5	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

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63	**Sonication Effect on Graphene Oxide (GO) Membranes for Water Purification Applications"**	Kumar, S., **Garg, A.**, & Chowdhuri, A.	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/ab1ffd	https://iopscience.iop.org/article/10.1088/2053-1591/ab1ffd#:~:text=It%20is%20noted%20that%20sonica	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
64	**Circular restricted three-body problem when both the primaries are heterogeneous spheroid of three layers and infinitesimal body varies its mass**	Ansari, A. A., Alhussain, Z. A., & **Prasad, S. N.**	Mathematics	Journal of Astrophysics and Astronomy	2018	0973-7758	https://doi.org/10.1007/s12036-018-9540-7	https://link.springer.com/article/10.1007/s12036-018-9540-7	https://mjl.clarivate.com/search-results?issn=0250-6335&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
65	**An EOQ Model for Deteriorating Items with Selling Price Dependent Exponential Demand for Time Varying Holding and Deterioration Costs**	Verma, S. K., Mohd. Rizwanullah, & **Singh, C.**	Mathematics	International Journal of Engineering &	2018	2227-524X	/10.14419/ijet.v	https://www.sciencepubco.com/index.php/ijet/article/view/24294	https://www.scopus.com/sourceid/21100805731	Indexed in SCOPUS
66	**A production inventory model with selling price and stock sensitive demand under partial backlogging**	**Aarya, D. D.** & Kumar, M.	Mathematics	International Journal of Mathematics in	2018	1757-5850	10.1504/IJMOR	https://www.inderscienceonline.com/doi/abs/10.1504/IJMOR.2018.090802	https://www.scopus.com/sourceid/21100202502	Indexed in UGC-Care List and SCOPUS
67	**Susceptability status of Aedes aegypti L. against different classes of insecticides in New Delhi, India to formulate mosquito control strategy in fields.**	**Samal, R. R.** & Kumar, S.	Zoology	Open Parasitology Journal	2018	1874-4214	74/1874421401	https://openparasitologyjournal.com/VOLUME/6/PAGE/52/ABSTRACT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
68	**Effects of Achyranthes aspera extracts on the survival and midgut histo-architecture of Aedes aegypti L. early IV instars.**	Sharma, A., **Kumar, S.,** & Tripathi, P.	Zoology	Open Parasitology Journal	2018	1874-4215	74/1874421401	https://openparasitologyjournal.com/VOLUME/6/PAGE/41/FULLTEXT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
69	**Growth regulatory and growth inhibitory effects of Thevetia neriifolia stem extracts on Helicoverpa armigera (Lepidoptera: Noctuidae).**	Mishra, M., Gupta, K.K., & **Kumar, S.**	Zoology	Archives of Phytopathology and Plant	2018	0323-5408	https://doi.org/10.1080/03235408.2018.1521324	https://www.tandfonline.com/doi/abs/10.1080/03235408.2018.1521324?journalCode=gapp20	https://mjl.clarivate.com:/search-results?issn=0323-5408&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

70	**Modelling of Pinning-Depinning Reversal Mechanism in Ion-Irradiated Co/Al2O3 Thin Films.**	Goyal, R., Gupta, R., **Negi, A.,** Asokan, K., Kanjilal, D., Lamba, S., & Annapoorni, S.	Physics	Physica Status Solidi (A) Applications And	2018	1862-6300	g/10.1002/pssa	https://onlinelibrary.wiley.com/doi/10.1002/pssa.201800141	https://mjl.clarivate.com/search-results?issn=1862-6300&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
71	**Polarization dependent charge control model for microwave performance assessment of AlGaN/GaN/AlGaN double heterostructure HEMTs**	Chugh, N., **Bhattacharya, M.**, Kumar, M., Deswal, S. S., & Gupta, R. S.	Electronics	Journal of Computational Electronics	2018	1569-8025	https://doi.org/10.1007/s10825-018-1190-0	https://link.springer.com/article/10.1007/s10825-018-1190-0	https://mjl.clarivate.com/search-results?issn=1569-8025&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
72	**Larvicidal activities of petroleum ether extracts of different fruit peel wastes against an Indian strain of filarial vector, *Culex quinquefasciatus* Say (Diptera:**	**Shrankhla,** & Kumar, S**.**	Zoology	European Journal of Biomedical and Pharmace	2018	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	**PEER REVIEWED**
73	**Role of gold and silver nanoparticles in cancer nano-medicine**	Chugh, H., Sood, D., Chandra, I., Tomar, V., **Dhawan G**.& Chandra, R.	Biomedical Science	Artificial Cells, Nanomedicine, and Biotechnol	2018	1210-1220	0/21691401.20	https://pubmed.ncbi.nlm.nih.gov/29533101/	https://pubmed.ncbi.nlm.nih.gov/29533101/	**SCOPUS INDEXED**
74	**Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India**	**Gupta, *C. K;*** Singh, J. P; Chopra, P; Raj, V. B; Chowdhuri, A.	Botany, Physics, Physics	DU Journal of Undergraduate Research	2018	2395 - 2334	https://journals.du.ac.in/ugresearch/vol3_2.html	https://journals.du.ac.in/ugresearch/	https://journals.du.ac.in/ugresearch/vol3_2.html	**PEER REVIEWED**
75	**A concise synthesis of 2-ALKENYL-3-phenyl-4H-chromen-4-ones via novel C-C bond formation using sulfone as potential intermediate**	Khanna, L., **Khanna, P**. and Jain, S.C.	Chemistry	Ind. J. Chem	2018	2583-1321	https://www.researchgate.net/publication/326693392_A_concise_synthesis_of_2-	https://www.researchgate.net/publication/326693392_A_concise_synthesis_of_2-alkenyl-3-phenyl-4H-chromen-4-	https://www.researchgate.net/publication/326693392_A_concise_synthesis_of_2-alkenyl-3-phenyl	**SCOPUS INDEXED**
76	**Geometry of the Large Magellanic Cloud using multiwavelength photometry of classical Cepheids**	Sukanta Deb, Chow-Choong Ngeow, Shashi M Kanbur, Harinder P Singh, Daniel Wysocki,	Physics	Monthly Notices of the Royal Astronomical Society	2018	2526–2540	https://doi.org/10.1093/mnras/sty1124	https://academic.oup.com/mnras/article/478/2/2526/4992330	https://academic.oup.com/mnras/article/478/2/2526/4992330	**SCOPUS INDEXED**
77	**Adoption of Free and Open Source Software in India,**	Ranjan Kumar, **Subhash Kumar,** Sanjay K. Tiwari	Physics	International Journal of Applied Engineering Research	2018	0973-4562	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**

78	**Spherical growth of nanostructures ZnO based optical sensing and photovoltaic application**	**Rakesh Kumar Sonker**, S. Sikarwar, S.R. Sabhajeet, Rahul, B.C. Yadav	Physics	Optical Materials, 83, 342-347	2018	1872-6291	https://doi.org/10.1016/j.optmat.2018.06.046	https://www.sciencedirect.com/science/article/abs/pii/S0925346718304269	https://www.sciencedirect.com/science/article/abs/pii/S0925346718304269	**SCOPUS INDEXED**
79	**Study of electrical, dielectric and EMI shielding behavior of copper metal, copper ferrite and PVDF composite**	K.K. Halder, **Rakesh Kumar Sonker**, V.K. Sachdev, Monika Tomar, Vinay Gupta	Physics	Integrated Ferroelectrics, 194 (2018) 78-85	2018	1067-8489	https://doi.org/10.1080/10584587.2018.1514879	https://www.tandfonline.com/doi/abs/10.1080/10584587.2018.1514879	https://www.tandfonline.com/doi/abs/10.1080/10584587.2018.1514879	**SCOPUS INDEXED**
80	**Zn-Doped TiO_2 Nanoparticles Employed as Room Temperature Liquefied Petroleum Gas Sensor**	S.R. Sabhajeet, **Rakesh Kumar Sonker**, B.C. Yadav	Physics	Advanced Science, Engineering and Medicine,	2018	2164-6635	https://doi.org/10.1166/asem.2018.2249	https://www.ingentaconnect.com/content/asp/asem/2018/00000010/f0020007/art00020;jsessionid=1uc7gi3kxgwwy.x-	https://www.ingentaconnect.com/content/asp/asem/2018/00000010/f0020007/art00020;jsessioni	**PEER REVIEWED**
81	**Synthesis and investigation of cubical shaped barium titanate and its application as opto-electronic humidity sensor**	S. Sikarwar, **Rakesh Kumar Sonker**, A. Shukla, B.C. Yadav	Physics	J. Mater. Sci: Mater Electron., 29, 12951-12958	2018	2193-1801	https://doi.org/10.1007/s10854-018-9415-3	https://link.springer.com/article/10.1007/s10854-018-9415-3	https://link.springer.com/article/10.1007/s10854-018-9415-3	**SCOPUS INDEXED**
82	**Less toxic tin incorporated perovskite solar cell using polymer electrolyte processed in the air**	Rahul, P.K. Singh, M. Parvaz, S. Ahmed, **Rakesh Kumar Sonker**, B. Bhattacharya	Physics	Optik, 169, 166-171	2018	1872-6291	https://doi.org/10.1016/j.ijleo.2018.05.064	https://www.sciencedirect.com/science/article/pii/S0030402618307137	https://www.sciencedirect.com/science/article/pii/S0030402618307137	**SCOPUS INDEXED**
83	**Sol-gel formed spherical nanostructured titania based liquefied petroleum gas sensor**	S. Sabhajeet, B. Yadav, **Rakesh Kumar Sonker**	Physics	AIP Conference Proceedings, 1953,	2018	1551-7616	https://doi.org/10.1063/1.5032413	https://pubs.aip.org/aip/acp/article-abstract/1953/1/030078/857970/Sol-gel-formed-spherical-	https://pubs.aip.org/aip/acp/article-abstract/1953/1/030078/857970/Sol-gel-formed-	**SCOPUS INDEXED**
84	**ZnO nanoneedle structure based dye-sensitized solar cell utilizing solid polymer electrolyte**	**Rakesh Kumar Sonker**, Rahul, S.R. Sabhajeet	Physics	Materials Letters, 223. 133-136	2018	1872-6291	https://doi.org/10.1016/j.matlet.2018.03.199	https://www.sciencedirect.com/science/article/pii/S0167577X18305809	https://www.sciencedirect.com/science/article/pii/S0167577X18305809	**SCOPUS INDEXED**
85	**Enhancement in self-compression due to co-propagating laser pulse in plasma**	S. Kumar, **P. K. Gupta**, R. Uma and R. P. Sharma	Physics	Optics Communications	2018	1872-6291	https://doi.org/10.1016/j.optcom.2018.06.023	https://www.sciencedirect.com/science/article/pii/S0030401818305145?via%3Dihub	https://www.sciencedirect.com/science/article/pii/S0030401818305145?via%3Dihub	**SCOPUS INDEXED**

86	**Dynamics of focused femtosecond Laser Pulse during photodisruption of crystalline lens**	**P. K. Gupta**, R. K. Singh and R. P. Sharma	Physics	Physics of Plasmas	2018	1089-7674	i.org/10.1063/1	https://pubs.aip.org/aip/pop/article/25/4/043121/904528/Dynamics-of-focused-femtosecond-laser-pulse-during	https://pubs.aip.org/aip/pop/article/25/4/043121/904528/Dynamics-of-focused-femtosecond-	**SCOPUS INDEXED**
87	**Potential of Nardostachys jatamansi extracts to manage Indian strain of Aedes aegypti: A novel approach for vector control.**	Kumar, S., **Sharma, A.** & Warikoo, R.	Zoology	Vector Biology Journal	2018	2473-4810	10.4172/2473-4810.1000129	https://www.scitechnol.com/peer-review/potential-of-nardostachys-jatamansi-extracts-to-manage-indian-	nil	**PEER REVIEWED**
88	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
89	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R; Kumar, V; Uberoi, V;	Chemistry	International Journal of Advanced Education	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-324.pdf	nil	**PEER REVIEWED**
90	**Structure- guided Design and Development of Potent and Selective Dual Bromodomain 4 (BRD4)/Polo-like Kinase 1 (PLK1) Inhibitors**	Liu, S.; Yosief, H. O.; Dai, L.; Huang, H.; **Dhawan, G.;** Zhang, X.; Muthengi, A. M.; Roberts, J.; Buckley,	Biomedical Science	Journal of Medicinal Chemistry	2018	0022-2623	https://doi.org/10.1021/acs.jmedchem.8b00765	https://pubs.acs.org/doi/10.1021/acs.jmedchem.8b00765	https://mjl.clarivate.com:/search-results?issn=0022-2623&hide_exact_match_fl=tru	**SCOPUS INDEXED**
91	**Sequential [3+2] cycloaddition and [5+N] annulation reactions for modular synthesis of dihydrobenzoxazines, tetrahydrobenzoxazepines and**	Muthengi, A.; Zhang, X.; **Dhawan, G.**; Zhang, W.; Corsini, F.; Zhang, W.	Biomedical Science	Green Chemistry	2018	1463-9270	https://doi.org/10.1039/C8GC01099D	https://pubs.rsc.org/en/content/articlelanding/2018/gc/c8gc01099d	https://mjl.clarivate.com:/search-results?issn=1463-9262&hide_exact_match_fl=tru	**SCOPUS INDEXED**
92	**An Analysis on Recent Technological Developments in Green Chemistry: Biocatalytic Processes**	Sharma, S. P. & **Hooda, S.**	Chemistry	Journal of Advances and Scholarly Researche	2018	2230-7540	http://ipublisher.in/I/a/58228	http://ipublisher.in/I/a/58228	nil	**PEER REVIEWED**
93	**Sighting of Jamides bochus (Stoll, 1782) and Prosotas Nora (C. Felder 1860) (Insecta: Lepidoptera: Lycaenidae) From Urbanized Parts Of New Delhi, India.**	**Chaudhary, R.** & **Kumar, V.**	Biomedical Science	Bionotes	2019	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://www.andcollege.du.ac.in/uploads/voiceofandc/BIONOTES.pdf	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science

94	**Occurrence of subdioecy and scarcity of gender-specific markers reveal an ongoing transition to dioecy in Himalayan seabuckthorn (Hippophae rhamnoides ssp.**	**Mangla, Y.**, Das K, Bali S, Ambreen H, Raina SN, Tandon R, & Goel S.	Botany	Heredity	2019	0018067X	https://doi.org/10.1038/s41437-018-0084-z	https://www.nature.com/articles/s41437-018-0084-z	https://www.scopus.com/sourceid/22235	Indexed in UGC Care List, SCOPUS and Web of Science
95	**Synchronization of fractional oder Rabinovich-Fabrikant systems using sliding mode control techniques**	Kumar, S., **Singh, C., Prasad, S. N.**, Shekhar, C., & Agarwal, R.	Mathematics	Archives of Control Sciences	2019	2300-2611	DOI:10.24425/acs.2019.129384	https://journals.pan.pl/dlibra/publication/129384/edition/112924/content	https://mjl.clarivate.com/search-results?issn=2300-2611&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
96	**An Optimal Policy for Deterministic Model for Time Proportional Deteriorated Inventory with Different Demand Rate Pattern**	Verma, S. K., Mohd. Rizwanullah, **& Singh, C.**	Mathematics	Journal of Advanced Research in Dynamical	2019	1943-023X	DOI:10.13140/RG.2.2.25300.55682	https://www.jardcs.org/abstract.php?id=238#	https://www.scopus.com/sourceid/20500195215	Indexed in SCOPUS
97	**Influence of open educational resources on educational practices in the Global South**	**Kumar, S.**	Zoology	Nature Human Behaviour	2019	2397-3374	https://doi.org/10.1038/s41562-019-0624-4	https://www.nature.com/articles/s41562-019-0624-4	https://mjl.clarivate.com/search-results?issn=2397-3374&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
98	**Diminished Activity of Larval Midgut Transaminases and Phosphatases in Helicoverpa armigera Hübner (Lepidoptera) Induced by Dietary Stem Extracts**	**Mishra, M.,** Gupta, K.K., & Kumar, S.	Zoology	Journal of the Lepidopterist's Society	2019	0024-0966	https://doi.org/10.18473/lepi.73i1.a4	https://bioone.org/journals/the-journal-of-the-lepidopterists-society/volume-73/issue-1/lepi.73i1.a4/Dimin	https://mjl.clarivate.com:/search-results?issn=0024-0966&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science
99	**Draft genome of Streptomyces sp.strain 130 and functional analysis of extracellular enzyme producing genes.**	Kumar, M., Kumar, P.**, Das, P.,** & Kapur, M.K.	Zoology	Molecular Biology Reports	2019	1573-4978	https://doi.org/10.1007/s11033-019-04960-y	https://link.springer.com/article/10.1007/s11033-019-04960-y	https://www.scopus.com/sourceid/14154	Indexed in SCOPUS
100	**Soil ciliates of the Indian Delhi Region: Their community characteristics with emphasis on their ecological implications as sensitive bio-indicators for soil**	Abraham, J.S., Somasundaram, Dagar, J; S., Jangra, S., Kumar, A., Yadav, K., Singh, S.,	Zoology, Chemistry	Saudi Journal of Biological Sciences	2019	1319-562X	https://doi.org/10.1016/j.sjbs.2019.04.013	https://www.sciencedirect.com/science/article/pii/S1319562X1930066X	https://mjl.clarivate.com/search-results?issn=1319-562X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
101	**Techniques and tools for species identification in ciliates: A review.**	**Abraham, J.S.,** Sripoorna, S., Maurya, S., Makhija, S., Gupta, R., & Toteja, R.	Zoology	International Journal of Systematic and	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.003176	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

102	**Ferroelectric liquid crystal nanocomposites: Recent development and future perspective.**	**Yadav, S. P.**, Yadav, K., Lahiri, J. & Parmar, A. S.	Physics	Liquid Crystal Reviews	2019	2168-0418	https://doi.org/10.1080/21680396.2019.1589400	https://www.tandfonline.com/doi/full/10.1080/21680396.2019.1589400	https://mjl.clarivate.com/search-results?issn=2168-0396&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
103	**A Novel Method of Electrochemically Growing ZnO Nanorods on Graphene Oxide as Substrate for Gas Sensing Applications".**	Chetna, Kumar, S., **Garg, A.,** Chowdhuri, A., Jain, A. & Kapoor, A.	Physics, Electronics	Material Research Express	2019	2053 -1591	DOI 10.1088/2053-1591/ab16f8	https://iopscience.iop.org/article/10.1088/2053-1591/ab16f8#:~:text=The%20potential%20of%20electroc	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
104	**Transient setting of relativistic ponderomotive non-linearity and filamentation of ultra-short laser pulses in collisionless plasmas**	Sharma, R.P., Kumar, N., Uma, R., Singh, R.K., & **Gupta, P.K.**	Physics	Laser and Particle beams	2019	0263-0346	https://doi.org/10.1017/S0263034619000454	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/transient-setting-of-relativistic-	https://mjl.clarivate.com/search-results?issn=0263-0346&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
105	**Exploitation of potential bioactive compounds from two soil derived actinomycetes, Streptomyces sp. strain 196 and RI.24**	Kumar, P., Kundu, A., Kumar, M., Solanki, R., & **Kapur, M.K.**	Zoology	Microbiological Research	2019	0944-5013	https://doi.org/10.1016/j.micres.2019.126312	https://www.sciencedirect.com/science/article/pii/S0944501319304884?via%3Dihub	https://www.scopus.com/sourceid/20267	Indexed in UGC Care List, SCOPUS and Web of Science
106	**Expression and molecular characterizationof stress-responsive genes (hsp70 and Mn-sod) and evaluation of antioxidant enzymes (CAT and GPx) in heavy**	Somasundaram, S., Abraham, J.S., Maurya, S., **Toteja, R.**, Gupta, R., & Makhija, S.	Zoology	Molecular Biology Reports	2019	0301-4851	https://doi.org/10.1007/s11033-019-04942-0	https://link.springer.com/article/10.1007/s11033-019-04942-0	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
107	**Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018**	Kamra, K., Kaur, H., Abraham, J.S., Somasundaram, S., **Makhija, S.**, Toteja, R., Warren, A., &	Zoology	Journal of Eukaryotic Microbiology	2019	1066-5234	https://doi.org/10.1111/jeu.12773	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12773	https://mjl.clarivate.com/search-results?issn=1066-5234&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
108	**Synthesis, DFT studies, molecular docking, antimicrobial screening and UV fluorescence studies on ct-DNA for novel Schiff bases of 2-(1-aminobenzyl) benzimidazole**	Singhal, S., **Khanna, P** & Khanna, L.	Chemistry	Heliyon	2019	5-8440(Onl	https://doi.org/10.1016/j.heliyon.2019.e02596	https://www.sciencedirect.com/science/article/pii/S2405844019362565	https://www.scopus.com/sourceid/21100411756	Indexed in UGC Care List, SCOPUS and Web of Science
109	**Recent Trends in the Synthesis of Benzimidazoles From o-Phenylenediamine via Nanoparticles and Green Strategies Using Transition Metal Catalysts**	Singhal, S., **Khanna, P.,** Panda, S. S., & Khanna, L.	Chemistry	Journal Of Heterocyclic Chemistry	2019	3-5193 (On	https://doi.org/10.1002/jhet.3649	https://onlinelibrary.wiley.com/doi/abs/10.1002/jhet.3649	https://www.scopus.com/sourceid/25882	Indexed in UGC Care List, SCOPUS and Web of Science

110	**Curcumin based supramolecular ensemble for optical detection of Cu2+ and Hg2+ ions**	Lal, S., Prakash, K., Khera, N., Drashya, Singh, S., Singh, A., **Hooda, S.,** & Chandra, R.	Chemistry	Journal of Molecular Structure	2019	0022-2860	https://doi.org/10.1016/j.molstruc.2020.128091	https://www.sciencedirect.com/science/article/abs/pii/S0022286020304166#:~:text=Curcumin%20based%20fluoresce	https://www.scopus.com/sourceid/24642	Indexed in UGC Care List, SCOPUS and Web of Science
111	**Repurposing of FDA-approved drugs to target MurB and MurE enzymes in Mycobacterium tuberculosis, Journal of Biomolecular Structure and**	Rani, J., Silla, Y., Borah, K., Ramachandran, S. & **Bajpai, U.**	Biomedical Science	Journal of Biomolecular Structure and	2019	1102, 1538	https://doi.org/10.1080/07391102.2019.1637280	https://www.tandfonline.com/doi/abs/10.1080/07391102.2019.1637280	https://mjl.clarivate.com/search-results?issn=0739-1102&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
112	**Polydopamine –aminoglycoside nanoconjugates: Synthesis, characterization, antimicrobial evaluation and cytocompatibility**	Singh, I., Priyam, A., Jha, D., **Dhawan, G.,** Gautam, H. K., & Kumar, P.	Biomedical Science	MATERIALS SCIENCE & ENGINEERING C-	2019	0191 (Elect	https://doi.org/10.1016/j.msec.2019.110284	https://www.sciencedirect.com/science/article/pii/S0928493119318946	https://www.scopus.com/sourceid/17813	Indexed in SCOPUS
113	**Identifying similar networks using structural hierarchy**	Saxena, R., **Kaur, S.**, & Bhatnagar, V.	Computer Science	Physica A: Statistical Mechanics and its Applicatio	2019	0378-4371	https://doi.org/10.1016/j.physa.2019.04.265	https://www.sciencedirect.com/science/article/abs/pii/S0378437119306399	https://mjl.clarivate.com/search-results?issn=0378-4371&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
114	**The Impact Of Various Digitized Social Networking Media Through Text, Images And Videos On Language Usage**	Mishra, S., **Samal, C.K.**, Yadav, N., & Choudhury, R.K.	Computer Science	INTERNATIONAL JOURNAL OF SCIENTIFIC	2019	2277-8616	http://www.ijstr.org/final-print/oct2019/The-Impact-Of-Various-Digitized-	http://www.ijstr.org/final-print/oct2019/The-Impact-Of-Various-Digitized-Social-Networking-Media-	https://www.scopus.com/sourceid/21100894501	Indexed in SCOPUS
115	**Analysis of Al0.15Ga0.85N/GaN/Al0.15Ga0.85N DH-HEMT for RF and Microwave Frequency Applications**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Semiconductors	2019	1063-7826	https://doi.org/10.1134/S1063782619130050	https://link.springer.com/article/10.1134/S1063782619130050	https://mjl.clarivate.com/search-results?issn=1063-7826&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
116	**PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS**	Ansari, A. A., **Meena, K. R.,** & Prasad, S. R.	Mathematics	Romanian Astronomical Journal	2019	1220-5168	http://www.astro.ro/~roaj/30_2/14-ansari-2015	http://www.astro.ro/~roaj/30_2/14-ansari-2015	https://mjl.clarivate.com/search-results?issn=1220-5168&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
117	**Sheet carrier concentration and current–voltage analysis of Al0.15Ga0.85N/GaN/Al0.15Ga0.85N double heterostructure hemt incorporating the effect of traps**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Microsystem Technologies	2019	9467076	https://doi.org/10.1007/s00542-019-04322-5	https://link.springer.com/article/10.1007/s00542-019-04322-5	nil	**PEER REVIEWED**

118	**Cytokine-induced expression of nitric oxide synthases in Chlamydia trachomatis-infected spontaneous aborters**	Prasad, P., **Singh, N.,** Das, B., Raisuddin, S., Dudeja, M., & Rastogi, S.	Biomedical Science	Journal of Maternal-Fetal and Neonatal Medicine	2019	1476-7058	: 10.1080/14767058.2018.1465914	https://pubmed.ncbi.nlm.nih.gov/29720007/	https://mjl.clarivate.com:/search-results?issn=1476-7058&hide_exact_match_fl=tru	**SCOPUS INDEXED**
119	**Does tumour necrosis factor alpha-induced cyclooxygenase-2 expression lead to spontaneous abortion in *Chlamydia trachomatis* -infected women**	**Singh N**, Prasad P, Das B, Rastogi S	Biomedical Science	Microbial Pathogenesis	2019	0882-4010	https://doi.org/10.1016/j.micpath.2020.103994	https://www.sciencedirect.com/science/article/pii/S0882401019308915?via%3Dihub	https://www.scopus.com/sourceid/22941	**SCOPUS INDEXED**
120	**Hyperoxidation of Peroxiredoxin 6 Induces Alteration from Dimeric to Oligomeric State**	Shahnaj S, **Chowhan R K**, Potshangbam A M, Kakchingtabam P, Singh K H, Singh L R,	Biomedical Science	Antioxidants	2019	2076-3921	10.3390/antiox8020033.	https://pubmed.ncbi.nlm.nih.gov/30717364/	https://mjl.clarivate.com:/search-results?issn=2076-3921&hide_exact_match_fl=tru	**SCOPUS INDEXED**
121	**Prion protein transcription is auto-regulated through dynamic interactions with G-quadruplex motifs in its own promoter**	**Pradhan, P**, Srivastava A, Singh J, Biswas B, Saini A, Siddique I, ... & Kumar S, Kundu B	Biomedical Science	Biochimica et Biophysica Acta (BBA)-Gene	2019	1876-4320	10.1016/j.bbagrm.2019.194479.	https://pubmed.ncbi.nlm.nih.gov/31931179/	https://mjl.clarivate.com:/search-results?issn=1874-9399&hide_exact_match_fl=tru	**SCOPUS INDEXED**
122	**A study of software reliability on big data open source software**	, **Subhash Kumar** & T	Physics	International Journal of System Assurance Engineerin	2019	0976-4348	https://doi.org/10.1007/s13198-019-00777-x	https://link.springer.com/article/10.1007/s13198-019-00777-x	https://mjl.clarivate.com:/search-results?issn=0975-6809&hide_exact_match_fl=tru	**SCOPUS INDEXED**
123	**A Case Study on R: a powerful OSS and data analysis platform**	**Ranjan Kumar,** Subhash Kumar**,** Sanjay K. Tiwary	Physics	International Journal of Applied Engineering Research	2019	0973-4562	https://www.ripublication.com/ijaer19/ijaerv14n9_31.pdf	https://www.ripublication.com/ijaer19/ijaerv14n9_31.pdf	nil	**PEER REVIEWED**
124	**Dynamics of a vertically vibrating mercury drop**	T Singla, **DK Verma**, JF Tovar, A Figueroa, F Vázquez, FB Yousif	Physics	AIP Advances	2019	2158-3226	https://doi.org/10.1063/1.5088043	https://pubs.aip.org/aip/adv/article/9/4/045204/1076422/Dynamics-of-a-vertically-vibrating-mercury-drop	https://mjl.clarivate.com:/search-results?issn=2158-3226&hide_exact_match_fl=tru	**SCOPUS INDEXED**
125	**Fabrication and characterization of ZnO-TiO_2-PANI (ZTP) micro/nanoballs for the detection of flammable and toxic gases**	**Rakesh Kumar Sonker,** B.C. Yadav, Vinay Gupta, Monika Tomar	Physics	Journal of Hazardous Materials	2019	1873-3336	https://doi.org/10.1016/j.jhazmat.2018.10.016	https://www.sciencedirect.com/science/article/abs/pii/S0304389418309166	https://mjl.clarivate.com:/search-results?issn=0304-3894&hide_exact_match_fl=tru	**SCOPUS INDEXED**

126	**Investigation of thermodynamical, dielectric and electro-optical parameters of nematic liquid crystal doped with polyaniline and silver nanoparticles**	T. Vimal, K. Agrahari, **Rakesh Kumar Sonker**, R. Manohar	Physics	Journal of Molecular Liquids	2019	1873-3166	https://doi.org/10.1016/j.molliq.2019.111241	https://www.sciencedirect.com/science/article/abs/pii/S0167732219309481	https://mjl.clarivate.com:/search-results?issn=0167-7322&hide_exact_match_fl=true	**SCOPUS INDEXED**
127	**Synthesis and characterization of highly porous hexagonal shaped CeO_2-Gd_2O_3-CoO nanocomposite and its opto-electronic humidity sensing**	S. Sikarwar, B.C. Yadav, **Rakesh Kumar Sonker**, G.I. Dzhardimalieva, J.K. Rajput	Physics	Applied Surface Science	2019	1873-5584	https://doi.org/10.1016/j.apsusc.2019.02.108	https://www.sciencedirect.com/science/article/abs/pii/S0169433219304337	https://mjl.clarivate.com:/search-results?issn=0169-4332&hide_exact_match_fl=true	**SCOPUS INDEXED**
128	**Entrainment of aperiodic and periodic oscillations in the Mercury Beating Heart system using external periodic forcing**	P Kumar, P Parmananda**, DK Verma,** T Singla, I de Nicolás, J Escalona	Physics	Chaos: An Interdisciplinary Journal of Nonlinear	2019	1054-1500	https://doi.org/10.1063/1.5083179	https://pubmed.ncbi.nlm.nih.gov/31154773/	nil	**PEER REVIEWED**
129	**Recyclable Organocatalysts for One-pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone Spirooxindoles**	Liu, M.; Zhang, X.; Huang, X.; **Dhawan, G.;** Evans, J.; Kaur, M.; Jasinski, J. P.; Zhang, W.	Biomedical Science	Eur. J. Org. Chem	2019	1099-0690	https://doi.org/10.1002/ejoc.201801480	https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/ejoc.201801480#:~:text=Recyclable%20fluorous	https://mjl.clarivate.com:/search-results?issn=1434-193X&hide_exact_match_fl=true	**SCOPUS INDEXED**
130	**Morphology of the Small Magellanic Cloud using multiwavelength photometry of classical Cepheids**	Sukanta Deb, Kerdaris Kurbah, Harinder P Singh, Shashi M Kanbur, Chow-Choong	Physics	Monthly Notices of Royal Astronomical Society	2019	0035-8711	https://doi.org/10.1093/mnras/stz2328	https://academic.oup.com/mnras/article/489/3/3725/5553489	https://mjl.clarivate.com:/search-results?issn=0035-8711&hide_exact_match_fl=true	**SCOPUS INDEXED**
131	**Theoretical and experimental investigation on structural stability, electronic and vibrational properties of polvaniline (PANI)**	**Rakesh Kumar Sonker**, R. Shastri, B.C. Yadav	Physics	Proceedings of the Jangjeon Mathematical	2019	1598-7264	http://dx.doi.org/10.17777/pjms2019.22.1.129	https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE10700506	nil	**PEER REVIEWED**
132	**Structural basis of peroxidase catalytic cycle of human Prdx6**	**Chowhan, R. K.**	Biomedical Science	Scientific reports	2020	2045-2322	https://doi.org/10.1038/s41598-020-74052-6	https://www.nature.com/articles/s41598-020-74052-6#:~:text=The%20peroxidase%20catalytic%20cycle%20of	https://mjl.clarivate.com/search-results?issn=2045-2322&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
133	**Experimental validation of influenza A virus matrix protein (M1) interaction with host cellular alpha enolase and pyruvate kinase**	**Deepshikha**	Biomedical Science	Virology	2020	0042-6822	https://doi.org/10.1016/j.virol.2020.07.019	https://www.sciencedirect.com/science/article/pii/S004268222030146X?via%3Dihub	https://mjl.clarivate.com/search-results?issn=0042-6822&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science

134	**Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films**	**Dhingra, V.,** Kumar, S., Kumar, R., Garg, A., & Chowdhuri, A.	Electronics and Physics	Materials Research Express	2020	2053-1591	DOI 10.1088/2053-1591/ab9ae7	https://iopscience.iop.org/article/10.1088/2053-1591/ab9ae7#:~:text=In%20the%20current%20investigati	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
135	**Extraction of admittance parameters of symmetrically doped AlGaN/GaN/AlGaN DH-HEMT for microwave frequency applications.**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Microsystem Technologies	2020	0946-7076	https://doi.org/10.1007/s00542-020-04805-w	https://link.springer.com/article/10.1007/s00542-020-04805-w	https://mjl.clarivate.com/search-results?issn=0946-7076&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
136	**Synthesis of CdS nanoparticle by sol-gel method as low temperature NO_2 sensor**	**Sonker R.K.,** Yadav B.C., Gupta V., & Tomar M.	Physics	Materials Chemistry and Physics	2020	0254-0584	https://doi.org/10.1016/j.matchemphys.2019.121975	https://www.sciencedirect.com/science/article/abs/pii/S0254058419307746	https://mjl.clarivate.com/search-results?issn=0254-0584&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
137	**Optimizing synthesis of Citrus limetta peel silver nanocomposites possessing larvicidal potential against dengue vector, Aedes aegypti L.**	Aggarwal, D., **Sharma, A.**, & Kumar, S.	Zoology	Advances in Zoology and Botany	2020	2331-5083	DOI: 10.13189/azb.2020.080103	https://www.hrpub.org/journals/article_info.php?aid=8630	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101002048&flag=Sear	Indexed in UGC Care List
138	**One pot synthesis of silver nano-composites from Achyranthes aspera: An eco-friendly larvicide against Aedes aegypti L.**	**Sharma, A.**, Tripathi, P., & Kumar, S.	Zoology	Asian Pacific Journal of Tropical Biomedici	2020	2221-1691	10.4103/2221-1691.275420	https://journals.lww.com/aptb/fulltext/2020/10020/one_pot_synthesis_of_silver_nanocomposites_from.2.aspx	https://mjl.clarivate.com/search-results?issn=2221-1691&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
139	**Effect of dietary stress of emamectin benzoate on the Fitness Cost of American Bollworm, Helicoverpa armigera (Hübner, 1808).**	Dagar, V.S., **Mishra, M.**, & Kumar, S.	Zoology	International Journal of Tropical Insect Science	2020	7584 / 1742	https://doi.org/10.1007/s42690-020-00168-x	https://link.springer.com/article/10.1007/s42690-020-00168-x	https://mjl.clarivate.com/search-results?issn=1742-7584&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
140	**Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner.**	**Mishra, M.**, Sharma, A., Dagar, V.S., & Kumar, S.	Zoology	Archives of Biological Sciences	2020	4664 / 1821	https://doi.org/10.2298/ABS200308021M	http://www.doiserbia.nb.rs/Article.aspx?ID=0354-46642000021M#.Y7P_8XZBzrc	https://mjl.clarivate.com/search-results?issn=0354-4664&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
141	**Potential applications of extracellular enzymes from Streptomyces spp. in various industries**	Kumar, M., Kumar, P., **Das, P.**, Solanki, R., & Kapur, M.K.	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-01898-9	https://link.springer.com/article/10.1007/s00203-020-01898-9	https://www.scopus.com/sourceid/19623	Indexed in UGC Care List, SCOPUS and Web of Science

142	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., **Sripoorna, S.**, Maurya, S., Toteja, R., Makhija, S., ... & El-Serehy, H. A.	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
143	**Spiro-Indole-Coumarin Hybrids: Synthesis, ADME, DFT, NBO Studies and In Silico Screening through Molecular Docking on DNA G-Quadruplex**	Khanna, L., Singhal, S., Jain, S. C., & **Khanna, P.**	Chemistry	Chemistry Select	2020	5-6549 (On	https://doi.org/10.1002/slct.201904783	https://chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/slct.201904783	https://www.scopus.com/sourceid/21100850505	Indexed in UGC Care List, SCOPUS and Web of Science
144	**Biogenic Silver Nanoparticles: Evaluation of Their Biological and Catalytic Potential**	Sharma, B., Singh, I., Bajar, S., **Gupta, S.,** Gautam, H. & Kumar, P.	Chemistry	Indian Journal of Microbiology	2020	0046-8991	https://doi.org/10.1007/s12088-020-00889-0	https://link.springer.com/article/10.1007/s12088-020-00889-0	https://www.scopus.com/sourceid/19735	Indexed in UGC Care List, SCOPUS and Web of Science
145	**Ultrashort peptide self-assembly: Front-runners to transport drug and gene cargos.**	**Gupta, S.,** Singh, I., Sharma, A. K., & Kumar, P**.**	Chemistry	Frontiers in bioengineering and biotechnol	2020	2296-4185	https://doi.org/10.3389/fbioe.2020.00504	https://www.frontiersin.org/articles/10.3389/fbioe.2020.00504/full	https://www.scopus.com/sourceid/21100835954	Indexed in UGC Care List, SCOPUS and Web of Science
146	**Adsorption of Rhodamine 6G dye on binary system of Nanoarchitectonics composite Magnetic Graphene Oxide Material**	Drashya, Lal, S., & Hooda, S.	Chemistry	Journal of Nanoscience and Nanotechnology	2020	1533-4880	https://doi.org/10.1166/jnn.2020.17442	https://www.ingentaconnect.com/content/asp/jnn/2020/00000020/00000005/art00033;jsessionid=13icve188up89.x-ic-	https://www.scopus.com/sourceid/28546	Indexed in SCOPUS
147	**Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from Aqueous Solutions**	Gautam, D., & **Hooda, S.**	Chemistry	JOURNAL OF CHEMICAL AND ENGINEER	2020	0021-9568	https://doi.org/10.1021/acs.jced.0c00350	https://pubs.acs.org/doi/10.1021/acs.jced.0c00350	https://www.scopus.com/sourceid/24158	Indexed in UGC Care List and Web of Science
148	**Complexity Dynamics of Gumowski-Mira Map**	**Prasad S. N.,** Meena K. R., & Ansari A. A.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/06/15-	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/06/15-R1363_AAM_Ansari_AAA_010420_Fin	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=tru	Indexed in Web of Science
149	**Chaos Measure in autonomous LPA Model**	**Prasad S. N.,** Saha L. M., & Ansari A. A.	Mathematics	Gedrag En Organisatie review	2020	0921-5077	DOI:10.37896/GOR33.02/271	https://lemma-tijdschriften.com/gallery/goj-1864.pdf	https://mjl.clarivate.com/search-results?issn=0921-5077&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

150	**Supply chain model for expiring items following Ramp-type demand with stochastic lead time under crisp and fuzzy environment**	**Singh C.**, & Singh S. R.	Mathematics	International Journal of Fuzzy System Applicatio	2020	2156-177X	DOI: 10.4018/IJFSA.2020010103	https://www.igi-global.com/gateway/article/245271#pnlRecommendationForm	https://www.scopus.com/sourceid/21100301444	Indexed in UGC Care List and SCOPUS
151	**The anti-oxidant enzyme, Prdx6 might have cis-acting regulatory sequence(s).**	Shahnaj, S., Potshangbam, A.M., **Chowhan, R.K.**, Parray, Z.A., Kakchingtabam, P.,	Biomedical Science	International Journal of Biological Macromol	2020	0003 (Elect	https://doi.org/10.1016/j.ijbiomac.2020.01.311	https://www.sciencedirect.com/science/article/abs/pii/S0141813019397971?via%3Dihub	https://mjl.clarivate.com/search-results?issn=0141-8130&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
152	**Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in Mycobacterium tuberculosis**	Eniyan, K., Rani, J., Ramachandran, S., Bhat, R., Khan, I.A. & **Bajpai, U.**	Biomedical Science	SLAS DISCOVERY	2020	5560 (Elect	https://doi.org/10.1177/24725552198811848	https://slas-discovery.org/article/S2472-5552(22)06529-7/fulltext	https://mjl.clarivate.com/search-results?issn=2472-5552&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
153	**Characterization and genome analysis of B1 sub-cluster mycobacteriophage PDRPxv**	Sinha, A., Eniyan, K., Manohar, P., Ramesh, N., & **Bajpai, U.**	Biomedical Science	Virus research	2020	7492 (Elect	https://doi.org/10.1016/j.virusres.2020.197884Get rights and content	https://www.sciencedirect.com/science/article/abs/pii/S0168170219307518	https://mjl.clarivate.com/search-results?issn=0168-1702&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
154	**Functional characterization of the endolysins derived from mycobacteriophage PDRPxv**	Eniyan, K., Sinha, A., Ahmad, S., & **Bajpai, U.**	Biomedical Science	World journal of microbiology & biotechnol	2020	0972 (Elect	https://doi.org/10.1007/s11274-020-02858-7	https://link.springer.com/article/10.1007/s11274-020-02858-7	https://mjl.clarivate.com/search-results?issn=0959-3993&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
155	**Estimating Parameter of the Selected Uniform Population Under the Generalized Stein Loss Function**	**Meena K. R.**, & Gangopadhyay A. K.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/10_R1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/10_R1387_AAM_Gangopadhyay_AKG_0	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=tru	Indexed in Web of Science
156	**Reliable Path Finding Technique for Mobile Robot**	Choudhury, R. K., and **Samal, C.K.**	Computer Science	Journal of Computer Science and Technolog	2020	9000 / 1860	https://www.researchgate.net/profile/Chandrakanta-Samal/publication/3603975	https://www.researchgate.net/profile/Chandrakanta-Samal/publication/360397516_Reliable_Path_Finding_Tec	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101001966&flag=Sear	Indexed in UGC Care List, SCOPUS and Web of Science
157	**Android-based application for shading analysis and assessment of actual solar energy potential**	**Garg, A.,** Sharma, P., Verma, V., & Kaur, T.	Electronics	New Concepts in Solar and Thermal	2020	0277-786X	https://doi.org/10.1117/12.2570966	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11496/114960G/Android-based-	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS

158	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P., Tyagi, A., Varshney, Y. &	Electronics	Optics Education and Outreach VI (Vol.	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/114800R/Some-fun-	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
159	**Trace detection of Nerve agent simulant in the fuel vapor environment using metal oxide/Surface acoustic wave E-nose**	Kumar, J., Singh, H., **Raj, V. B.,** Nimal, A. T., Gupta, V. & Singh, V. K.	Physics	Defence Science Journal	2020	379X , 2456	DOI:10.14429/dsj.70.14584	https://core.ac.uk/download/pdf/335056862.pdf	https://www.scopus.com/sourceid/21100967064#tabs=1	Indexed in UGC Care List, SCOPUS and Web of Science
160	**Green synthesis of TiO2 nanosheet by chemical method for the removal of Rhodamine B from industrial waste**	**Sonker, R.K.,** Yadav, B.C., Gupta, V. & Tomar, M.	Physics	Materials Science And Engineering B: Solid-	2020	0921-5107	https://doi.org/10.1016/j.mseb.2020.114577Get rights and content	https://www.sciencedirect.com/science/article/abs/pii/S0921510720300842	https://mjl.clarivate.com/search-results?issn=0921-5107&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
161	**An overview of the factors affecting dengue transmission in Asian region and its predictive models.**	Samal, R.R., Gupta, S. & **Kumar, S.**	Zoology	Journal of Applied and Natural Science	2020	2231-5209	https://doi.org/10.31018/jans.v12i3.2360	https://journals.ansfoundation.org/index.php/jans/article/view/2360	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS
162	**Comparative larvicidal efficacy of α-cypermethrin alone and α-cypermethrin/Citrus sinensis peel extract binary mixtures against Aedes aegypti L.**	Aggarwal, D, Samal, R. R. & **Kumar, S.**	Zoology	Romanian Journal of Biology-Zoology	2020	2248-3799	https://www.researchgate.net/profile/Roopa-Samal-2/publication/349324045_C	https://www.researchgate.net/profile/Roopa-Samal-2/publication/349324045_COMPARATIVE_LARVICIDAL	https://mjl.clarivate.com/search-results?issn=1843-7761&hide_exact_match_fl=tru	Indexed in Web of Science
163	**Reduced physiological and reproductive fitness induced by Nerium oleander leaf extracts in the cotton bollworm, Helicoverpa armigera (Lepidoptera: Noctuidae).**	Sivakumar, A., Mishra, M., Dagar, V. & **Kumar, S.**	Zoology	Acta Ecologica Sinica	2020	1872-2032	https://doi.org/10.1016/j.chnaes.2020.12.002	https://www.sciencedirect.com/science/article/abs/pii/S187220322030233X	https://mjl.clarivate.com/search-results?issn=1000-0933&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
164	**Protection of surplus food from fungal spoilage using Streptomyces spp.: a green approach**	Kumar, M., Kumar, P., Das, P., Solanki, R., & **Kapur, M.K.**	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-02087-4	https://link.springer.com/article/10.1007/s00203-020-02087-4	https://mjl.clarivate.com/search-results?issn=0302-8933&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
165	**Draft genome and secondary metabolite biosynthetic gene clusters of Streptomyces sp. strain 196.**	Kumar, P., Chauhan, A., Kumar, M., Kuanr, B.K., Solanki, R., & **Kapur, M.K.**	Zoology	Molecular Biology Reports	2020	1573-4978	https://doi.org/10.1007/s11033-020-05731-w	https://link.springer.com/article/10.1007/s11033-020-05731-w	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

166	**Indicators for assessment of soil quality: a mini-review**	Maurya, S., Abraham, J. S., Somasundaram, S., **Toteja, R.,** Gupta, R., & Makhija, S.	Zoology	Environmental Monitoring and Assessmen	2020	0167-6369	https://doi.org/10.1007/s10661-020-08556-z	https://link.springer.com/article/10.1007/s10661-020-08556-z	https://mjl.clarivate.com/search-results?issn=0167-6369&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
167	**Ibuprofen-based chemosensor for efficient binding and sensing of Cu2+ ion in aqueous medium**	Lal, S., Prakash, K., Hooda, S.**, Kumar V.** & Kumar, P.	Chemistry	Journal of Molecular Structure	2020	0022-2860	https://doi.org/10.1016/j.molstruc.2019.127003	https://www.sciencedirect.com/science/article/abs/pii/S0022286019311032	https://mjl.clarivate.com/search-results?issn=0022-2860	Indexed in UGC Care List, SCOPUS and Web of Science
168	**Fabrication of a Gold-Supported NiAlTi-LayeredDouble Hydroxide Nanocatalyst for Organic Transformations**	Rathee, G., Kohli S., Panchal, S., Singh, N., Awasthi, A., Singh, S., Singh, A., **Hooda, S.** &	Chemistry	ACS OMEGA	2020	2470-1343	https://doi.org/10.1021/acsomega.0c03250	https://pubs.acs.org/doi/full/10.1021/acsomega.0c03250	https://mjl.clarivate.com/search-results?issn=2470-1343&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
169	**Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review**	Gautam, D., Saya, L., Malik, V., Singh, W. R., & **Hooda, S.**	Chemistry	Journal of Chemical & Engineering data	2020	9568 ,1520	https://doi.org/10.1021/acs.jced.0c00743	https://pubs.acs.org/doi/abs/10.1021/acs.jced.0c00743	https://mjl.clarivate.com/search-results?issn=0021-9568&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
170	**Self Nitrogen doped carbon Arogel drived from waste Cigarette buts (Cellulose acetate) for the adsorption of BPA : Kinetics and adsorption mechanism**	Norah S., Alhokbany Naushad, M., **Kumar, V.,** Hatim, S-Al, & M. Saad Alshehri,Tansir	Chemistry	Journal of King Saud University Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.09.021	https://www.sciencedirect.com/science/article/pii/S1018364720302895	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science
171	**Design and synthesis of various 5'-Deoxy-5'-(4-Substituted-1,2,3-Triazol-1- yl)-uridine analogues as inhibitors of Mycobacterium tuberculosis Mur ligases**	Hervin V., Arora R., Rani J., Ramchandran S**.,** **Bajpai U.,** Agrofoglio L.A., Roy	Biomedical Science	Molecules	2020	1420-3049	https://doi.org/10.3390/molecules25214953	https://www.mdpi.com/1420-3049/25/21/4953	https://mjl.clarivate.com/search-results?issn=1420-3049&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
172	**Neem flowers (Azadirachta indica) as an abundant source of nectar for butterflies in an urban landscape in Delhi, India**	**Chaudhary, R.**	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2022%20(3)/FINAL-BIONOTES-	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
173	**A comprehensive checklist of butterflies seen in Corbett Tiger Reserve, Uttarakhand, India**	**Chaudhary, R.,** Chhimwal, S., & Kumar, V.	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2022%20(3)/FINAL-BIONOTES-	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science

174	**Oviposition by Jamides bochus (Stoll, [1782]) (Insecta: Lepidoptera: Lycaenidae) in New Delhi, India**	**Chaudhary, R.** & Kumar, V.	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2022%20(3)/FINAL_BIONOTES_	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
175	**Diabetes: Perspective and challenges in modern era.**	Goel, Y., Verma, A.K., Bhatt, D., Rahmani, A.H., **Yasheshwar**, & Dev K.	Botany	Gene Reports	2020	2452-0144	https://doi.org/10.1016/j.genrep.2020.100759	https://www.sciencedirect.com/science/article/pii/S2452014420301734#:~:text=Prevalence%20of%20diabetes%20is	https://mjl.clarivate.com/search-results?issn=2452-0144&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
176	**Vertical Motion of the Variable Infinitesimal Mass in the Cicular Sitnikov Problem**	Ansari, A.A., **Prasad, S.N.** & Singh, C.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/41_R1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/41_R1397_AAM_Ansari_AA_051220_Pu	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=tru	Indexed in Web of Science
177	**Generalized Elliptic Restricted Four-Body Problem with Variable Mass**	**Prasad, S. N.** & Ansari, A. A.	Mathematics	Astronomy Letters	2020	1063-7737	https://doi.org/10.1134/S1063773720040015	https://link.springer.com/article/10.1134/S1063773720040015	https://mjl.clarivate.com/search-results?issn=1063-7737&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
178	**The Motion Properties of the Variable Mass Planetoid in the Elliptical Sitnikov Problem**	Ansari, A.A., **Narain, L.** & Prasad, S.N.	Mathematics	Gedrag En Organisatie review	2020	0921-5077	DOI:10.37896/GOR33.03/436	https://drive.google.com/file/d/1IbtP1neYawuT8nEaSv8JogFZeTIHrgZ_/view	https://mjl.clarivate.com/search-results?issn=0921-5077&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
179	**EPQ MODEL WITH GREEN PRODUCTION, PRODUCT STEWARD SHIP AND SELLING PRICE DEPENDENT DEMAND**	Saxena, P., **Singh, C.** & Sharma, K.	Mathematics	INTERNATIONAL JOURNAL OF AGRICULT	2020	0973-1903	DOI: 10.1007/978-981-10-5687-1_10	https://link.springer.com/chapter/10.1007/978-981-10-5687-1_10	https://mjl.clarivate.com/search-results?issn=0973-1903&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
180	**Green design and product stewardship approach for two-warehouse inventory model**	Saxena, P., **Singh, C.** & Sharma, K.	Mathematics	Indian Journal of Science and Technolog	2020	0974-6846	10.17485/IJST/v13i37.290	https://indjst.org/articles/green-design-and-product-stewardship-approach-for-two-warehouse-	https://mjl.clarivate.com/search-results?issn=0974-6846&hide_exact_match_fl=tru	Indexed in Web of Science
181	**Generalized cr3b problem with heterogeneous primary and secondary as finite straight segment**	Ansari, A.A., **Meena, K. R.** & K. Shalini	Mathematics	Application and Applied mathematics	2020	1932-9466	https://digitalcommons.pvamu.edu/cgi/viewcontent.cgi?article=1918&context=aa	https://digitalcommons.pvamu.edu/cgi/viewcontent.cgi?article=1918&context=aam	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=tru	Indexed in Web of Science

182	**A comprehensive review on potential therapeutics interventions for COVID-19.**	Chugh, H., Awasthi, A., Agarwal, Y., Gaur, R. K., **Dhawan, G.**, & Chandra, R. (2020).	Biomedical Science	European journal of pharmacology	2020	1879-0712	https://doi.org/10.1016/j.ejphar.2020.173741	https://www.sciencedirect.com/science/article/pii/S0014299920308335	https://mjl.clarivate.com:/search-results?issn=0014-2999&hide_exact_match_fl=tru	**SCOPUS INDEXED**
183	**Fe3 O4 loaded chitin–A promising nano adsorbent for Reactive Blue 13 dye.**	Gautam, D., Saya, L., & **Hooda, S.**	Chemistry	Environmental Advances	2020	2666-7657	https://doi.org/10.1016/j.envadv.2020.100014	https://www.sciencedirect.com/science/article/pii/S2666765720300144?via%3Dihub	https://www.scopus.com/sourceid/21101065035	**SCOPUS INDEXED**
184	**Synthesis of Silver Nanoparticles by Phyllanthus emblica Plant Extract and Their Antibacterial Activity**	Meena, R. K., Meena, R., **Arya, D. K.**, Jadoun, S., Hada, R., & Kumari, R. (2020).	Chemistry	Material Science Research India	2020	0973-3469	http://dx.doi.org/10.13005/msri/170206	http://www.materialsciencejournal.org/vol17no2/synthesis-of-silver-nanoparticles-by-phyllanthus-	nil	**PEER REVIEWED**
185	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**
186	**Enhancement in NH3 sensing performance of ZnO thin-film via gamma-irradiation.**	Waikar, M. R., Raste, P. M., **Sonker, R. K.**, Gupta, V., Tomar, M., Shirsat, M. D., &	Physics	Journal of Alloys and Compounds	2020	1873-4669	https://doi.org/10.1016/j.jallcom.2020.154641	https://www.sciencedirect.com/science/article/abs/pii/S0925838820310045?via%3Dihub	https://www.scopus.com/sourceid/12325	**SCOPUS INDEXED**
187	**Post-γ-irradiation effects on structural, optical and morphological properties of chemical vapour deposited MWCNTs.**	Waikar, M. R., **Sonker, R. K.**, Gupta, S., Chakarvarti, S. K., & Sonkawade, R. G.	Physics	Materials Science in Semiconductor Processing	2020	1873-4081	https://doi.org/10.1016/j.mssp.2020.104975	https://www.sciencedirect.com/science/article/abs/pii/S1369800119323443?via%3Dihub	https://mjl.clarivate.com:/search-results?issn=1369-8001&hide_exact_match_fl=tru	**SCOPUS INDEXED**
188	**Chemistry and Pharmacology of Miraculous, Echinacea purpurea L.**	**Arya, D. K**	Chemistry	Journal of Biological and Chemical Research	2020	0970-4973	https://www.jbcr.co.in/Current_Issue/Vol_37_1_Jan_Jun_2020/21.%20Echnesea	https://www.jbcr.co.in/Current_Issue/Vol_37_1_Jan_Jun_2020/21.%20Echnesea%20P_aper%20180-187.pdf	nil	**PEER REVIEWED**
189	**Chemical Research, 37, 180-187, ISSN 0970-4973.**	Aggarwal D, Sharma A, **Kumar, S.** (2020)	Zoology	Advances in Zoology and Botany	2020		10.13189/azb.2020.080103	https://www.hrpub.org/download/20191230/AZB3-11414236.pdf	nil	**PEER REVIEWED**

190	**pH induced conformational alteration in human peroxiredoxin 6 might be responsible for its resistance against lysosomal pH or high temperature**	**Chowhan, R. K.**	Biomedical Science	Scientific reports	2021	2045-2322	https://doi.org/10.1038/s41598-021-89093-8	https://www.nature.com/articles/s41598-021-89093-8	https://mjl.clarivate.com/search-results?issn=2045-2322&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
191	**Exploiting Emojis in Sentiment Analysis : A Survey**	**Grover, V.**	Computer Science	Journal of The Institution of Engineers	2021	2250-2114	CARE Listed Journal,Sl.No. 10	https://link.springer.com/article/10.1007/s40031-021-00620-7	https://www.scopus.com/sourceid/21100831436	Indexed in UGC Care List and SCOPUS.
192	**Optimisation of dielectric spacer layer thickness in Ag nanospheres/ITO/c-Si structure for plasmonic solar cells using FDTD simulation.**	Rani, M., Kashyap, J., **Singh, U.**, & Kapoor, A.	Electronics	Materials Technology	2021	7857, 1753	https://doi.org/10.1080/10667857.2021.1940046	https://www.tandfonline.com/doi/abs/10.1080/10667857.2021.1940046	https://mjl.clarivate.com/search-results?issn=1066-7857&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
193	**Applicability of Field Plate in Double Channel GaN HEMT for Radio-Frequency and Power-Electronic Applications.**	Chugh, N., Kumar, M., Haldar, S., **Bhattacharya, M.**, & Gupta, R. S.	Electronics	Silicon	2021	1876-990X	https://doi.org/10.1007/s12633-020-00881-9	https://link.springer.com/article/10.1007/s12633-020-00881-9	https://mjl.clarivate.com/search-results?issn=1876-990X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
194	**Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)**	Aarya, S., **Kumar, P.**, Bhatia, M., Kumar, S. Sharma, J. & Siddhartha	Physics	Advances in Polymer Technology	2021	0730-6679	https://doi.org/10.1155/2021/7013154	https://www.hindawi.com/journals/apt/2021/7013154/	https://mjl.clarivate.com/search-results?issn=0730-6679&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
195	**Superficial Synthesis of CdS Quantum Dots for an Efficient Perovskite-Sensitized Solar Cell**	**Sonker, R. K.**, Shastri, R. & Johari, R.	Physics	Energy & Fuels	2021	0887-0624	https://doi.org/10.1021/acs.energyfuels.1c00629	https://pubs.acs.org/doi/abs/10.1021/acs.energyfuels.1c00629	https://mjl.clarivate.com/search-results?issn=0887-0624&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
196	**Influence of lufenuron on the nutrient content and detoxification enzyme expression in Aedes aegypti L. (Diptera: Culicidae)**	Kungreiliu, P., Samal, R.R., Lanbiliu, P. & **Kumar, S.**	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-021-00481-z	https://link.springer.com/article/10.1007/s42690-021-00481-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
197	**Cuticular thickness associated with insecticide resistance in Aedes aegypti**	**Samal, R.R**. & Kumar, S.	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-020-00271-z	https://link.springer.com/article/10.1007/s42690-020-00271-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

198	**Physiological and reproductive fitness cost in Aedes aegypti on exposure to toxic xenobiotics in New Delhi, India**	Gupta, A., **Samal, R.R**. & Kumar, S.	Zoology	Journal of Applied and Natural Science	2021	2231-5209	https://doi.org/10.31018/jans.v13i1.2470	https://journals.ansfoundation.org/index.php/jans/article/view/2470	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS
199	**Proactive role of Streptomyces spp. in plant growth stimulation and management of chemical pesticides and fertilizers**	Kumar, M., Kumar, P., **Das, P**., Solanki, R., & Kapur, M.K**.**	Zoology	International Journal of Environmental	2021	1735-2630	https://doi.org/10.1007/s13762-021-03473-1	https://link.springer.com/article/10.1007/s13762-021-03473-1	https://www.scopus.com/sourceid/4000148503	Indexed in SCOPUS
200	**Exploring Small Heat Shock Proteins (sHSPs) for Targeting Drug Resistance in Candida albicans and other Pathogenic Fungi.**	**Dev, R.**	Zoology	Journal of Pure and Applied Microbiology	2021	0973-7510	https://doi.org/10.22207/JPAM.15.1.42	https://pdfs.semanticscholar.org/f40d/33f7d5878e6410b4b23f2f4e53efcaf5b336.pdf	https://www.scopus.com/sourceid/11700154322	Indexed in SCOPUS
201	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora, Euplotidae) using an integrative approach**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., **Makhija, S.,** & Toteja, R.	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
202	**Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions**	Saya, L., Malik, V., Singh, A., Singh, S., **Gambhir, G.**, Singh, W.R., Chandra, R. and Hooda, S.	Chemistry	Carbohydrate Polymers	2021	8617 / 1879	https://doi.org/10.1016/j.carbpol.2021.117851	https://www.sciencedirect.com/science/article/abs/pii/S0144861721002381	https://mjl.clarivate.com:/search-results?issn=0144-8617&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
203	**Recent advances in a polydopamine mediated Antimicrobial Adhesion system**	Singh, I., **Dhawan, G.**, Gupta, S. & Kumar, P.	Biomedical Sciences & Chemistry	Frontiers in Microbiology	2021	1664302X	https://doi.org/10.3389/fmicb.2020.607099	https://www.frontiersin.org/articles/10.3389/fmicb.2020.607099/full	https://mjl.clarivate.com/search-results?issn=1664-302X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
204	**Antimicrobial, radical scavenging and dye degradation potential of nontoxic biogenic silver nanoparticles using Cassia fistula pods**	Singh, I., **Gupta, S**., Gautam, H.K., Kumar, P. & Dhawan, G**.**	Chemistry & Biomedical Sciences	Chemical Papers	2021	7290, 0366	https://doi.org/10.1007/s11696-020-01355-3	https://link.springer.com/article/10.1007/s11696-020-01355-3	https://mjl.clarivate.com/search-results?issn=0366-6352&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
205	**Application of Chiotsan in Tissue Engineering**	Deka, S.R., **Gupta, S**. & Kumar, P.	Chemistry	Trends in Carbohydrate Recearch	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=410026856	https://www.trendscarbo.com/getf_shoppingcart.php?id=410026856	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

206	**Mannosylated and Mannan Modified nano vector targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy**	Singh, I., **Gupta, S.**, Dhawan, G**.,** & Kumar, P	Chemistry & Biomedical Sciences	Trends in Carbohydrate Research	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=282868652	https://www.trendscarbo.com/getf_shoppingcart.php?id=282868652	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
207	**A review targeting the infection by CHIKV using computational and experimental approaches**	Kumar, D., Kumari, K., Chandra, R., Jain, P., Vodwal, L., **Gambhir, G.** and Singh, P.	Chemistry	Journal of Biomolecular Structure and	2021	1102 / 1538	https://doi.org/10.1080/07391102.2021.1904004	https://www.tandfonline.com/doi/abs/10.1080/07391102.2021.1904004?journalCode=tbsd20	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=tru	Indexed in UGC Care List and SCOPUS
208	**Synthesis Comparative in vitro anitbacterial antioxidant and UV Flourscence study of bis indol schiff base and molecular docking with ct -DNA and SARS-COV-2 M Pro**	Singhal, S., **Khanna, P.,** & Khanna, L.	Chemistry	Luminescence	2021	1522-7243	https://doi.org/10.1002/bio.4098	https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/10.1002/bio.4098	https://mjl.clarivate.com/search-results?issn=1522-7235&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
209	**Multitarget Diallyl Disulfides (DADS) against Aβ Aggregation: Screening through Molecular Docking with Aβ42 & ZnII-Aβ16, ADME, DFT & Synthetic Strategy**	Singhal, S., Khanna, P**., Misra, N.** & Khanna, L	Chemistry	Chemistry Select	2021	2365-6549	https://doi.org/10.1002/slct.202004635	https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/slct.202004635	https://mjl.clarivate.com/search-results?issn=2365-6549&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
210	**Screening of compound library identifies novel inhibitors against the MurA enzyme of Escherichia coli**	Raina D., Tiwari H., Sharma S., Deepika, Chinthakindi P.K., Nargotra A., Sangwan P.L.,	Biomedical Science	Applied Microbiology and Biotechnology	2021	7598, 1432	https://doi.org/10.1007/s00253-021-11272-4	https://link.springer.com/article/10.1007/s00253-021-11272-4	https://mjl.clarivate.com/search-results?issn=0175-7598&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
211	**Shelter building behaviour of Hasora chromus (Cramer, 1780) larvae (Insecta: Lepidoptera: Hesperiidae)**	**Chaudhary, R.**	Biomedical Science	Bionotes	2021	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2023%20(1)/FINAL-BIONOTES-	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
212	**Properties of Motion of the Infinitesimal Variable Mass Body in the Well Known Circular Restricted Three-Body Problem with Newtonian and Yukawa Potential**	Ansari, A.A., Alam, M., **Meena, K.R.** & Ali, A.	Mathematics	Applied Mathematics and Information Sciences	2021	0090, 2325	doi:10.18576/amis/150211	https://www.naturalspublishing.com/files/published/5m6qq3031il0qf.pdf	https://www.scopus.com/sourceid/21100197928	Indexed in SCOPUS
213	**On Estimating Scale Parameter of the Selected Pareto Population under the Generalized Stein Loss Function**	**Meena, K.R.,** Gangopadhyay, A.K., & Abdalghani, O.	Mathematics	AMERICAN JOURNAL OF MATHEM	2021	6324 , 2325	https://doi.org/10.1080/01966324.2021.1891999	https://www.tandfonline.com/doi/abs/10.1080/01966324.2021.1891999	https://www.scopus.com/sourceid/24650	Indexed in SCOPUS

214	**Alternative Treatment Strategies for Secondary Bacterial and Fungal Infections Associated with COVID-19**	Das, R., Kotra, K., Singh, P., Loh, B., Leptihn, S. and **Bajpai, U**	Biomedical Science	Infectious disease and therapy	2021	3229 / 2193	https://doi.org/10.1007/s40121-021-00559-8	https://link.springer.com/article/10.1007/s40121-021-00559-8	https://mjl.clarivate.com:/search-results?issn=2193-8229&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
215	**Synthesis and characterization of nanoselenium: A step-by-step guide for undergraduate students**	**Dhawan, G.**, Singh, I., Dhawan, U., and Kumar, P	Biomedical Science	Journal of Chemical Education	2021	9584 / 1938	https://doi.org/10.1021/acs.jchemed.0c01467	https://pubs.acs.org/doi/abs/10.1021/acs.jchemed.0c01467	https://mjl.clarivate.com:/search-results?issn=0021-9584&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
216	**Self-assembled biodegradable core-shell nanocomposites of amphiphilic retinoic acid-LMW bPEI conjugates exhibit enhanced transgene expression in**	Ahmadi, Z., Jena, H., Singh, M., **Dhawan, G.**, and Kumar, P.	Biomedical Science	Journal of Pharmaceutical Sciences	2021	0022-3549	https://doi.org/10.1016/j.xphs.2021.04.016	https://jpharmsci.org/article/S0022-3549(21)00238-0/fulltext	https://www.scopus.com/sourceid/23079	Indexed in UGC Care List, SCOPUS and Web of Science
217	**Fluorine-containing pharmaceuticals approved by the FDA in 2020: Synthesis and biological activity**	Yu, Y., Liu, A., **Dhawan, G.**, Mei, H., Zhang, W., Izawa, K., Soloshonok, V. A.,	Biomedical Science	Chinese Chemical Letters	2021	8417 / 1878	https://doi.org/10.1016/j.cclet.2021.05.042	https://www.sciencedirect.com/science/article/abs/pii/S1001841721003557	https://mjl.clarivate.com:/search-results?issn=1001-8417&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
218	**Peroxiredoxin-6: A Guardian of Lung Pathophysiologies.**	Kumari, A., **Chowhan, R. K.**, Kakchingtabam, P., Shahnaj, S., Rahaman, H.,	Biomedical Science	Current Protein and Peptide Science	2021	2037 / 1875	DOI: 10.2174/1389203722666211109101853	https://www.eurekaselect.com/article/118761	https://mjl.clarivate.com:/search-results?issn=1389-2037&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
219	**Signaling mechanisms and biochemical pathways regulating pollen-stigma interaction, seed development and seedling growth in sunflower under salt stress.**	Batla, S. C., Gogna, M., Jain, P., Singh, N., Mukherjee, S., **Kalra, G.**	Botany	Plant Signaling and Behaviour	2021	2316 / 1559	https://doi.org/10.1080/15592324.2021.1958129	https://www.tandfonline.com/doi/full/10.1080/15592324.2021.1958129	https://mjl.clarivate.com:/search-results?issn=1559-2316&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
220	**Unraveling the AM fungal community for understanding its ecosystem resilience to changed climate in agroecosystems**	Chourasiya D., Gupta M. M, **Sahni S.,**Oehl F., Agnihotri R., Buade R., Maheshwari H. S.,	Botany	Symbiosis	2021	5114 / 1878	https://doi.org/10.1007/s13199-021-00761-9	https://link.springer.com/article/10.1007/s13199-021-00761-9	https://mjl.clarivate.com:/search-results?issn=0334-5114&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
221	**Al_2O_3/CuI/PANInanocomposite catalyzed green synthesis of biologically active 2-substituted benzimidazole derivatives**	**Kohli, S.**, Rathee, G., Hooda, S., and Chandra, R.	Chemistry	Dalton Transactions	2021	9226 / 1477	https://doi.org/10.1039/D1DT00806D	https://pubs.rsc.org/en/content/articlelanding/2021/DT/D1DT00806D	https://mjl.clarivate.com:/search-results?issn=1477-9226&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science

222	**Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti.**	Gupta, D., **Samal, R. R.**, Gautam, D., Hooda, S., and Kumar, S.	Chemistry	Journal of Applied and Natural Science	2021	0974-9411	https://doi.org/10.31018/jans.v13i4.3018	https://journals.ansfoundation.org/index.php/jans/article/view/3018	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
223	**A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater**	Saya, L., Malik, V., Gautam, D., **Gambhir, G.**, Singh, W. R. and Hooda, S.	Chemistry	Science of the Total Environment	2021	9697 / 1879	https://doi.org/10.1016/j.scitotenv.2021.152529	https://www.sciencedirect.com/science/article/abs/pii/S0048969721076075?via%3Dihub	https://mjl.clarivate.com:/search-results?issn=0048-9697&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
224	**In water" synthesis of bis (indolyl) methanes: a review**	Khanna, L., Mansi, Yadav, S., **Misra, N.**, and Khanna, P.	Chemistry	Synthetic Communications	2021	7911 / 1532	https://doi.org/10.1080/00397911.2021.1957113	https://www.tandfonline.com/doi/abs/10.1080/00397911.2021.1957113#:~:text=Bis(indolyl)%20methane%20(BIM,wit	https://mjl.clarivate.com:/search-results?issn=0039-7911&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
225	**A DFT Study of Interaction of (CdSe) 3 Quantum Dots with Nucleobases.**	**Malik, P.**, and Kakkar, R	Chemistry	Advanced Materials Letters	2021	0976-3961	10.5185/amlett.2021.081653	https://aml.iaamonline.org/article_14098.html	https://www.scopus.com/sourceid/21100223579	Indexed in SCOPUS
226	**Size-dependent structural and electronic properties of stoichiometric II–VI quantum dots and gas sensing ability of CdSe quantum dots: a DFT study**	Singh, J., Thareja, R., **Malik, P.**, and Kakkar, R.	Chemistry	Journal of Nanoparticle Research	2021	0764 / 1572	https://doi.org/10.1007/s11051-022-05406-6	https://link.springer.com/article/10.1007/s11051-022-05406-6	https://mjl.clarivate.com:/search-results?issn=1388-0764&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
227	**Surface engineered Iridium-based magnetic photocatalyst paving a path towards visible light driven CH arylation and cyanation reaction.**	Rana, P., Gaur, R., **Kaushik, B.**, P. Rana, Yadav, S., Yadav, P., Sharma, P., Gawande M. B.	Chemistry	Journal of Catalysis	2021	9517 / 1090	https://doi.org/10.1016/j.jcat.2021.08.014	https://www.sciencedirect.com/science/article/abs/pii/S002195172100316X?via%3Dihub	https://mjl.clarivate.com:/search-results?issn=0021-9517&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
228	**Unlocking the catalytic potency of a magnetic responsive CoFe 2 O 4/Ni-BTC MOF composite for the sustainable synthesis of tri-and tetra-substituted imidazoles.**	Yadav, S., Dixit, R., Sharma, S., Dutta, S., Arora, B., Rana, P., **Kaushik, B.**, Adholeya, A.,	Chemistry	Materials Chemistry Frontiers	2021	2052-1537	https://doi.org/10.1039/D1QM00904D	https://pubs.rsc.org/en/content/articlelanding/2021/QM/D1QM00904D	https://mjl.clarivate.com:/search-results?issn=2052-1537&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
229	**Enhanced catalysis through structurally modified hybrid 2-D boron nitride nanosheets comprising of complexed 2-hydroxy-4-methoxybenzophenone**	Rana, P., Dixit, R., Sharma, S., Dutta, S., Yadav, S., Sharma, A., **Kaushik, B.**,	Chemistry	Scientific reports	2021	2045-2322	https://doi.org/10.1038/s41598-021-03992-4	https://www.nature.com/articles/s41598-021-03992-4	https://mjl.clarivate.com:/search-results?issn=2045-2322&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

230	**Identifying Central Nodes in Directed and Weighted Networks**	**Kaur, S.**, Gupta, A., and Saxena, R.	Commerce	International Journal of Advanced Computer	2021	107X / 2156	DOI:10.14569/IJACSA.2021.01208100	https://thesai.org/Downloads/Volume12No8/Paper_100-Identifying_Central_Nodes_in_Directed_and_Weighted	https://mjl.clarivate.com:/search-results?issn=2158-107X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
231	**Perception of youth on Digital India**	**Narang, S.,** Singhania, M., Kaur, S., and Mahajan, S.	Commerce	International Journal of Business Innovation	2021	1751-0252	https://doi.org/10.1504/IJBIR.2021.116393	https://www.inderscienceonline.com/doi/abs/10.1504/IJBIR.2021.116393	https://www.scopus.com/sourceid/11200153572	Indexed in UGC Care List and SCOPUS
232	**Intensity quantification of public opinion and emotion analysis on climate change**	Thukral, T., Varshney, A., and **Gaur, V**.	Computer Science	. International Journal of Advanced	2021	2394-5443	DOI:10.19101/IJATEE.2021.874417	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2021/10/7.pdf	https://www.scopus.com/sourceid/21101023180	Indexed in UGC Care List and SCOPUS
233	**A smart learning assistance tool for inclusive education**	Srivastava, S., Varshney, A., Katyal, S., Kaur, R., and **Gaur, V.**	Computer Science	Journal of Intelligent and Fuzzy Systems	2021	1064-1246	https://doi.org/10.3233/JIFS-210075	https://dl.acm.org/doi/abs/10.3233/JIFS-210075	https://www.scopus.com/sourceid/23917	Indexed in UGC Care List and SCOPUS
234	**Varying sonication conditions to tailor surface morphology of GO thin films for enhanced gas sensing performance.**	Dhingra, V., Kumar, S., Chowdhuri, A**.**, and **Garg, A.**	Electronics, Physics	AIP Conference Proceedings	2021	0094-243X	https://doi.org/10.1063/5.0060996	https://aip.scitation.org/doi/abs/10.1063/5.0060996	https://www.scopus.com/sourceid/26916	Indexed in UGC Care List and SCOPUS
235	**Optimal ordering policy for deteriorating items with stock dependent demand, partial backlogging and trade credit period**	Verma, S.K., Rizwanullah, M. and **Singh, C.**	Mathematics	International Journal of Logistics Systems	2021	1742-7967	https://doi.org/10.1504/IJLSM.2021.117709	https://www.inderscienceonline.com/doi/abs/10.1504/IJLSM.2021.117709	https://www.scopus.com/sourceid/4700151504	Indexed in UGC Care List and SCOPUS
236	**A systematic review on the eco-safe management of mosquitoes with diflubenzuron: An effective growth regulatory agent**	Sankar, M. and **Kumar, S.**	Zoology	Acta Ecologica Sinica	2021	1000-0933	https://doi.org/10.1016/j.chnaes.2021.09.019	https://www.sciencedirect.com/science/article/pii/S1872203221001244	https://mjl.clarivate.com:/search-results?issn=1000-0933&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
237	**Indigenous plants demonstrating effective antioxidant properties**	Yadav, K. S., Samal, R. R., Sahgal, A. and **Kumar, S**.	Zoology	Biology Bulletin	2021	3590 / 1608	https://doi.org/10.1134/S1062359022010162	https://link.springer.com/article/10.1134/S1062359022010162	https://mjl.clarivate.com:/search-results?issn=1062-3590&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

238	**Formulation of Clitoriaternatea leaves-mediated silver nanoparticles to control Aedes aegypti larvae**	Lall, Y., **Samal, R. R.**, Sagar, S. K. and Kumar, S.	Zoology	Journal of Communicable Diseases	2021	5138 / 258	https://doi.org/10.24321/0019.5138.202157	https://medical.advancedresearchpublications.com/index.php/Journal-CommunicableDiseases/article/view/69	https://mjl.clarivate.com:/search-results?issn=0019-5138&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
239	**In vitro and in silico anticancer potential analysis of Streptomyces sp. extract against human lung cancer cell line, A549**	Kumar, P., Chauhan, A., Kumar, M., Kuanr, B. K., Kundu, A., **Solanki, R.**, and Kapur, M. K	Zoology	3 Biotech	2021	572X / 2190	https://doi.org/10.1007/s13205-021-02812-w	https://link.springer.com/article/10.1007/s13205-021-02812-w	https://mjl.clarivate.com:/search-results?issn=2190-572X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
240	**Sightings of the Tailless Llineblue, Prosotasdubiosa (Insecta: Lepidoptera: Lycaenidae) in Delhi, India**	**Chaudhary, R.** and Maurya, C. B.	Biomedical Science	Bionotes	2021	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2023%20(4)%20December	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2023%20(4)%20December	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
241	**Sighting of Plain Tiger (Danaus chrysippus, Linn., 1758) form dorippus in New Delhi, India**	**Chaudhary, R.**	Biomedical Science	Bionotes	2021	0972-1800	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2023%20(2%20and%203)/8	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
242	**Genera of ants associated with larvae of Plains Cupid (Chiladespandava,horsfield, 1829) Iinsecta: Lepidoptera: Lycaenidae) infesting Cycas, in Delhi, India, and**	**Chaudhary, R.** and Kumar, V.	Biomedical Science	Bionotes	2021	0972-1800	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2023%20(2%20and%203)/9	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=tru	Indexed in Web of Science
243	**COVID-19 and cardiovascular disease: Clinical implications of biochemical pathways.**	Varmani, S. G., **Chowhan, R. K.**, Sharma, I., and Narang, R.	Biomedical Science	Journal of the Practice of Cardiovascular	2021	5414 / 2454	10.4103/jpcs.jpcs_21_21	https://journals.lww.com/jpcs/fulltext/2021/07020/covid_19_and_cardiovascular_disease__clinical.2.aspx	https://mjl.clarivate.com:/search-results?issn=2395-5414&hide_exact_match_fl=tru	Indexed in Web of Science
244	**The Dynamical Study of Variable Mass Test Particle in Nonlinear Sense of Restricted 3-body Problem with Heterogeneous Primaries**	**Prasad, S. N.,** Shalini, K., and Ansari, A. A	Mathematics	Application and Applied Mathematics	2021	1932-9466	https://digitalcommons.pvamu.edu/aam/vol16/iss2/28/	https://digitalcommons.pvamu.edu/aam/vol16/iss2/28/	https://mjl.clarivate.com:/search-results?issn=1932-9466&hide_exact_match_fl=tru	Indexed in Web of Science
245	**Development of Dimethylisoxazole-Attached Imidazo [1, 2-a] pyridines as Potent and Selective CBP/P300 Inhibitors.**	Muthengi, A., Wimalasena, V.K., Yosief, H.O., Bikowitz, M.J., Sigua, L.H., Wang,	Biomedical sciences	*Journal of Medicinal Chemistry*	2021	0022-2623	https://doi.org/10.1021/acs.jmedchem.0c02232	https://pubs.acs.org/doi/10.1021/acs.jmedchem.0c02232	https://mjl.clarivate.com:/search-results?issn=0022-2623&hide_exact_match_fl=tru	**SCOPUS INDEXED**

246	**Ex vivo binding studies of the anti-cancer drug noscapine with human hemoglobin: a spectroscopic and molecular docking study.**	Chugh, H., Kumar, P., Kumar, N., Gaur, R. K., **Dhawan, G**., & Chandra, R.	Biomedical sciences	*New Journal of Chemistry*	2021	11440546	https://doi.org/10.1039/D0NJ03334K	https://pubs.rsc.org/en/content/articlelanding/2021/NJ/D0NJ03334K	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true	**SCOPUS INDEXED**
247	**Targeting unfolded protein response: a new horizon for disease control**	Khanna, M., Agrawal, N., Chandra, R., & **Dhawan, G**.	Biomedical sciences	Expert Reviews *in Molecular Medicine*	2021		https://doi.org/10.1017/erm.2021.2	https://www.cambridge.org/core/journals/expert-reviews-in-molecular-medicine/article/targeting-unfolded-	https://mjl.clarivate.com:/search-results?issn=1462-3994&hide_exact_match_fl=true	**SCOPUS INDEXED**
248	**Inclusion of environmental awareness as basic tenet of education in India for realization of sustainable practices**	**Chowdhuri, A.,** Saraswat, S. and Gupta, C. K.	Physics	Research Journal of Educational Science	2021	2321 - 0508	http://www.isca.me/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-2020-003.pdf	http://www.isca.in/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-2020-003.php	nil	**PEER REVIEWED**
249	**Pressure Ionization, Polarizability and Screening Constants in Confined Hydrogen Like Ions of Astrophysical Importance**	**Joshi, R.,** Kumar, P., Jha, A. K., and Kumar, T.	Physics	Journal of Atomic, Molecular, Condensed Matter	2021	2582-8215	https://doi.org/10.26713/jamcnp.v8i2.1684	https://www.rgnpublications.com/journals/index.php/jamcnp/article/view/1684	nil	**PEER REVIEWED**
250	**Encompassing environment synthesis, characterization and photovoltaic utilization of cadmium sulphide quantum dots**	Singh, Shruti; Singh, Pramod K; Sharma,Jitender Paul; Kakroo, Sunanda**; Rakesh**	Physics	Materials Today: Proceedings	2021	2214-7853	https://doi.org/10.1016/j.matpr.2020.04.776	https://www.sciencedirect.com/science/article/abs/pii/S2214785320334301	https://www.scopus.com/sourceid/21100370037	**Indexed in UGC Care List and SCOPUS**
251	**Reliable Time Slot Allocation Scheme among Mobile Nodes in MANET**	**C. K. Samal**	Computer science	International Journal of Computer Science	2021	2347-8578	http://www.ijcstjournal.org/volume-9/issue-5/IJCST-V9I5P12.pdf	http://www.ijcstjournal.org/volume-9/issue-5/IJCST-V9I5P12.pdf	nil	**PEER REVIEWED**
252	**Adverse events and breakthrough infections associated with COVID-19 vaccination in the Indian population**	Arora, G., Taneja, J., Bhardwaj, P., Goyal, S., Naidu, K., Yadav, S. K., Saluja, D. and **Jetly, S**	Biomedical Science	Jounal of Medical Virology	2022	0146-6615 / 1096-9071	i.org/10.1002/jr	https://onlinelibrary.wiley.com/doi/10.1002/jmv.27708	https://mjl.clarivate.com:/search-results?issn=0146-6615&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
253	**Association of gender, age, and comorbidities with COVID-19 infection in India**	Yadav, S., Bhardwaj, P., Gupta, P., Saluja, D., **Jetly, S.** and Taneja, J	Biomedical Science	Journal of Integrated Science and Technolog	2022	2321-4635	http://pubs.isciience.in/journal/index.php/jist/article/view/1411/801	http://pubs.isciience.in/journal/index.php/jist/article/view/1411	https://www.scopus.com/sourceid/21101065486	Indexed in SCOPUS

254	**Hesitancy and Acceptance of COVID-19 Vaccination Amidst the Second Wave of Pandemic in India: A General Population Study**	**Jetly, S.,** Bhardwaj, P., Arora, G., Saluja, D., Yadav, S. K., Naidu, K. P. and Taneja, J.	Biomedical Science	Asia Pacific Journal of Public Health	2022	1010-5395 / 1941-2479	10.1177/10105	https://journals.sagepub.com/doi/10.1177/10105395221077062	https://mjl.clarivate.com:/search-results?issn=1010-5395&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
255	**Bioreducible polyethyleneimine core-shell nanostructures as efficient and non-toxic gene and drug delivery vectors.**	Jena, H., Ahmadi, Z., Kumar, P and **Dhawan, G**	Biomedical Science	Bioorganic and Medicinal Chemistry	2022	0968-0896 / 1464-3391	/10.1016/j.bmc	https://www.sciencedirect.com/science/article/abs/pii/S0968089622002784	https://mjl.clarivate.com:/search-results?issn=0968-0896&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
256	**Exploring the role of framework mutations in enabling breadth of a cross-reactive antibody (CR3022) against the SARS-CoV-2 RBD and its variants of concern.**	Saini, S., Agarwal, M., Pradhan, A., Pareek, S., Singh, A. K., **Dhawan, G.**, Dhawan, U, Kumar,	Biomedical Science	Journal of Biomolecular Structure and	2022	0739-1102 / 1538-0254	.1080/0739110	https://www.tandfonline.com/doi/abs/10.1080/07391102.2022.2030800?journalCode=tbsd20	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
257	**Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites**	Malik, V., Saya, L., **Gautam, D.**, Sachdeva, S., Dheer, N., Arya, D. K., Gambhir, G. and	Chemistry	Polymer Bulletin	2022	0170-0839 / 1436-2449	10.1007/s0028	https://link.springer.com/article/10.1007/s00289-021-03991-5	https://mjl.clarivate.com:/search-results?issn=0170-0839&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
258	**A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions**	**Gambhir, G.**, Gautam, D., Saya, L., Kumar, A., Kumar, S., Singh, A., Singh, S., Chandra,	Chemistry	Asian Journal of Chemistry	2022	2193-5807 / 2193-5815	https://doi.org/10.14233/ajchem.2022.23701	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_3_40	https://mjl.clarivate.com:/search-results?issn=2193-5807&hide_exact_match_fl=true	Indexed in UGC Care List and SCOPUS
259	**A new polysaccharide-based ion-exchange resin for industrial wastewater treatment**	Bargujar, S., Gambhir, G., Raigar, M. B., Hooda, S., Arya, D. K. and **Bhatia, M.**	Chemistry	Polimery	2022	0032-2725	/10.14314/polir	http://polimery.ichp.vot.pl/index.php/p/article/view/1135	https://mjl.clarivate.com:/search-results?issn=0032-2725&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
260	**Assessment of Groundwater Suitability for Drinking and Irrigation in Gurugram Block of Gurugram district, Haryana, India.**	Laxmi, V., Hussain, J., Husain, I., Vadiya, V. K. and **Gambhir, G.**	Chemistry	Asian Journal of Chemistry	2022	0970-7077	https://doi.org/10.14233/ajchem.2022.23779	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_6_34	https://www.scopus.com/sourceid/22703	Indexed in UGC Care List and SCOPUS
261	**A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions.**	Yadav, S., Misra, N., **Khanna, P.**, Mansi, Batra, K., and Khanna, L.	Chemistry	Polycyclic Aromatic Compounds	2022	1040-6638 / 1563-5333	https://doi.org/10.1080/10406638.2022.2056622	https://www.tandfonline.com/doi/full/10.1080/10406638.2022.2056622	https://mjl.clarivate.com:/search-results?issn=1040-6638&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science

262	**Chromone functionalized pyridine chemosensor for cupric ions detection.**	Bhalla, P., Tomer, N., **Bhagat, P.**, and Malhotra, R.	Chemistry	Spectrochimica Acta Part A: Molecular and	2022	1386-1425 / 1873-3557	/10.1016/j.saa	https://www.sciencedirect.com/science/article/abs/pii/S1386142521008568?via%3Dihub	https://mjl.clarivate.com:/search-results?issn=1386-1425&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
263	**Chromone derived effective probe for the detection of metal ion (Cu^{2+}) and chemical explosive (p-nitrotoluene).**	Tomer, N., Goel, A., Bhalla, P., **Bhagat, P.**, and Malhotra, R	Chemistry	Journal of Photochemistry and Photobiology A:	2022	1010-6030 / 1873-2666	1016/j.jphotoch	https://www.sciencedirect.com/science/article/abs/pii/S1010603022000545	https://mjl.clarivate.com:/search-results?issn=1010-6030&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
264	**Wet Chemical Growth of One Dimensional ZnO Film**	Meena, P. L., Kumar, Y., Bhardwaj, P., Genwa, M., **Arya, D. K.**, Verma, A.,	Chemistry	Rasayan Journal of Chemistry	2022	0974-1496	http://rasayanjournal.co.in/admin/php/upload/3482_pdf.pdf	http://rasayanjournal.co.in/admin/php/upload/3482_pdf.pdf	https://www.scopus.com/sourceid/19400157518	Indexed in UGC Care List and SCOPUS
265	**An in-Silico investigation for acyclovir and its derivatives to fight the COVID-19: Molecular docking, DFT calculations, ADME and td-Molecular dynamics simulations,**	Singh, M. B., Jain, P., Tomar, J., Kumar, V., Bahadur, I., **Arya, D. K.**, Sing, P	Chemistry	Journal of the Indian Chemical Society	2022	0019-4522	/10.1016/j.jics.	https://www.sciencedirect.com/science/article/pii/S0019452222000954	https://mjl.clarivate.com:/search-results?issn=0019-4522&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
266	**II-VI core/shell quantum dots and doping with transition metal ions as a means of tuning the magnetoelectronic properties of CdS/ZnS core/shell QDs: A DFT**	**Malik, P.**, Thareja, R., Singh, J., and Kakkar, R.	Chemistry	Journal of Molecular Graphics and Modelling	2022	1093-3263 / 1873-4243	10.1016/j.jmgm	https://www.sciencedirect.com/science/article/abs/pii/S1093326321002709	https://mjl.clarivate.com:/search-results?issn=1093-3263&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
267	**Precisely engineered type II ZnO-CuS based heterostructure: A visible light driven photocatalyst for efficient mineralization of organic dyes**	**Kaushik, B.**, Yadav, S., Rana, P., Rana, P., Solanki, K., Rawat, D., and Sharma, R. K.	Chemistry	Applied Surface Science	2022	0169-4332 / 1873-5584	0.1016/j.apsus	https://www.sciencedirect.com/science/article/abs/pii/S0169433222006201	https://mjl.clarivate.com:/search-results?issn=0169-4332&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
268	**Ingeniously designed Silica nanostructures as an exceptional support: Opportunities, potential challenges and future prospects for viable degradation of pesticides**	Sharma, R. K., **Kaushik, B.**, Yadav, S., Rana, P., Rana, P., Solanki, K., and Rawat, D	Chemistry	Journal of Environmental Management	2022	0301-4797 / 1095-8630	0.1016/j.jenvma	https://www.sciencedirect.com/science/article/pii/S0301479721018831#!	https://mjl.clarivate.com:/search-results?issn=0301-4797&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
269	**Magnetically separable type-II semiconductor based ZnO/MoO 3 photocatalyst: a proficient system for heteroarenes arylation and rhodamine B degradation under**	**Kaushik, B.**, Rana, P., Rawat, D., Solanki, K., Yadav, S., and Sharma, R. K.	Chemistry	New Journal of Chemistry	2022	1144-0546 / 1369-9261	https://doi.org/10.1039/D2NJ00906D	https://pubs.rsc.org/en/content/articlelanding/2022/nj/d2nj00906d	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science

270	**An Earth-abundant cobalt based photocatalyst: visible light induced direct (het) arene C–H arylation and CO2 capture**	Rana, P., **Kaushik, B.**, Gaur, R., Dutta, S., Yadav, S., Rana, P., Solanki, K., Arora B., Biradar A. V.,	Chemistry	Dalton Transactions	2022	1477-9226 / 1477-9234	https://doi.org/10.1039/D1DT03625D	https://pubs.rsc.org/en/content/articlelanding/2022/DT/D1DT03625D	https://mjl.clarivate.com:/search-results?issn=1477-9226&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
271	**Magnetic Boron Nitride Nanosheets Decorated with Cobalt Nanoparticles as Catalyst for the Synthesis of 3, 4-Dihydropyrimidin-2 (1 H)-ones/thiones.**	Rana, P., Dixit, R., Sharma, S., Dutta, S., Yadav, S., Arora, B., **B. Kaushik**, Rana, P. and	Chemistry	ACS Applied Nano Materials	2022	2574-0970	g/10.1021/acsa	https://pubs.acs.org/doi/10.1021/acsanm.1c04438	https://mjl.clarivate.com:/search-results?issn=2574-0970&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
272	**Unravelling the catalytic potential of a magnetic CoFe 2 O 4/Cu–ABDC MOF composite in the sustainable synthesis of 2 H-indazole motifs.**	Yadav, S., Dixit, R., Sharma, S., Dutta, S., Arora, B., Rana, P., **Kaushik, B.**, Solanki, K. and	Chemistry	New Journal of Chemistry	2022	1144-0546 / 1369-9261	https://doi.org/10.1039/D2NJ01490D	https://pubs.rsc.org/en/content/articlelanding/2022/nj/d2nj01490d/unauth	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
273	**Functionalized MCM-41: Versatile Catalysts for Organic Transformations**	Pasricha, S., Gahlot, P., **Mittal, K.**, Rai, D., Avasthi, N., Kaur, H., and Rai, S.	Chemistry	Chemistry Select	2022	2365-6549	https://doi.org/10.1002/slct.202103674	https://chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/slct.202103674	https://mjl.clarivate.com:/search-results?issn=2365-6549&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
274	**Coupling Fear and Contagion for Modeling Epidemic Dynamics**	Jain K., Bhatnagar V, Prasad S. and **Kaur S.**	Commerce	IEEE Transactions on Network Science	2022	2327-4697	109/TNSE.2022	https://ieeexplore.ieee.org/document/9813421	https://mjl.clarivate.com:/search-results?issn=2327-4697&hide_exact_match_fl=true	Indexed in UGC Care List, SCOPUS and Web of Science
275	**Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body problem**	Ansari, A. A., **Narain, L.,** Prasad, S. N**.**, and Alam, M.	Mathematics	Italian Journal of Pure and Applied M	2022	1126-8042 / 2239-0227	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-Narain-Prasad-	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-Narain-Prasad-Alam.pdf	https://mjl.clarivate.com:/search-results?issn=1126-8042&hide_exact_match_fl=true	Indexed in UGC Care List and Web of Science
276	**Study and prediction of prostate cancer using fuzzy inference system**	Boadh, R., **Aarya, D. D.**, Dahiya, M., Rathee, S., Kumar, A., Jain, S., Rajoria, Y. K. and Rani, S.	Mathematics	Materials Today: Proceedings	2022	2214-7853	10.1016/j.matp	https://www.sciencedirect.com/science/article/pii/S2214785322000669#:~:text=It%20has%20been%20clearly%20se	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS
277	**Selling price, time dependent demand and variable holding cost inventory model with two storage facilities.**	**Aarya, D. D.**, Rajoria, Y. K., Gupta, N., Raghav, Y. S., Rathee, R., Boadh, R., and	Mathematics	Materials Today: Proceedings	2022	2214-7854	10.1016/j.matp	https://www.sciencedirect.com/science/article/pii/S2214785322001390	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS

278	**Two Ware-Houses Fuzzy Inventory Model For Deteriorating Items With Ramp Type Demand And Shortages**	Sethi, G., Yadav, A.S. and **Singh, C.**	Mathematics	Journal of Management Information and	2022	1524-7252	10.5120/19994-	https://www.abacademies.org/articles/two-warehouses-fuzzy-inventory-model-for-deteriorating-items-	https://www.scopus.com/sourceid/21100805732	Indexed in UGC Care List and SCOPUS
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280	**Studies on Energy Storage properties of BFO/WO3 bilayer thin film capacitor.**	Lamichhane, S., Sharma, S., Tomar, M., and **Chowdhuri, A**	Physics	Energy Storage	2022	2578-4862	pi.org/10.1002/	https://onlinelibrary.wiley.com/doi/abs/10.1002/est2.342	https://mjl.clarivate.com:/search-results?issn=2578-4862&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science
281	**Double quantum ionization cross-sections for more general exponential cosine screened coulomb potential**	**Joshi, R.**	Physics	Spectroscopy Letters	2022	0038-7010 / 1532-2289	https://doi.org/10.1080/00387010.2022.2088559	https://www.tandfonline.com/doi/full/10.1080/00387010.2022.2088559	https://mjl.clarivate.com:/search-results?issn=0038-7010&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
282	**Micrometre double-quantum ionization of Rydberg hydrogen using linearly and circularly polarized light**	**Joshi, R.**	Physics	The European Physical Journal D	2022	1434-6060 / 1434-6079	https://doi.org/10.1140/epjd/s10053-022-00366-x	https://link.springer.com/article/10.1140/epjd/s10053-022-00366-x	https://mjl.clarivate.com:/search-results?issn=1434-6060&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science
283	**High harmonic generation spectra for lithium embedded in plasma environment**	**Joshi, R.**	Physics	Spectroscopy Letters	2022	0038-7010 / 1532-2289	https://doi.org/10.1080/00387010.2022.2046104	https://www.tandfonline.com/doi/full/10.1080/00387010.2022.2046104	https://mjl.clarivate.com:/search-results?issn=0038-7010&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
284	**A numerical evaluation of Shannon entropy for modified Hulthen potential**	Dabas, S., and **Joshi, R.**	Physics	The European Physical Journal D	2022	1434-6060 / 1434-6079	https://doi.org/10.1140/epjd/s10053-022-00421-7	https://link.springer.com/article/10.1140/epjd/s10053-022-00421-7	https://mjl.clarivate.com:/search-results?issn=1434-6060&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
285	**Favourable tuning of optical absorbance, bandgap and surface roughness of ZnO thin films by C ion implantation at the critical angle**	Hariwal, R. V., Malik, H. K., **Negi, A.**, and Asokan, K.	Physics	Applied Surface Science Advances	2022	2666-5239	0.1016/j.apsac	https://www.sciencedirect.com/science/article/pii/S2666523921001355	https://mjl.clarivate.com:/search-results?issn=2666-5239&hide_exact_match_fl=tru	Indexed in UGC Care List and Web of Science

286	**Unravelling impacts of C ion implantations at polar angles in the physical properties of ZnO nanostructured thin films**	Hariwal, R. V., Malik, H. K., **Negi, A.**, and Asokan, K.	Physics	Materials Letters	2022	0167-577X / 1873-4979	10.1016/j.matle	https://www.sciencedirect.com/science/article/abs/pii/S0167577X2101898X	https://mjl.clarivate.com:/search-results?issn=0167-577X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
287	**Spatiotemporal nonlinear evolution of the laser pulse and turbulence generation in laser produced plasmas.**	Singh, I., **Gupta, P. K.**, Uma, R. and Sharma, R. P.	Physics	Physics of Plasmas	2022	1070-664X / 1089-7674	i.org/10.1063/5	https://aip.scitation.org/doi/abs/10.1063/5.0085724	https://mjl.clarivate.com:/search-results?issn=1070-664X&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
288	**Effect of Ag doping on structural, morphological and optical properties of CdO nanostructured thin films.**	Khan Z. R., Alshammari A. S., Shkir Md., Bouzidi M., Mohamed M., Kumar M., **Sonker**	Physics	Physica B: Condensed Matter	2022	0921-4526 / 1873-2135	10.1016/j.physl	https://www.sciencedirect.com/science/article/abs/pii/S0921452622001016	https://mjl.clarivate.com:/search-results?issn=0921-4526&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
289	**Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, Aedes aegypti L**	**Samal, R. R.**, Panmei, K., Lanbiliu, P. and Kumar, S	Zoology	Bulletin of Entomological Research	2022	0007-4853 / 1475-2670	doi:10.1017/S0007485321001140	https://www.cambridge.org/core/journals/bulletin-of-entomological-research/article/reversion-of-cyp450-	https://mjl.clarivate.com:/search-results?issn=0007-4853&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
290	**Attractive sugar bait formulation for development of Attractive Toxic Sugar Bait for control of Aedes aegypti (Linnaeus).**	**Kumar, S.** Sharma, A. Samal, R. R., Kumar, M., Verma, V., Sagar, R. K., Singh S. P. and	Zoology	Journal of Tropical Medicine	2022	1687-9686 / 1687-9694	rg/10.1155/202	https://www.hindawi.com/journals/jtm/2022/2977454/	https://mjl.clarivate.com:/search-results?issn=1687-9686&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
291	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in freshwater ciliate Euplotes aediculatus**	Somasundaram, S., Abraham, J. S., Maurya, **S., Toteja, R.**, Gupta, R., and Makhija, S.	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s1064	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
292	**Microbial Journey: Mount Everest to Mars**	Sood, U., Dhingra, G. G., Anand, S., Hira, P., Kumar, R., Kaur, J., Verma, M., Singhvi, N., Lal, S.,	Zoology	Indian Journal of Microbiology	2022	0046-8991 / 0973-7715	10.1007/s1208	https://link.springer.com/article/10.1007/s12088-022-01029-6	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science
293	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the Landfill and the Soil from the Human**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R., **Makhija, S.,** Bhagat,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S1064	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=tru	Indexed in UGC Care List, SCOPUS and Web of Science

294	**The Role of Nanotechnology in Antiviral Regime: An Overview**	Singh, R., **Gupta, S.** and Kumar, P.	Chemistry	Nano Life	2022	1793-9844 / 1793-9852	10.1142/S1793	https://www.worldscientific.com/doi/abs/10.1142/S1793984421300119	https://mjl.clarivate.com:/search-results?issn=1793-9844&hide_exact_match_fl=true	Indexed in UGC Care List and Web of Science
295	**Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi simulation of integrated networks**	Rani, J.; Bhargav, A.; Seth, S.; Datta, M.; **Bajpai, U.**; Ramachnadran, S.	Biomedical Sciences	J Biosci 47:69.	2022	5991 / 097	https://doi.org/10.1007/s12038-022-00309-z	ias.ac.in/article/fulltext/jbsc/047/0069	https://mjl.clarivate.com:/search-results?issn=0250-5991&hide_exact_match_fl=true	**SCOPUS INDEXED**
296	**Pharmacological Manipulation of UPR: Potential Antiviral Strategy Against Chikungunya Virus.**	Agrawal, N.; Saini, S.; Khanna, M.**;** **Dhawan, G.;** Dhawan, U.	Biomedical Sciences	Indian Journal of Microbiology	2022	0255-0857 / 1998-3646	https://doi.org/10.1007/s12088-022-01046-5	https://pubmed.ncbi.nlm.nih.gov/36458214/	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true	**Indexed in UGC Care List, SCOPUS and Web of Science**
297	**Realizing the New Reality: Machine Learning Curbing Antimicrobial Resistance in Cutibacterium acnes.**	Gupta, R.**; Dhawan, G.;** Kumar, B.; Gautam, H. K.	Biomedical Sciences	Research Journal of Biotechnology, 17, 165-170.	2022	2588-9834 / 2588-9842	https://doi.org/10.25303/1712rjbt1650170	-	https://mjl.clarivate.com:/search-results?issn=2278-4535&hide_exact_match_fl=true	**SCOPUS INDEXED**
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300	**Hydrotrope assisted green synthesis of dicoumarols and in silico and in vitro antibacterial, antioxidant and xanthine oxidase inhibition studies.**	Mansi**, Khanna, P.;** Gupta, D.; Yadav, S.; Khanna, L.	Chemistry	Journal of Biomolecular structure and	2022	1102 / 1538	https://doi.org/10.1080/07391102.2022.2145368	https://pubmed.ncbi.nlm.nih.gov/36373290/	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true	**SCOPUS INDEXED**
301	**An understanding of coronavirus and exploring the molecular dynamics simulations to find promising candidates against the Mpro of nCoV to combat the**	Singh, M. B.; Sharma, R.; Kumar, D.**; Khanna, P.;** Mansi; Khanna, L.; Kumar, V.; Kumari,	Chemistry	Journal of Infection and Public Health, 15, 1326–134	2022	0341 / 1876	https://doi.org/10.1016/j.jiph.2022.10.013	https://pubmed.ncbi.nlm.nih.gov/36288640/	https://mjl.clarivate.com:/search-results?issn=1876-0341&hide_exact_match_fl=true	**SCOPUS INDEXED**

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303	**Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles.**	Pasricha, S.**; Mittal, K.;** Gahlot, P.; Kaur, H.; Avasthi, N.; Shweta	Chemistry	Journal of the Iranian Chemical Society, 19:4035–4	2022	1735-207X / 1735-2428	https://doi.org/10.1007/s13738-022-02603-x	https://link.springer.com/article/10.1007/s13738-022-02603-x	https://mjl.clarivate.com:/search-results?issn=1735-207X&hide_exact_match_fl=true	**SCOPUS INDEXED**
304	**Entropy for item inclination in sub-community based recommender system.**	Ahuja, H.; Narang, S.**; Kaur, S.**; Saxena, R.	Electronics	International Journal of Advanced Technolog	2022	2215-0986	http://dx.doi.org/10.19101/IJATEE.2021.875768	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2022/8/4.pdf	https://mjl.clarivate.com:/search-results?issn=2215-0986&hide_exact_match_fl=true	**SCOPUS INDEXED**
305	**Evaluation of Cost benefit Analysis using One-R Supervised Machine Learning Algorithm for Healthcare, https://doi.org/10.14754/nq.2022.20.9.NQ44773**	Kavitha, S.**;** Prasad, N.S.**; Samal, C. K.;** Hanumanthappa, H.	Computer Science	Neuro Quantology, 20(9) 6610-6615,	2022	1303 5150	https://doi.org/10.14754/nq.2022.20.9.NQ44773	https://www.neuroquantology.com/open-access/Evaluation+of+Cost+benefit+Analysis+using+One-		**SCOPUS INDEXED**
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307	**An Inclusive Science Laboratory for Visually Impaired Students.**	**Ghai, G.;** Raj, R.; Kaur, R.	Electronics	Journal of Engineering Education Transform	2022	73, eISSN 2	https://doi.org/10.16920/jeet/2022/v36i2/22157	file:///C:/Users/pragya/Downloads/JEET_v36i2_October_2022%20-88-101.pdf	https://www.scopus.com/sourceid/21100890669	**SCOPUS INDEXED**
308	**Flexible inventory system of imperfect production under deterioration and inflation.**	Sharma, A.**; Singh, C.;** Verma, P.; Malik, A. K.	Mathematics	Yugoslav Journal of Operations Research,	2022	0354-0243	- https://doi.org/10.2298/YJOR220318025S	file:///C:/Users/pragya/Downloads/FLEXIBLE_INVENTORY_SYSTEM_OF_IMPERFECT_PRODUCTION_.pdf	https://www.scopus.com/sourceid/23492	**SCOPUS INDEXED**
309	**Perturbed Robe's problem with charged bodies.**	Ansari, A. A.; Sahdev, S. K.; Kellil, R.**; Prasad, S. N.**	Mathematics	Romanian Astron. J. , 32(2), 83–94.	2022	5168 / 2285	http://www.astro.ro/~roaj/32_2/2022_02_01.pdf	http://www.astro.ro/~roaj/32_2/2022_02_01.pdf	https://mjl.clarivate.com:/search-results?issn=1220-5168&hide_exact_match_fl=true	**SCOPUS INDEXED**

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311	**Effects of Mass Variation in the Collinear Perturbed Moulton-Copenhagen Configuration.**	Ansari, A. A.**; Yadav, B.**	Mathematics	International Journal of Analysis and Applicatio	2022	2291-8639	https://doi.org/10.28924/2291-8639-20-2022-44	https://etamaths.com/index.php/ijaa/article/view/2619	https://mjl.clarivate.com:/search-results?issn=2291-8639&hide_exact_match_fl=true	**SCOPUS INDEXED**
312	**The Implementation of the Pentagonal Fuzzy Number toward the Solution of the Fuzzy Inventory Model with Ramp Demand Function and Three Parameters**	**Arya, D. D.;** Prakash, S.; Boadh, R.; Chauhan, A.; Rajoria, Y. K.	Mathematics	Neuroquantology, 20(17), 115-124.	2022	1303 5150	https://doi.org/10.14704/Nq.2022.20.17.Nq88017	https://www.researchgate.net/publication/365712215_The_Implementation_of_the_Pentagonal_Fuzzy_Number_towar	–	**PEER REVIEWED**
313	**Optimal strategy for remanufacturing system of sustainable products with trade credit under uncertain scenario.**	Poswal, P.; Chauhan, A.**; Arya, D. D.**; Boadh, R.; Rajoria, Y. K.; Gaiola, S. U.	Mathematics	Materials Today: Proceedings, 69(2), 165-173.	2022	2214-7853	https://doi.org/10.1016/j.matpr.2022.08.303	https://www.sciencedirect.com/science/article/abs/pii/S2214785322054803	https://www.scopus.com/sourceid/21100370037	**Indexed in UGC Care List and SCOPUS**
314	**Space Dependent Study of Fast Neutron Spectra and Tritium Production Rate in a Fusion Reactor Blanket of Li_2O.**	**Bhatia, M .;** Gupta, S.	Physics	Indian Journal of Pure & Applied Physics,	2022	0019-5596	https://www.doi.org/10.56042/ijpap.v60i10.65064	https://nopr.niscpr.res.in/bitstream/123456789/60669/1/IJPAP%2060%2810%29%20833-840.pdf	https://www.scopus.com/sourceid/28036	**SCOPUS INDEXED**
315	**Effect of variation in glancing angle deposition on resistive switching property of WO3 thin films for RRAM devices.**	Lamichhane, S.; Sharma, S.; Tomar, M.; **Chowdhuri, A.**	Physics	J. Appl. Phys. 132, 134102.	2022	0021-8979	https://doi.org/10.1063/5.0103236	https://pubs.aip.org/aip/jap/article-abstract/132/13/134102/2837530/Effect-of-variation-in-glancing-angle-	https://www.scopus.com/sourceid/28132	**SCOPUS INDEXED**
316	**Ensemble-based unsupervised machine learning method for membership determination of open clusters using Mahalanobis distance.**	Deb, S.; Baruah, A.**; Kumar S.**	Physics	MNRAS 515, 4685–4701.	2022	0035-8711 / 1365-2966	https://doi.org/10.1093/mnras/stac2116	https://academic.oup.com/mnras/article-abstract/515/4/4685/6653107?redirectedFrom=fulltext	https://mjl.clarivate.com:/search-results?issn=0035-8711&hide_exact_match_fl=true	**Web of Science**
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323	**Metabolic detoxification and ace-1 target site mutations associated with acetamiprid resistance in Aedes aegypti L.**	Samal, R. R.; Panmei, K.; Lanbiliu, P.; **Kumar, S.**	Zoology	Front. Physiol. 13:988907.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.988907	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9468370/pdf/fphys-13-988907.pdf	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true	**Web of Science**
324	**Evidence of breeding of Jamides Bochus (Stoll, [1782]) (Insecta: Lepidoptera: Lycaenidae) in New Delhi, India**	**Chaudhary, R.;** Kumar, V**.**	Biomedical Science	Bionotes, 24, 252-253.	2022	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2024%203-4/252-253-	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true	**Web of Science**
325	**Sighting of Ruddy Meadow Skimmer Neurothemis Intermedia (Rambur 1842) (Insecta: Odonata:Libellulidae) in New Delhi, India**	**Chaudhary, R.**	Biomedical Science	Bionotes, 24, 254-256	2022	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%2024%203-4/254-256-	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true	**Web of Science**

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331	**Phool: Journey from waste to wealth**	**Kaur, S.;** Bhagat, H.; Kaur, P.N	Commerce	Arthavaan, 5, 65-74.	2022	2455-0353	https://www.bharaticollege.du.ac.in/images/media/IM-6509-BC.pdf	–	–	**PEER REVIEWED**
332	**A Simulation-based Approach to Evaluate and Regulate the Reputation Score of a Software Agent in E-Market.**	Kochhar, S. K.; Soni, A.; Srivastava, S.**; Gaur, V.**	Computer Science	International Journal of Next-Generation	2022	0976-5034	https://doi.org/10.47164/ijngc.v13i3.788	https://ijngc.perpetualinnovation.net/index.php/ijngc/article/view/788	–	**PEER REVIEWED**
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337	**Impact of Climatic Change on Respiratory Health.**	Jain, R.; Aryama, P.; **Chauhan, B.;** Misra, M.**;** Saxena, T.	Zoology	International Journal of Zoological Investigati	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.115	https://www.researchgate.net/publication/366684164_Impact_of_climatic_change_on_respiratory_health_Intern#fullTe	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=tru	**Web of Science**
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340	**Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior Pituitary Hormones in Different**	**Chauhan, B.;** Baweja, V.; Misra, M.;	Zoology	Indian Journal of Natural Sciences, 13, 48415-	2022	0976-0997	https://www.researchgate.net/publication/364310786_Role_of_A_Evolutionary_Con	https://www.researchgate.net/publication/364310786_Role_of_A_Evolutionary_Conserved_Hypothalamic_Neuropept	https://mjl.clarivate.com:/search-results?issn=0976-0997&hide_exact_match_fl=tru	**Web of Science**
341	**Monkeypox: Endemic to Epidemic A review of the current scenario of Monkeypox disease outbreak.**	Thakur, M.; **Bhardwaj, S.**; Singh, J.	Zoology	International Journal for Research Trends	2022	2456-3315	https://ijrti.org/papers/IJRTI2206295.pdf	https://ijrti.org/papers/IJRTI2206295.pdf	https://mjl.clarivate.com:/search-results?issn=2386-4303&hide_exact_match_fl=tru	**Web of Science**

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343	**Axenic propagation of a woody legume - Prosopis cineraria (L.) Duce through cotyledonary node explants**	**Narang, A**. and Shukla, A.	Botany	Intl. J. Multidisc. Edu. Res, 11(2), 16-21	2022	2277-7881	http://ijmer.in.doi./2022/11.02.03	http://s3-ap-southeast-1.amazonaws.com/ijmer/pdf/volume11/volume11-issue2(1)/3.pdf	–	**PEER REVIEWED**
344	**Synthesis, Characterization and Application of Novel Guar Gum-N,N-Dimethylaniline Resin for Waste Water Treatment.**	Raigar, M. B.**, Hooda, S.,** and Bargujar, S.	Chemistry	International Journal of Recent Scientific Research,	2022	0976-3031	10.24327/IJRSR	https://www.recentscientific.com/sites/default/files/17775-A-2021.pdf	–	**PEER REVIEWED**
345	**Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior: An Empirical Analysis.**	Singh, A. K.**, Goel, S. K.,** Shrivastav, R. K., and Chahar, K.	Commerce	Arthshastra Indian Journal of Economics and	2022	2278 - 181	/aijer/2021/v10	https://indianjournalofeconomicsandresearch.com/index.php/aijer/article/view/168221	–	**PEER REVIEWED**
346	**Antibiotic Resistance: A Global Health Crisis**	Solanki, R., Anand, S., Anand, M., Kumar, P., Kumar, M. and **Kapoor, M. K.**	Zoology	Biosphere, 1: 1-70, Pg 3-11.	2022					**PEER REVIEWED**
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349	**Implementation of an Adaptive Artificial Neural Network with Fuzzy Expert System for Diagnoses the Breast and Prostate Cancer: A Hybrid Technique**	Kaur K., Prasad J.S.**, Aarya D.D.**, Krishna H., Tambe V.B., Rajoria Y.K., Boadh R.	Mathematics	Journal of Pharmaceutical Negative Results,	2022	0976-9234	https://doi.org/10.47750/pnr.2022.13.S08.475	https://www.pnrjournal.com/index.php/home/article/view/5595	–	Peer Reviewed

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352	**Recent Trends in Carbon Nanotube Electrodes for Flexible Supercapacitors: A Review of Smart Energy Storage Device Assembly and Performance.**	Das H.T., Dutta S., Balaji T.E., Das N., Das P., **Dheer N.,** Kanojia R., Ahuja P., Ujjain S.K.	Chemistry	Chemosensors, 10 (6), art. no. 223	2022	2227-9040	10.3390/chemosensors10060223	https://www.mdpi.com/2227-9040/10/6/223	https://mjl.clarivate.com:/search-results?issn=2227-9040&hide_exact_match_fl=true	SCOPUS INDEXED
353	**In silico prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2.**	Rani J., Bhargav A., Khan F.I., Ramachandran S., Lai D.**, Bajpai U.**	Biomedical Science	Journal of Biomolecular Structure and	2022	0739-1102 / 1538-0254	10.1080/07391102.2021.1968497	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8425474/pdf/TBSD_0_1968497.pdf	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true	SCOPUS INDEXED
354	**Trifluoperazine (TFP)-mediated fluorescence imaging approach reveals a probable calmodulin (CaM)-independent calcium signaling accompanying differential**	Mukherjee S.**, Kalra G.**, Bhatla S.C	Botany	South African Journal of Botany, 150, pp.	2022	0254-6299	10.1016/j.sajb.2022.08.008	https://www.sciencedirect.com/science/article/abs/pii/S0254629922004276	https://www.scopus.com/sourceid/17257	SCOPUS INDEXED
355	**Breeding System and Response of the Pollinator to Floral Larceny and Florivory Define the Reproductive Success in Aerides odorata.**	Adit A.**, Singh V.K.,** Koul M., Tandon R.	Botany	Frontiers in Plant Science, 12, art. no.	2022	1664-462X	10.3389/fpls.2021.767725	https://www.frontiersin.org/articles/10.3389/fpls.2021.767725/full	https://www.scopus.com/sourceid/21100313905	SCOPUS INDEXED
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357	**Broadband light trapping in a-Si:H based plasmonic solar cells using Au core-Al2O3 shell composite nanospheres using FDTD method.**	Rani M**., Singh U.**, Kashyap J., Kapoor A.	Electonics	Materials Technology, 37 (13), pp. 2598 - 2607	2022	1066-7857	10.1080/10667857.2022.2051938	https://www.tandfonline.com/doi/abs/10.1080/10667857.2022.2051938	https://www.scopus.com/sourceid/27301	SCOPUS INDEXED

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359	**Multiple ionisation and Coulomb explosion in terawatt photoexcitation of Xenon clusters: An experimental and theoretical study.**	Das S., Sharma P**., Singh R.,** Vatsa R.K., Tripathi V.K	Physics	Journal of Photochemistry and Photobiology A:	2021	1010-6030	https://doi.org/10.1016/j.jphotochem.2020.112884	https://www.sciencedirect.com/science/article/abs/pii/S1010603020306 81X	https://www.scopus.com/sourceid/26966	SCOPUS INDEXED
360	**Genome-based reclassification of amycolatopsis eurytherma as a later heterotypic synonym of amycolatopsis thermoflava.**	**Singh P.**, Hira P., Rawat C.D., Lal R., Sood U.	Zoology	International Journal of Systematic and	2021	1466-5026	10.1099/ijsem.0.004642	https://pubmed.ncbi.nlm.nih.gov/33470925/	https://www.scopus.com/sourceid/19761	SCOPUS INDEXED
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362	**Synthesis, comparative in vitro antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 Mpro.**	Singhal S**., Khanna P.,** Khanna L.	Chemistry	Luminescence, 36 (6), pp. 1531 - 1543	2021	1522-7235	10.1002/bio.4098	https://pubmed.ncbi.nlm.nih.gov/34087041/	https://www.scopus.com/sourceid/26988	SCOPUS INDEXED
363	**Structure, Transmission, Diagnostic Symptoms, Host and Entry Mechanism of COVID-19: A Review.**	**Swapnil P.**, Meena M., Barupal T., Sompura Y., Hada D.	Botany	Coronaviruses, 2 (5), art. no. e300421188050	2021	2666-7967	10.2174/2666796701999201116213826	https://www.ingentaconnect.com/content/ben/covid/2021/00000002/00000005/art00003	https://www.scopus.com/sourceid/21101136251	SCOPUS INDEXED
364	**Computational identification and characterization of antigenic properties of Rv3899c of Mycobacterium tuberculosis and its interaction with human**	Das R., Eniyan K., **Bajpai U.**	Biomedical Science	Immunogenetics, 73 (5), pp. 357 - 368	2021	0093-7711	10.1007/s00251-021-01220-x	https://pubmed.ncbi.nlm.nih.gov/34228167/	https://www.scopus.com/sourceid/22271	SCOPUS INDEXED
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Issue 16, 2017

From the journal:
Green Chemistry

One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates †

Xiaofeng Zhang,[a] Gagan Dhawan,[ab] Alex Muthengi,[a] Shuai Liu,[a] Wei Wang,[c] Marc Legris[a] and Wei Zhang *[a]

Author affiliations

Abstract

A method for the catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates is developed through a one-pot synthesis involving denitrogenation of azide, benzisoxazole formation, aza-Diels–Alder cycloaddition, and dehydrative aromatization. Only stoichiometric amounts of N_2 and H_2O are produced as by-products. A comprehensive green chemistry metrics analysis indicated that this method is much more efficient and greener than two reported methods for the synthesis of pyrroloquinolinediones.

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A robust replenishment model for deteriorating items considering ramp-type demand and inflation under fuzzy environment

Archana Sharma, Usha Sharma and Chaman Singh

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ABOUT

Abstract

Supply chain performance directly depends on demand pattern, inventory management and control strategies of organisations apart from other supply chain activities. Effective replenishment policy can increase the performance of logistics and supply chain activities and customer satisfaction. Optimal inventory model can also reduce overall replenishment cost and improve financial performance of the organisation. This study focuses on developing a replenishment model for deteriorating products with ramp-type demand rate under the consideration of inflation and partial backlogging. The nature of the demand function is a piecewise exponential function. The proposed model is developed under fuzzy environment, which can easily handle uncertainty and impreciseness associated with parameters. The illustrative numerical example has given in crisp as well as in fuzzy sense to demonstrate the solution procedure for the proposed approach. Sensitivity analysis is also performed to check the robustness of the proposed model.

Keywords

supply chain, inventory model, ramp-type demand rate, inflation, partial backlogging, fuzzy

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Supply Chain Model with Two Storage Facility for Stock Dependent Demand Incorporating Learning and Inflationary Effect under Crisp and Fuzzy Environment

Chaman Singh, Shiv R. Singh

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Abstract

In this paper, a supply chain model with power form stock-dependent demand rate is developed, incorporating the effect of learning and inflationary environment. In order to bring their research closer to reality, all the cost parameters involved in the model are considered fuzzy in nature. The demand rate is assumed to be a polynomial form of current inventory level in Own-warehouse. To display the items, retailer has one warehouse of finite capacity, treated as own warehouse (OW) and may hire another warehouse of large capacity, treated as rented warehouse (RW) to storage the excess inventory. Learning effect is incorporated on retailer's selling price, purchasing cost, part of holding cost, deterioration cost and ordering cost. Proposed model is illustrated with some numerical example along with sensitivity analysis of parameters.

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Acta Ecologica Sinica
Volume 38, Issue 5, October 2018, Pages 325-328

Inhibition of gut proteases and development of dengue vector, *Aedes aegypti* by *Allium sativum* protease inhibitor

Tooba Naz Shamsi [a], Romana Parveen [a], Afaque Ahmad [b], Roopa Rani Samal [c], Sarita Kumar [c], Sadaf Fatima [a]

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Abstract

The paper describes the bio efficacy of a protease inhibitor; isolated from *Allium sativum* '*garlic*' (ASPI); against Aedes aegypti mosquito, a well-known transmitter of dengue and Chikungunya. The purification of protease inhibitor from *Allium sativum* '*garlic*' (ASPI) was carried out by ammonium sulfate precipitation followed by Fast Protein Liquid Chromatography using akta DEAE-Cellulose column. The protein fraction demonstrating trypsin inhibitory activity was further evaluated for its insecticidal activity using gut protease inhibition assay and larvicidal assay. ASPI is an inhibitor of porcine trypsin (IC_{50} of 650.726 μg/mL) and has molecular weight of ~15 kDa determined by SDS PAGE similar to other inhibitors of the Kunitz-type family (14–26 kDa). ASPI demonstrated 50% reduced activity of *Ae. aegypti* midgut proteases and showed a dose-dependent acute toxicity on *Ae. aegypti* 3rd instars exhibiting LC_{50} value of ~50.827 μg/mL. After ten days of larval exposure ASPI resulted in a 24-h delay of larval development and ~72% mortality at 61.5 μg/mL. These results suggest that ASPI may serve as potent insecticida

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Assessment of *Achyranthes aspera* induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of *Aedes aegypti* L. (Diptera: Culicidae)

Aarti Sharma, Sarita Kumar & Pushplata Tripathi

Journal of Parasitic Diseases **41**, 1066–1073 (2017) | Cite this article

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Abstract

Current studies investigated the anti-mosquito potential of *Achyranthes aspera* against the dengue vector, *Aedes aegypti*. The stems and leaves of *A. aspera* were extracted in hexane and evaluated for their toxicity against early fourth instars of *A. aegypti*. The larvicidal efficacy of the extract was validated as per WHO protocol. The mortality counts were made after 24 h and LC values were calculated at different levels. The adverse impact of extracts was also explored on the larval genomic DNA. The larvae were exposed to extracts at LC_{50} levels and the alterations in *g*-DNA was evaluated through RAPD-PCR technique using three random primers; MA-09, MA-12 and MA-26. Our investigations ascertained the larvicidal efficacy of both the leaf and stem extracts of *A. aspera* resulting in respective LC_{50} values of 0.068 and 0.082 mg/mL. The extracts also caused variable genotoxic effects with significant changes in the RAPD profiles. The results showed appreciable modifications in larval *g*-DNA with loss of certain bands and gain of unique bands with 82.35% DNA polymorphism. These alterations suggest the probable DNA damage and mutations in the larval *g*-DNA caused by certain phytocomponents which could be the possible reason of larval mortality. Our studies evidenced the anti-mosquito potential of *A. aspera* extracts against *A. aegypti* causing appreciable larval mortality and significant changes in *g*-DNA. The *A. aspera* extracts are suggested as efficient and eco-friendly control agent against *A. aegypti*, yet further investigations are needed to identify the bioactive constituent and ascertain its effectiveness in the field conditions.

Access provided by University of Delhi.

A facile and rapid method for green synthesis of *Achyranthes aspera* stem extract-mediated silver nano-composites with cidal potential against *Aedes aegypti* L.

Aarti Sharma [a], Sarita Kumar [b], Pushplata Tripathi [a]

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Abstract

Aedes aegypti L. is the primary vector associated with transmission of globally concerned diseases; Zika, yellow fever, dengue and Chikungunya. Present study investigates an efficient, alternative and comparative approach for mosquito control which is safe to environment and non-target organisms. The silver nano-composites (AgNCs) were synthesized from the aqueous stem extract of *Achyranthes aspera* (AASE) using different concentration of aqueous silver nitrate ($AgNO_3$). The synthesis was tracked by UV-vis spectrophotometer and particle size analyser (DLS). The evaluation of their larvicidal potential against early fourth instars of *Ae. aegypti* showed significant potency, the toxicity increasing with the concentration of silver nitrate. The 24, 48 and 72 h bioassays resulted in respective LC_{50} values of 26.693, 1.113 and 0.610 μg/mL (3 mM AASE-$AgNO_3$) 9.119, 0.420 and 0.407 μg/mL (4 mM AASE-$AgNO_3$) and that of 4.283, 0.3 and 0.248 μg/mL (5 mM AASE-$AgNO_3$). Keeping in view the significantly high larvicidal efficiency at lower concentration of silver nitrate, the 4 mM nano-composites were selected over 5 mM composites for further biophysical characterization carried out by X-ray Diffraction (XRD), Fourier transform infrared spectrometer (FTIR), Scanning electron microscopy (SEM), Energy dispersive X-ray (EDX) spectroscopy and Transmission electron microscopy (TEM). SEM and TEM confirmed the synthesis of spherical poly-dispersed AgNCs with average size ranging from 1–30 nm. Characterization through XRD showed the crystalline face-centered-cubic (fcc) structure of AgNCs with the highest intense peak obtained at 2θ value of 31.82°. FT-IR data suggests complex nature of AgNCs showing clearly defined peaks in different ranges. The present investigations recommend AgNCs of *A. aspera* stems as a low-cost and eco-friendly alternative to chemical insecticides for mosquito control.

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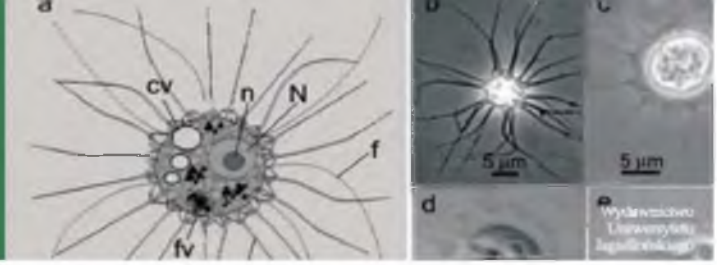

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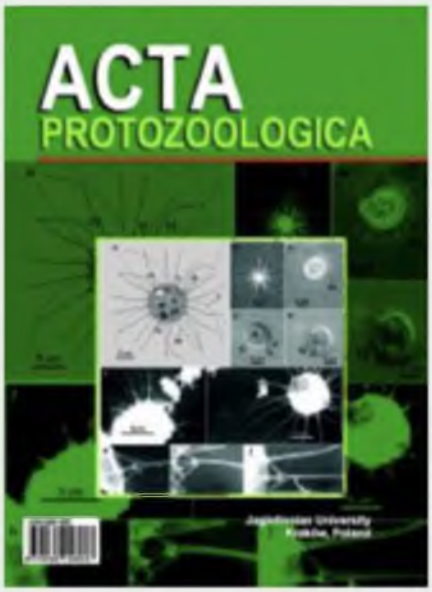

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HAYATI Journal of Biosciences
Volume 24, Issue 4, October 2017, Pages 215-220

Original Research Article

Diversity and Abundance of Ammonia-Oxidizing Bacteria and Archaea in a Freshwater Recirculating Aquaculture System

Cherita Devi Khangembam [1], Jai Gopal Sharma [2], Rina Chakrabarti [1]

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Abstract

The role of ammonia-oxidizing bacteria and archaea was evaluated using *amoA* gene in a freshwater recirculating system. Broken earthen pot pieces (BEP) were used as filter bed material. Five archaeal and four bacterial operational taxonomic units were retrieved from *amoA* genes. Shannon-Weiner and Simpson indices were higher in archaeal *amoA* sequence compared with the bacteria. Subtype diversity ratio and subtype diversity variance were 0.522 and 0.008, respectively, for archaea and 0.403 and 0.015, respectively, for bacteria. In archaea, 50% *amoA* sequences showed 99%–100% similarity with the known sequences of ammonia monooxygenase subunit A of uncultured archaeon clones and thaumarchaeote. In bacteria, 84% sequences showed 99% similarity with *amoA* sequences of different uncultured bacterial clone and Nitrosomonadaceae. Absolute quantification showed that the abundance of archaea was 12-fold higher compared with bacteria. In this recirculating system, ammonia-oxidizing archaea and bacteria played a major role; BEP supported the growth of these ammonia-oxidizing microorganisms.

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Beyond the "Code": A Guide to the Description and Documentation of Biodiversity in Ciliated Protists (Alveolata, Ciliophora)

Alan Warren, David J. Patterson, Micah Dunthorn, John C. Clamp, Undine E.M. Achilles-Day, Erna Aescht, Saleh A. Al-Farraj, Saleh Al-Quraishy, Khaled Al-Rasheid, Martin Carr, John G. Day ... See all authors

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About | Sections

Abstract

Recent advances in molecular technology have revolutionized research on all aspects of the biology of organisms, including ciliates, and created unprecedented opportunities for pursuing a more integrative approach to investigations of biodiversity. However, this goal is complicated by large gaps and inconsistencies that still exist in the foundation of basic information about biodiversity of ciliates. The present paper reviews issues relating to the taxonomy of ciliates and presents specific recommendations for best practice in the observation and documentation of their biodiversity. This effort stems from a workshop that explored ways to implement six Grand Challenges proposed by the International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC). As part of its commitment to strengthening the knowledge base that supports research on biodiversity of ciliates, the IRCN-BC proposes to populate *The Ciliate Guide*, an online database, with biodiversity-related data and metadata to create a resource that will facilitate accurate taxonomic identifications and promote sharing of data.

THE nomenclature of ciliates and other heterotrophic protists (sensu Adl et al. 2012) is governed by the International Code of Zoological Nomenclature ("the Code") that provides rules for naming taxa up to the level of family (ICZN 1999). The Code regulates nomenclatural issues, and it also establishes minimal standards for documenting newly described species. These are deliberately general and suited more to the study of animals than protists. In particular, the rule to deposit type specimens in permanently curated repositories (ICZN 1999, Art. 16.4.2 and Art. 75.3.7) has, over time, generated a database of material that not only has fixed names but also has formed the nucleus of large museum collections. These collections provide a wealth of information about the variability and biogeography of species and represent a potential source of DNA for investigations of molecular phylogenetics.

For ciliates and many other protists, the logistical difficulties imposed by their small size meant there was no convention for depositing type specimens until the latter part of the 20th century, when deposition of permanently stained preparations or other physical specimens (e.g. on SEM stubs) began to be required as type material for taxonomic descriptions or redescriptions. In addition, new methods of visualizing morphology and sequencing genes have been introduced over the last several decades, but there are no formal standards for application of these methods to taxonomic identifications or descriptions of ciliates, despite recent recommendations (Aescht 2001, 2008; Foissner 2002; ICZN 1999; Lynn and Simpson

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Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea: Ciliophora) from Delhi, India

Jeeva Susan Abraham[1], S. Sripoorna[1], Ashish Choudhary[1], Ravi Toteja[1], Renu Gupta[2], Seema Makhija[1,*] and Alan Warren[3]

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In vitro **laboratory experiments were conducted to determine the toxicity (per cent survival and LC_{50}) of essential and non-essential heavy metals (cadmium, copper, nickel, lead and zinc) in four spirotrich ciliates: *Euplotes* sp., *Notohymena* sp., *Pseudourostyla* sp. and *Tetmemena* sp. isolated from three different freshwater ecosystems in the Delhi region, India. The toxicity of the heavy metals was found to vary among the different ciliates. Copper was most toxic (24 h-LC_{50} value ranged between 0.125 and 0.74 mg/l) and zinc was least toxic (24 h LC_{50} value ranged between 46.98 and 144.32 mg/l) to each of the ciliates. Of the four ciliates, *Notohymena* sp. had the highest tolerance limit to three heavy metals (Cu, Cd and Pb) out of the five tested. This study shows the high potentiality of using freshwater ciliates for monitoring the intensity and potency of ecological damage caused by heavy metals in aquatic ecosystems.**

Keywords: Ciliates, freshwater, heavy metals, toxicity.

THERE is a global increase in the concentration of heavy metals in the environment mainly due to anthropogenic activities and India is no exception to this[1]. Although some heavy metals are essential micronutrients, all may be toxic if present in sufficiently high concentration in a bioavailable form, mainly as a result of metabolic interference and mutagenesis. The presence of heavy metals in aquatic environments is a major concern because of their threat to plant and animal life, thus disturbing the natural ecological balance[2]. Many freshwater ecosystems, including lakes, ponds, rivers and reservoirs are exposed to heavy metal contamination from a range of sources, primarily wastewater discharges from industry and households[3,4]. Most of the heavy metals have a long half-life and cannot be degraded, but may instead bio-accumulate throughout the food chain leading to physiological stress causing ecological disturbance[5–7].

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Toxicity of various heavy metals can be studied using ciliated protists[8–10]. These eukaryotic microorganisms are found in a variety of trophic niches, have generation time of 3–7 h and many are easy to culture *in vitro*[11]. Ciliates share a higher degree of functional and genetic similarities with humans than bacteria or yeast (microbial eukaryotic model organism)[12–14]. All these properties make them suitable candidates both for eco-toxicological studies and for monitoring water quality[15–17].

In the present study, we assess the toxicity of essential (Cu and Zn) and non-essential (Cd, Ni and Pb) heavy metals on ciliated protists isolated from three different freshwater ecosystems (river, lake and pond) in the Delhi region, India. The diversity of free-living ciliates in the study sites was observed for a period of one year. The most frequently encountered ciliate species were from four genera, namely *Euplotes*, *Notohymena*, *Pseudourostyla* and *Tetmemena* (Figure 1) and all were easily cultured under laboratory conditions. Toxicity assays were carried out *in vitro* in order to determine the sensitivity and survival of *Euplotes* sp., *Notohymena* sp., *Pseudourostyla* sp. and *Tetmemena* sp. to different doses of heavy metals.

Materials and methods

Study area

Delhi is located in northern India. It is bordered by the states of Haryana to the north, west and south, and Uttar Pradesh (UP) to the east. Prominent features of the geography of Delhi include the floodplains of River Yamuna. In the present study three sites were selected in different ecological regions of Delhi.

Site 1: Okhla Bird Sanctuary (28.5700°N, 77.3023°E): This is a bird sanctuary at the Okhla Barrage over the Yamuna. The site is located at the point where the river exits Delhi and enters UP. The most prominent feature of the sanctuary is the large lake created by a dam over the

Indian Journal of Experimental Biology
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Influence of copper and cadmium toxicity on antioxidant enzyme activity in freshwater ciliates

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Though metals are biologically important, increase in the threshold concentration of heavy metal in the environment may interfere with the metabolic activity of organisms. Heavy metal stress induces production of reactive oxygen species (ROS) *viz.* hydroxyl radical, superoxide radical or hydrogen peroxide (H_2O_2). Various antioxidant enzymes such as superoxide dismutase, ascorbate peroxidase, catalase, glutathione peroxidase and peroxiredoxin of SOD-ascorbate-glutathione cycle get activated during such stress. These enzymes are involved in ROS detoxification , and thereby protect the cells from oxidative stress. In this study, we explored activity of the antioxidant enzyme, superoxide dismutase (SOD) in the presence of heavy metals i.e., Cu and Cd in three freshwater ciliates, *Tetmemena* sp., *Notohymena* sp. and *Euplotes* sp. Heavy metals negatively affected the population growth of chosen ciliates which was measured as 24 h-LC_{50}. The 24 h-LC_{50} doses of Cu and Cd, respectively were 0.14 and 2.44 mg/L for *Tetmemena* sp.; 0.74 and 5.06 mg/L for *Notohymena* sp.; and 0.17 and 2.24 mg/L for *Euplotes* sp. The levels of SOD were found to be significantly higher in the presence of Cu and Cd. Interestingly, exposure with Cu increased the SOD level at LC_{30} and LC_{50} doses, however, at higher concentration of Cu (i.e., LC_{70} dose), SOD level decreased. The results suggest that SOD may be used as an effective enzymatic biomarker to evaluate the toxic effects of heavy metals in the ciliate species.

Keywords: *Euplotes* sp., Heavy metal stress, *Notohymena*, Oxidative stress, ROS, SOD, Spirotrich ciliates, *Tetmemena* sp.

Heavy metals increase reactive oxygen species (ROS) production and eventually induce oxidative stress in both aquatic and terrestrial organisms[1-6]. Heavy metals with redox activity (Fe, Cu) are directly involved in ROS production by Fenton/Haber-Weiss reaction or by autoxidation. Also, metals with non-redox activity (Cd, Zn, Hg) can produce ROS indirectly by blocking the cellular antioxidant defenses[7,8]. ROS (such as superoxide radicals, hydrogen peroxides and hydroxyl ions) are involved in various pathological processes including lipid peroxidation[9,10]. These radicals cause much of the tissue damage resulting from inflammation and can eventually induce cell death by apoptosis/ necrosis[10,11]. Cells under oxidative stress show various dysfunctions due to significant changes caused by ROS on proteins, DNA and cellular lipids[2,11]. Various anti-oxidant enzymes (such as superoxide dismutase, ascorbate peroxidase, catalase glutathione peroxidase and peroxiredoxin) are known to be involved in ROS detoxification (Fig. 1) and in protecting the cells from oxidative stress[7,12].

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Superoxide dismutase (SOD), which gets activated in response to oxidative stress at first, plays a major role in catalyzing the dismutation of superoxide anion ($O_2^{\cdot-}$) into O_2 and H_2O_2[13,14]. SOD exists in several isoforms including cytosolic copper-zinc SOD (SOD-1), mitochondrial manganese SOD (SOD-2)[15] and extracellular/chloroplast iron SOD (SOD-3)[14,16].

A major hydrogen peroxide (H_2O_2) detoxifying system in the cells is ascorbate-glutathione cycle, where ascorbate peroxidase (APx) plays a key role in catalyzing H_2O_2 into H_2O using ascorbate as a specific electron donor[12]. GSH is a tripeptide (L-γ-glutamyl-L-cysteinylglycine) synthesized in two consecutive steps catalyzed by γ-glutamyl-cysteine synthase and glutathione synthetase[17]. GSH also acts as substrate for glutathione peroxidase (GPx) to catalyze hydrogen peroxide[7]. Changes in these antioxidant enzymes including ASC-GSH cycle enzymes have been observed in various organisms exposed to different abiotic stress including heavy metals. Overexpression of any of these enzymes by a particular organism has shown higher resistance to the abiotic stress as compared to the organisms under-expressing these enzymes[18,19]. Studies on heavy metal induced oxidative stress and generation of ROS have

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Assessment of particulate matter (PM) concentrations at a typical construction site in Bangalore, India

Arijit Chowdhuri, Charu Khosla Gupta

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Abstract
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Abstract

Construction sites pose a major challenge to the environment due to presence of different types of particulate matter (PM). Concentration of particulate matter is a typical indicator for urban air quality. Although it has long been recognised that construction activities are a pertinent source of PM emissions, not much research has gone in this direction. The investigation envisages quantification of the PM emissions at a construction site for particulates having varying aerodynamic diameters fine particles 2.5 &

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Distinct detection of liquor ammonia by ZnO/SAW sensor: Study of complete sensing mechanism

V. Bhasker Raj [a], Harpreet Singh [b], A.T. Nimal [b], M.U. Sharma [b], Monika Tomar [c], Vinay Gupta [d]

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Abstract

ZnO/SAW sensor was reported to give distinct response towards liquor ammonia. To study the complete mechanism, ZnO thin films (40 nm) were deposited using rf sputtering in different reactive gas composition of argon and oxygen. The increase in oxygen content (30–100%) during film growth leads to decrease in the value of stress and bond energy. The individual contribution of different SAW sensing mechanisms such as mass loading, elastic effects and acousto-electric interaction, was evaluated and analyzed to understand the distinct response for liquor ammonia. It was found that mass loading seems to get affected by the presence of stress whereas elastic loading was affected by the crystallite size and bond energy (Zn—O) in ZnO thin films.

Sensitivity Enhancement Studies of SAW Vapor Sensor by Oscillator Tuning Using Varactor Diode

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Abstract

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II. Theory

III. Experimental

IV. Results & Discussions

V. Conclusions

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Keywords

Metrics

Abstract:

This paper reports the designing of surface acoustic wave (SAW) oscillator with varactor diode (or varicap) as a part of tuning element. A practical way to enhance sensitivity of SAW sensor oscillator is performed by tuning capacitance using varicap. The varactor diode is placed at three different locations of the oscillator circuit to realize three different configurations. The change in frequency with applied voltage to varactor diode is studied for all three configurations. Sensitivity study for the three configurations is carried out with di-methyl methyl phosphonate vapor. The sensitivity, stability, and noise of each configuration are analyzed. Using varicap, about six times enhancement in sensitivity (~1.15 kHz/ppm) could be achieved. A simple and additive electronic method of tuning is utilized to improve sensitivity as compared with other methods that involve major changes in the sensor.

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Alterations in the Reactive Oxygen Species in Peripheral Blood of Chronic Myeloid Leukaemia Patients from Northern India

Sunita Jetly,[1] Neha Verma,[2] Kumar Naidu,[3] Muneeb Ahmad Faiq,[4] Tulika Seth,[5] and Daman Saluja[6]

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Abstract

Go to: ▸

Introduction

There is a significant difference in the Reactive Oxygen Species (ROS) levels of Chronic Myeloid Leukaemia (CML) patients before and during treatment with Tyrosine Kinase Inhibitors (TKIs). This is because high ROS levels support oncogenic phenotype of CML by inducing proliferation pathway and accumulation of further genetic mutations. Often the measurement is done on WBC or serum for ascertaining one type of ROS species, but measurement of global ROS in fresh whole blood will give more accurate estimation of ROS.

Article Details

An Analysis upon Various Strategies for Redesign and Direct Evolution of Enzyme Engineering | *Original Article*

— Sudha Vipin Sharma*, Sunita Hooda, in *Journal of Advances in Science and Technology* | *Science & Technology*

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ABSTRACT

Enzymes are biocatalysts evolved in nature to achieve the speed and coordination of nearly all the chemical reactions that define cellular metabolism necessary to develop and maintain life. The application of biocatalysis is growing rapidly, since enzymes offer potential for many exciting applications in industry. The advent of whole genome sequencing projects enabled new approaches for biocatalyst development, based on specialised methods for enzyme heterologous expression and engineering. The engineering of enzymes with altered activity, specificity and stability, using sitedirected mutagenesis and directed evolution techniques are now well established.

The use of enzymes in industrial applications has been recognised for providing clean processes with minimal impact on the environment. Enzyme engineering is undergoing the most profound and exciting transformation in its history. It promises unprecedented expansion in the scope and applicat[illegible]f modified or improved enzymes with desired physi[illegible]l catalytic properties. Two complementary strategies are cu[illegible]ly available: rational redesign and directed evolution. Although

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Comparative study of Removal of Cu and Pb from Aqueous Solution by using Rice Husk Ash as an Adsorbent

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Abstract:- The adsorption efficiency of Rice husk ash powder for the removal of Cu and Pb was studied as Rice husk ash consist of silica , alumina , mangnesium oxide , calcium oxide etc. The research is a batch scale experiment using different amount of adsorbent in solution with five different concentrations (5, 10, 15, 45,100 mg/L) of both metals and in mixed combination. About 92% to 100% Cu removal achieved by using 0.5 to 1.5 g adsorbent for solution having concentration of 5 and 10 mg/L of Cu. Two main things comes out by the above study, first, the adsorption efficiency depends on the amount of adsorbent as the adsorption efficiency of Pb was increased from 80% to 100% in the same solution (5mg/L). it was also found that adsorption efficiency decreased about 2.5 % and 5.8% of Cu and Pb to mixed metal solution, which clearly indicates that the presence of more metals in the solution will decrease the adsorption efficiency.

I. INTRODUCTION

The release of industrial effluents containing heavy metals to the river water causes several adverse effects. Water is essential to all forms of life and makes up 50-96 % of the weight of all plants and animals. It is also a vital resource for agriculture, manufacturing and other human activities. In urban areas, the careless disposal of industrial effluents and other wastes in rivers & lakes may contribute greatly to the poor quality of river water [1-4]. African countries and Asian countries experiencing rapid industrial growth and this are making environmental conservation a difficult task[5] . Heavy metals are dangerous environmental pollutants due to their toxicity and strong tendency to concentrate in environment and in food chains[6-7] . The source of environmental pollution with heavy metals is mainly industry, i.e. metallurgical, electroplating, metal finishing industries, tanneries, chemical manufacturing, mine drainage and battery manufacturing [8]. Considerable research been carried out over the last decade on the protection against plant and animal life degradation. Several big cities contribute to increase this problem, as they are sources of industrial effluents. In order to reduce the environmental pollution, a number of studies been considered to minimize the problems caused by the commonly employed treatment of metal bearing effluents [9-10]. Removal of metals from wastewater achieved principally by the application of several processes such as adsorption[6], sedimentation[11], electrochemical processes[12], ion exchange[13] ,cementation[14], coagulation/flocculation[15] , filtration and membrane processes[16] Chemical precipitation and solvent extraction[17-18] . Adsorption is the one of the important procedure for the removal of heavy metals from the environment because of strong affinity and high loading capacity. Moradabad also known as Brass City of India situated at a distance of 167 km from the national capital, New Delhi (NH 24), on the bank of river Ramganga and located at 28.830 N 780 E. It has an average elevation of 186 meters (610 feet) above sea level. The city has seen rapid industrialization during last few decades. The city is full of brass and steel industries. Most of these industries are in unorganized sector and thus have unplanned growth leaving to high degree of air, water and soil pollution[19-20] . The most of the industries are dumping their effluents in Ram Ganga River pass from the heart of the city. A large number of small-scale manufacturing units of brass been also situated in the heart of the city. As Copper, Zinc & Lead and its compounds used in brass industries, the continued intake of copper and lead by humans leads to severe diseases like mucosal irritation, depression and most dangerous lung cancer. Therefore, there is a considerable need to treat industrial effluents containing such heavy metals prior to discharge to protect public health. The metal needs to be removed from industrial effluents before discharge into the environment to minimize any impact on plant, animal and human beings. In the present study, adsorption potential of low cost adsorbent (Rice husk ash) towards Cu and Pb has been examined.

II. MATERIAL AND METHODS:

Adsorbents The RHA from Amrit Vanaspati Company Ltd Punjab, India. It was washed with distilled water until the pH was constant, dried in an oven at 105°C for 24 h. It was cooled in incubator and determined its size distribution by USA Standard Sieve (≤125, 125-250, 250-500 μm). The size distribution results are shown in Table 1. Thus, studied particle size was 250-500 μm. Preparation of Modified Rice Husk Ash

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Developing a Low Cost Activated Carbon from Agricultural Waste for the Removal of Heavy Metal from Contaminated Water

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[3]Scientific and Applied Research Center [SARC], Meerut, Uttar Pradesh, India.

Abstract

Rice husk ash is find out from the burning of agricultural waste material in paper industry due to it abundantly available in rice-producing countries. Activated carbon of rice husk (ACRH) was used to remove Cr(VI) from waste water. In this study we also use of the Batch process for study of the effect activated carbon of rice husk for Cr(VI) removal from aqueous solutions. In this paper we also studies of pH effect, contact time, adsorbent dose were examined. The removal decreased from 86.2 to 44.2% by increasing the Cr(VI) concentration from 1.5 to 5.0 mg/l. Removal, however, decreased from 80.0 to 42.2% by increasing the adsorbent particle size from 50 μm to 150 μm. The adsorbed dose of Cr(VI) tend to increase with the increase of pH. It has been found that low cost and high capabilities of the ACRH make it potentially attractive adsorbent for the removal of Cr (VI) from wastewater.

Keywords: Removal; Rice Husk ; Adsorption ; pH; water; Activated Carbon of rice husk etc.

INTRODUCTION

Chromium is an important heavy metal, and it is generally used in leather industry, electroplating, metal processing and paint and pigment. Removal of heavy metals by adsorption is an turn up field of research [5], Activated carbon is an effective adsorbent

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Sportsmen's energy package *Cordyceps sinensis*: Medicinal importance and responsible phytochemical constituents

AUTHOR(S): Yogesh Chandra Joshi, Mukesh Chandra Joshi, Vivek Chopra, Rakesh Kumar Joshi, Rajni Kant Sharma and Vikrant Kumar

ABSTRACT:

Yarsagumba (*Cordyceps sinensis*) is one of the world rarest fungal species that parasites on the body of a caterpillar of a moth and found underground of alpine grass at high altitude. The *Cordyceps sinensis* is known as "summer plant and winter insect" or "*half*-caterpillar-*half*-mushroom". This fungus used for various medicinal purposes, caring diseases and specially used as a food product in China and south Asian countries. It contains various biologically active pharmacophores which helps to maintain the health and body. Reports say that, the regular use of *Cordyceps*, is very useful for sportsperson to maintain their body balance, endurance, strength, and to make healthy body weight etc. On the basis of scientific and manmade facts, we tried to summarise, why *Cordyceps* is recommended to sport person as a physical booster. It contains various bioactive pharmacophores including essential oil, which are medicinally important. Thus body always looks for such type of dietary supplements.

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Online Signature Verification: A Review

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Abstract: *In past few decades Online Signature Verification have been employed in many applications such as security control, banking, law enforcement etc. A number of techniques have been proposed in the realization of reliable signature verification system such as Dynamic Time Wrapping (DTW), Hidden Markov Model (HMM), Support Vector Machine (SVM) and Neural Networks (NN)In this paper we have presented a review of research carried out in recent field of online signature verification and made a qualitative analysis of these state-of-the-art approaches.*
Keywords: *Signatures, Verification, fraudulence, feature Extraction, training, Forgery*

I. Introduction

Biometrics is the utilization of physiological traits (face, iris, and fingerprint) or behavioral traits (signature, voice) for the verification of an individual identity. Biometric based authentication system is a trustable alternative to the password-based security systems as it is relatively hard to be forgotten, stolen, or guessed.

Signature being a behavioural biometric it is mainly used in the banks to verify the checks and accounts. Unlike physiological biometrics, it is fraught with problem of change over a time and it is not difficult to forge. One of the main challenges in signature verification is related to the signature variability. While signatures from the same user show considerable differences between different captures (high intra-class variability), skilled forgers can perform signatures with high resemblance to the user's signature (low intra- class variability). Signature verification aims at using such properties for making reliable authentication. However the wide spread acceptance of the signature by the public makes it more suitable for certain lower-security authentication needs. However, signature verification is a challenging task due to practical constraints. For instance, MasterCard estimates a $450 million loss each year due to credit card fraud, likewise some billions of dollars being lost because of fraudulent encashment of checks. Reliable automatic signature verification could be a proper solution to reduce such losses since handwritten signatures are already involved in the credit card transactions and bank checks encashment.

1.1 The Signature Verification Modes

There are two modes to the signature verification depending on how the signatures are collected from a user.

Offline (static) Signature Verification: In this mode data is acquired by scanning handwritten signatures which are then processed as static images. The verification is based on these static signature images. This mode is useful in automatic verification of signatures obtained from bank checks and other paper documents.

Online (dynamic) Signature Verification: In this mode the signatures are captured by social hardware (e.g. smart pens or pressure sensitive tablets) which is capable of measuring dynamic properties of a signature in addition to the shape, while shape is the only information in offline signatures. Dynamic information (e.g. pen pressure) makes the signature more unique and more difficult to forge.

Applications of online signature verification include identity verification in payments using a credit card; authorization of computer users for accessing sensitive data or programs, authentication of individuals for accessing physical devices or buildings, and protection of small personal devices from unauthorized usage.

Online signature verification is more robust, reliable and accurate than offline signature verification as its dynamic properties make the process of forging an online signature more difficult. Therefore online signature has become an attractive biometric method as it facilitates the authentication of the internet transactions and contracts (e-commerce, e-banking, e-business, e-contract).

Need

Signature is a special characteristic of any person. By the help of signature we can identify the person. In today day to day life as we talk about the verification of any person, we normally verify them by two ways firstly by face and secondly by signature. In banking or security system the person is normally verified by his or her signature. Hence we can say that the signature is alternate way to identify the person. In most of the organizations, the signature is normally verified by their experts by matching old signature's samples.

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Comparative Analysis on Path Planning Algorithm's on Mobile Robot in Image Processing

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Abstract:- *This paper presents an analysis on different path planning algorithms for mobile robot in static environment. It investigates three well known path panning algorithms and compared their performance on the basis of their working parameters and the computation time to find the solution. It also finds the shortest distance for the static environment and compared the computational distance from start to goal point at different levels for all the three algorithms. It has been tested at different shape of the image and computational time and length for all the three algorithms and verified. Image processing places an important role in the field of mobile robot navigation. There are different methods are used for navigation. In this paper, we reviewed around 23 papers are briefly described the amount of existence of the work for each motion planning approach. This paper includes a comparative study using C++ based approach on mobile robot with respect to image processing. Showing how the behavior and activity of the research paper has taken a change towards the navigation processes which controls navigation using NFT , A*and D*Lite algorithms. It has been seen that many times the researchers use image processing technique for obstacle avoidance or it use singles from gesture control or it takes the help of smart phone with sensor to find the obstacle to reach the destination. Finally some open areas and challenging topics are discussed. There are many different algorithms developed for the path planning by researchers in the field of robotics, water based resources, navigation and internet based games. The algorithms used in this field is A*, D* Lite and NFT (neighbour finding technique). Here we compared three algorithms and established a comparison path based approach to differentiate both the algorithms. We used a grid search technique using A* algorithm and quad tree approach using neighbour finding technique algorithm and also we used a DDA algorithm to optimize the NFT based path planning approach and compared.*

Keywords: *Path Planning, Algorithms, Grid search, Quad Tree, NFT (Neighbour finding technique), D*Lite, Digital Differential Analyzer (DDA).*

I. INTRODUCTION

The field shortest path planning is closely related to robotics where as the algorithms used here applied in different fields as per the requirement. Planning mobile robot is a challenging task for mobile robot navigation and also researchers provided different approaches for the shortest path planning strategies in the field of mobile robot games and many more applications. Each plan has its own advantage and disadvantage the basic goal is to reach the robot from source to destination. Here we used grid search and quad tree based path planning method for path planning with the help of A* algorithm[3,16] , Neighbour finding method[6,7] and D* Lite[8] to verify the difference in their approach .Here we have presented a real image presented in the form of square picture shape and represented at different part of the block as shown in the fig1 (a, b, c).The boundary is taken as (80,80) and (400,500).In this paper we planned for robots for different algorithms. First we represent the image as a square of different size then embedded these different size images in the (80,80) and (400,500) screen size. After the design is proposed all used algorithms introduced and applied on the image to find the shortest path. These all are it are simulated and the result is compared.

II. THE APPROCH

The quadtree initially come up with [4] , It is an approach where the complete tree is represented as a square and the square is divided in to four sub branches of equal size ad shown in fig 1(a) as row1 and coum1(R1C1) and row1colum2(R1C2) and also the tree form in a said form that each node has four different quadrants as shown in fig 1(b,c) While dividing the [6] image into four quadrants each node has four sons each node represented with(R1C1,R1C2,R2C1,R2C2).

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IMPACT OF DDA OPTIMIZATION ON MOBILE ROBOT PATH PLANNING FOR MIXED IMAGE IN IMAGE PROCESSING

Rama Kanta Choudhury, Chandra Kanta Samal

ABSTRACT

Existing problem solving in the day to day environment requires computational intelligence. Path planning is one of the most important technologies in the navigation of the mobile robot, which should meet the optimization and real-time requests. The objective of the paper is to present a noble approach to find the efficient and effective path planning for mobile robot. Here first the image is located on the graph and then a quadtree is formed, according to the working space image with respect to the obstacle image. Then the NFT algorithm is used to obtain the shortest path from the start point to the goal point in the graph. Finally the DDA optimization algorithm is adopted to get the optimal path. Aiming at the shortcoming of the DDA algorithm which is easily plunging into the local minimum, DDA algorithm with NFT is put forward. The results of the simulation demonstrate the effectiveness of the proposed method, which can meet the real-time requests of the mobile robot's navigation. Here we have taken two different types of images, one square shape and other is mixed image of different shapes like triangle and circle. The working space is tested and result is verified using NFT Algorithm with DDA optimization.

KEYWORDS

DDA, Grid search, Quadtreee, NFT (Neighbour finding technique)

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Target Assignment in Robotics and its Distance Optimality Using DDA Optimization in Image Processing

IJSRM
INTERNATIONAL JOURNAL OF SCIENCE AND RESEARCH METHODOLOGY

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Keywords: DDA, Grid search, Quadtree, NFT (Neighbour finding technique)

ABSTRACT

Many difficult problems solving require computational intelligence. One of the major directions in artificial intelligence consists in the development of efficient computational intelligence algorithms, evolutionary algorithms, and neural networks. Some systems operate in isolation or cooperate with each other, some optimized techniques are used to resolve the mobile path planning, DDA is one of them. The behavior could emerge an intelligence called systems intelligence, and intelligence of a system. The shortest path planning approach and its optimization for the mobile robot in a static and dynamic environment are the major tasks in the field of Robotics. In the present day environment finding collision-free, the shortest path is the fundamental issue in the path planning. In the mobile robot, the processing time and reaching time is very important. The path time is to be reduced so that the complexity is reduced. During the process, it is found that few algorithms have its own advantages and disadvantages. Here we presented a DDA optimization technique for optimization.

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Mobile Robot Path Planning Approach: A Review

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Abstract

The shortest path planning approach and it's optimization for mobile robot in static and dynamic environment is the major task in the field of Robotics. In the present day environment finding collision free shortest path is the fundamental issue in the path planning. We have reviewed 100 papers on path finding technique in static and dynamic environment. Path planning in static environment is easy as compared to dynamic environment as in dynamic environment the obstacles are moving. Whereas optimizing the path is difficult in the static environment as well as in the dynamic environment. As per the timing is concerned, the path time is to be reduced so that the complexity is reduced. During the review process it is found that few algorithms have its own advantages and disadvantages as presented. Also a comparative study of different path planning techniques for static and dynamic environment is provided in this paper. The main focus in this review is to find the shortest path efficiently and effectively.

Keywords: *Path Planning, Algorithms, Grid search, Quad Tree, NFT (Neighbour finding technique), D*Lite*

1. Introduction

The survey is distributed into different sections as per our requirement, the main aim of this survey is to find the shortest path from source to destination with known and unknown environment in the presence of obstacles or when the obstacles come on the way. Mobile robots are authorized to move automatically from one point to other to reach their destination. They choose their own path to reach their destination without any hindrance with their preplanned path [1]. This paper provides a review of such papers based on their way to reach the target with the specified algorithms. Here we have reviewed many approaches and implemented. Efficient path planning approach is very important for mobile robot to follow the path. Here the main approach of the review is to find the different algorithms used and approached to find the shortest path from source to destination. Here the configuration of the robot is described by number of obstacles based on their position and sense of direction of the robot in the 2D and 3D environment [2]. A clear idea of planning and computing of collision free path is presented with given points with different algorithms. While reviewing papers we found that in mobile robot navigation, researchers used many algorithms out of which are A*, D* and D*Lite algorithm with grid search and quad tree methods [2][3][4][10][12][13]. ***The task of moving robots in mapped environments is a step by step approach; planning of the paths, optimal by certain criteria and controlling the robot to execute the planned paths. In this path planning, the task of finding a collision free path is to lead a robot from the initial configuration to the goal configuration among a set of obstacles. Generally, obstacles are modeled as polygons. The initial and the goal configurations are described by the***

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Architecture Based on Environmental Monitoring System using ZigBee Wireless Sensor Networks

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New Raipur, Chhattisgarh, India,

Abstract

Wireless Ad hoc sensor nodes are playing an important role in wireless data transmission infrastructure in various environmental monitoring systems. Due to its compact size and energy efficient structure these nodes can be successfully deployed in wireless Ad hoc infrastructure. Recent developments wireless sensor technologies have provided the environmental management systems with capabilities of real time remote environmental monitoring system. We propose system architecture for wireless sensor networks and a database model for handling and storing sensor data stream in real time. The ZigBee wireless sensor networks is useful especially in monitoring or detecting possible natural disasters and reporting on it almost at real-time. A web based application developed to enable remote online access to wireless sensor network data with interactive data retrieval and visualization functionalities. The advantage of modular architecture is minimizing the software upgrade down time and enables hardware reusability.

Keywords:- ZigBee Network, Wireless Sensor Network, Disaster, Modular Architecture, Database Model.

1. Introduction

A Wireless sensor network (WSN) is a self configured and infrastructure less wireless networks. It consists of a number of sensors nodes (few tens to thousands) working together to monitor a region to obtain data about the environment. There are two types of WSNs: structured and unstructured. Unstructured WSN contains dense collection of sensor nodes and often deployed in ad-hoc manner in the field. In an ad-hoc deployment, sensor nodes can be dropped from a plane and randomly into the target area. In structured WSN on the other hand, all or some of the sensor nodes are deployed in a pre-determined locations. Structured network has fewer nodes and can be deployed with lower network maintenance and management costs.

A wireless sensor network (WSN) to monitor physical or environmental conditions such as temperature, sound, pressure, vibration, pollutants and to cooperatively pass their data through the network to a main location, where the data can be observed and analyzed . Wireless sensor networks have application of fields such as climate control, environmental monitoring, military surveillance, structural health monitoring, medical diagnostics, disaster management and emergency response [4]. The sensor nodes can communicate among themselves using radio signals and they have limited processing speed, storage capacity and communication bandwidth. The ZigBee Wireless Networks based on the IEEE Standard 802.15.4 as specifications, this wireless sensor networks (WSN) consists of light-weight, low power and small size sensor nodes (SNs). They have ability to monitor, calculate and communicate wirelessly. A set of applications require simple wireless connectivity, relaxed throughput, very low power, short distance and inexpensive hardware e.g. Industrial, Agricultural, Vehicular, Residential, Medical etc. Global climate change and atmospheric warming is increasing the occurrence of extreme climate phenomenon with increasing severity, both in context of human living as well as economic losses.

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Low Power Consumption in ZigBee Wireless Networks: A Survey

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Abstract

The ZigBee technology is an IEEE 802.15.4 standard for data communications dealing with business and consumer devices. The ZigBee standard provides network, security and application support services operating on top of the IEEE 802.15.4 Medium Access Control (MAC) and Physical Layer wireless standard. ZigBee is a low-cost, low-power, wireless mesh networking standard. The low cost allows the technology to be widely deployed in wireless control and monitoring applications, the low power-usage allows longer life with smaller batteries, and the mesh networking which promises high reliability and larger range. In industry ZigBee is being used for next generation automated manufacturing, with small transmitters in every device on the floor, allowing for communication between devices to a central computer. This new level communication technology permits finely-tuned remote monitoring and manipulation.

Keywords:- *ZigBee, MAC, Wireless mesh networking, High reliability, Communication technology etc.*

I INTRODUCTION

The ZigBee technology is the wireless mesh networking standard created for connecting sensors, instrumentation and control systems. This is based on the IEEE 802.15.4 Standard and used in Wireless Personal Area Networks (WPANs) for high level communication. This technology is created by the ZigBee Alliance. Wireless sensor networks (WSN) consists of light-weight, low power and small size sensor nodes (SNs) [3]. They have ability to monitor, calculate and communicate wirelessly. The ZigBee Alliance organized as an independent, neutral and non profit corporation in 2002, it is open and global and any one can join and participate, membership is global. An organization with a mission to define reliable, cost effective, low-power, wirelessly networked, monitoring and control products based on an open global standard. Alliance provides interoperability, certification testing, and branding [15].

IEEE 802.15.4 is a standard which specifies the physical layer and media access control for low-rate wireless personal area networks (LR-WPANs). It is maintained by the IEEE 802.15 working group, which defined it in 2003 [3]. IEEE standard 802.15.4 as specifications for low-data-rate wireless connectivity with fixed, portable, and moving devices with no battery or very limited battery consumption requirements typically operating in the personal operating space (POS) of 10m [15]. It is foreseen that, depending on the application, a longer range at a lower data rate. The ZigBee wireless networks targets the application domain of low power, low duty cycle and low data rate requirement devices. Figure-1 below shows the example of a ZigBee networks. The ZigBee Networks, Coordinators are the most capable of the three node types. There is exactly one coordinator in each network and it is the device that establishes the network originally. It is able to store information about the network with including security keys. Routers act as intermediate nodes, relaying data from other devices.

Table-1: ZigBee 802.15.4 standard specifications

Parameter	Range
Transmission Range(meters)	1-100
Battery Life (days)	100-1,000
Network Size(# of nodes)	>64,000
Throughput(kb/s)	20-250

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THE WHITE WOMAN'S GAZE

The nineteenth century was, perhaps, the greatest period of travel writing. Under Queen Victoria, Britain became the greatest power in the world with political and economic control over her colonies spread all over the globe, from Asia to Africa and the Caribbean Islands. Many British travellers and missionaries went to the colonies to take up what Kipling called the "White Man's Burden" – to "civilize" the "barbaric" races of Asia and Africa. Kipling urged them to take on the responsibility of ruling the Empire in his poems:

Take up the White Man's Burden –
Send forth the best ye breed –
Go, bind your son's in exile
To serve your captive's need:
To wait in heavy harness
On fluttered folk and wild –
Your new-caught, sullen peoples,
Half-devil and half-child.

- The White Man's Burden, 1899

These were Englishmen who saw the East "as an inferior, degenerate, erotic place which requires the guiding light of Western civilization" (Laishram 27). The East offered them a chance to escape boredom, failure and poverty in England. India and the East also offered an opportunity to secure wealth and adventure, prestige and identity. Ram Chandra Prasad, in his work on early English travellers to India, differentiates between the attitudes of the early travellers and the ones who came later: "The European travellers of the fifteenth and sixteenth centuries continued to approach India in a mood of child-like wonder, without the least sense of racial superiority. Until

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Society and Sex Work in *The Autobiography of a Sex Worker* by Nalini Jameela

Manoj Kumar Garg, M.A., M.Phil.

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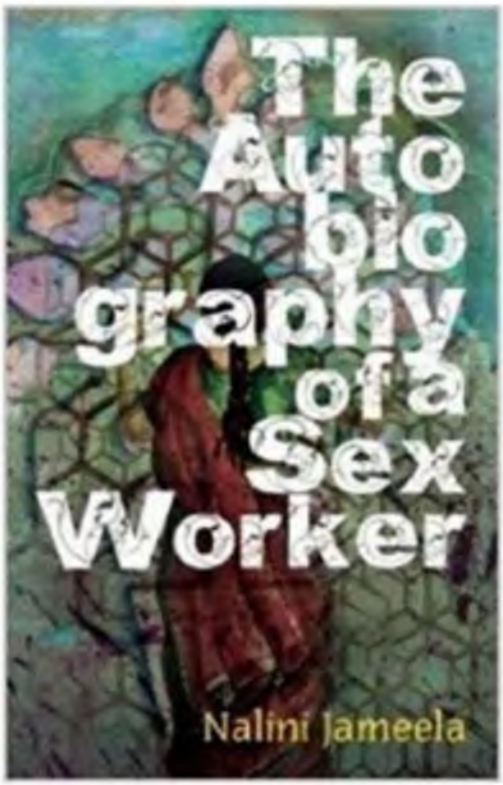

Abstract

Sex workers are part of society but they are looked down upon as outcast in Indian society. They are exploited, insulted and humiliated. Even female sex workers are not taken as women rather taken as mere sex objects. Nalini Jameela portrays their plight through her biography *The Autobiography of a Sex Worker*. She herself has worked as a sex worker. She doesn't condemn the sex work rather takes it as a profession. This paper studies the problems faced by the sex workers, dual standards of society, and resilience of the sex workers.

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Adoption of Free and Open Source Software in India

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Abstract

The significance and robustness of Free and Open Source Software (FOSS) are now well known at stages of development as well as deployment. It's natural to assume that the products of FOSS to be deployed as a preference over the commercially available propriety software. However, proprietary software not only exists but is also thriving. The present paper looks into the aspect of adoption of FOSS, with special emphasis to India. The two natural arena for adoption- Governance and Academia are chosen for study. The policy initiatives, frameworks and challenges in the implementation of FOSS in these two areas are discussed, while giving instances of its successful adoption. The study also discusses in brief the adoption of FOSS in business enterprise, where its adoption is dynamic and accelerated. Several challenges in adoption of FOSS over propriety software are also pointed out.

Keywords: Adoption, FOSS, Proprietary software

INTRODUCTION

The Free and Open Source Software (FOSS) movement attained prominence in the 1980s, primarily to unshackle the restrictions imposed on the use of copy righted software, now known as CSS (Closed Source Software). Today, although one may not be aware, FOSS is actually providing for the computational requirements for a large spectrum of products and services which make the modern, technologically intensive digital life possible. Most of the smart phones (android based), servers and portals, ATMs, supercomputers, databases etc around the world are FOSS driven. In India, two humongous citizen-specific projects – Aadhar's online infrastructure and the railway booking website utilizes the Linux servers. The FOSS provides a myriad of advantages over the CSS at all stages – development, distribution and research, which have been extensively mentioned in the literature [1-5]. Given the intrinsic freedom of usage, customization, propagation and the relative cost effectiveness which all products of FOSS offers, the adoption of FOSS by a country like India could have been a natural and prudent choice as the nation endevours to upscale the use of IT (information technologies) in its pursuit of digital governance. In this context, one may be betting on India becoming the global FOSS hub. It's evident to expect that the India is a fertile ground for the nurturing of a strong and mature FOSS ecosystem. A FOSS ecosystem comprises of a multitude of stakeholders – government, academic institutions like schools and colleges, FOSS solution providers and the FOSS community. Moreover, in India there is no dearth of business opportunities for providing IT solutions to enterprise. This is because India is only next to China in having the largest base of Internet users, notwithstanding the fact that 80 per cent of its population still needs to go online. When this is seen in the background of the availability in the last two decades of large number of reliable and robust FOSS products, which provides solutions for all domains, wherein the CSS have hitherto provided the services (Refer Table 1) the above expectation is certainly not misplaced.

So, where does India stand on the adoption of free software? The adoption of FOSS in India, until now can be described as patchy and sporadic, without a concerted push to adopt FOSS in the daily computational needs of various spheres viz., Governance, academia and business enterprise. However, it must be mentioned here that although the growth of FOSS in India has witnessed a faster rate than the past, the FOSS ecosystem is far from the threshold level of maturity. This has resulted into a narrow user base for FOSS in India. The government's efforts for FOSS adoption have been varied. While some efforts are subtle, voluntary and staggered, some migrations to FOSS have been hard and coercive. In most cases, migration to FOSS are justified from the perspectives of cost and security and its salient features of being participative, egalitarian and democratic is not emphasized sufficiently. While the goal of making India a global hub for FOSS is laudable, it becomes necessary to examine the extent of adoption and the associated challenges in the migration to FOSS for the computational needs of the digital society which we envisage in India. The present paper surveys the extent of adoption of FOSS in the three major areas of the Indian society i.e., Governance, academia and business enterprise. The study also attempts to identify the impediments in each of these spheres which are inhibiting the development of a supportive and mature ecosystem around FOSS which can harness FOSS to its full potential.

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ARTICLE NAVIGATION

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Nanosecond laser-cluster interactions at $10^9 - 10^{12}$ $\mathrm{W/cm^2}$

Rohtash Singh; V. K. Tripathi; R. K. Vatsa; D. Das

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An analytical model and a numerical code are developed to study the evolution of multiple charge states of ions by irradiating clusters of atoms of a high atomic number (e.g., Xe) by $1.06\ \mu\mathrm{m}$ and $0.53\ \mu\mathrm{m}$ nanosecond laser pulses of an intensity in the range of $10^9 - 10^{12}\ \mathrm{W/cm^2}$. The laser turns clusters into plasma nanoballs. Initially, the momentum randomizing collisions of electrons are with neutrals, but soon these are taken over by collisions with ions. The ionization of an ion to the next higher state of ionization is taken to be caused by an energetic free electron impact, and the rates of impact ionization are suitably modelled by having an inverse exponential dependence of ionizing collision frequency on the ratio of ionization potential to electron temperature. Cluster expansion led adiabatic cooling is a major limiting mechanism on electron temperature. In the intensity range considered, ionization states up to 7 are expected with nanosecond pulses. Another possible mechanism, filamentation of the laser, has also been considered to account for the observation of higher charged states. However, filamentation is seen to be insufficient to cause substantial local enhancement in the intensity to affect electron heating rates.

Topics

Adiabatic process, Lasers, Ions and properties, Chemical

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Laser and Particle Beams

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Abstract
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Pulse-compression and self-focusing of Gaussian laser pulses in plasma having relativistic–ponderomotive nonlinearity

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S. Kumar, P.K. Gupta, R.K. Singh, S. Sharma, R. Uma and R.P. Sharma

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Abstract

The mathematical model for the propagation of intense laser pulse in a plasma having Gaussian profile is investigated. The model has been formulated considering that the relativistic–ponderomotive nonlinearity dominates over other nonlinearities in the plasma. Model equation for self-compression and self-focusing properties of the laser pulse has been set up and solved by both semi-analytical and numerical methods. The result indicates that due to the effect of group velocity dispersion, diffraction of the laser pulse and the nonlinearity of medium, the pulse width parameter as well as beam width parameter of pulse gets focused at a different normalized distance, and hence the normalized intensity is also deferred at those points. Numerical simulation shows an oscillatory behavior of intensity during propagation in the plasma either having minimum beam radius (r_0) or having minimum pulse duration (t_0) depending on the normalized distance.

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Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film

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ABSTRACT

The nano crystalline hexagonal strontium ferrite nanoparticles $SrFe_{12}O_{19}$ were synthesized successfully by chemical co-precipitation method. Thin films of strontium ferrite were prepared on glass substrate and characterized by various techniques such as XRD, SEM, TEM, EDS, UV-spectroscopy and FTIR. XRD pattern revealed the phase transformation of M-type hexa-ferrite with the minimum crystallite size of 18 nm. Uniform macroporous surface structure of the film was exposed by SEM images. Existence of iron, strontium and oxygen in the material was confirmed by EDX. Optical characterization of the material was done by UV-Spectroscopy and band gap was found as 3.2 eV. The liquefied petroleum gas (LPG) sensing behavior of strontium ferrite film was investigated at room temperature. The variations in electrical resistance of the film were measured with the exposure of LPG with respect to time as a function of concentration (0.5–5 vol.%) of LPG. The maximum value of sensitivity for these films was found 7 and maximum sensor response was 602.23.

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1. Introduction

Surface to volume ratio and quantum confinement elucidate to nanostructure of materials. Ferrites are basically a class of materials which contains iron oxides having fascinating magnetic and electric properties [1]. These are prepared by sintering various transition metal oxides along with the alkaline earth metal oxide. Development of new class of ferrites, and studies on improvements in their properties began in early 90's. On the basis of technological application, magnets are distinguished as soft magnetic materials and hard magnetic materials [2]. Soft magnetic materials are those magnetic materials whose domains shift when magnetic field is applied and hard magnetic materials are those with less mobility of domain wall. Magnetized hard ferrites possess hexagonal structure with high value of magnetization and magnetocrystalline anisotropy so these are termed as M phase ferrites, with M as Ba, Sr or Pb [3,4]. $SrO-Fe_2O_3$ binary system has few ternary oxides including $SrFe_{12}O_{19}$, $SrFe_2O_4$, $Sr_2Fe_2O_5$ and $Sr_3Fe_2O_6$. Among these, $SrFe_{12}O_{19}$ has attracted the attention of most of the researchers due to its vast area of applications beside a stable characteristicsand having high electrical resistivity. Strontium ferrite contains strontium and iron where strontium is S block element belonging to group 2 period 5 with $5s^2$ electronic configuration and iron belonging to d-block element group 8 period 4 with electronic configuration $3d^6 4s^2$ [5]. Crystal structure of M-phase ferrite is complex but can be described as hexagonal with unique axis. $SrFe_{12}O_{19}$ posses 64 ions per unit cell along with 11 different symmerty sites. Oxygen atoms are closely packed at interstitial position with Sr and Fe in ten layers along with the C-axis. The iron atoms are positioned at five different crystallographic sites 2a, 2b, 4f, 4k and 12k. Among them 12k, 4k, 2a are on octahedral site, 4f on tetrahedral site and 2b forming trigonal bipyramid surrounding by five oxygen atoms. Strontium ferrite is used for LPG sensing because of relatively high resistance and special magnetic resonance properties for adsorption. In strontium ferrite, there are large interstitial sites which interact with the oxygen molecules in comparison to other ferrites. The dielectric properties of strontium ferrite shed light on the charge carriers which are responsible for charge transport phenomenon. These ferrites can be prepared by different methods viz. as chemical co-precipitation, sol-gel, ball milling, solid state reaction and reverse micelle process [6–10].

Kanagesan et al. prepared the strontium ferrite nano powder by sol-gel method and carried out investigation on the crystalline $SrFe_{12}O_{19}$ powder using XRD. The average particle size was found to be 80–100 nm and its thermal analysis revealed its endothermic and exothermic reaction peaks [11]. T.T.V. Nga et al. investigated

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Growth and characterization of sol–gel processed rectangular shaped nanostructured ferric oxide thin film followed by humidity and gas sensing

B. C. Yadav, K. S. Chauhan, S. Singh, R. K. Sonker, S. Sikarwar & R. Kumar

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Abstract

In the present work nanostructured ferric oxide has been synthesized using sol–gel method. Thin films of ferric oxide were fabricated via spin coating process. The surface of the thin film was scanned by scanning electron microscope that exhibited the surface morphology of ferric oxide nanostructures. The material was also characterized by XRD, Acoustic particle sizer and FTIR. All the particles distributed on the surface have some spaces among them known as pores. These pores serve as adsorption sites for moisture and other gases. EDX confirmed the elements forming the ferric oxide in pure form. The particle size of the ferric oxide was estimated as ~12.2 nm. The pore size of the film was ~50 nm i.e., nature is mesoporous. Annealing effect on the surface morphology was also observed. Humidity sensing, electrical as well as optical of the prepared film was carried out. The results showed the suitability of material for the development of humidity sensors. Variations in resistance with the exposure of LPG were recorded and found that resistance of film increases with the increasing exposure time and concentration of gas. The maximum sensing response of the sensor was recorded as 3.26 for 1000 ppm at room temperature. The response and recovery times of the sensor were found to be ~12 and 9 min, respectively.

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Development of Fe_2O_3–PANI nanocomposite thin film based sensor for NO_2 detection

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ABSTRACT

The iron oxide-polyaniline (α-Fe_2O_3–PANI) films were prepared by spin coating method on various corning glass substrates over Pt inter-digital electrodes (IDEs). The prepared film was characterised using XRD, SEM, AFM, UV-vis and FTIR. Also, it was employed for NO_2 sensing. The nanostructured α-Fe_2O_3–PANI film showed a high sensing response ~2.29×10^2 towards 20 ppm of NO_2 gas. Besides giving the higher sensing response towards NO_2 gas, α-Fe_2O_3–PANI sensor structure was found to be highly selective and exhibited the poor gas sensing response towards other interfering gases including e.g. Acetone, IPA, NH_3, LPG and CO_2. The investigated sensor can be used for the detection of NO_2 at the industrial level.

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1. Introduction

Among the nanosized metal oxides that have been the focus of research due to their potential application in electronic devices, maghemite (<alpha>-Fe_2O_3) has attained prominence due to its magnetic, photocatalytic and electrochemical properties [1–4]. The electrical resistance of semiconductor oxides, such as SnO_2, ZnO, TiO_2 and Fe_2O_3, has a strong dependence on the concentration of surrounding gases. Therefore, oxides are commercially designed as chemical sensors to detect the toxic gases [5–10]. With this intention, several methods of preparation of ferric oxides such as co-precipitation, microemulsion, pulsed wire discharge and hydrothermal processes are employed in order to obtain nanostructured powder [11–13]. The sol-gel process has a unique advantage of producing large-surface-area films at low cost, which is useful to enhance the gas sensitivity [14].

Polyaniline (PANI) as a typical conducting polymer has received a great deal of attention recently [15,16]. With regard to the background, using a composite carrier composed of PANI and ferric oxide nanoparticles could combine the excellent properties of ferric oxide and polyaniline, in addition, a synergistic effect might play a role in enhancing the properties of nanocomposite catalysts. They have unique electronic properties due to the π-conjugation present in their backbones and display improved characteristics over conventional sensors based on nanometal oxides. As NO_2 is a toxic and dangerous gas even at very low concentration ($\geq$20 ppm), therefore, there is an urgent need for a reliable and robust gas sensor for the detection of NO_2 [17].

In the present investigation, PANI/α-Fe_2O_3 nanocomposite thin film has been prepared on the corning glass substrate via chemical polymerization method and tested for the electrical response of the thin film to NO_2 gas at room temperature.

2. Experimental

2.1. Synthesis of nanostructures

In this experiment, 0.1 M of iron nitrate ($Fe(NO_3)_3 \cdot 9H_2O$, Aldrich 98% purity) was used as a precursor solution, 0.1 M of monohydrate citric acid solution as legend molecules and 150 ml distilled water as the solvent. The prepared ferric nitrate solution was added to the citric acid solution dropwise with vigorous stirring. The obtained solution was then heated to a temperature from 70 °C to 120 °C, with vigorous stirring until the gel was formed. Such prepared precursor was used to fabricate the thin films on various corning glass substrates over Pt-IDE using spin coating process [18].

For the formation of the powder, the gel was precipitated by adding NH_4OH dropwise. The powder was then dried at 80 °C for 4 h and the crushed powder was annealed at 500 °C for 2 h Fig. 1(a) shows the flow chart of the growth of PANI [19].

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Preparation of PANI doped TiO_2 nanocomposite thin film and its relevance as room temperature liquefied petroleum gas sensor

Rakesh K. Sonker[1,2] · B. C. Yadav[1] · S. R. Sabhajeet[1]

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Abstract Present work reports the utility of PANI doped titanium dioxide thin film prepared by spin coating technique as LPG sensing. Optical properties were studied using UV–Vis absorption spectroscopy and FTIR spectroscopy. The surface morphology and structure of synthesized material were characterized by SEM and XRD analysis, respectively. The structural analysis confirmed the formation of TiO_2–PANI having an average crystallite size 21 nm. Variations in the resistance with exposure of LPG to the sensing element were observed. Sensor response (S) as a function of time was calculated and its maximum value was found as 2.37 towards 2000 ppm of LPG, response time of the sensor was 2 min. The sensor was quite sensitive to LPG and results were found reproducible.

1 Introduction

Liquefied petroleum gas (LPG) contains the hydrocarbons, majority propane, and butane. The lower explosive limit (LEL) as specified by National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) standards for chemical hazards is average 20,000 ppm by volume 2.0% in air. The permissible exposure limit (PEL) for LPG as specified by NIOSH and OSHA standards is 1000 ppm [1]. The various kinds of materials are used for the detection of reducing LPG gas [2]. Among them, semiconducting metal oxides such as titania (TiO_2) [3], tin dioxide [4], copper ferrite [5] and zinc oxide [6] have been studied extensively. TiO_2 as an n-type semiconducting metal oxide with two distinct phases; anatase and rutile, has been used for a broad range of LPG gas sensing [3, 4]. PANI has been prepared by oxidation of the aniline or anilinium salts e.g. aniline hydrochloride or aniline sulphate, in aqueous acidic ambient [7]. It is a p-type semiconducting material [8] and has specific redox nature, controllable conductivity, and considerable thermal stability [9, 10].

In this work, for the first time, TiO_2–PANI nanocomposite thin film was prepared on a corning glass substrate and employed as LPG sensor.

2 Experimental

Titanium tetrachloride ($TiCl_4$), propanol, deionized water (DI), ethanol, aniline, HCl, ammonium persulphate (APS) and ammonium hydroxide used for the sensor preparation were purchased from Sigma Aldrich Chemical Co. with 99.99% purity. 500 ml distilled water was dissolved with 50 ml HCl followed by 8.33 ml Aniline. After vigorous stirring in ice bath, it was indexed as part (I). 18.924 gm APS was mixed in 331 ml distilled water and after vigorous stirring the solution was indexed as part (II). Now Part I was added with part II followed by vigorous stirring for 2 h. A colour less filtrate was obtained. After drying it at 40–50 °C for 4–5 h, emeraldine salt of PANI was prepared. Later it was washed with NaOH and filtered. Filtrate was

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Development of Fe_2O_3–PANI nanocomposite thin film based sensor for NO_2 detection

Rakesh K. Sonker [a b], B.C. Yadav [a]

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Abstract

The iron oxide-polyaniline (α-Fe_2O_3–PANI) films were prepared by spin coating method on various corning glass substrates over Pt inter-digital electrodes (IDEs). The prepared film was characterised using XRD, SEM, AFM, UV-vis and FTIR. Also, it was employed for NO_2 sensing. The nanostructured α-Fe_2O_3–PANI film showed a high sensing response ~2.29×10^2 towards 20 ppm of NO_2 gas. Besides giving the higher sensing response towards NO_2 gas, α-Fe_2O_3–PANI sensor structure was found to be highly selective and exhibited the poor gas sensing response towards other interfering gases including *e.g.* Acetone, IPA, NH_3, LPG and CO_2. The investigated sensor can be used for the detection of NO_2 at the industrial level.

Laser and Particle Beams

Article contents

Abstract

References

Self-compression of two co-propagating laser pulse having relativistic nonlinearity in plasma

Published online by Cambridge University Press: **20 November 2017**

S. Kumar, P. K. Gupta, R. K. Singh, R. Uma and R. P. Sharma

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Abstract

The study proposes a semi-analytical model for the pulse compression of two co-propagating intense laser beams having Gaussian intensity profile in the temporal domain. The high power laser beams create the relativistic nonlinearity during propagation in plasma, which leads to the modification of the refractive index profile. The co-propagating laser beams get self- compressed by virtue of group velocity dispersion and induced nonlinearity. The induced nonlinearity in the plasma broadens the frequency spectrum of the pulse via self-phase modulation, turn to shorter the pulse duration and enhancement of laser beam intensity. The nonlinear Schrodinger equations were set up for co-propagating laser beams in plasmas and have been solved in Matlab by considering paraxial approximation. The propagation characteristics of both laser beams inside plasma are divided into three regions through the critical divider curve, which has been plotted between pulse width τ_{01} and laser beam power P_{01}. Based on the preferred value of critical parameters, these regions are oscillatory compression, oscillatory broadening, and steady broadening. In findings, it is observed that the compression of the laser beam depends on the combined intensity of both beams, plasma density, and initial pulse width.

Keywords

Characteristic beam propagation | Relativistic laser–plasma interaction | Self-compression

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Physics Letters A

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Partially synchronized states in an ensemble of chemo-mechanical oscillators

Pawan Kumar, Dinesh Kumar Verma, P. Parmananda

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Highlights

- Collective dynamics of coupled chemo-mechanical oscillators are studied experimentally.
- Two different coupling scenarios are entertained.
- For both the coupling scenarios, the collective dynamics exhibit partially synchronized states.

Abstract

Partially synchronized (clustered) states are defined as coexisting coherent (synchronized) and incoherent (unsynchronized) domains in an ensemble of interacting oscillators. We report these clustered states in experiments involving an ensemble of sixteen mercury beating heart (MBH) oscillators. These oscillators interact via resistors and are subjected to two different network schemes: 1) All to all and 2) Nonlocal. For the all to all network, the coupling strengths were inhomogeneously distributed, whereas for the nonlocal network scenario, each oscillator was coupled, with an identical coupling strength, with four of its nearest neighbors in either direction. For both of these network schemes, partially synchronized states results into grouping of these oscillators, wherein some oscillators are synchronized and rest are unsynchronized. For all to all network, the partially synchronized states are observed, for

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Impact of Ocimum Basilicum Leaf Essential Oil on The Survival and Behaviour of An Indian Strain of Dengue Vector, Aedes aegypti (L.)

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Abstract

Objective: *Aedes aegypti* (L.) is a well-known widely spread disease vector transmitting several diseases of concern. Current investigations were undertaken to discover the larvicidal and repellent potential of essential oil from the basil plant, *Ocimum basilicum* leaves against *Ae. aegypti* as a suitable and eco-safe alternate to chemical insecticides.

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Abstract

PSEUDOMONAS AERUGINOSA: ISOLATION, CHARACTERIZATION AND EVALUATION OF LARVICIDAL EFFICACY AGAINST AEDES AEGYPTI L.

Rajiv Kumar Shukla, Dr. Sarita Kumar* and Pushplata Tripathi

ABSTRACT

The present study investigates the bioactivity of Pseudomonas aeruginosa against the fourth instar larvae of Aedes aegypti. The bacterium was isolated from the soil samples collected from various parts of Delhi and characterized based on their biochemical and morphological characters. The identification of bacterium was carried out with the help of MALDI-TOF MS Biotyper which confirmed the bacterium as Pseudomonas aeruginosa. The mosquitocidal potential of the isolated bacteria was evaluated against early fourth instars of dengue vector, Aedes aegypti maintained in the laboratory under controlled conditions of 28 ± 1 °C and 80 ± 5 % RH with a photoperiod of 14h daylight/10h darkness. The bioassay was performed in accordance with the protocol described by World Health Organization which proved the significant larvicidal efficacy of Pseudomonas aeruginosa against early fourth instars of Ae. aegypti. The larval exposure to bacterial formulation for 24 h resulted in the respective LC50 and LC90 values of 5.58 and 12.80 mg/mL. The present study concludes that non-pathogenic bacteria present in the natural environment can be used as potential bio-control agents against the larvae of Aedes aegypti. Further studies are needed to identify the bioactive extracellular and intracellular metabolites of bacteria effective against dengue vector larvae.

Keywords: Pseudomonas aeruginosa, Aedes aegypti, larvicidal, MALDI-TOF.

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BIOPROSPECTING XYLANASE ENZYMES FROM DIVERSE ECOLOGICAL HABITATS

Payal Das[1], Prateek Kumar[1], Munendra Kumar[1], Renu Solanki[2] and Monisha Khanna Kapur[1]

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ABSTRACT

In order to exploit and improve the metabolic versatility of micro-organisms, the classical area of research has been to optimize the production of extra cellular enzymes for efficient degradation of substrates and selection of advanced and more active enzymes for enhanced enzyme yield. Microbial xylanases are important group of industrial enzymes that are used for various commercial purposes. Wide variety of bacteria in the environment permits screening for efficient xylanase producing strains to help overcome the current challenges. In an attempt to discover new xylanase producing strains, more than 600 actinomycete isolates representing varied ecological habitats were screened. By using birchwood xylan as substrate, diameter of zones of hydrolysis was measured and it ranged from 17-40 mm. Among the isolates tested, colonies 169, 126, and 202 along with the positive controls NRRL B-24314 (Streptomyces thermocoprophilus) and NRRL B-24916 (Streptomyces mexicanus) showing appreciable zones of clearance were selected for quantitative screening under the submerged state fermentation. Enzyme from respective colonies was partially purified by ammonium sulfate precipitation and dialysis. Enzyme activity ranged from 6.72- 15.0 IU/ml (in crude) and 11.15-25 IU/ml (in partially purified). The highest enzyme producer, colony 169 was further purified to homogeneity by ion exchange chromatography. Activity estimated in purified fraction was 32.12 IU/ml. Colony 169 showed maximum xylanase activity

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African Journal of Microbiology Research

Full Length Research Paper

Purification and molecular characterization of chitinases from soil actinomycetes

Payal Das, Prateek Kumar, Munendra Kumar, Renu Solanki and Monisha Khanna Kapur*

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Microbial extracellular chitinases are used in agriculture as effective biocontrol agents and in waste degradation, pharmaceutical and food industry. Actinomycetes are widely tapped group for production of extracellular chitinases. In the present study, approximately 260 actinomycetes were isolated from various ecological habitats was subjected to primary analyses and screened for production of chitinase by plate assay method. Diameter of zones of hydrolysis ranged from 8 to 16 mm. Based on the results, isolates 130, 194, 184, NRRLB 24916 (*Streptomyces mexicanus*) and NRRLB 16746 (*Streptomyces albidoflavus*, positive control) were selected for secondary screening and purification. Enzyme activity was estimated in crude cell free extract and partially purified samples. Activity ranged from 7.16 to 14.12 IU/ml (in crude extracts) and 12.1 to 23.10 IU/ml (in partially purified samples). In case of highest chitinase producing isolate 130, effect of various fermentation conditions (pH, temperature and substrate concentration) was studied in crude extract. Furthermore, complete purification of isolate 130 was done by column chromatography and the activity in purified fraction was found to be 32.12 IU/ml. The K_m and V_{max} values of the purified fractions for isolate 130 were 2.11 µg/ml/min and 53.11mg/ml respectively. This shows that the enzyme has high affinity for the substrate. SDS gel electrophoresis of the purified fraction showed presence of single band of approximately 65 to 70 kDa. Analyses of purified chitinase were done using MS/MS technique. N-terminal sequence corresponded to chitinase, the gene encodes a protein of 453 amino acid residues. Comparison of deduced amino acid sequence to other chitinases in the database indicated that enzyme showed 70% similarity with chitinase from *Streptomyces plicatus* and belongs to glycoside hydrolase family 18. Homology modeling showed that the enzyme was folded into a domain of $(\alpha/\beta)_8$ barrel structure. Identification of secondary structure was done by CD spectroscopy. Isolate 130 was capable of degrading biodegradable wastes such as crustacean shells.

Key words: Actinomycetes, extracellular chitinase, primary screening, secondary screening, purification, MS/MS analyses, homology modelling, protein structure, biodegradation.

INTRODUCTION

Chitinases are enzymes that hydrolyse the β-1,4 linkage of N-acetyl glucosamine present in chitin chains. Due to vast availability, low cost, high stability and productivity, microbial chitinase is attaining prominence for waste management, pest control in agriculture, and human health care (Das et al., 2015, 2016; Rathore and Gupta, 2015). Improving the yield of the enzyme and consequent cost reduction depends on the selection of strains, optimization of fermentation conditions, genetic improvement of strains and kinetic studies of enzyme (Andualem,

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Crystal structure of UDP-*N*-acetylglucosamine-enolpyruvate reductase (MurB) from *Mycobacterium tuberculosis*☆

Kandasamy Eniyan[a,1], Sudhaker Dharavath[b,1], Ramachandran Vijayan[b], Urmi Bajpai[a,*], Samudrala Gourinath[b,**]

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ARTICLE INFO

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ABSTRACT

The biosynthesis of UDP-*N*-acetylmuramic acid (UDP-MurNAc) by reduction of UDP-*N*-acetylglucosamine-enolpyruvate (UDP-GlcNAc-EP) in an NADPH and FAD-dependent reaction in bacteria is one of the key steps in peptidoglycan biosynthesis catalyzed by UDP-*N*-acetylglucosamine-enolpyruvate reductase (MurB). Here, we present the crystal structure of *Mycobacterium tuberculosis* MurB (MtbMurB) with FAD as the prosthetic group at 2.0 Å resolution. There are six molecules in asymmetric unit in the form of dimers. Each protomer can be subdivided into three domains and the prosthetic group, FAD is bound in the active site between domain I and domain II. Comparison of MtbMurB structure with the structures of the *Escherichia coli* MurB (in complex with UDP-GlcNAc-EP) and *Pseudomonas aeruginosa* MurB (in complex with NADPH) showed all three structures share similar domain architecture and residues in the active site. The nicotinamide and the enol pyruvyl moieties are well aligned upon superimposition, both positioned in suitable position for hydride transfer to and from FAD. The comparison studies and MD simulations demonstrate that the two lobes of domain-III become more flexible. The substrates (NADPH and UDP-GlcNAc-EP) binding responsible for open conformation of MurB, suggesting that NADPH and UDP-GlcNAc-EP interactions are conformationally stable. Our findings provide a detail mechanism about the closed to open state by binding of NADPH and UDP-GlcNAc-EP induces the conformational changes of MurB structure that may trigger the MurB catalytic reaction.

1. Introduction

The growth of multidrug-resistant *Mycobacterium tuberculosis* (Mtb) has become an increasing global problem due to acquired resistance to the first and second line drugs [1]. To address the issues of multidrug resistance, discovering drugs with novel modes of action, targeting enzymes deemed specific and essential for the cell wall biogenesis in Mtb recommends a valid approach. Peptidoglycan represents vital constituent of the cell wall in most prokaryotic organisms which provides osmotic stability and defines the size and shape of bacterial cells [2]. Efforts have been made in recent years to study the importance of these enzymes in the peptidoglycan biosynthetic pathway with the hope that novel enzyme inhibitors might be found for these essential targets [3–5].

The cytoplasmic biosynthetic pathway leading to formation of peptidoglycan units involves six enzymes [6,7]. First, UDP-GlcNAc enolpyruvyl transferase, MurA catalyzes the formation of UDP-GlcNAc enolpyruvate by transferring enolpyruvate (UDP-GlcNAc-EP) from phosphoenolpyruvate followed by UDP-GlcNAc enolpyruvate reductase (EC:1.3.1.98, MurB) reaction which catalyzes the reduction of UDP-GlcNAc-EP to form UDP-*N*-acetylmuramic acid (UDP-MurNAc). Then a series of Mur ligases (MurC-F) catalyze the sequential addition L-Alanine, D-Glutamic acid, meso-diaminopimelic and the dipeptide D-Alanine-D-Alanine to UDP-MurNAc, to form the final UDP-MurNAc-pentapeptide. MurB enzyme is essential for the viability of bacterial cells [7] and the absence of a homologue in eukaryotic cells makes MurB

Abbreviations: UDP-GlcNAc-EP, UDP-*N*-acetylglucosamine-enolpyruvate; UDP-MurNAc, UDP-*N*-acetylmuramic acid; FAD, Flavin Adenine Dinucleotide; NADPH, Nicotinamide Adenine Dinucleotide Phosphate; MtbMurB, *Mycobacterium tuberculosis* UDP-*N*-acetylglucosamine-enolpyruvate reductase; EcMurB, *Escherichia coli* UDP-*N*-acetylglucosamine-enolpyruvate reductase; PaMurB, *Pseudomonas aeruginosa* UDP-*N*-acetylglucosamine-enolpyruvate reductase

☆ Databases: The atomic coordinates and structure factors have been deposited in the Protein Data Bank, www.pdb.org (PDB ID code 5JZX).

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Isolation and characterization of bacteriophages from India, with lytic activity against *Mycobacterium tuberculosis*

This article has been corrected. VIEW CORRECTION

Authors Urmi Bajpai, Abhishek Kumar Mehta, Kandasamy Eniyan, Avni Sinha, Ankita Ray, Simran Virdi, Shazeb Ahmad, Aridni Shah, ... SHOW ALL | AUTHORS INFO & AFFILIATIONS

Publication: Canadian Journal of Microbiology • 15 March 2018 • https://doi.org/10.1139/cjm-2017-0387

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Abstract

Bacteriophages are being considered as a promising natural resource for the development of alternative strategies against mycobacterial diseases, especially in the context of the wide-spread occurrence of drug resistance among the clinical isolates of *Mycobacterium tuberculosis*. However, there is not much information documented on mycobacteriophages from India. Here, we report the isolation of 17 mycobacteriophages using *Mycobacterium smegmatis* as the bacterial host, where 9 phages also lyse *M. tuberculosis* H37Rv. We present detailed analysis of one of these mycobacteriophages — PDRPv. Transmission electron microscopy and polymerase chain reaction analysis (of a conserved region within the TMP gene) show PDRPv to belong to the *Siphoviridae* family and B1 subcluster, respectively. The genome (69 110 bp) of PDRPv is circularly permuted double-stranded DNA with ~66% GC content and has 106 open reading frames (ORFs). On the basis of sequence similarity and conserved domains, we have assigned function to 28 ORFs and have broadly categorized them into 6 groups that are related to replication and genome maintenance, DNA packaging, virion release, structural proteins, lysogeny-related genes and endolysins. The present study reports the occurrence of novel antimycobacterial phages in India and highlights their potential to contribute to our understanding of these phages and their gene products as potential antimicrobial agents.

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Review Article

Microwave Assisted Synthesis of Spiro Heterocyclic Systems: A Review

Author(s): Pankaj Khanna, Leena Khanna, Sean J. Thomas, Abdullah M. Asiri and Siva S. Panda*

Volume 22, Issue 1, 2018

Page: [67 - 84] **Pages:** 18

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Background: Microwave irradiation has emerged as a useful synthetic strategy for chemists and drug developers due to enhanced yields, regioselectivity, and faster reaction times. One area of importance in its practice has been the design of spiro compounds, which possess great interest on account of their natural occurrence and medicinal capabilities. The increasingly large number of these scaffolds and unlimited amount of methodologies utilized in their preparation have made them good candidates for the microwave assisted approach.

Conclusion: Therefore, this review emphasizes the use of microwave irradiation in the synthesis of spiro heterocyclic compounds.

Keywords: Spiro compounds, heterocycles, microwave, green synthesis.

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An analysis of replenishment model of deteriorating items with ramp-type demand and trade credit under the learning effect

Archana Sharma, Usha Sharma and Chaman Singh

Published Online: May 13, 2018 · pp 313-342 · https://doi.org/10.1504/IJPM.2018.091668

ABOUT

Abstract

Effective management and control strategies are prerequisites in order to optimise inventory related decisions. Robust replenishment model can reduce overall inventory cost and increase financial surplus for the organisation. Adoption of trade credit strategy for deteriorating items provides economic benefits to the retailer (buyer) in settling the account for the fixed period and boosts the sales of the organisation. Therefore, in this proposed model trade credit is introduced and demands pattern follows ramp-type which is quadratic function of time for decaying items. Shortages are allowed and partially backlogged where the backlogging rate is dependent of waiting time. The inflation factor is also considered to propose realistic environment. Additionally, this study also considered the cost components which are followed by learning curve to improve the total inventory cost with strategic scheduling. Finally, the model is analysed through numerical examples and the sensitivity analysis is performed to test the robustness of the model.

Keywords

ramp-type demand, partial backlogging, learning effect, trade credit, inflation

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Emamectin benzoate: Potential larvicide and antifeedant agent against cotton Boll worm Helicoverpa armigera (Lepidoptera: Noctuidae)

PDF

Published Jun 1, 2018

DOI https://doi.org/10.31018/jans.v10i2.1738

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Abstract

Helicoverpa armigera, a global polyphagous pest, attacks a wide variety of crops causing huge agricultural loss. Overuse of conventional insecticides for *Helicoverpa* control has made *Helicoverpa* resistant to insecticides leading to more severe attacks on crops diverting interest of researchers to explore alternate control agents. Present study investigates the cidal and antifeedant potential of Emamectin benzoate; a semi-synthetic avermectin derived from the soil actinomycetes, *Streptomyces avermitilis;* against early IV instars of *H. armigera*. Larvae were fed on the castor leaf discs (3.5 cm diameter) dipped in different concentrations of Emamectin benzoate; ranging from 0.05 µg/mL-1.5 µg/mL. The leaf disc areas were measured pre-and post-larval feeding to estimate the antifeedant potential of compound. The effect of feeding was also assessed on the survival of larvae by scoring the larval mortality till 96 h. Our investigations showed significant larvicidal potential of Emamectin benzoate against *H. armigera* revealing respective LC_{50} values of 0.26 µg/mL, 0.095 µg/mL, 0.043 µg/mL and 0.027 µg/mL after 24, 48, 72 and 96 h feeding. Furthermore, a remarkable decrease of 93.59% was observed in larval feeding potential indicating significant antifeedant efficacy of Emamectin benzoate. A strong correlation between antifeedant index and the Emamectin benzoate concentration resulted in 1.48-fold index reduction with a decrease in concentration. Our results demonstrated efficacy of Emamectin benzoate as an effectual larvicidal and antifeedant agent against *H. armigera*. Employing selective insecticide can tackle issues of pest resistance and pest resurgence after ascertaining in the fields as *Helicoverpa* control agent and negating impact on non-target organisms.

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Study of effect of various temperatures on the abundance of ammonia oxidizing archaea and bacteria

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https://doi.org/10.56093/ijans.v88i5.80023

Keywords: Ammonia, amoA gene, Archaea, Bacteria, Recirculating system, Temperature

Abstract

Temperature plays significant role in the oxidation of ammonia in filtration units of recirculating aquaculture system. The impact of temperature on the abundance of ammonia oxidizing archaea and bacteria, and the expression of ammonia oxidizing gene (amoA) at specific temperature was evaluated. The broken earthen pot pieces used as filter bed materials of recirculating system, showing the presence of microorganisms were introduced in glass containers (5 pieces/5l) filled with synthetic wastewater and exposed to four different temperatures of 10, 20, 30 and 40°C for 40 days. The ammonia oxidation rate was minimum at 10°C. In 20, 30 and 40°C treatments, 99% ammonia was reduced on day-18, 8 and 18, respectively compared to the initial day. Fresh ammonium chloride (2 mM) was added twice to maintain the ammonia concentration in all treatments, except 10°C one. Nitrite-N level was < 1 mg/l at 10°C. The level was highest on day-22 at 20° and 40°C and on day-12 at 30°C. The nitrification was 10 days delayed at 20°C and 40°C compared to 30°C treatment. Concentration of nitrate-N was lowest at 10°C. Highest concentration of nitrate-N was observed on day-40 at 20°C and 40°C and day-26 at 30°C. Highest copy number of bacterial amoA was recorded at 30°C (2.59×107) followed by 20°C (4.08×106), 40°C (1.45×106) and 10°C (5.664×103). Archaeal amoA was highest at 30°C (7.47×103) followed by 40°C (2.98×102) and 20°C (46.8) treatments. Hence it may be concluded that 30°C temperature was optimum for the efficient and faster oxidation of ammonia in the present recirculating system.

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Abstract

- Reproductive success of a plant species is largely influenced by the outcome of mating pattern in a population. It is believed that a significantly larger proportion of animal-pollinated plants have evolved a mixed-mating strategy, the extent of which may vary among species. It is thus pertinent to investigate the key contributors to mating success, especially to identify the reproductive constraints in depauperate populations of threatened plant species.
- We examined the contribution of floral architecture, pollination mechanism and breeding system on the extent of outcrossing rate in a near-threatened tree species, *Wrightia tomentosa*. The breeding system was ascertained from controlled pollination experiments. In order to determine outcrossing rate, 60 open-pollinated progeny were analysed using an AFLP markers.
- Although the trees are self-compatible, herkogamy and compartmentalisation of pollen and nectar in different chambers of the floral tube effectively prevent spontaneous autogamy. Pollination is achieved through specialised interaction with moths. Differential foraging behaviour of settling moths and hawkmoths leads to different proportions of geitonogamous and xenogamous pollen on the stigma. However, most open-pollinated progeny were the result of xenogamy (outcrossing rate, tm = 0.68).
- The study shows that floral contrivances and pollination system have a strong influence on mating pattern. The differential foraging behaviour of the pollinators causes deposition of a mixture of self- and cross-pollen to produce a mixed brood. Inbreeding depression and geitonogamy appear to play a significant role in sustaining mixed mating in this species.

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JOURNAL ARTICLE

Relative contribution of reproductive attributes to the density-dependent effects on fruit-set

Vineet Kumar Singh, Chandan Barman, Divya Mohanty, Rajesh Tandon

AoB PLANTS, Volume 10, Issue 2, April 2018, ply019, https://doi.org/10.1093/aobpla/ply019
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Abstract

Reproductive success of a plant species can be affected by the distribution pattern of its conspecifics in a small population. Besides the low mate availability, the dynamics of breeding system and pollination mechanism may also contribute to low fruit-set in such populations. We examined the relative contribution of these reproductive attributes on fruit-set across the contrasting distribution pattern (denser vs. sparser plots) in two isolated natural populations of a near-threatened tree species, *Anogeissus sericea* var. *nummularia*. Although flowers in the species are of generalist type, the narrow stigmatic surface appears to impose a requirement for a specialist pollinator. Pollination in the tree species is mediated only by the flies. The trees exhibit partial selfing and suffer from strong inbreeding depression at the early life-history stages of the selfed progeny. We recorded significant difference between the denser and sparser plots in terms of inflorescence visits per tree, and the number of trees covered in a bout by the pollinators. Moreover, tree density showed a strong positive correlation with fruit-set. Besides the requirement of having proximity among the conspecifics to facilitate pollinator movement, pollen quality also seemed to be a crucial attribute in the reproductive success of the tree species. It is inferred that the mating pattern and fecundity of plants in small and isolated populations are significantly influenced by the extent of sexual incompatibility and magnitude of their dependence on pollinators.

Keywords: Inbreeding depression, myophily, partial self-compatibility, reproductive biology

Subject: Plant-Animal Interactions, Reproductive Biology

Issue Section: Research article

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Rev. Roum. Chim., **2018**, *63*(4), 299-307

HETEROLEPTIC METAL(II) COMPLEXES OF CURCUMIN AND 2,2'-BIPYRIDINE: SYNTHESIS, CHARACTERIZATION, MOLECULAR MODELING AND PRELIMINARY ANTIMICROBIAL INVESTIGATION

Shyam LAL,[a] Mukesh Chandra JOSHI[b], Sunita HOODA[a] and Vikrant KUMAR[a]*

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[b] Department of Chemistry, Motilal Nehru College, University of Delhi, Delhi-110021, India

Received September 18, 2017

Three mononuclear metal complexes [(curcu)M(bpy)]Cl **1-3** of nickel[II] **(1)**, copper[II] **(2)** and zinc[II] **(3)** derived from curcumin (curcu) and 2,2'-bipyridine (bpy) have been isolated and characterized by analytical and spectral methods, *viz.* elemental analyses, molar conductance, magnetic susceptibility measurements, mass spectrometry, IR, UV-visible spectrometry and molecular modeling studies. IR spectral frequencies exhibited curcumin and 2,2'-bipyridine both behave as bidentate ligand and coordinate to metal ion through the carbonyl oxygen and nitrogen atoms respectively. All the complexes showed molar conductance corresponding to 1:1 electrolytic nature. Ni^{II} and Cu^{II} complexes were confirmed possessing square planar geometry however Zn^{II}, tetrahedral. Metal complexes along with curcumin and 2,2'-bipyridine were examined against the opportunistic pathogens. The results obtained indicate that metal complexes have reasonable antimicrobial potential.

INTRODUCTION

Naturally occurring phenolic pigment, Curcumin; chemically, [1,7-bis(4-hydroxyl-3-methoxyphenyl)-1,6-heptadiene-3,5-dione] is a major component of the Curcuma species. It is obtained from the rhizome of *Curcuma longa* Linn.[1] which is commonly used as a yellow coloring and flavoring agent in foods. Recent studies have shown that curcumin possesses a specific property of binding to metals and as a multipotent agent for combating to potent biological as well as pharmacological activities.[2-8] Thus, for the past decade curcumin as a ligand has been the subject of great interest in modern coordination chemistry.[9-12] Curcumin has a specific chemical motif, a bis-α,β-unsaturated-β-diketone which exhibits keto-enol tautomerism (**Figure 1**). The virtue of coordination property of curcumin leads to tailoring a rational drug design including a number of metal complexes and scavenge the active free-radicals which makes it a more potent bioactive agent *viz.* as antimicrobial agent, anticarcinogenic, antialzheimer, used in catalysis, radiodiagnostic and several other applications.[13-17] Research analysis postulates that the biological properties of curcumin are significantly enhanced upon coordination with metal ion.[18-19] On the other hand, heterocyclic compounds such as pyridine, phenanthroline, bipyridine, and their respective derivatives etc. have been shown extended biological activities when coordinated with metal ion.[20-21] Various enzymes, vitamins, proteins and other life regulating biomolecules, most of which consist of N- and/or O- containing heteroatoms which are the key of chelation with transition metal ions.

Thus, specific biological and pharmacological role of curcumin, bypiridine and various role of transition metal ions in daily life, could have made

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Journal of Photochemistry and Photobiology A: Chemistry
Volume 364, 1 September 2018, Pages 811-818

A highly selective sensor for Cu^{2+} and Fe^{3+} ions in aqueous medium: Spectroscopic, computational and cell imaging studies

Shyam Lal [a], Satish Kumar [b], Sunita Hooda [a], Pramod Kumar [c]

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Abstract

A rationally designed chemosensor L1 (2-(2-amino-4,5-dihydrothiazol-4-yl)-5,5-dimethylcyclohexane-1,3-dione) is capable for the detection of biologically important Cu^{2+} and Fe^{3+} ions. The observable change in absorbance and emission in HEPES buffer solution and binding parameters display notable sensing ability of Cu^{2+} and Fe^{3+} ions. From Job's plot and ESI-MS spectra, 1:1 stoichiometric complexation with Cu^{2+} and Fe^{3+} ions have been established. The chemosensor was also utilized to develop logic gate by reversibility cycles for Fe^{3+} ion by EDTA. In addition, complex formation between the receptor and Cu^{2+}/Fe^{3+} ion was investigated by spectroscopically and computational studies. The cell imaging study indicated that L1 is highly efficient for the detection of Fe^{3+} ion in live cells. The simple synthetic route, multi-stimuli response, regenerative action and solution visualization of the proposed chemosensor potentially make it as excellent sensor for real samples.

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Journal of Photochemistry and Photobiology A: Chemistry
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Abstract

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RESEARCH ARTICLE VOLUME 4, ISSUE 11, E00951, NOVEMBER 2018

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Protective effects of *Aporosa octandra* bark extract against D-galactose induced cognitive impairment and oxidative stress in mice

Siva S. Panda • Adel S. Girgis • Atish Prakash • ... ElSayed M. Shalaby • Nehmedo G. Fawzy • Subhash C. Jain • Show all authors

Open Access • Published: November 30, 2018 • DOI: https://doi.org/10.1016/j.heliyon.2018.e00951 •

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Abstract

Aporosa octandra (Buch.-Ham. ex D.Don) Vickery is a native species of India. Different parts of the plant are used for the medicinal purpose by the tribal peoples of south-eastern part of India. However, the biological properties of *A. octandra* have not been studied well. The extracts obtained from the bark of *A. octandra* were evaluated to determine their protective effect on cognitive impairment and oxidative stress in mice induced by D-galactose using the standard protocol. Different dosages of extract **AOE-4** (100, 200, and 300 mg/kg, p.o.) were administered to mice, which were previously treated for six weeks with D-galactose (100 mg/kg s.c.). The D-galactose-induced mice showed significantly impaired cognitive behavior, i.e., oxidative defense, compared to the sham group. Six weeks of treatment with *A. octandra* extract **AOE-4** (100, 200 and 300 mg/kg, p.o.) considerably improved the cognitive behavior and oxidative impairment of mice compared to the control alone (D-galactose). For the phytochemical investigation, the bark of *A. octandra* was successively extracted with dichloromethane and methanol. The chemical constituents of *A. octandra* were isolated by multiple column chromatography and characterized by different spectral analyses. (*R*)-Coclaurine (**AO-5**), an alkaloid, was isolated along with two other compounds from the **AOE-4** extract; three more compounds were also isolated from the **AOE-1** extract of the bark of *A. octandra*. All the compounds were isolated for the first time from the bark of *A. octandra*, and their structures were established by detailed spectral studies. The structure of compound **AO-5** was also investigated and confirmed by X-ray diffraction and DFT studies. This study highlights the protective effect of *A. octandra* bark extract against D-galactose-induced biochemically dysfunction in mice. (*R*)-Coclaurine (**AO-5**) was isolated as one of the major components of *A. octandra* bark from **AOE-4** extract; compound could be further evaluated for the development of new potential

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Rakhi Saxena, Sharanjit Kaur & Vasudha Bhatnagar

Data Mining and Knowledge Discovery **32**, 1421–1443 (2018) | Cite this article

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Abstract

Several centrality measures have been formulated to quantify the notion of 'importance' of actors in social networks. Current measures scrutinize either local or global connectivity of the nodes and have been found to be inadequate for social networks. Ignoring hierarchy and community structure, which are inherent in all human social networks, is the primary cause of this inadequacy. Positional hierarchy and embeddedness of an actor in the community are intuitively crucial determinants of his importance. The theory of social capital asserts that an actor's importance is derived from his position in network hierarchy as well as from the potential to mobilize resources through intra-community (bonding) and inter-community (bridging) ties. Inspired by this idea, we propose a novel centrality measure social centrality (SC) for actors in social networks. Our measure accounts for—(1) an individual's propensity to socialize, and (2) his connections within and outside the community. These two factors are suitably aggregated to produce social centrality score. Comparative analysis of SC measure with classical and recent centrality measures using large public networks shows that it consistently produces more realistic ranking of nodes. The inference is based on the available ground truth for each tested networks. Extensive analysis of rankings delivered by SC measure and mapping with known facts in well-studied networks justifies its effectiveness in diverse social networks. Scalability evaluation of SC measure justifies its efficacy for real-world large networks.

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Bandwidth Efficient Broadcast Protocols in MANETs: A Review

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PAPER

Structural and optical properties of electrochemically deposited ZnO nanorods by using graphene oxide and ITO as substrate material: a comparative study

Chetna[1], Shani Kumar[1,2], A Garg[2], A Chowdhuri[3], A Jain[4] and A Kapoor[1]

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The present work reports the comparative study of structural and optical properties of ZnO Nanorods grown on Graphene Oxide (GO) and ITO. For this purpose, GO has been successfully synthesized via Hummer's method while electrochemical method has been used for the synthesis of ZnO nanorods. The structural and optical properties of the as-grown samples were studied using FESEM, EDX, XRD, FTIR and Raman spectroscopy. An improvement in density of ZnO nanorods with hexagonal structure is indicated by the FESEM micrographs. XRD analysis confirms that crystal structure of ZnO nanorods is not significantly disturbed by GO, in addition a reduction in lattice strain has been observed for the samples grown on GO. Raman and FTIR spectroscopy has also been performed to probe the structural integration of ZnO crystal structure and the results are in consensus with that of XRD analysis. The study indicates the potential application of GO as substrate material for ZnO nanorods based devices.

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PAPER

Sonication effect on graphene oxide (GO) membranes for water purification applications

Shani Kumar[1,3], Amit Garg[1] and Arijit Chowdhuri[2]

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Materials Research Express, Volume 6, Number 8

Citation Shani Kumar *et al* 2019 *Mater. Res. Express* **6** 085620

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Abstract

Recent literature indicates the use of graphene oxide (GO), derived from 2D material graphene as being the active material in membranes for water purification and desalination applications, mainly because of it exhibiting unique properties including high mechanical strength, excellent chemical stability, strong hydrophilicity, and excellent anti-fouling properties (Dreyer *et al* 2010 *Chem. Soc. Rev.* **39** 228, Dikin *et al* 2007 *Nature* **448** 457 and Koinuma *et al* 2012 *J. Phys. Chem. C* **116** 19822). In the current study, graphene oxide has been synthesized using well established Hummer's method and thereafter utilized as membranes on porous PVDF (polyvinylidene fluoride) support for water purification applications. The effect of sonication time (5 to 60 min) during preparation of graphene oxide membrane has been investigated vis-à-vis water purification abilities of the developed membranes. Related characterizations like dynamic light scattering (DLS), Raman

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Published: 27 September 2018

Circular restricted three-body problem when both the primaries are heterogeneous spheroid of three layers and infinitesimal body varies its mass

Abdullah A. Ansari, Ziyad Ali Alhussain & Sada Nand Prasad

Journal of Astrophysics and Astronomy **39**, Article number: 57 (2018) | Cite this article

129 Accesses | **12** Citations | Metrics

Abstract

The circular restricted three-body problem, where two primaries are taken as heterogeneous oblate spheroid with three layers of different densities and infinitesimal body varies its mass according to the Jeans law, has been studied. The system of equations of motion have been evaluated by using the Jeans law and hence the Jacobi integral has been determined. With the help of system of equations of motion, we have plotted the equilibrium points in different planes (in-plane and out-of planes), zero velocity curves, regions of possible motion, surfaces (zero-velocity surfaces with projections and Poincaré surfaces of section) and the basins of convergence with the variation of mass parameter. Finally, we have examined the stability of the equilibrium points with the help of Meshcherskii space–time inverse transformation of the above said model and revealed that all the equilibrium points are unstable.

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An EOQ Model for Deteriorating Items with Selling Price Dependent Exponential Demand for Time Varying Holding and Deterioration Costs

AUTHORS

Sachin Kumar Verma

Mohd. Rizwanullah

Chaman Singh

DOI: https://doi.org/10.14419/ijet.v7i4.41.24294

PUBLISHED: 2018-12-19

Keywords: Deteriorating items, price and time dependent demand, shortages and time varying holding cost, Lead time.

ABSTRACT Research investigation of the past few decades shown that the researchers developed economic order quantity (EOQ) model for perishable items under constant deterioration and constant demand. Though, in actual practice it is not true. This paper involved a representation of an inventory control model, in which perishable items has been taken with a price as well as an exponential dependent demand. The measured items in the model are deteriorating in nature based on time dependent deterioration rate. In the earlier studies the holding cost often treated as a constant, which is not suited to the most of the practical life situations. In real practical situation some kind of items treat holding cost is a function of time, which is increase as the time increases. In this paper, a model is developed which included the time dependent linear holding cost. We have achieved the estimated optimal solution under the given assumption according to the situation. A numerical example is presented to demonstrate the model and the sensitivity analysis of various parameters is approved out for the validation of the proposed method.

REFERENCES

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A production inventory model with selling price and stock sensitive demand under partial backlogging

Deo Datta Aarya and Mukesh Kumar

Published Online: March 29, 2018 • pp 350-363 • https://doi.org/10.1504/IJMOR.2018.090802

ABOUT

Abstract

In the proposed paper we develop an inventory model for instantaneous deteriorating items with multi variate function of demand rate. Generally, we observe that the demand for any product depends on so many factors, out of which the available stock and selling price are the main factors. So in this paper we have assumed that the demand rate is a function of stock and selling price. The production rate is taken as a function of demand rate. The shortages are allowed and it is assumed that the occurring shortages will be backlogged for which the backlogging rate is a function of waiting time. The numerical example and sensitivity exploration with respect to various parameters are also cited to illustrate the study.

Keywords

inventory, shortages and partial backlogging, multi variate demand rate, deterioration rate, production

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RESEARCH ARTICLE

Susceptibility Status of *Aedes aegypti* L. Against Different Classes of Insecticides in New Delhi, India to Formulate Mosquito Control Strategy in Fields

Roopa Rani Samal, Sarita Kumar*
Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalkaji, Govindpuri, New Delhi 110019, India

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RESEARCH ARTICLE

Effects of *Achyranthes aspera* Extracts on the Survival and Midgut Histo-architecture of *Aedes aegypti* L. Early IV Instars

Aarti Sharma[1], **Sarita Kumar**[2, *], **Pushplata Tripathi**[1]

[1] School of Sciences, Indira Gandhi National Open University, Maidan Garhi, New Delhi 110068, India

[2] Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalka Ji, India

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Growth regulatory and growth inhibitory effects of *Thevetia neriifolia* stem extracts on *Helicoverpa armigera* (Lepidoptera: Noctuidae)

Monika Mishra, Kamal Kumar Gupta & Sarita Kumar

Pages 895-914 | Received 05 Apr 2017, Accepted 24 Aug 2018, Published online: 28 Oct 2018

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Original Paper

Modelling of Pinning-Depinning Reversal Mechanism in Ion-Irradiated Co/Al_2O_3 Thin Films

Rajan Goyal, Rekha Gupta, Ambika Negi, Kandasami Asokan, Dinakar Kanjilal, Subhalakshmi Lamba, Subramanian Annapoorni

First published: 12 June 2018
https://doi.org/10.1002/pssa.201800141
Citations: 1

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Abstract

Present study reports the pinning–depinning mechanism in Co embedded Al_2O_3 matrix subjected to Ar^+ ion irradiations. Angular variation studies of the scaled coercivity are carried out and a comparison to existing theoretical models indicates that the dominant reversal mechanism is due to pinning. The origin of pinning is attributed to the displacement of Co atoms from their lattice sites, as a result of ion bombardment. The Monte Carlo simulations suggest that the observed magnetic behavior is well explained by pinning induced strain anisotropy in the system.

Conflict of Interest

The authors declare no conflict of interest.

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Published: 21 May 2018

Polarization dependent charge control model for microwave performance assessment of AlGaN/GaN/AlGaN double heterostructure HEMTs

Nisha Chugh, Monika Bhattacharya, Manoj Kumar, S. S. Deswal & R. S. Gupta

Journal of Computational Electronics **17**, 1229–1240 (2018) | Cite this article

383 Accesses | **11** Citations | Metrics

Abstract

An accurate polarization dependent charge control-based analytical model is proposed for microwave performance assessment of $Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N$ double heterostructure high electron mobility transistors (DH-HEMTs) in terms of current, transconductance, gate capacitances and cutoff frequency. An analytical expression correlating the sheet carrier concentration in the two 2DEGs formed at the upper and lower heterointerfaces of a DH-HEMT is obtained. AlGaN/GaN/AlGaN DH-HEMTs are found to exhibit superior RF performance as compared to its single heterostructure counterpart in terms of higher drain current, improved transconductance, higher gate capacitance and higher unity-gain cutoff frequency. This improvement in the DH-HEMT is mainly attributed to the formation of two 2DEGs (at top and the bottom heterointerface) as compared to the single 2DEG in a SH-HEMT. The variation of drain current with drain voltage and with gate voltage of AlGaN/GaN SH-HEMTs and AlGaN/GaN/AlGaN DH-HEMTs is obtained analytically and found to agree reasonably well with that obtained using ATLAS 2D device simulation, thereby validating the proposed model.

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Abstract

LARVICIDAL ACTIVITIES OF PETROLEUM ETHER EXTRACTS OF DIFFERENT FRUIT PEEL WASTES AGAINST AN INDIAN STRAIN OF FILARIAL VECTOR, CULEX QUINQUEFASCIATUS SAY (DIPTERA: CULICIDAE)

Shrankhla and Sarita Kumar*

ABSTRACT

Objective: The larvicidal activity of the petroleum ether extracts of different fruit peels was assessed against the early fourth instar of Culex quinquefasciatus (Cx. quinquefasciatus). Methods: Petroleum ether extracts of peels of six common fruits were prepared and evaluated against early fourth instar larvae of Cx. quinquefasciatus using WHO standard procedure. The results were statistically analyzed to explore the most efficient extract. Results: Out of the six extracts, the Citrus sinensis and Mangifera indica peel extracts were found the most effective. Other tested fruit peel extracts resulted in 10-80% larval mortality after 24 to 48 hours of exposure. The larvicidal bioassays with C. sinensis resulted in LC50 and LC90 values were 31.345 ppm and 75.313 ppm, respectively as compared to high LC50 and LC 90 values of 195.97 ppm and 633.05 ppm obtained with M. indica. Conclusions: The petroleum ether extract of C. sinensis peels was found as the most effective extract against early fourth instar of Cx. quinquefasciatus amongst the other tested fruit peel extracts. Further investigations are needed to identify the bioactive component and formulate control strategies.

Keywords: Citrus sinensis, Culex quinquefasciatus, Fruit peels, Larvicidal potential, Mangifera indica.

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Review

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Role of gold and silver nanoparticles in cancer nano-medicine

Heerak Chugh [1], Damini Sood [1], Ishita Chandra [1], Vartika Tomar [1], Gagan Dhawan [2], Ramesh Chandra [1 3]

Affiliations + expand

PMID: 29533101
DOI: 10.1080/21691401.2018.1449118

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Abstract

Development of nanoparticles (NPs) as a part of cancer therapeutics has given rise to a new field of research - cancer nanomedicine. In comparison to traditional anti-cancer drugs, NPs provide a targeted approach which prevents undesirable effects. In this communication, we have reviewed the role of gold and silver NPs (AgNPs) in the cancer nanomedicine. The preparation of gold NPs (AuNPs) and AgNPs can be grouped into three categories - physical, chemical and biological. Among the three approaches, the biological approach is growing and receiving more attention due to its safe and effective production. In this review, we have discussed important methods for synthesis of gold and AgNPs followed by techniques employed in characterization of their physicochemical properties, such as UV-visible spectroscopy, electron microscopy (TEM and SEM) and size and surface analysis (DLS). The mechanism of formation of these NPs in an aqueous medium through various stages - reduction, nucleation and growth has also been reviewed briefly. Finally, we conclude our review with the application of these NPs as anti-cancer agents and numerous mechanisms by which they render cancer cell toxicity.

Keywords: Nanoparticles; cancer; cancer nanomedicine; gold

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Article

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JOURNAL ARTICLE

Geometry of the Large Magellanic Cloud using multiwavelength photometry of classical Cepheids

Sukanta Deb, Chow-Choong Ngeow, Shashi M Kanbur, Harinder P Singh, Daniel Wysocki, Subhash Kumar

Monthly Notices of the Royal Astronomical Society, Volume 478, Issue 2, August 2018, Pages 2526–2540, https://doi.org/10.1093/mnras/sty1124

Published: 03 May 2018 **Article history** ▾

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ABSTRACT

We determine the geometrical and viewing angle parameters of the Large Magellanic Cloud (LMC) using the Leavitt law based on a sample of more than 3500 common classical Cepheids (FU and FO) in optical (V, I), near-infrared (JHK_s), and mid-infrared ([3.6] μm and [4.5] μm) photometric bands. Statistical reddening and distance modulus free from the effect of reddening to each of the individual Cepheids are obtained using the simultaneous multiband fit to the apparent distance moduli from the analysis of the resulting Leavitt laws in these seven photometric bands. A reddening map of the LMC obtained from the analysis shows good agreement with the other maps available in the literature. Extinction-free distance measurements along with the information of the equatorial coordinates (α, δ) for individual stars are used to obtain the corresponding Cartesian coordinates with respect to the plane of the sky. By fitting a plane solution of the form $z = f(x, y)$ to the observed three-dimensional distribution, the following viewing angle parameters of the LMC are obtained: inclination angle $i = 25.^\circ 110 \pm 0.^\circ 365$, and position angle of line of nodes $\theta_{\rm lon} = 154.^\circ 702 \pm 1.^\circ 378$. On the other hand, modelling the observed three-dimensional distribution of the Cepheids as a triaxial ellipsoid, the following values of the geometrical axes ratios of the LMC are obtained: 1.000 ± 0.003: 1.151 ± 0.003: 1.890 ± 0.014 with the viewing angle parameters: inclination angle of $i = 11.^\circ 920 \pm 0.^\circ 315$ with respect to the longest axis from the line of sight and position angle of line of nodes $\theta_{\rm lon} = 128.^\circ 871 \pm 0.^\circ 569$. The position angles are measured eastwards from north.

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Adoption of Free and Open Source Software in India

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Abstract

The significance and robustness of Free and Open Source Software (FOSS) are now well known at stages of development as well as deployment. It's natural to assume that the products of FOSS to be deployed as a preference over the commercially available propriety software. However, proprietary software not only exists but is also thriving. The present paper looks into the aspect of adoption of FOSS, with special emphasis to India. The two natural arena for adoption- Governance and Academia are chosen for study. The policy initiatives, frameworks and challenges in the implementation of FOSS in these two areas are discussed, while giving instances of its successful adoption. The study also discusses in brief the adoption of FOSS in business enterprise, where its adoption is dynamic and accelerated. Several challenges in adoption of FOSS over propriety software are also pointed out.

Keywords: Adoption, FOSS, Proprietary software

INTRODUCTION

The Free and Open Source Software (FOSS) movement attained prominence in the 1980s, primarily to unshackle the restrictions imposed on the use of copy righted software, now known as CSS (Closed Source Software). Today, although one may not be aware, FOSS is actually providing for the computational requirements for a large spectrum of products and services which make the modern, technologically intensive digital life possible. Most of the smart phones (android based), servers and portals, ATMs, supercomputers, databases etc around the world are FOSS driven. In India, two humongous citizen-specific projects – Aadhar's online infrastructure and the railway booking website utilizes the Linux servers. The FOSS provides a myriad of advantages over the CSS at all stages – development, distribution and research, which have been extensively mentioned in the literature [1-5]. Given the intrinsic freedom of usage, customization, propagation and the relative cost effectiveness which all products of FOSS offers, the adoption of FOSS by a country like India could have been a natural and prudent choice as the nation endevours to upscale the use of IT (information technologies) in its pursuit of digital governance. In this context, one may be betting on India becoming the global FOSS hub. It's evident to expect that the India is a fertile ground for the nurturing of a strong and mature FOSS ecosystem. A FOSS ecosystem comprises of a multitude of stakeholders – government, academic institutions like schools and colleges, FOSS solution providers and the FOSS community. Moreover, in India there is no dearth of business opportunities for providing IT solutions to enterprise. This is because India is only next to China in having the largest base of Internet users, notwithstanding the fact that 80 per cent of its population still needs to go online. When this is seen in the background of the availability in the last two decades of large number of reliable and robust FOSS products, which provides solutions for all domains, wherein the CSS have hitherto provided the services (Refer Table 1) the above expectation is certainly not misplaced.

So, where does India stand on the adoption of free software? The adoption of FOSS in India, until now can be described as patchy and sporadic, without a concerted push to adopt FOSS in the daily computational needs of various spheres viz., Governance, academia and business enterprise. However, it must be mentioned here that although the growth of FOSS in India has witnessed a faster rate than the past, the FOSS ecosystem is far from the threshold level of maturity. This has resulted into a narrow user base for FOSS in India. The government's efforts for FOSS adoption have been varied. While some efforts are subtle, voluntary and staggered, some migrations to FOSS have been hard and coercive. In most cases, migration to FOSS are justified from the perspectives of cost and security and its salient features of being participative, egalitarian and democratic is not emphasized sufficiently. While the goal of making India a global hub for FOSS is laudable, it becomes necessary to examine the extent of adoption and the associated challenges in the migration to FOSS for the computational needs of the digital society which we envisage in India. The present paper surveys the extent of adoption of FOSS in the three major areas of the Indian society i.e., Governance, academia and business enterprise. The study also attempts to identify the impediments in each of these spheres which are inhibiting the development of a supportive and mature ecosystem around FOSS which can harness FOSS to its full potential.

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Optical Materials
Volume 83, September 2018, Pages 342-347

Spherical growth of nanostructures ZnO based optical sensing and photovoltaic application

Rakesh K. Sonker [a], S. Sikarwar [b], S.R. Sabhajeet [b], Rahul [c], B.C. Yadav [b]

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Abstract

The present paper reports deviation in the intensity of light transmitted through the film of ZnO spherical nanostructure (SNSs) with the exposure of humidity at room temperature. For this purpose, the precursor of ZnO SNSs was prepared and used for coating thin film on borosilicate substrates. The efficient dye-sensitized solar cells (DSSCs) are promisingly low-cost molecular solar cell devices. ZnO SNSs are promising materials used to use to create photoanodes for DSSCs. The film was then investigated using SEM, HR-TEM, XRD and UV–visible transmittance techniques. Further, it was employed as transmission based optical humidity sensor, the maximum sensitivity of which was found a ~ 1.81 μW/%RH with response and recovery time of 36 s and 124 s respectively. The sensor showed ~97% reproducible results. The fabricated ZnO SPSs based DSSC shows a short circuit current density (J_{sc}) of 3 mA/cm^2, open circuit voltage (V_{oc}) of 0.62 V and efficiency (η) of 1.3% at one sun condition.

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Section G: Tunable Dielectrics for RF and High Frequency Devices

Study of electrical, dielectric and EMI shielding behavior of copper metal, copper ferrite and PVDF composite

Krishna Kamal Halder, Rakesh K. Sonker, V. K. Sachdev, Monika Tomar & Vinay Gupta

Pages 80-87 | Received 10 Dec 2017, Accepted 16 Jul 2018, Published online: 16 Apr 2019

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Published: 05 June 2018

Synthesis and investigation of cubical shaped barium titanate and its application as opto-electronic humidity sensor

Samiksha Sikarwar, Rakesh K. Sonker, Anuj Shukla & B. C. Yadav

Journal of Materials Science: Materials in Electronics **29**, 12951–12958 (2018) | Cite this article

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Abstract

In the current scenario, nanoscience and nanotechnology are playing a vital role in the upliftment of the quality of human life. The quantum confinement effect that arises at the nano-dimensional particles, changes the properties of the material in a drastic way. The present paper reports the successful synthesis of $BaTiO_3$ using rotary evaporator and fabrication of sensing elements by deposition of films on flat borosilicate glass substrates using 2-methoxy ethanol and homogeneous precursor in the ratio of 1:4, 2:4, 3:4 and 4:4. These films were then annealed at 650 °C and characterized through various techniques. Morphological investigation as obtained from SEM reported the cubical clusters and the dimensionality of these clusters, decreases with increase in the concentration of 2-methoxy ethanol. An optical investigation done through UV–Vis spectrum showed the absorbance in the UV range and Tauc plot estimated the optical band gaps of 3.842, 3.854, 3.864 and 3.872 eV for the respective films. Structural information as obtained from XRD of the film having 2-methoxy ethanol and homogeneous precursor in the ratio of 4:4 gave minimum crystallite size of ~ 18 nm. Further, these films were employed as opto-electronic humidity sensor where the maximum sensitivity of the sensing elements was found as 2.15, 2.79, 3.28 and 3.67 μW/%RH respectively. Thus as the concentration of 2-methoxy ethanol in the solution increases, the properties of the material increases and hence the humidity sensing potency also increases.

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Volume 169, September 2018, Pages 166-171

Original research article

Less toxic tin incorporated perovskite solar cell using polymer electrolyte processed in the air

Rahul [a b], Pramod K. Singh [b], M. Parvaz [a], Sultan Ahmed [a], Rakesh K. Sonker [c], B. Bhattacharya [b], Zishan H. Khan [a]

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Abstract

Perovskite sensitizer materials based solar cell (PSSC) is freshly seemed as warm topic because very soon they achieve higher efficiency (~20%) at incident light intensity 100 mw/cm^2 (1 sun condition). This paper deals the fabrication, characterization as well as application of perovskite material. Perovskite material i.e. $MASnCl_3$(CH_3NH_3SnCl3) was composed by coordinate statement of equimolar convergence of CH_3NH_3Cl and tin $SnCl_2$ in DMF arrangement. It was extra portrayed utilizing different characterization methods like X-Ray diffraction (XRD), UV–vis ingestion spectroscopy and Scanning electron microscope (SEM). PSSC has been fabricated utilizing methyl ammonium tri-tin chloride ($CH_3NH_3SnCl_3$) perovskite and polyethylene oxide (PEO) solid polymer electrolyte(SPE)sandwiched between perovskite working electrode (WE) and platinum counter electrode (CE) and its implementation at room condition has been accounted for in this paper. The fabricated PSSC demonstrates a short out current density (Jsc) of 1.8 mA/cm^2, Voc of 0.48 V, fill factor of 0.68 and efficiency (η) of 0.60% at one sun condition.

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Sol-gel formed spherical nanostructured titania based liquefied petroleum gas sensor

S. R. Sabhajeet; B. C. Yadav; Rakesh K. Sonker

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AIP Conference Proceedings 1953, 030078 (2018)

https://doi.org/10.1063/1.5032413

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The present work reports the preparation of Titania(TiO_2) thin film by sol-gel technique and its Liquefied Petroleum Gas (LPG) sensing. TiO_2 exists in numerous phases possessing different structural properties like amorphous, anatase or anatase/rutile mixed phases. The structural analysis confirmed the formation of TiO_2 having an average crystallite size 21 nm. SEM showed the regular and porous surface morphology. The band gap of the material was found as 3.65 eV. This film was employed for LPG sensing and variations in resistance with exposure of LPG were observed. Sensor response (S) as a function of time was calculated and its maximum value was found as 2.8 for 4% vol. of LPG with a response and recovery times of 240 sec and 248 sec respectively.

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Materials Letters

Volume 223, 15 July 2018, Pages 133-136

ZnO nanoneedle structure based dye-sensitized solar cell utilizing solid polymer electrolyte

Rakesh K. Sonker [a], Rahul [b], S.R. Sabhajeet [c]

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Abstract

Developing new technologies that could lead to alternatives to the traditional silicon-based solar panels and to efficiently light the world in the future, is critically important because of limited natural petroleum resources. Dye-sensitized solar cells (DSSCs) are promisingly efficient and clean hybrid, organic–inorganic, low-cost molecular solar cell devices. Because of their unique, multifunctional properties, zinc oxide (ZnO) nanostructures are promising materials to use to create photoanodes for DSSCs. ZnO was one of the first metal oxides which used in dye-sensitized solar cells. It exhibits a unique combination of potentially interesting properties such as high bulk electron mobility and probably the richest variety of nanostructures based on a very wide range of synthesis routes. The fabricated ZnO nanoneedle based DSSCs shows a short circuit current density (J_{sc}) of 20 mA/cm^2, open circuit voltage (V_{oc}) of 0.48 V, fill factor (FF) of 0.44 and efficiency (η) of 4.2% at one sun condition.

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Optics Communications
Volume 427, 15 November 2018, Pages 37-43

Enhancement in self-compression due to co-propagating laser pulse in plasma

Sintu Kumar, Pradeep Kumar Gupta, R. Uma, R.P. Sharma

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Abstract

The study proposes enhancement in self-compression of the laser pulse with relativistic nonlinearity in a plasma. It is presented that, a low-intensity laser pulse can tune the pulse duration and peak intensity of the high-intensity laser pulse. The coupled modified nonlinear Schrodinger equations (MNLS) have been established for both laser pulses in plasma. The enhancement in compression of the high-intensity laser pulse is solved by numerical methods. The nonlinearity of plasma, self-phase modulation (SPM), and group velocity dispersion (GVD) compress the laser pulse to the extremely short duration high peak intensity laser pulse. As a result, it is observed that the compression of the high-intensity laser pulse is highly sensitive to the combined intensity of both laser pulses, plasma density and even a small walkoff between two pulses can affect the high-intensity laser pulse compression.

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Authors: Sonker, Rakesh Kumar; Yadav, B. C.
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In the present work chemical route method was used to deposit different catalyst (Pt and Pd) doped

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RESEARCH ARTICLE | APRIL 26 2018

Dynamics of focused femtosecond laser pulse during ɔdisruption of crystalline lens

Kumar Gupta; Ram Kishor Singh; R. P. Sharma

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Plasmas 25, 043121 (2018)

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Propagation of laser pulses of femtosecond time duration (focused through a focusing lens inside the crystalline lens) has been investigated in this paper. Transverse beam diffraction, group velocity dispersion, **graded refractive index** structure of the crystalline lens, self-focusing, and photodisruption in which plasma is formed due to the high intensity of laser pulses through multiphoton ionization have been taken into account. The model equations are the modified nonlinear Schrödinger equation along with a rate equation that takes care of plasma generation. A close analysis of model equations suggests that the femtosecond laser pulse duration is critical to the breakdown in the lens. Our numerical simulations reveal that the combined effect of self-focusing and multiphoton ionization provides the breakdown threshold. During the focusing of femtosecond laser pulses, additional spatial pulse splitting arises along with temporal splitting. This splitting of laser pulses arises on account of self-focusing, laser induced breakdown, and group velocity distribution, which modifies the shape of laser pulses. The importance of the present study in cavitation bubble generation to improve the elasticity of the eye lens has also been discussed in this paper.

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Potential of Nardostachys jatamansi Extracts to Manage Indian Strain of Aedes aegypti: A Novel Approach for Vector Control

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Gesture Recognizing Smart System

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ABSTRACT

For differently abled people like deaf or dumb, communication is a challenge. They make use of sign language which is not easily understandable by others and hence poses severe challenges and inconveniences for them in carrying out their day to day task. This work attempts to bridge the communication gap by designing a device that can convert the user's sign language gestures to visual form. The primary focus of the work is to design a portable, intelligent, smart, and cost-effective system using flex sensors and accelerometer which identifies the extensive hand movements of the differently abled person while communicating using sign language and in effect can facilitate him/her in communicating with others. The portable device can capture the user's sign language gestures, convert it to text and outputs the translated text to PC serial monitor, which can easily be understood and can also be converted to voice to be heard by the normal audience. The work also encompasses the design of mobile application for further assistance to differently abled persons.

Keywords: Arduino, Flex Sensors, Gesture Recognition, Sign Language

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Acrylonitrile copolymer based membrane sensor for selective detection of Pb^{2+} ions in aqueous medium

[1] Shyam Lal, [2*] Sunita Hooda, [3] Amit Kumar, [4] Subodh Kumar, [5] Aarushi Singh, [6] Snigdha Singh, [7*] Ramesh Chandra, [8] Vikrant Kumar, [9] Vandana Uberoi, [10] Geetu Gambhir, [11] Drashya

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*Corresponding author

Abstract

A lead (II) ion selective sensor has been facilely fabricated from Styrene - Acrylonitrile (SA) copolymer as a neutral carrier, sodium tetra phenyl borate (NaTPB) as an anionic excluder and tri butyl phosphate (TBP) as a plasticizing solvent mediator. Fabricated sensor, over a concentration range of $1x10^{-5}$-$1x10^{-1}$ mol L^{-1} revealed a best Nernstian response for Pb (II) ions with a slope of 39.60 mV/decade. Potentiometric selectivity coefficient values as determined by Fix Interference Method (FIM) and Match Potential Method (MPM) indicated that the electrode has good selectivity of Pb^{2+} ion over other heavy metal ions. The performance of proposed sensor in non aqueous mixtures up to 20 % (v/v) ethanol was satisfactory. The effect of surfactant and detergent on the working of Pb^{2+} ion selective electrode was also studied. The electrode can be used for the determination of lead ion pollution in waste water sample.

Keywords: styrene, acrylonitrile, copolymer, ion selective electrode, potentiometric sensor

Introduction

A large number of heavy metals and their compounds are found in the industrial waste and responsible for the environmental pollution. The major sources of lead wastes are lead battery effluent, paint and leather industry. World Health Organization (WHO) [1] has recognized an action level of 10 ppb (µg/L) for lead in drinking water. Therefore, reliable and convenient determination of lead (II) ion is significantly important and emergent in monitoring human health effects and the environment. Lead is a strong poison and tends to

might not be available in most analytical laboratories [11]. To monitor lead metal, membrane sensors are well-known analytical tools used for the selective and direct measurement of a wide variety of different ions in complex biological and environmental samples. Potentiometric sensors is a direct method that does not require a pretreatment of samples and has noticeable advantages including simple instrumentation, fast response, wide dynamic range, high analyte selectivity, minimal use of toxic solvents, superior detection limit,

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Structure-Guided Design and Development of Potent and Selective Dual Bromodomain 4 (BRD4)/Polo-like Kinase 1 (PLK1) Inhibitors

Shuai Liu, Hailemichael O. Yosief, Lingling Dai, He Huang, Gagan Dhawan, Xiaofeng Zhang, Alex M. Muthengi, Justin Roberts, Dennis L. Buckley, Jennifer A. Perry, Lei Wu, James E. Bradner*, Jun Qi*, and Wei Zhang*

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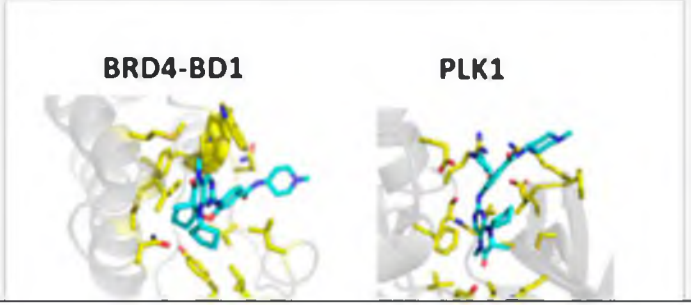
SUBJECTS: Alkyls, Inhibition, Inhibitors,

Abstract

The simultaneous inhibition of polo-like kinase 1 (PLK1) and BRD4 bromodomain by a single molecule could lead to the development of an effective therapeutic strategy for a variety of diseases in which PLK1 and BRD4 are implicated. Compound **23** has been found to be a potent dual kinase–bromodomain inhibitor (BRD4-BD1 IC_{50} = 28 nM, PLK1 IC_{50} = 40 nM). Compound **6** was found to be the most selective PLK1 inhibitor over BRD4 in our series (BRD4-BD1 IC_{50} = 2579 nM, PLK1 IC_{50} = 9.9 nM). Molecular docking studies with **23** and BRD4-BD1/PLK1 as well as with **6** corroborate the biochemical assay results.



Issue 13, 2018

From the journal:
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Sequential (3 + 2) cycloaddition and (5 + *n*) annulation for modular synthesis of dihydrobenzoxazines, tetrahydrobenzoxazepines and tetrahydrobenzoxazocines†

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Alex Muthengi,[a] Xiaofeng Zhang,[a] Gagan Dhawan,[b] Wensheng Zhang,[c] Francesca Corsini[a] and Wei Zhang *[a]

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Abstract

A two-step method for the (3 + 2) cycloaddition of azomethine ylides followed by a double S_N2 substitution-based (5 + *n*) annulation is introduced for the modular synthesis of dihydrobenzoxazine, tetrahydrobenzoxazepine and tetrahydrobenzoxazocine derivatives. After a quick water wash without further purification, the (3 + 2) cycloaddition intermediates were used for the (5 + *n*) annulation to afford products. Green chemistry metrics analysis of the

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Journal of Advances and Scholarly Researches in Allied Education [JASRAE] (Vol:15/ Issue: 11)
DOI: 10.29070/JASRAE

Authors:
Sudha Vipin Sharma*, Sunita Hooda,

Subjects:
Multidisciplinary Academic Research

Year: Nov, 2018
Volume: 15 / Issue: 11
Pages: 262 - 275 (14)
Publisher: Ignited Minds Journals
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An Analysis on Recent Technological Developments in Green Chemistry: Biocatalytic Processes | *Original Article*

— Sudha Vipin Sharma*, Sunita Hooda, in *Journal of Advances and Scholarly Researches in Allied Education* | *Multidisciplinary Academic Research*

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ABSTRACT

Enzymes are the most capable catalysts, offering considerably more focused processes contrasted with chemical catalysts. The quantity of modern applications for enzymes has detonated as of late, principally inferable from advances in protein building innovation and environmental and monetary necessities. In this, we audit late advancement in protein biocatalysis, and talk about the patterns and procedures that are prompting more extensive mechanical compound applications. The difficulties and openings in creating biocatalytic processes are additionally talked about. Enzymes as mechanical biocatalysts offer various points of interest over conventional chemical processes as for supportability and process proficiency. Protein catalysis has been scaled up for business processes in the pharmaceutical, nourishment and refreshment enterprises, albeit further upgrades in dependability and biocatalyst usefulness are required for ideal biocatalytic processes in the vitality area for biofuel creation and in gaseous petrol change. The specialized hindrances related with the execution of immobilized enzymes recommend that a multidisciplinary approach is fundamental for the improvement of immobilized biocatalysts relevant in such modern scale processes. In particular, the cover of specialized aptitude in catalyst immobilization, protein and process designing will characterize the up and coming age of immobilized biocatalysts and the effective scale-up of their initiated processes. This audit talks about how biocatalysis has been effectively conveyed, how protein immobilization can enhance modern processes, and in addition centers around the investigation devices basic for the multi-scale execution of compound immobilization for expanded item yield at most extreme market gainfulness and least calculated weight on the environment and client.

KEYWORDS

BIONOTES Vol. 21 (1) Mar., 2019

SIGHTINGS OF *JAMIDES BOCHUS* (STOLL, [1782]) AND *PROSOTAS NORA* (C. FELDER, 1860) (INSECTA: LEPIDOPTERA: LYCAENIDAE) FROM URBANIZED PARTS OF NEW DELHI, INDIA

RAJESH CHAUDHARY* & VINESH KUMAR

Department of Biomedical Science, Acharya Narendra Dev College (University of Delhi), Govindpuri, Kalkaji, New Delhi-110 019.

**Corresponding Author- email: rajeshchaudhary@andc.du.ac.in*

The population of Delhi has increased seventy fold during the last century, with concurrent expansion of urban or concretized landscape (Anonymous, 1912; Anonymous, 2011). Presently, the urbanized portion of Delhi is dotted with numerous parks and gardens harbouring domesticated flora. An evident effect of urbanization of a geographical area is change in the species composition of plants and animals, and, in fact, urbanization introduces novel ecosystems (Lepczyk *et al.*, 2017; Donahue & Lambert, 2015). Insects such as butterflies, which require larval host plants for their survival and are sensitive to the effect of urbanization, can act as an indicator of biodiversity in urban settings (Clark *et al.*, 2007; Fontaine *et al.*, 2016; Dennis *et al.*,

The first partial list of butterflies of Delhi was prepared by Longstaff (1912), mentioning 21 species. An elaborate list of 62 butterflies was made by Jandu (1942, 1943) and Donahue (1967) listed 77 species of butterflies. The list was expanded to include 86 species by Larsen (2002). Recently, a checklist of 115 species of butterflies seen in Delhi was published by Biswas *et al.* (2017). The increase in the butterfly count over time, as evident from these lists, could be the effects of gradual changes in the pattern of floral diversity and habitat due to horticultural practices and urbanization. Alternatively, it may merely be the result of increased observation.

Here, we report the recent sightings of two species of butterflies, *Jamides bochus* (Dark Cerulean) and *Prosotas nora*

Article | Published: 04 May 2018

Occurrence of subdioecy and scarcity of gender-specific markers reveal an ongoing transition to dioecy in Himalayan seabuckthorn (*Hippophae rhamnoides* ssp. *turkestanica*)

Yash Mangla, Kamal Das, Sapinder Bali, Heena Ambreen, Soom Nath Raina, Rajesh Tandon & Shailendra Goel

Heredity **122**, 120–132 (2019) | Cite this article

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Abstract

Dioecy and the dynamics of its evolution are intensely investigated aspects of plant reproduction. Seabuckthorn (*Hippophae rhamnoides* ssp. *turkestanica*) is an alpine shrub growing wild in certain parts of western Himalaya. The previous studies have reported heteromorphic sex chromosomes in the species and yet marker-based studies indicate high

10.24425/acs.2019.129384

Archives of Control Sciences
Volume 29(LXV), 2019
No. 2, *pages* 307–322

Synchronization of fractional order Rabinovich-Fabrikant systems using sliding mode control techniques

SANJAY KUMAR, CHAMAN SINGH, SADA NAND PRASAD,
CHANDRA SHEKHAR and RAJIV AGGARWAL

In this research article, we present the concepts of fractional-order dynamical systems and synchronization methodologies of fractional order chaotic dynamical systems using slide mode control techniques. We have analysed the different phase portraits and time-series graphs of fractional order Rabinovich-Fabrikant systems. We have obtained that the lowest dimension of Rabinovich-Fabrikant system is 2.85 through utilization of the fractional calculus and computational simulation. Bifurcation diagrams and Lyapunov exponents of fractional order Rabinovich-Fabrikant system to justify the chaos in the systems. Synchronization of two identical fractional-order chaotic Rabinovich-Fabrikant systems are achieved using sliding mode control methodology.

Key words: fractional-order chaotic system, chaos synchronization, Rabinovich-Fabrikant system, Lyapunov exponents

1. Introduction

Chaos, an inevitable phenomenon is the part of nonlinear systems. It is highly sensitive to the initial conditions. This sensitivity is popularly known as the butterfly effect [1]. Since Pecora and Carroll established the concept of chaos synchronization with different initial conditions, it (chaos synchronization) has been received much attention in the field of research. Synchronization of two or more than two chaotic dynamical systems is one of most important applications of chaos. Last several decades, chaos synchronization has been become the research

An Optimal Policy for Deterministic Model for Time Proportional Deteriorated Inventory with Different Demand Rate Pattern

Sachin Kumar Verma, Research Scholar, Department of Mathematics and Statistics, Manipal University, Jaipur, Rajasthan, India. Email: manipal.kumar.sachin1985@gmail.com

Mohd. Rizwanullah, Associate Professor, Department of Mathematics and Statistics, Manipal University, Jaipur, Rajasthan, India.

Chaman Singh, Assistant Professor, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, Delhi, India.

Abstract--- In this paper, we have formulated an economic order quantity inventory model for a deteriorating item having a twofold deterministic demand rate. The Constant demand rate in the first part of the cycle and the exponential demand rate in the second part of the cycle has been taken. We also considered deterioration rate is time sensitive in nature and Shortages are not the part of this model. A complete solution procedure is provided to demonstrate the proposed model. Also, a numerical example and sensitivity analysis of various unknown parameters illustrated in this model.

Keywords---Constant and Time Dependent Exponential Demand Rate, Deteriorating Items, EOQ, Time Proportional Deterioration Rate.

I. Introduction

In today's competitive world, Mostly business organizations trying to stress on inventory management and their problems, which occurred frequently. It is known that every business organization showing their interest to obtain economic order quantity (EOQ), through which minimized total average inventory cost can be achieved. During the last couple of decades, it has been observed that, many researches working in the direction to control and maintain the inventory in the better and efficient way. In real practical life situation, decay or deterioration of normal talk in now days. Vegetables, fruits, foods are some example of some items having deterioration in nature. As the time increases, deteriorating items keep losing their original value with regard the quantities and qualitative aspect. Therefore, Ignorance of deteriorating factors while analyzing the model leads to harmful results. So it is an unavoidable factor, which should be given attention during the optimization inventory problems Sharma, A. et.al [24] [25] suggested the inventory model in which different demand rate has been taken with a different time interval. Commercial based lot size model for price sensitive dependent demand.

World View | Published: 20 May 2019

Influence of open educational resources on educational practices in the Global South

Sarita Kumar

Nature Human Behaviour **3**, 540–541 (2019) | Cite this article

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Open educational resources enable the effective use and sharing of knowledge with those who have been denied an education due to economic or social circumstances. Sarita Kumar outlines how open educational resources can benefit education systems across the Global South by opening up an entire generation to new ideas, technologies and advancements.

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22 April 2019

Diminished Activity of Larval Midgut Transaminases and Phosphatases in *Helicoverpa armigera* Hübner (Lepidoptera) Induced by Dietary Stem Extracts of *Thevetia neriifolia*

Monika Mishra, *Kamal Kumar Gupta*, *Sarita Kumar*

Author Affiliations +

The J. of the Lepidopterists' Society, 73(1):23-33 (2019). https://doi.org/10.18473/lepi.73i1.a4

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Abstract

Helicoverpa armigera Hübner (Noctuidae) is a common crop pest causing extensive loss of crop yields despite several efforts and diverse measures taken. As utilization of synthetic pesticides in the fields have caused ecological disturbances and lethal effects on humans and organisms; present studies explore *Thevetia neriifolia* (Apocynaceae), a widely used ornamental plant, against *H. armigera* as an alternate control measure. The study investigates the dietary effects of hexane and methanol extracts of *T. neriifolia*

Original Article | Published: 04 July 2019

Draft genome of *Streptomyces* sp. strain 130 and functional analysis of extracellular enzyme producing genes

Munendra Kumar, Prateek Kumar, Payal Das & Monisha Khanna Kapur

Molecular Biology Reports **46** 5063–5071 (2019) | Cite this article

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Streptomyces sp. strain 130 possesses multiple uncharacterized extracellular enzyme producing genes. Enzymes from these genes may fulfil the intense demand of stable and effective extracellular enzymes in various industries. Taxonomy of *Streptomyces* sp. strain 130 was validated by FAME analysis. Strain 130 was screened for the presence of chitinase producing genes of family 18 and 19 using SC1F/SC2R and F19F2/F19R primer sets respectively. Whole genome sequencing was done using Illumina Next Seq 500 system. In the analysis of draft genome of *Streptomyces* sp. strain 130, the genome size was found to be 7.1 Mb. Blastn and NCBI-conserved domain search tool were used to find similarity percentage with genes in existing database and enzyme family respectively. Ten chitinase, six xylanase and one cellulase producing genes were present in draft genome. Among the ten chitinase

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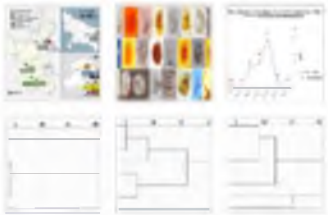

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Saudi Journal of Biological Sciences

Volume 26, Issue 6, September 2019, Pages 1305-1313

Original article

Soil ciliates of the Indian Delhi Region: Their community characteristics with emphasis on their ecological implications as sensitive bio-indicators for soil quality

Jeeva Susan Abraham [a], S. Sripoorna [a], Jyoti Dagar [a], Shiv Jangra [a], Anit Kumar [a], Khushi Yadav [a], Simran Singh [a], Anusha Goyal [a], Swati Maurya [a], Geetu Gambhir [a], Ravi Toteja [a], Renu Gupta [b], Dileep K. Singh [c], Hamed A. El-Serehy [d e], Fahad A. Al-Misned [d], Saleh A. Al-Farraj [d], Khaled A. Al-Rasheid [d], Saleh A. Maodaa [d], Seema Makhija [a]

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Abstract

The present investigation aims to study the diversity of ciliates from different habitats in and around Delhi, India, and the correlation of this diversity with soil quality (agricultural lands (site 1 and 2), dump yards (site 3 and 4), sewage treatment plant (site 5), residential land (site 6), landfill (site 7) and barren land (site 8)). Various physicochemical parameters of the different soil samples were studied and analysed for soil texture, interstitial water, pH, conductivity, total organic carbon, total organic matter, total nitrogen and phosphorous content, using standard protocols. Seventeen ciliate taxa belonging to four classes, seven orders, ten families, and 17 genera were recorded, with the maximum number of species (eleven) belonging to the class Spirotrichea. Ciliate diversity was highest at sites 5 and 6 and lowest at sites 1 and 2. *Spathidium* sp. was the dominant species in the conditioned land (site 8), while the ciliate *Colpoda* sp. was

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Published: 16 January 2019 | https://doi.org/10.1099/ijsem.0.003176

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Ferroelectric liquid crystal nanocomposites: recent development and future perspective

Satya Prakash Yadav, Kanchan Yadav, Jayeeta Lahiri & Avanish Singh Parmar

Pages 143-169 | Received 28 Oct 2018, Accepted 27 Feb 2019, Published online: 22 Mar 2019

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ABSTRACT
1. Introduction
2. Brief overview of liquid crystals
3. Dispersion of nanoparticles in liquid crystals
4. Application and promise of FLC nanocomposite systems
5. Effect of nanomaterials dispersion on the various properties of ferroelectric liquid crystals
6. Conclusion and future perspectives
Acknowledgements

ABSTRACT

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In recent years, dispersion of nanomaterials in liquid crystal media has attracted a great deal of attention for their applications in various fields and basic understanding. In this regard, nanocomposites of ferroelectric liquid crystals hold a great promise for technological advancement in displays, sensors, development of hybrid materials for optical applications and others. With the emphasis on the properties of ferroelectric liquid crystals, this paper presents a summarizing overview with critical comments on the progress made in last one decade in understanding the influence of nanoparticles on the ferroelectric liquid crystals. The dispersion of nanoparticles in liquid crystal (host material) significantly influences its properties, thereby making the dispersed material more promising for potential applications.

KEYWORDS: Liquid crystals | ferroelectric liquid crystals | nanocomposites | memory effect

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1. Introduction

Over the last few years, much interest has been shown to the study of ferroelectric liquid crystals (FLCs) dispersed with nanomaterials (nanoparticles (NPs), nanorods (NRs), quantum dots (QDs), etc.) of various shapes and sizes because these nanocomposites hold a great promise for the scientific advancement and technological breakthroughs in the applications of LC-based devices [1–18]. The FLCs based devices have been found to be more advantageous over the nematic liquid crystals (NLCs) based devices in terms of

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PAPER

A novel method of electrochemically growing ZnO nanorods on graphene oxide as substrate for gas sensing applications

Chetna [1], Shani Kumar[1,2], A Garg[2], A Chowdhuri[3], A Jain[4] and A Kapoor[1]

Published 17 April 2019 • © 2019 IOP Publishing Ltd

Materials Research Express, Volume 6, Number 7

Citation Chetna *et al* 2019 *Mater. Res. Express* **6** 075039

DOI 10.1088/2053-1591/ab16f8

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Abstract

The potential of electrochemically deposited ZnO nanorods using graphene oxide (GO) coated inter digital electrode (IDE) as substrate material for gas sensing applications has been reported. For this purpose, GO solution was synthesized via Hummer's method and coated over IDE of aluminium fabricated on the glass plate. Later ZnO nanorods were deposited on it using electrochemical method. For the structural, morphological and elemental analysis, as-grown nanorods were characterized by

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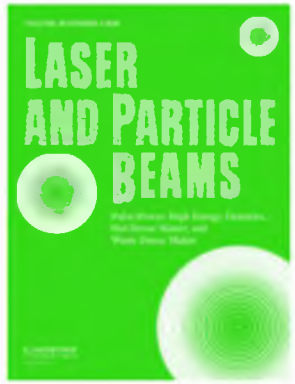

Laser and Particle Beams

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Transient setting of relativistic ponderomotive non-linearity and filamentation of ultra-short laser pulses in collisionless plasmas

Published online by Cambridge University Press: **11 July 2019**

R.P. Sharma, Narender Kumar, R. Uma, Ram Kishor Singh and P.K. Gupta

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Abstract

We study the setting up of relativistic ponderomotive non-linearity in an under-dense collisionless cold plasma. Using the fluid model, coupled system of equations of the laser beam and electron plasma oscillations has been derived. We present the numerical simulation for this coupled system of equations, when the coupling arises through relativistic ponderomotive non-linearity. The filamentation of the laser beam has been found to vary appreciably with

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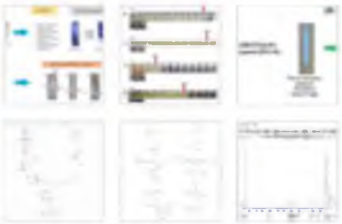

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Volume 229, December 2019, 126312

Exploitation of potential bioactive compounds from two soil derived actinomycetes, *Streptomyces* sp. strain 196 and RI.24

Prateek Kumar [a], Aditi Kundu [b], Munendra Kumar [a], Renu Solanki [c], Monisha Khanna Kapur [a]

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Abstract

Due to emergence of drug resistant pathogens, nearly all available medicines are becoming ineffective against these life threatening pathogens so there is dire need for the discovery of compounds having unique modes of action. During our previous studies, actinomycetes designated as 196 and RI.24 were isolated, screened for bioactive compounds production and characterized using 16S rRNA gene sequencing. Colony 196 was identified as strain of *Streptomyces albolongus* (100% sequence similarity) and RI.24 as strain of *Streptomyces enissocaesilis* (100% sequence similarity). In current study, potential bioactive compounds produced by these strains were characterized. Cold extraction method was applied for taking out of bioactive compounds from actinomycetes. Minimum inhibitory concentration (MIC) determination of compounds from these strains showed activity nearly in the range of commercial antibiotics (strain 196 0.0075 mg/ml, RI.24 0.25 mg/ml and chloramphenicol 0.0075 mg/ml, ampicillin 0.025 mg/ml). Structural elucidation of these compounds was carried out using spectroscopic techniques of LC–MS/MS and ^{1}H NMR. Compounds K-252-C-Aglycone, indolocarbazole alkaloid, decoyinine, cycloheximide were detected from strain 196

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Original Article | Published: 04 July 2019

Expression and molecular characterization of stress-responsive genes (*hsp70* and *Mn-sod*) and evaluation of antioxidant enzymes (CAT and GPx) in heavy metal exposed freshwater ciliate, *Tetmemena* sp.

Sripoorna Somasundaram, Jeeva Susan Abraham, Swati Maurya, Ravi Toteja, Renu Gupta & Seema Makhija

Molecular Biology Reports **46**, 4921–4931 (2019) | Cite this article

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Abstract

Response of heavy metals namely cadmium (Cd) and copper (Cu) on the expression of stress responsive genes in the fresh water ciliate, *Tetmemena* sp. (single cell eukaryote) was studied. Stress responsive genes include heat shock protein genes and genes involved in antioxidant defence system. Quantitative real time PCR (qRT-PCR) was employed to evaluate the effects of Cd and Cu on the expression of cytosolic *hsp70* and *Mn-sod* genes. Increase in the expression of these genes was observed after exposure with the heavy metals. The macronuclear cytosolic *hsp70* and *Mn-sod* (*SOD2*) genes were also sequenced and characterized using various bioinformatics tools. In antioxidant defence system, the superoxide dismutase (SOD) family is a first line antioxidant enzyme group involved in catalysing reactive oxygen species (ROS) to hydrogen peroxide and molecular oxygen. Influence of Cd and Cu on the activity of SOD has already been reported by our group. Therefore, the enzymatic activities of antioxidant enzymes, catalase (CAT) and glutathione peroxidase (GPx) were studied in the presence of Cd and Cu and there was significant increase in activity of these enzymes in concentration dependent manner. This study suggests that cytosolic *hsp70*, *Mn-sod* and the antioxidant enzymes such as CAT and GPx can be used as effective molecular biomarkers for heavy metal

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Eukaryotic Microbiology
Published by the International Society of Protistologists

Volume 67, Issue 2
March/April 2020
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Symposium Article | Full Access

Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018

Komal Kamra, Harpreet Kaur, Shashi, Jeeva Susan Abraham, Sripoorna Somasundaram, Seema Makhija, Ravi Toteja, Alan Warren, Renu Gupta

First published: 05 November 2019 | https://doi.org/10.1111/jeu.12773 | Citations: 1

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Abstract

Ciliated protists have attracted wide interest among researchers from the Indian subcontinent in the last few years. An International Symposium on Ciliate Biology (ISCB) 2018 was held on 04–06 April 2018 at the India Habitat Centre, New Delhi, India. The symposium represented a synergy with International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP). The symposium provided a platform for Indian and International delegates to exchange knowledge, present their latest research findings, and establish collaborations as well as creating a networking opportunity for undergraduate and postgraduate students. Nine foreign delegates from 5 countries and 300 Indian delegates actively participated in the event which included 22 oral and 57 poster presentations.

RESEARCH on ciliated protists has ramified in the Indian subcontinent in last few years. The first International Symposium on Ciliate Biology held at Sri Guru Tegh Bahadur Khalsa College, University of Delhi, on 06–07 February 2007 was a successful event (Lynn 2007). The second International Symposium on Ciliate Biology (ISCB) 2018 was held on 04–06 April 2018 at the India Habitat Centre, New Delhi, India. The symposium resulted from a synergy with the International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC), an

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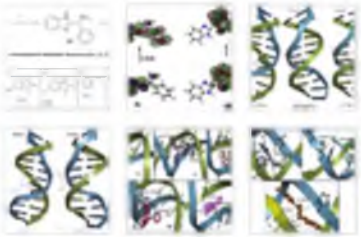

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Volume 5, Issue 10, October 2019, e02596

Research Article

Synthesis, DFT studies, molecular docking, antimicrobial screening and UV fluorescence studies on ct-DNA for novel Schiff bases of 2-(1-aminobenzyl) benzimidazole

Sugandha Singhal [a], Pankaj Khanna [b], Leena Khanna [a]

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Abstract

Novel Schiff bases (SBs) were synthesized by condensation of 2-(1-Amino benzyl) benzimidazole with heterocyclic and aromatic carbonyl compounds. The structural characterization was done using ^{1}H, ^{13}C NMR, FTIR and ES-MS spectroscopic techniques. The *in silico* pharmacokinetics showed that nearly all compounds obeyed Lipinski rule of 5 with low toxicity and metabolic stability. The global reactivity descriptors were calculated using DFT approach. The molecular docking result of SBs with ct-DNA suggested interaction *via* groove binding mode. The antibacterial activity was tested against *S.aureus* and *E.coli*, indicated significant inhibition than reference drug. The compound **4d** gave best results at 50 μg ml^{-1} concentrations. UV/Vis and Fluorescence spectroscopy tools were used to evaluate ct-DNA binding ability of compounds **4a–e** through hypochromic shift. The steady state fluorescence predicted a moderate binding constant of 1.12×10^{4} for **4d**, indicative of non-intercalative mode.

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REVIEW

Recent Trends in the Synthesis of Benzimidazoles From *o*-Phenylenediamine *via* Nanoparticles and Green Strategies Using Transition Metal Catalysts

Sugandha Singhal, Pankaj Khanna, Siva S. Panda, Leena Khanna

First published: 27 October 2019 https://doi.org/10.1002/jhet.3649 | Citations: 10

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Abstract

Benzimidazole is a heterocyclic moiety of immense importance as it acts as a primary "biolinker" in diverse synthetic routes to obtain bioactive compounds. Substituted benzimidazoles are known to possess a varied range of pharmacological applications, namely, anti-cancer, anti-diabetic, anti-inflammatory, and antiviral like anti-HIV and anti-fungal. A number of reviews covering the important aspects of benzimidazoles such as pharmacological activities, SAR studies, and well-known methods of synthesis have appeared in the literature. However, green synthetic methods particularly using transition metal (TM) catalysts and their nanoparticles, although being more viable and extensively applied by researchers in the present scenario, have not been exclusively and expansively reviewed. Besides this, the vital precursors required for knitting the skeleton of benzimidazole are mainly *o*-aryldiamines. The conventional synthesis generally involved the condensation of these diamines with carbonyl/carboxylic acid derivatives either *via* high temperature heating or *via* adding strong acids, mostly resulting in poor yields or mixtures. However, recent trends are replacing these conditions by mild and green conditions through TM catalysts. Therefore, the current review emphasizes on the recent trends adopted in the synthesis of benzimidazoles using condensation reaction of *o*-phenylenediamines and various aldehydes/ester/amide/alcohols with TM in a catalytic role in nanoform and under environmentally benign green conditions.

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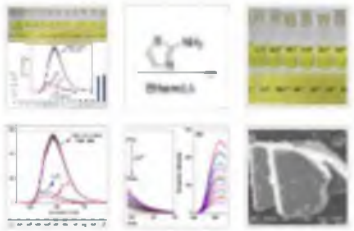

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ELSEVIER
Journal of Molecular Structure
Volume 1211, 5 July 2020, 128091

Curcumin based supramolecular ensemble for optical detection of Cu^{2+} and Hg^{2+} ions

Shyam Lal [a], Kunal Prakash [b], Nainy Khera [a], Drashya [a], Snigdha Singh [c], Aarushi Singh [c], Sunita Hooda [a], Ramesh Chandra [c]

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Highlights

- Curcumin based fluorescent probe **L1** has selective ability towards Hg^{2+} and Cu^{2+} ion in aqueous solution.
- "Real eye" evaluation of Hg^{2+} and Cu^{2+} ions was observed through paper strips.
- Supramolecular ensembing of Hg^{2+} and Cu^{2+} was confirmed through SEM, PXRD and TD-DFT methods.
- **L1** acts as smart, rapid, efficient and reusable optical probe for Hg^{2+} and Cu^{2+} ions.

Abstract

A novel curcumin based molecular probe **L1** was synthesized using 2-aminothiazole through covalent linkage. The structure of the probe **L1** was characterized by UV–Vis, Fluorescence, SEM, PXRD and other related spectroscopic techniques. The molecular

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Repurposing of FDA-approved drugs to target MurB and MurE enzymes in *Mycobacterium tuberculosis*

Jyoti Rani, Yumnam Silla, Kasmika Borah, Srinivasan Ramachandran & Urmi Bajpai

Pages 2521-2532 | Received 03 Apr 2019, Accepted 17 Jun 2019, Accepted author version posted online: 27 Jun 2019, Published online: 11 Jul 2019

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Abstract

Tuberculosis (TB), caused by *Mycobacterium tuberculosis* (Mtb) is one amongst the top 10 causes of death worldwide. The growing rise in antibiotic resistance compounded with slow and expensive drug discovery has further aggravated the situation. 'Drug repurposing' is a promising approach where known drugs are examined for a new indication. In the present study, we have attempted to identify drugs that could target MurB and MurE enzymes involved in the muramic acid synthesis pathway (Mur Pathway) in Mtb. FDA-approved drugs from two repositories i.e. Drug Bank (1932 drugs) and e-LEA3D (1852 drugs) were screened against these proteins. Several criteria were applied to study the protein-drug interactions and the consensus drugs were further studied by molecular dynamics (MD) simulation. Our study found Sulfadoxine (−7.3 kcal/mol) and Pyrimethamine (−7.8 kcal/mol) to show stable interaction with MurB while Lifitegrast (−10.5 kcal/mol) and Sildenafil (−9.1 kcal/mol) showed most reliable interaction with MurE. Furthermore, binding free energy (ΔG_{bind}), RMSD and RMSF data and the number of hydrogen bonds corroborated the stability of interactions and hence these drugs for repurposing should be explored

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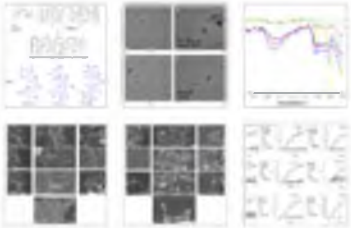

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ELSEVIER
Materials Science and Engineering: C
Volume 107, February 2020, 110284

Polydopamine –aminoglycoside nanoconjugates: Synthesis, characterization, antimicrobial evaluation and cytocompatibility

Indu Singh [a c 1], Ayushi Priyam [b 1], Diksha Jha [a], Gagan Dhawan [c], Hemant K. Gautam [a], P. Kumar [b]

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Highlights

- Polydopamine nanoparticles have been synthesized by oxidative self-polymerization.
- Aminoglycoside-conjugation yielded nanoconjugates.
- These exhibited excellent antimicrobial activity with high cyto-compatibility.
- Nanoconjugates also showed activity against resistant pathogens.

Abstract

Development of nanoparticle- and self-assembled nanomaterial-based therapeutics has become a rapidly growing area in the field of nanotechnology. One of the natural compounds, dopamine, presents as a neurotransmitter in the human brain serving as a messenger and deals with the behavioural responses, has provided an ideal platform

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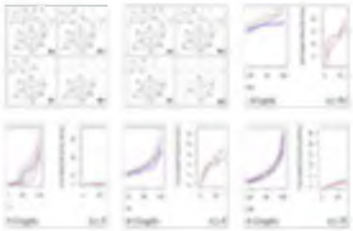

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Physica A: Statistical Mechanics and its Applications
Volume 536, 15 December 2019, 121029

Identifying similar networks using structural hierarchy

Rakhi Saxena [a], Sharanjit Kaur [b], Vasudha Bhatnagar [c]

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Abstract

Comparing structural similarities among complex networks is an important task in several scientific and social science applications. Existing techniques for quantifying network similarity range from network-centric methods that consider *global* network topology to node-centric methods that consider *local* node-level sub-structures.

In this paper, we address the research gap between computationally expensive network-centric approaches and myopic node-centric network comparison methods by introducing a novel approach to quantify network similarity based on hierarchical graph decomposition. The approach adequately captures both global and local topology and is motivated by the observation that networks from diverse domains such as physical, chemical, biological and social systems exhibit an inherent structural hierarchy that emerges from local dyadic and triadic interactions. The proposed algorithm, *N*etwork *S*imilarity via graph *D*ecomposition (*NSD*), extracts network signatures from hierarchical decomposition of networks and uses Canberra distance to quantify the similarity between signatures. We use two well-known graph decomposition methods to expose network hierarchy resulting in two variations of NSD. We find that our approach groups similar networks better than competing algorithms. Experimentation using 40 real-world networks, 15 massive networks, and 30 large synthetic networks establishes that the proposed methodology is effective, scalable, sensitive and applicable to wide variety of networks.

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The Impact Of Various Digitized Social Networking Media Through Text, Images And Videos On Language Usage

Sampurnananda Mishra, Chandra Kanta Samal, Navneet Yadav, Rama Kanta Choudhury

Abstract: The catalytic effect of social media on the diurnal course of people of the world has ushered in a new era of globalization. With the teeming multitudes of social media sites offering a universal user-friendly application in multifarious platforms has turned out to be a hunting ground for scholars and researchers from diverse fields. More so, their impact has been conspicuous among the language expounders and educators of today. The world has gone digital with the help of incredible tools of social media where people carry out global business and qualitative services. All the transactions , negotiations and deliberations happen through language conversation as a result of which language teaching and learning have become an indispensible part of social media. The language trainers introduce and execute various tools of social media which devises unique and novel ways of interaction transcending the local boundaries of the school. The notable social networking sites like Facebook, WhatsApp, Aadmodo Linkden, Me too etc equip educators to enhance their instructional skills. These widespread social networking sites offer a plentitude of openings for language educators to sharpen their digital, multi-literacy, linguistic and empirical skills. This paper probes into the theoretical bedrock of social networking in language learning and its effectiveness inside the classroom vis-a-vis the present pedagogy followed by different communities of the world. Further it intends to illuminate the fundamental issues and considerations while using social networking sites in a language classroom.

Keywords: Psycholinguistic approaches, Teeming multitudes, Multifarious platforms, Social networking , World wide web, IOT, Neural network.

1. INTRODUCTION

Information technology is playing a pivotal role in the use of technology in teaching and learning. Social networking has become the prime medium through which creation and transmission of information takes place. Social networking is in a state of flux and constant evolution. In order to facilitate learning and its quality, it has introduced and integrated new technologies like machine learning neural lays and neural network and IOT (Internent of things) to create a universal appeal among the world population irrespective of diversity of language and culture. There are a plethora of organized and unorganized tools which work together to enhance the quality of education. These tools facilitate, provide, engage and aid the process of teaching - learning. Social media can be compartmentalized into seven interconnected categories. (1) social networks (e.g., Facebook, LinkedIn); (2) bookmarking sites (e.g., Delicious, StumbleUpon); (3) social news (e.g., Digg. Reddit); (4) media sharing (e.g.,

1.1 Approaches to Social Networks

Theories on latest technology refer to the development and exploration of tools aimed at examining the plausible advantages in the field they are to be used. The studies are often received with a pinch of salt as they lack proper theoretical and practical framework. But it is an undeniable fact that they initiate the educators to the L2 contexts. These studies also suggest that the new tools would bring about a revolution in the traditional mind set of the existing classrooms. As far as social networking is concerned these tools are employed for learning a language and other social purposes. Studies by Stevenson and Liu, Blyth, prove to be utilitarian for the educators of language and open up avenues for further research.

1.2 Psycholinguistic Approaches

Psycholinguistic approaches to language learning aims at the significance of social interaction and getting noticed. There is a

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Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

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A charge control based analytical model is followed to study the impact of donor-layer doping and gate-length on microwave frequency performance of AlGaN/GaN/AlGaN double heterostructure high electron mobility transistor (DH-HEMT). DH-HEMT is observed to be more sensitive to gate-length and doping variation as compared to single heterostructure high electron mobility transistor (SH-HEMT). The effect of gate-length and doping on various performance parameters, i.e., transconductance, drain conductance, cut-off frequency and maximum oscillation frequency has been analysed. The results so obtained are compared with simulation results and are found to be in good agreement.

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PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS

ABDULLAH A. ANSARI[1], K. R. MEENA[2], SADA NAND PRASAD[2]

[1] *International Center for Advanced Interdisciplinary Research (ICAIR), Sangam Vihar, New Delhi, India,Email: icairndin@gmail.com*
[2] *Department of Mathematics, Acharya Narendra Dev College, University of Delhi, New Delhi, India*

Abstract. Six-body configuration is investigated with the effects of oblateness, variable mass as well as Coriolis and centrifugal forces, where four equal bodies are placed at the vertices of a square and fifth body is placed at the center of the circle on which the previous four bodies are moving. All five bodies are considered as oblate in shapes where first four bodies have same oblateness while fifth body has different oblateness. There is the sixth smallest body which varies its mass according to Jeans law. The system is also affected with small perturbations in the Coriolis and centrifugal forces. By considering these effects and using the Jeans law as well as Meshcherskii space time transformations, the system of equations of motion for the smallest body is determined. The Jacobian integral and mean motion are also admitted from this system. Further the equilibrium points, motion for forbidden regions and attracting regions are illustrated under the effects of above said parameters. Here twelve equilibrium points are exists out of which four equilibrium points are collinear, four points are on the perpendicular axis and rest four points are in four quadrants separately. Finally, the stability of these equilibrium points are examined by using Meshcherskii space time inverse transformations and found them unstable.

Key words: Perturbed six-body configuration – Coriolis and centrifugal forces – Oblateness – Attracting regions.

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Technical Paper | Published: 28 January 2019

Sheet carrier concentration and current–voltage analysis of $Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N$ double heterostructure hemt incorporating the effect of traps

Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

Microsystem Technologies **28**, 665–674 (2022) | Cite this article

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Abstract

An analytical approach incorporating traps (donor type) in the AlGaN layer at the top and bottom heterointerface is proposed to determine threshold voltage (V_{th}), net sheet carrier concentration (n_s) and drain current in $Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N$ double-heterostructure (DH) high electron mobility transistor (HEMT). Generation of carriers in the 2DEG due to detrapping of these donor traps have been thoroughly studied in the present analysis. Due to traps in the upper and lower AlGaN layer, two 2DEG channels formed, such that n_s in a DH-HEMT is nearly twice as compared to that obtained in single heterostructure (SH). Due to increased 2DEG density, drain current is more in DH-HEMT as compared to SH-HEMT. The effect of incorporation of these donor traps on V_{th}, n_s and drain current of DH-HEMT as compared to SH-HEMT has been studied. The effect of Al mole fraction, AlGaN layer thickness, mobility, trap concentration and temperature on drain current of DH-HEMT as compared to SH-HEMT has also been studied. The analysis has been performed

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Cytokine-induced expression of nitric oxide synthases in *Chlamydia trachomatis*- infected spontaneous aborters

Priya Prasad [1], Namita Singh [1], Banashree Das [2], Sheikh Raisuddin [3], Mridu Dudeja [4], Sangita Rastogi [1]

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PMID: 29720007 DOI: 10.1080/14767058.2018.1465914

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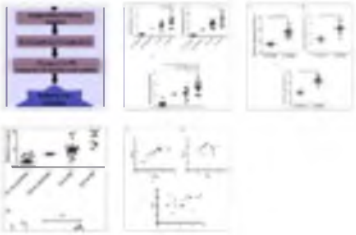

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Microbial Pathogenesis
Volume 142, May 2020, 103994

Does tumour necrosis factor alpha-induced cyclooxygenase-2 expression lead to spontaneous abortion in *Chlamydia trachomatis*-infected women

Namita Singh [a], Priya Prasad [a], Banashree Das [b], Sangita Rastogi [a]

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Highlights

- Study revealed effect of proinflammatory cytokines on *C. trachomatis*-positive SA.
- Increased expression of TNF-α, IFN-γ, IL-8 in ECT of *C. trachomatis*-positive SA.
- TNF-α, IFN-γ and IL-8 expression was significantly higher in RSA *versus* SSA.
- TNF-α and COX-2 were positively correlated with each other in infected aborters.
- Aberration in TNF-α and IFN-γ can induce COX-2 leading to immunopathogenesis of SA.

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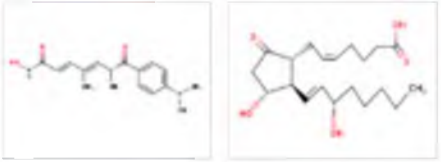

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Biochim Biophys Acta Gene Regul Mech. 2020 Mar;1863(3):194479.
doi: 10.1016/j.bbagrm.2019.194479. Epub 2020 Jan 10.

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Prashant Pradhan [1], Ankit Srivastava [1], Jasdeep Singh [1], Banhi Biswas [1], Akanksha Saini [1], Ibrar Siddique [2], Pooja Kumari [3], Mohd Asim Khan [4], Akhilesh Mishra [1], Pramod Kumar Yadav [1], Shivani Kumar [1], Neel Sarovar Bhavesh [3], Prasanna Venkatraman [5], Perumal Vivekanandan [6], Bishwajit Kundu [7]

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Original Article | Published: 05 March 2019

A study of software reliability on big data open source software

Ranjan Kumar, Subhash Kumar & Sanjay K. Tiwari

International Journal of System Assurance Engineering and Management **10**, 242–250 (2019) | Cite this article

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Abstract

With the increasing use of Open Source Software (OSS) in high speed networking, parallel processing and distributed computing, OSS has emerged as mainstream in the last decade and is now being broadly accepted even by the traditional proprietary software development companies. The major advantages of OSS over traditional software development are less development cost, availability of source code, quality and security. Software reliability—an important attribute of software quality, is defined as the probability that a software will operate free of failures or breakdown for a specified time under specified conditions (IEEE Std. 1633-2016). Investigation of Software reliability with the help of software reliability

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International Journal of Applied Engineering Research ISSN 0973-4562 Volume 14, Number 9 (2019) pp. 2260-2269
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A Case Study on R: a powerful OSS and data analysis platform

Ranjan Kumar[1], Subhash Kumar[2], Sanjay K. Tiwary[3]

Abstract

R, an open source software, has emerged as a powerful tool for statistical computing and data visualization. It is also the favoured programming language for data science in the last decade. Its open source platform has allowed a tremendous growth in its community which has contributed R packages independently. Number of R packages has grown exponentially in the last five years. This paper undertakes a case study of R wherein the popularity of R and its development paradigm is explored, while studying salient features of its organization structure. Statistical inferences are drawn with respect to organization structure by performing statistical analysis of the available data on commits in R. The bug management system - a very important attribute of software quality is probed further while carrying out statistical analysis of the bug data of R. This supports the rigorous protocol of bug management system for OSS in general and R in particular.

Keywords: Commits, Bug management system, Data science, Software quality, Visualisation

1. INTRODUCTION

In recent times effective modeling, statistics, predictive analysis, data visualizations and powerful analytics is being harnessed by data scientists and leaders in making decisions and policies in a multitude of fields ranging from broad societal mapping, online marketing trends to the development of Gentleman released this software as free open-source software in 1995 [2]. Presently, the "Comprehensive R Archive Network" (CRAN) is the core of an increasingly growing R community [3] and it serves as the central repository for all resource materials related to R, including packages of functions, tutorials and discussion forums. The official public structure for the R Community is under the aegis of the R Foundation - a not for profit organization with a prestigious list of members and supporters. R is registered under GNU (General Public License). R is a programming language used by statisticians, data scientist and anybody who need to perform statistical analysis of data and process useful information from data using various mechanisms, such as classification, regression and text analysis. Currently, R has 782K lines of code which has increased from 82K lines of codes in 1997(about 35% C, 31% FORTRAN and 20% R) [4]. Changes in the code to base R are an exclusive domain of the core team members of R. Till now a total of twenty five members of R-core have contributed to R, Currently R-core has twenty members.

1.1 Characteristics of R

R is a programming language wherein data analysis is carried out by writing functions and scripts. However R is an easy language to learn. R is characterized by an extensive set of library functions which can implement not only mathematical but techniques of other disciplines like graphical, classification,

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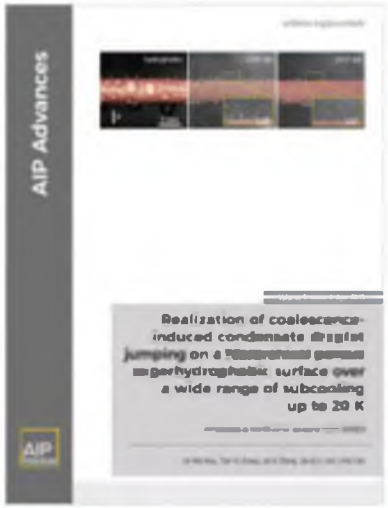

RESEARCH ARTICLE | APRIL 03 2019

Dynamics of a vertically vibrating mercury drop

Tanu Singla; Dinesh Kumar Verma; Josué Flores Tovar; A. Figueroa ; Federico Vázquez; Farook Bashir Yousif ; M. Rivera

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AIP Advances 9, 045204 (2019)

https://doi.org/10.1063/1.5088043 Article history

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The dynamics of vertically vibrating liquid drops has been studied by several researchers and different phenomena have been reported. In the present work, we report experimental results for some interesting phenomena that can be observed in a liquid drop subjected to vertical vibrations.

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Journal of Hazardous Materials

Volume 370, 15 May 2019, Pages 126-137

Fabrication and characterization of ZnO-TiO_2-PANI (ZTP) micro/nanoballs for the detection of flammable and toxic gases

Rakesh K. Sonker [a b], B.C. Yadav [b], Vinay Gupta [a], Monika Tomar [c]

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Abstract

The present paper reports the in-situ chemical polymerization of nanocomposites thin film composed by titanium dioxide (TiO_2), zinc oxide (ZnO) and polyaniline (PANI). It was found that nanocomposites sensor is highly selective and shows response to low concentration. To improve the sensing response characteristics of ZT thin film, PANI is incorporated. Thin film based LPG sensor of ZnO-TiO_2-PANI composite was fabricated by spin coating of ZnO-TiO_2 nanoparticles doped with PANI over inter digital electrodes (IDEs). The thin film was characterized by using XRD, SEM, TEM, UV–vis, BET and FTIR. It was also tested for gas sensing properties of LPG/NO_2 which are well known flammable and toxic gases. The measured response for ZnO-TiO_2-PANI based sensor was 87 for 2000 ppm of LPG and 412 for 20 ppm of NO_2 at room temperature towards other testing gases together with Acetone, IPA, NH_3 and CO_2.

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Journal of Molecular Liquids

Volume 290, 15 September 2019, 111241

Investigation of thermodynamical, dielectric and electro-optical parameters of nematic liquid crystal doped with polyaniline and silver nanoparticles

Tripti Vimal [a], Kaushlendra Agrahari [a], Rakesh Kumar Sonker [b], Rajiv Manohar [a]

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Abstract

In the present investigation, thermo-dynamical, dielectric & electro-optical characterization of a neamtic liquid crystal (NLC) and its mixtures with polyaniline (PANI) & silver nanoparticles (Ag NPs) have been carried out. To visualize the combined effect of polyaniline and silver nanoparticles, a polyaniline/silver nanocomposite has been prepared. Equal concentration of polyaniline, silver nanoparticles & polyaniline/silver nanocomposite has been taken and doped into the pure NLC material. A comparison of various LC parameters of pure NLC material and its mixtures with different dopant has also been done. Thermodynamical study suggests that the presence of polymer and nanoparticles duo in LC can tune the order parameter of LC material.

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Applied Surface Science

Volume 479, 15 June 2019, Pages 326-333

Full length article

Synthesis and characterization of highly porous hexagonal shaped CeO_2-Gd_2O_3-CoO nanocomposite and its opto-electronic humidity sensing

Samiksha Sikarwar [a], B.C. Yadav [a], Rakesh K. Sonker [b], G.I. Dzhardimalieva [c], Jeevitesh K. Rajput [d]

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Abstract

The present paper reports the synthesis and fabrication of CeO_2-Gd_2O_3-CoO nanocomposite films using metal carboxylates as precursors. The refractive index of the film was found as 1.445538. The crystallinity was confirmed from XRD and the minimum crystallite size calculated was 9 nm. TEM analysis showed the hexagonal crystals where the minimum dimension was obtained as 6 nm. The dimensionality was further confirmed by Particle Size Analyzer. The film was then examined using SEM which revealed highly porous nature of the material. UV–Vis spectrophotometer found the absorption of the film taking place in UV region and the optical band-gap as determined

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Chaos. 2019 May;29(5):053112. doi: 10.1063/1.5083179.

Entrainment of aperiodic and periodic oscillations in the Mercury Beating Heart system using external periodic forcing

Pawan Kumar [1], P Parmananda [1], Dinesh Kumar Verma [2], Tanu Singla [2], Iram de Nicolás [2], J Escalona [2], M Rivera [2]

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PMID: 31154773 DOI: 10.1063/1.5083179

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We report experimental results indicating entrainment of aperiodic and periodic oscillatory dynamics

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Full Paper

Recyclable Organocatalyst for One-Pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone Spirooxindoles

Miao Liu, Xiaofeng Zhang, Xin Huang, Gagan Dhawan, Jason Evans, Manpreet Kaur, Jerry P. Jasinski, Wei Zhang

First published: 04 October 2018 | https://doi.org/10.1002/ejoc.201801480 | Citations: 11

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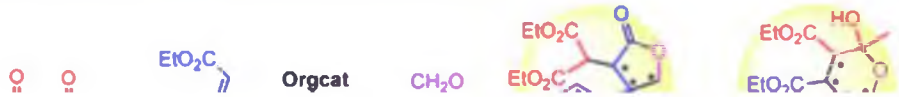
Recyclable fluorous bifunctional organocatalyst-promoted one-pot Michael/aldol/cyclization sequence affords asymmetric dihydrofuranone or tetrahydropyranone spirooxindoles in 39–82 % yields with 3:1 to 6:1 *dr* and up to 99 % *ee* for the major diastereomers



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1 INTRODUCTION

2 THE DATA AND THE METHODOLOGY

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Morphology of the Small Magellanic Cloud using multiwavelength photometry of classical Cepheids

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Published: 22 August 2019 **Article history** ▾

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ABSTRACT

This is the second of a series related to the study of geometry of the Magellanic Clouds based on multiwavelength photometry of classical Cepheids. In this paper we determine the geometrical and viewing angle parameters of the Small Magellanic Cloud (SMC) using the Leavitt law for classical Cepheids with/without a break in the law at a certain period as reported in the literature.

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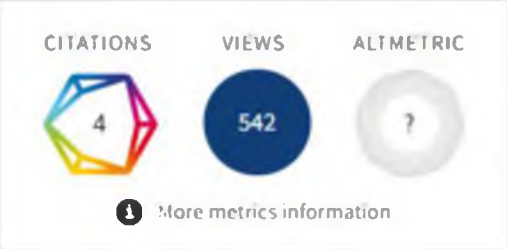

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Theoretical and experimental investigation on structural stability, electronic and vibrational properties of polyaniline (PANI)

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Rimpy Kaur Chowhan, Hamidur Rahaman & Laishram Rajendrakumar Singh

Scientific Reports **10**, Article number: 17416 (2020) | Cite this article

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Abstract

Peroxiredoxin 6 (Prdx6) is a ubiquitously expressed antioxidant non-selenium glutathione peroxidase that is known to play a major role in various physiological and pathological processes. It belongs to the family of peroxidases (referred to as Peroxiredoxins, Prdx's) that work independently of any prosthetic groups or co-factors, and instead utilize a peroxidatic thiol residue for peroxide reduction. Mammalian Prdx's are classified according to the number of Cys implicated in their catalytic activity by the formation of either inter-molecular (typical 2-Cys, Prdx1–4) or intra-molecular (atypical 2-Cys, Prdx5) disulfide bond, or non-covalent

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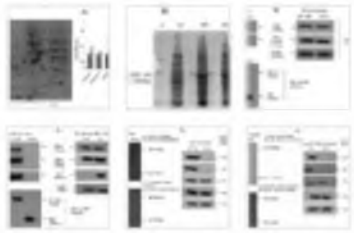

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Volume 549, October 2020, Pages 59-67

Experimental validation of influenza A virus matrix protein (M1) interaction with host cellular alpha enolase and pyruvate kinase

Shruti Mishra [1], Priya Goyal [1], Deepshikha Kumar, Rajan Chaudhari, Maitreyi S. Rajala

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https://doi.org/10.1016/j.virol.2020.07.019

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Abstract

Influenza A virus, a respiratory pathogen manipulates various host cellular processes to establish a successful infection in a host. We had reported earlier the interaction of influenza A virus nucleoprotein with host glycolytic enzymes; alpha enolase and pyruvate kinase in A549cells. Matrix protein (M1), another multifunctional protein encoded by genome segment 7 forms the inner layer of the virion and interacts with the ribonucleoprotein complex. Nucleoprotein and matrix protein, major structural components of the virion together contribute to the stability of the capsid. Thus, we have investigated the interaction of viral matrix protein with host glycolytic enzymes; alpha enolase and pyruvate kinase. Results had demonstrated differential expression of these two glycolytic enzymes in response to matrix protein and their interaction with matrix protein by *in vitro* binding, co-immunoprecipitation and co-localization studies. Our results confirmed that viral matrix protein interacts with host glycolytic enzymes in association with viral nucleoprotein.

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Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films

Vishal Dhingra[1,3], Shani Kumar[1,3], Ravi Kumar[4], Amit Garg[1] and Arijit Chowdhuri[2]

Published 19 June 2020 • © 2020 The Author(s). Published by IOP Publishing Ltd

Materials Research Express, Volume 7, Number 6

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Enhanced drug efficiency of doped ZnO–GO (graphene oxide) nanocomposites, a new gateway in drug delivery systems (DDSs)

Structural and optical properties of electrochemically deposited ZnO nanorods by using graphene oxide and ITO as substrate

Abstract

Graphene based 2D materials with a surfeit of active sites and advantageously high surface to volume ratio are effectively linked to well established nanostructured semiconducting metal oxides for development of nanocomposites with enhanced gas sensing properties. Graphene Oxide (GO), a sister material of graphene, is therefore a natural choice for development of room temperature operated gas sensors. In the current investigation hydrothermally grown GO and ZnO nanorods composite (GO–ZnO–NR) is utilised for room temperature gas sensing of H_2 and SO_2 gases. Room temperature

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Technical Paper | Published: 17 March 2020

Extraction of admittance parameters of symmetrically doped AlGaN/GaN/AlGaN DH-HEMT for microwave frequency applications

Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

Microsystem Technologies **27**, 4065–4072 (2021) | Cite this article

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Abstract

An analytical model for determining intrinsic short-circuit admittance (Y) parameters of AlGaN/GaN/AlGaN Double Heterostructure (DH) High Electron Mobility Transistor (HEMT) is presented. These Y parameters obtained in terms of the various small signal equivalent circuit parameters are in turn used to evaluate the enhanced microwave performance of the DH-HEMT in terms of various parameters including Unilateral Power Gain and maximum oscillation frequency. The cut-off frequency has been evaluated from short circuit current gain. The cut-off frequency (f_T) and maximum oscillation frequency (f_{max}) exhibited for DH-HEMT is 125 GHz and 215 GHz which is comparatively improved as obtained in Single

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Materials Chemistry and Physics

Volume 239, 1 January 2020, 121975

Synthesis of CdS nanoparticle by sol-gel method as low temperature NO_2 sensor

Rakesh K. Sonker [a b], B.C. Yadav [b], Vinay Gupta [a], Monika Tomar [c]

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Abstract

In the present work, NO_2 gas sensor based on Cadmium sulfide (CdS) nanostructures were prepared by using the chemical route technique. CdS thin films of different thickness were prepared by spin coating technique with different speed (1000, 2000 and 3000 rpm). Prepared thin films were characterized by techniques, such as X-ray diffraction (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Fourier Transform Infrared spectroscopy (FT-IR) and Ultraviolet–Visible spectroscopy (UV–Vis), which offered the information about the chemical structure and morphology of CdS thin film. Gas sensing measurements for detecting

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Advances in Zoology and Botany Vol. 8(1), pp. 12 - 19
DOI: 10.13189/azb.2020.080103
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Optimizing Synthesis of Citrus limetta Peel Silver Nanocomposites Possessing Larvicidal Potential against Dengue Vector, Aedes aegypti L.

Devina Aggarwal [1], Aarti Sharma [2], Sarita Kumar [3,*]

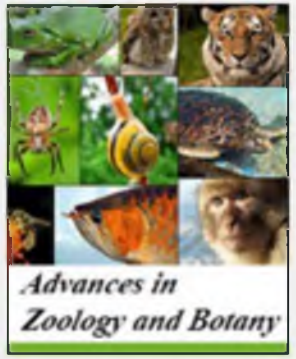
[1] Department of Science, Modern School, New Delhi, India

[2] Department of Life Sciences (SOS), Indira Gandhi National Open University, New Delhi, India

[3] Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

ABSTRACT

Aedes aegypti L. is the major vector accountable for the spread of several diseases of medical importance. The control strategies primarily relying on chemical insecticides have caused negative impact on our environment and human health. Thus, current study employed Citrus limetta peel extracts (CLPE) against larvae of Ae. aegypti. Silver nanocomposites (AgNCs) from CLPE were synthesised and the process of synthesis was optimized by varying temperature; volume and concentration of silver nitrate



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ORIGINAL ARTICLE

One-pot synthesis of silver nanocomposites from *Achyranthes aspera*

An eco-friendly larvicide against *Aedes aegypti* L.

Sharma, Aarti[1]; Tripathi, Pushplata[1]; Kumar, Sarita[2]

Author Information

Asian Pacific Journal of Tropical Biomedicine 10(2):p 54-64, February 2020. | *DOI:* 10.4103/2221-1691.275420

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Abstract

Objective:

To formulate **silver nanocomposites from *Achyranthes aspera*** leaf extracts and evaluate its larvicidal activity against *Aedes aegypti*.

Methods:

The **silver nanocomposites** were synthesized **from *Achyranthes aspera*** leaf extracts. The process was optimized and traced through UV-visible and photon correlation spectroscopy. The larvicidal potential of **silver nanocomposites** of ***Achyranthes aspera*** leaf extracts was assessed against the early fourth instars of

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Original Research Article | Published: 28 May 2020

Effect of dietary stress of emamectin benzoate on the fitness cost of American bollworm, *Helicoverpa armigera* (Hübner, 1808)

Vinay Singh Dagar, Monika Mishra & Sarita Kumar

International Journal of Tropical Insect Science **40**. 1069–1077 (2020) | Cite this article

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Abstract

Present study assessed the effect of Emamectin benzoate (EMB) on the survival, growth and nutrition efficiency of *Helicoverpa armigera*. Dietary EMB exhibited a significant systemic toxicity in *H. armigera* larvae resulting in LD_{50} and LD_{90} value of 0.092 µg/mL and 0.156 µg/mL, respectively. Feeding with 0.05–0.2 µg/mL EMB caused 10–100% larval mortality in a dose-dependent manner. Feeding the IV instars of *H. armigera* with 0.1–1.6 µg/mL EMB-incorporated diet deterred feeding significantly. Substantial deterrent effects of EMB with lower LD_{50} values indicate the noteworthy systemic toxicity of EMB on the *H. armigera* larvae. Both choice and no-choice bioassay with dietary EMB showed a distinct preference of

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Archives of Biological Sciences 2020 Volume 72, Issue 2, Pages: 271-278
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Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner

Mishra Monika *(Department of Zoology, Acharya Narendra Dev College (University of Delhi), Kalkaji, New Delhi, India)*
Sharma Aarti *(Department of Zoology, Acharya Narendra Dev Coellege (University of Delhi), Kalkaji, New Delhi, India)*
Dagar Vinay Singh *(Department of Zoology, Acharya Narendra Dev College (University of Delhi), Kalkaji, New Delhi, India)*
Kumar Sarita *(Department of Zoology, Acharya Narendra Dev College (University of Delhi), Kalkaji, New Delhi, India)*

Helicoverpa armigera is a global agricultural pest of serious concern. Continued use of chemical insecticides as control measures has raised grave health and environment concerns, necessitating a search for botanicals as safe alternatives. The current study investigates the effects of β-sitosterol, a bioactive phytocomponent in Thevetia neriifolia, on the growth and development, as well as on midgut enzymes of H. armigera. Dietary β-sitosterol produced dose-dependent systemic toxicity and growth inhibitory effects in H. armigera; the most significant effects were obtained with 10 μg/mL dietary β-sitosterol. Higher prepupal and pupal mortality in comparison to larval mortality and a comparatively greater reduction in average weight gained by later instars point to cumulative effects of β-sitosterol. The delayed effects were ascertained by the 82.05%-57.89% reduction in adult emergence in comparison to 95.02% emergence in controls. Dose-dependent effects of β-sitosterol were observed as significantly decreased enzyme activities of alanine aminotransaminase (ALT), aspartate aminotransaminase (AST) and alkaline phosphatase (ALP) in the larval midgut. Suppression of enzyme activity was obtained in the order ALT>AST>ALP. Impaired activity of gut enzymes possibly lowered the energy reserves and affected nutrient transport through the gut epithelium, affecting the growth and development of H. armigera. Our study points to a promising use of β-sitosterol against H. armigera, although further examination and field studies are needed to ascertain its possible use in control programs.

Keywords: Helicoverpa armigera, β-sitosterol, alanine aminotransaminase, aspartate aminotransaminase, alkaline phosphatase

Mini-Review | Published: 25 May 2020

Potential applications of extracellular enzymes from *Streptomyces* spp. in various industries

Munendra Kumar, Prateek Kumar, Payal Das, Renu Solanki & Monisha Khanna Kapur

Archives of Microbiology **202**, 1597–1615 (2020) | Cite this article

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Abstract

Extracellular enzymes produced from *Streptomyces* have the potential to replace toxic chemicals that are being used in various industries. The endorsement of this replacement has not received a better platform in developing countries. In this review, we have discussed the impact of chemicals and conventional practices on environmental health, and the role of extracellular enzymes to replace these practices. Burning of fossil fuels and agriculture residue is a global issue, but the production of biofuel using extracellular enzymes may be the single key to solve all these issues. We have discussed the replacement of hazardous chemicals with the use of xylanase, cellulase, and pectinase in food industries. In paper industries, delignification was done by the chemical treatment, but xylanase and laccase have the efficient

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Journal of King Saud University - Science

Volume 32, Issue 4, June 2020, Pages 2316-2328

Original article

Description of a new species of *Tetmemena* (Ciliophora, Oxytrichidae) using classical and molecular markers

Renu Gupta [a], Jeeva Susan Abraham [b], S. Sripoorna [b], Swati Maurya [b], Ravi Toteja [b], Seema Makhija [b], Fahad A. Al-Misned [c], Hamed A. El-Serehy [c]

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https://doi.org/10.1016/j.jksus.2020.03.009

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Abstract

Tetmemena saprai n. sp. was isolated from fresh-water samples collected from Okhla Bird Sanctuary, Delhi, India and described based on its morphology, morphogenesis and molecular markers, namely the small-subunit (SSU) rRNA gene and internal transcribed spacers (ITS1-5.8S-ITS2). The morphological features of *T. saprai* n. sp. are as follows:

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Spiro-Indole-Coumarin Hybrids: Synthesis, ADME, DFT, NBO Studies and In Silico Screening through Molecular Docking on DNA G-Quadruplex

Dr. Leena Khanna, Sugandha Singhal, Prof. Dr. Subhash C. Jain, Dr. Pankaj Khanna

First published: 19 March 2020 | https://doi.org/10.1002/slct.201904783 | Citations: 9

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Six new hybrids, spiro[indol-indazole-thiazolidine]-dione-coumarin hybrids (10a-c) and spiro[indol-pyrazole-thiazolidine]-dione-coumarin hybrids (12a-c), were synthesized successfully *via* hitherto unknown Schiff bases. These compounds were virtually screened for their drug likeliness, toxicity and docking interactions with DNA G-quadruplex (compared with library of known compounds). The Density Functional Theory (DFT) electronic reactivity descriptors, depicted their high chemical reactivity and the Molecular Electrostatic Potential (MEP) and contour plots described their potential active sites. Further, the detailed Natural bond order (NBO) analysis of these hybrids suggested

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Vivek Asati, Santosh S. Thakur, Neeraj Upmanyu, Sanjay K. Bharti

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Original research article | Published: 27 May 2020

Biogenic Silver Nanoparticles: Evaluation of Their Biological and Catalytic Potential

Bhawna Sharma, Indu Singh, Somvir Bajar, Seema Gupta, Hemant Gautam & Pradeep Kumar

Indian Journal of Microbiology **60**, 468–474 (2020) | Cite this article

455 Accesses | **11** Citations | Metrics

Abstract

The biogenic tailoring of silver nanoparticles using plant extract is becoming an attractive approach in the current scenario. *Manilkara zapota* (MZ) is well known for its antibacterial, hepato-protective, anti-inflammatory, anti-tussive, anti-fungal, anti-tumour, and free radical scavenging potential. Its plants extract is a rich source of secondary metabolites. Nowadays, silver nanoparticles (AgNPs) have been advocated for a variety of biomedical applications. In present work, silver nanoparticles have been synthesized using an aqueous extract of MZ, physicochemically characterized and finally evaluated for antimicrobial effects, catalytic reduction/degradation of organic dyes and cytotoxicity. The nanosized AgNPs (~ 84 nm) were found to possess prominent antibacterial potential against gram positive and gram negative

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Ultrashort Peptide Self-Assembly: Front-Runners to Transport Drug and Gene Cargos

Seema Gupta[1*] Indu Singh[1,2] Ashwani K. Sharma[2*] Pradeep Kumar[2*]

[1] Chemistry Department, Acharya Narendra Dev College, University of Delhi, New Delhi, India
[2] Nucleic Acids Research Laboratory, CSIR-Institute of Genomics and Integrative Biology, New Delhi, India

The translational therapies to promote interaction between cell and signal come with stringent eligibility criteria. The chemically defined, hierarchically organized, and simpler yet blessed with robust intermolecular association, the peptides, are privileged to make the cut-off for sensing the cell-signal for biologics delivery and tissue engineering. The signature service and insoluble network formation of the peptide self-assemblies as hydrogels have drawn a spell of research activity among the scientists all around the globe in the past decades. The therapeutic peptide market players are anticipating promising growth opportunities due to the ample technological advancements in this field. The presence of the other organic moieties, enzyme substrates and well-established protecting groups like Fmoc and Boc etc., bring the best of both worlds. Since the large sequences of peptides severely limit the purification and their isolation, this article reviews the account of last 5

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Adsorption of Rhodamine 6G Dye on Binary System of Nanoarchitectonics Composite Magnetic Graphene Oxide Material

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Authors: Gautam, Drashya; Lal, Shyam; Hooda, Sunita
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DOI: https://doi.org/10.1166/jnn.2020.17442

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Magnetic Graphene Oxide nanocomposite prepared by the co-precipitation method based on concept of nanoarchitectonics. In co-precipitation method, Graphene oxide converts into Magnetic graphene oxide nanocomposite with uniform deposition of Fe_3O_4 nano particles on the surface of Graphene oxide. Field Emission Scanning Electron Microscopy spectroscopy technique reveals the size (~2.5 nm) and uniformity of Fe_3O_4 nano particles on Graphene oxide surface. The other properties characterized by Scanning electron microscopy, Raman spectroscopy, X-ray powder diffraction, X-ray photoelectron spectroscopy and vibrating-sample magnetometer. For Adsorption process, time, temperature, dose of adsorbent, initial concentration of dye solution and pH factors are optimize for Rhodamine 6G dye. Kinetic data expressed by Pseudo first order model and Pseudo second order model. Langmuir, Freundlich and Temkin isotherms used to evaluate the adsorption isotherm of Rhodamine 6G onto the surface of Magnetic graphene oxide nanocomposite and thermodynamic parameters tell us about the nature of reaction.

Keywords: Adsorption; Graphene Oxide; Isotherm; Kinetics; Rhodamine 6G; Thermodynamic Parameters
Document Type: Research Article
Affiliations: Department of Chemistry, Acharya Narendra Dev College (University of Delhi), Govindpuri, Kalka ji, NewDelhi 110019, India
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Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from Aqueous Solutions

Drashya Gautam and Sunita Hooda*

Cite this: J. Chem. Eng. Data 2020, 65, 8, 4052−4062
Publication Date: August 3, 2020
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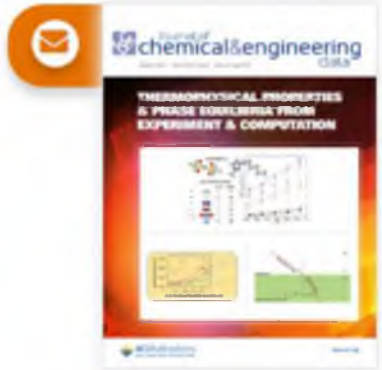
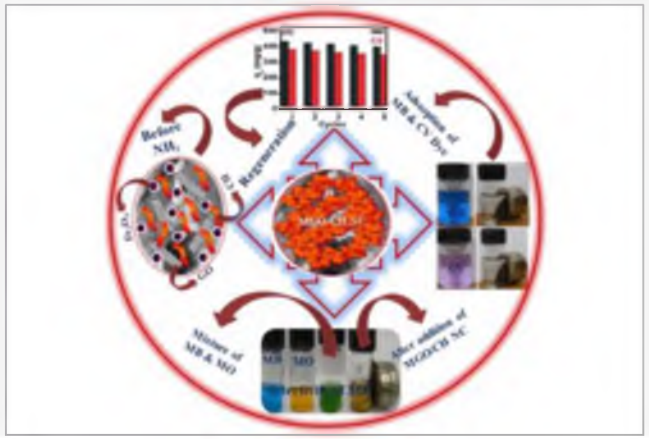


Journal of Chemical & Engineering Data

Abstract

The present study is focused on the synthesis of prominent magnetic graphene oxide/chitin nanocomposites, which behaves as an adsorbent for organic dyes under visible light. The nanocomposites were characterized using physicochemical techniques such as X-ray diffraction, Fourier transform infrared spectroscopy, Raman spectroscopy, vibrating-sample magnetometer, scanning electron microscopy, and transmission electron microscopy. A band gap energy of 2.01 eV was evaluated from Tauc and Davis−Mott plots. Batch adsorption studies were performed on crystal violet and methylene blue dyes with varying parameters such as time, pH, concentration, dosage, and temperature, which resulted to excellent adsorption activities of 403.78 mg/g for crystal violet and 332.61 mg/g for methylene blue. The as-synthesized nanocomposite showed excellent recovery capability, retaining its adsorption efficiency even after nine cycles of regeneration. The adsorption equilibrium data fitted well into the pseudo-second-order model and Langmuir isotherm model, while the spontaneity and exothermic nature of the adsorption phenomenon are demonstrated by thermodynamic studies. A comparative adsorption study results to a selective adsorption of cationic dyes over anionic ones, which goes in conformity with the high negative value of zeta potential obtained at



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Complexity Dynamics of Gumowski-Mira Map

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Received: January 4, 2020; Accepted: April 27, 2020

Abstract

In the context of nonlinear dynamics, interesting dynamic behavior of Gumowski-Mira Map has been noted under various feasible circumstances. Evolutionary phenomena are discussed through the study of bifurcation analysis leading to period-doubling and chaos. The appearance of chaos in the method is identified by plotting Lyapunov characteristic exponents (LCE) and Topological Entropy within certain parameter range. Dynamic Lyapunov Indicator (DLI) has been procured for further identification of regular and chaotic motions of the Gumowski-Mira Map. The numerical results through the indicator DLI clearly demonstrate the behavior of our map. The correlation dimension has been calculated numerically for the dimension of the chaotic attractor.

Keywords: Bifurcation; Chaos indicators; Topological entropy; Correlation dimension

MSC 2010 No.: 37G15, 37D45

CHAOS MEASURE IN AUTONOMOUS LPA MODEL

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*. Corresponding Author

June 20, 2020

Abstract

The discrete autonomous LPA model of dynamical systems investigated for regular and chaotic evolutions under different feasible conditions in the framework of nonlinear dynamics. Evolutionary phenomena discussed through bifurcation analysis leading to chaos. As part of chaos measure, numerical calculations performed to obtain Lyapunov characteristic exponents (LCE), Topological Entropy, correlation dimension etc. The results obtained by numerical calculations are demonstrated through various graphics. Chaotic evolutions discussed at critical set of parameters, which reveals very significant results. Correlation dimension, which provides dimensionality of an attractor (Strange/Chaotic), obtained numerically by the use of certain statistical method.

Keywords: Autonomous LPA model, Bifurcation, Lyapunov Characteristic Exponents, Topological Entropy, Correlation Dimension.

1 Introduction

Mathematical models expressing real phenomena are mostly nonlinear in nature. Their evolutionary dynamical behavior often shows properties like unpredictability and chaos attracting researchers obtaining interesting results [4; 5; 24]. The model on population dynamics and ecology are frequently used models and most considerable problems in dynamical systems. Investigators generally prefer to use difference equation while describing mathematical models in context of biological models. Numerous articles have appeared on such models after publication of articles by R. May [17; 18] with reasonable assumption of evolution processes of population in concerned. Such studies generate quite interesting results.

Many nonlinear systems exhibit chaos in some parameter space but in some cases within the system because of the interaction among different agents, complexity character also visible during evolution. Unpredictable motion is thus a mix phenomenon of chaos and complexity. Presence of complexity is responsible of coexistence of multiple attractors, bistability, intermittency, cascading effects, exhibit of hysteresis properties, and some more properties. [3; 6; 9; 26]. Chaotic evolution measured by positivity of Lyapunov exponents, (LCEs), whereas its negative value signifies the system is regular. [2; 8; 13]. Complexity measured by increase of topological entropy; more increase in topological entropy signifies the system is more complex. [7; 14; 15; 21; 22; 27].

Evolution in insects considered metamorphosis since big changes observed during their growth and development. Insect evolution passes through four clearly different stages: egg, larvae, pupae and adult. Class of such insects listed as butterflies, moths, beetles, flies, bees, wasps, and ants. Changing from one stage to another an insect has to molt its skin and each time it emerge larger and of different form until it reaches the adult stage. [10]. Some

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Supply Chain Model for Expiring Items Following Ramp-Type Demand With Stochastic Lead Time Under Crisp and Fuzzy Environment

Chaman Singh, S.R. Singh

Source Title: International Journal of Fuzzy System Applications (IJFSA) 9(1)
Copyright: © 2020 | Volume: 9 | Issue: 1 | Pages: 28
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Abstract

Supply chain models with deteriorating items, season pattern demand, expiration and uncertain lead time, though common in practice; had received little attention from researchers. In this article, the authors proposed a collaborative system with ramp type seasonal pattern demand rate for expiring items with supplier's random lead time under crisp and fuzzy environment considering the effect of inflation and time value of money. For the seasonal kind of items, demand rate follows the combination of increasing-steady-decreasing demand patterns. A supplier's lead time is a stochastic function of his managing cost; thus, the extra costs incurred on the retailer due to the uncertainty in lead time in terms of shortages costs and lost sales costs are owed by the supplier. Numerical examples are cited to illustrate the results and its significant features. Finally, to study the effect of change of parameters sensitivity analysis is presented and necessary observations are made.

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1. Introduction

In the existing literature, most of the inventory/supply chain model was developed considering three types of demand rates: (i) constant demand rate; (ii) linearly positive/negative demand rate; and (iii) exponentially increasing/decreasing demand rate. However, demand for a commodity cannot increase/decrease continuously over time. It is observed that demand for seasonal products like fruits and the fashionable products over the entire time horizon is three folded. At the beginning of the season demand increases more rapidly, as the time passes, it becomes steady in the middle of the season and decreases more rapidly towards the end of the season and becomes asymptotic. The term "ramp type" is used to represent such kind of demand pattern. In the existing inventory and supply chain models, after the development of classical economic ordering quantity model by Wilson (1934) under the assumption of constant demand rate, researchers extensively studied several aspects of inventory and supply chain modeling by assuming time-dependent demand rate. The assumption of constant demand rate is usually valid in the mature stage of a product's life cycle. In the growth and/or end-stage life cycle, demand rate may well be approximated by a time-dependent function. Resh et al. (1976) were the first who developed a model with linearly time-varying demand. Hill (1995) first resolved the indiscipline of time-dependent demand pattern by considering the demand

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The anti-oxidant enzyme, Prdx6 might have *cis-acting* regulatory sequence(s)

Sharifun Shahnaj [a], Angamba Meetei Potshangbam [a], Rimpy Kaur Chowhan [b], Zahoor Ahmad Parray [c], Pushpa Kakchingtabam [a], Anju Kumari [b], Asimul Islam [c], Aslam Khan [d], Laishram Rajendrakumar Singh [b], Hamidur Rahaman [a]

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Abstract

Peroxiredoxin 6 (Prdx6) is a ubiquitously expressed 1-cysteine Peroxiredoxin found throughout all phyla. In mammals, under different physiological conditions, it has evolved from a peroxidase to a multifunctional enzyme. Among the mammalian Prdx6's, human and rat Prdx6's are the most extensively studied. Our study revealed that human and rat Prdx6's exhibit differences in their peroxidase activity. These two Prdx6's have only 8% difference in their primary sequence (with 19 amino acids) with no apparent

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Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in *Mycobacterium tuberculosis*

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Abstract

The rapid rise in the emergence of multidrug-resistant (MDR) and extensively drug-resistant (XDR) strains of *Mycobacterium tuberculosis* (Mtb) mandates the discovery of novel tuberculosis (TB) drugs. Mur enzymes, which are identified as essential proteins in Mtb and catalyze the cytoplasmic steps in the peptidoglycan biosynthetic pathway, are considered potential drug targets. However, none of the clinical drugs have yet been developed against these enzymes. Hence, the aim of this study was to identify novel inhibitors of Mur enzymes in *Mycobacterium tuberculosis*. We screened an antitubercular compound library of 684 compounds, using MurB and MurE enzymes of the Mtb Mur pathway as drug targets. For experimental validation, the top hits obtained on in silico screening were screened in vitro, using Mtb Mur enzyme-specific assays. In all, seven compounds were found to show greater than 50% inhibition, with the highest inhibition observed at 77%, and the IC_{50} for these compounds was found to be in the range of 28–50 μM. Compound 5175112 showed the lowest IC_{50} (28.69 ± 1.17 μM), and on the basis of (1) the binding affinity, (2) the stability of interaction noted on

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Virus Research

Volume 279, 2 April 2020, 197884

Characterization and genome analysis of B1 sub-cluster mycobacteriophage PDRPxv

Avni Sinha [a 1], Kandasamy Eniyan [a b 1], Prasanth Manohar [b], Nachimuthu Ramesh [b], Urmi Bajpai [a]

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Highlights

- A mycobacteriophage PDRPxv was isolated from soil sample using *Mycobacterium smegmatis* as host.
- Mycobacteriophage PDRPxv belongs to the *Siphoviridae* family.
- The complete genome sequence of mycobacteriophage PDRPxv was determined.

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Functional characterization of the endolysins derived from mycobacteriophage PDRPxv

Kandasamy Eniyan, Avni Sinha, Shazeb Ahmad & Urmi Bajpai

World Journal of Microbiology and Biotechnology **36**, Article number: 83 (2020) | Cite this article

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Abstract

Bacteriophage-derived endolysin enzymes play a critical role in disintegration of the host bacterial cell wall and hence have gained considerable attention as possible therapeutics for the treatment of drug-resistant infections. Endolysins can target both dividing and non-dividing cells and given the vital role peptidoglycan plays in bacterial survival, bacteria are less likely to modify it even if continuously exposed to lysins. Hence, probability of bacteria developing resistance to lysins appear bleak. Endolysins from mycobacteriophages offer great potential as alternative therapeutics for the drug-resistant TB. However, considering that a large number of mycobacteriophages have been discovered so far, the information on endolysins come from only a few mycobacteriophages. In this study, we report the structural

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Vol. 15, Issue 2 (December 2020), pp. 894 – 915

Estimating Parameter of the Selected Uniform Population Under the Generalized Stein Loss Function

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Received: March 22, 2020; Accepted: August 23, 2020

Abstract

This paper deals with the problem of estimating scale parameter of the selected uniform population when sample sizes are unequal. The loss has been measured by the generalized Stein loss (GSL) function. The uniformly minimum risk unbiased (UMRU) estimator is derived, and the natural estimators are also constructed under the GSL function. One of the natural estimators is proved to be the generalized Bayes estimator with respect to a noninformative prior. For $k = 2$, we obtained a sufficient condition for an inadmissibility result and demonstrate that the natural estimator and UMRU estimator are inadmissible. A simulation investigation is also carried out for the performance of the risk functions of various competing estimators. Finally, this article represents a conclusion of our study.

Keywords: Generalized Stein loss (GSL) function; Uniform distributions; Inadmissibility; UMRU estimator; Natural estimators; Selection rule; Entropy loss function

MSC 2010 No.: 62E10, 62M90, 60G70, 60E05, 62E10, 62E15

Reliable Path Finding Technique for Mobile Robot

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CHANDRA KANTA SAMAL[2]

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AND College, Delhi University, New Delhi, India
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Abstract - Path planning techniques of mobile robot (Automated Vehicle) is discussed in this paper. Though different researchers had proposed different path planning strategies, each plan has its own advantages and disadvantages. The goal of the research work is to develop an algorithm to find out an optimal path from source to destination along with the obstacles. The path planning algorithm not only minimizes the risk of collision but also reduces the planning time and creates a reliable path to reach the desired destination avoiding obstacles. The proposed algorithm is implemented to get the reliable path and compared with that of the existing algorithm to find the optimized path. The new approach is able to minimize the risk of collisions and travelling time with the help of different parameters and simulation software. It is proved through experimental results that the performance of the proposed algorithm is improves considerably and works efficiently when the shape and size of the image changes. It also turns closely at the corners of the obstacles and also reduces the number of steps without affecting the steps and corners. Time and space complexity analysis for this algorithm is experimentally tested and implemented.

Keywords: NFT, Path planning, Time Complexity, Space Complexity, DDA Optimization, Adj*.

(Received October 28th, 2020 / Accepted November 15th, 2020)

1. INTRODUCTION

Path planning of a mobile robot is to determine a collision-free path from a starting point to a goal point optimizing a performance criterion such as distance, time or energy (distance being the most commonly adopted criterion). Based on the availability of information about environment, there are two categories of path planning algorithms, namely off-line and on-line. Path planning of robots in environments where complete information about static obstacles and trajectory of moving obstacles are known in evolutionary approaches of path planning of mobile robots are discussed. Review shows that optimization algorithms are computationally more efficient and hence are increasingly used in tandem with classic approaches [5].

The path planning algorithm contains various methods with different optimization techniques for optimization. The path planning algorithm developed for various platforms depends on the condition whether it is static or dynamic. Mobile robots are expected to work in many places such as factories, offices and so on. Nowadays, autonomous mobile robots are used in the

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20 August 2020

Android-based application for shading analysis and assessment of actual solar energy potential

Amit Garg, Prince Sharma, Vivek Verma, Tarunpreet Kaur

Author Affiliations +

Proceedings Volume 11496, New Concepts in Solar and Thermal Radiation Conversion III; 114960G (2020)
https://doi.org/10.1117/12.2570966
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Abstract

The excessive utilisation of conventional energy sources has highlighted a complicated energy crisis due to high dependency and depletion of non-renewable resources; along with the inefficiency to cope up with the pressing requirements of the economy. Shifting to alternative, replenishable forms of energy and developing technology for the same, will fulfil the current energy needs and complement the national security. Solar energy can be productively exercised to meet the current energy requirements. Shading analysis is one of the most critical steps essential to any successful installation of a solar energy system. In photovoltaics, it is important to analyze shading caused by surrounding objects and/or vegetation. In special cases like analysis

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21 August 2020

Some fun pedagogical techniques to teach optics to students of all ages

Amit Garg, Prince Sharma, Prahlad Prajapat, Anurag Saxena, Pushkar Pandey, Aman Tyagi, Yash Varshney, Aditi Sharma

Author Affiliations +

Proceedings Volume 11480, Optics Education and Outreach VI; 114800R (2020)

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Event: SPIE Optical Engineering + Applications, 2020, Online Only

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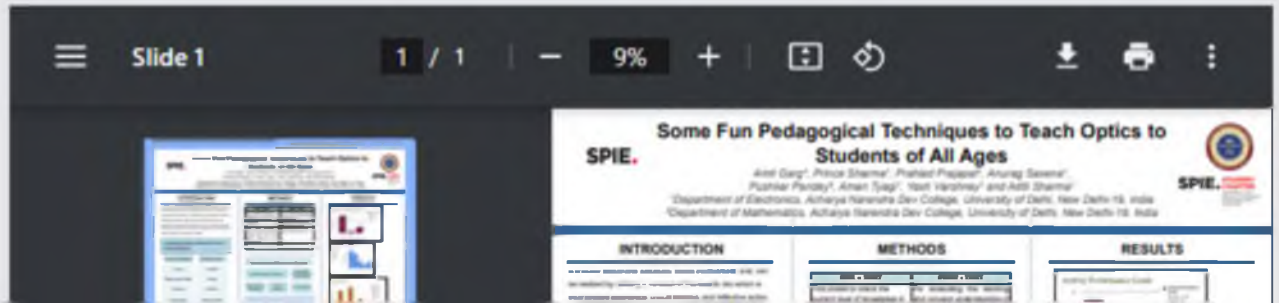

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Defence Science Journal, Vol. 70, No. 5, September 2020, pp. 520-528, DOI : 10.14429/dsj.70.14584
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Trace Detection of Nerve Agent Simulant in the Fuel Vapour Environment using Metal Oxide/Surface Acoustic Wave E-Nose

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ABSTRACT

Nerve agents are often used at the military warfront, where diesel is a very common interferant. In the present work, a group of surface acoustic wave (SAW) sensors, called E-Nose with dissimilar sensing layers is developed for the recognition of the mixture of diesel and dimethyl methylphosphonate (DMMP) vapors. The exposure of DMMP and diesel vapors is kept at ppb and ppm levels respectively. Varied response patterns of DMMP and diesel vapors were obtained by SAW E-nose. Principal component analysis (PCA) has been used to extract features from the response curves of SAW sensors. Artificial Neural Network pattern recognition has been implemented to identify the precise detection of DMMP vapors in the binary mixture of DMMP and diesel. The effect of pre-processing (using PCA) the raw data before feeding it to artificial neural network is also studied.

Keywords: E-nose; Metal oxide; Sensor

1. INTRODUCTION

Today chemical attack is one of the biggest threats for us. Nerve agents (Sarin, Soman) are the deadliest and widely used class of chemical warfare agents, employed several times during a war[1]. Sensors employed for their detection must take care of the interferants also. Since the accuracy level required in the detection of warfare agents is very high, special technologies are required to minimize the possibility of false alarms. Nerve agents are mostly used at warfronts, where diesel is the major source of interferant. Diesel is used in tanks, trucks, generators, starting compressors for jet engines[2]. Therefore, sensor systems should be capable of detecting nerve agents in the presence of such interferants.

Presently, there exist various sensing techniques like IR deposition, lack of long-term stability, metal oxide sensing layers have also been tried[5-10].

The use of a single sensor is generally not sufficient to detect a particular vapour in a mixture. Hence an E-nose (an array of sensors) is essentially required. The sensing data of E-nose along with suitable pattern recognition technique (PCA, ANN etc.) allows correct recognition of target vapours[11]. In literature, SAW E-nose has been employed for the recognition of various target vapours[12-15]. Joo[13], *et al.* fabricated an array of polymer- coated SAW sensors for the recognition of simulant vapours but individual vapours were tested and the neural network algorithm was not implemented for precise prediction. Matatagui[9], *et al.* implemented Principal Component Analysis and neural network on the SAW response of few simulants,

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Materials Science and Engineering: B

Volume 258, August 2020, 114577

Green synthesis of TiO_2 nanosheet by chemical method for the removal of Rhodamin B from industrial waste

Rakesh K. Sonker [a b], Gaurav Hitkari [c], S.R. Sabhajeet [d], S. Sikarwar [d], Rahul [e], Sandhya Singh [c]

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https://doi.org/10.1016/j.mseb.2020.114577

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Abstract

In this research article, the photocatalytic decolourization of rhodamin B by the newly green synthesized TiO_2 nanostructure material has been investigated to consider as effective catalyst for the decontamination of wastewater. The crystal structure and particle size measurement of green synthesized TiO_2 was appraised by X-ray diffraction (XRD). The morphological, structure and particle size distribution was study by SEM and

FEEDBACK

An overview of factors affecting dengue transmission in Asian region and its predictive models

PDF

Published Sep 15, 2020

DOI https://doi.org/10.31018/jans.v12i3.2360

Roopa Rani Samal
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India.
Saiesha Gupta
The Benenden School (TBS), Kent, United Kingdom.
Sarita Kumar
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India.

Abstract

Among various mosquito-borne diseases, dengue is one of the most prevalent and quickly spreading diseases primarily transmitted by *Aedes aegypti* and *Aedes albopictus*. This review discusses the dengue epidemics in Asian countries with a focus on India and recognizes various climatic, socio-economic, and demographic factors and their complex interaction, involved in dengue expansion. The impact of climatic factors, such as temperature, moisture, and precipitation has been elucidated on the mosquito breeding and disease outbreaks; demonstrating a linear correlation of ambient temperature and humidity with dengue transmission, in contrast with the uncertain association of rainfall. Multifarious empirical models have been developed for estimating the climatic effects on dengue and are used as a baseline to assess the impact on future infections. However, the spatiotemporal distribution of dengue cases can only be predicted best using dynamic modelling

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COMPARATIVE LARVICIDAL EFFICACY OF α-CYPERMETHRIN ALONE AND α-CYPERMETHRIN/*CITRUS SINENSIS* PEEL EXTRACT BINARY MIXTURES AGAINST *AEDES AEGYPTI* L.

DEVINA AGGARWAL, ROOPA RANI SAMAL, SARITA KUMAR*

Aedes aegypti is a widely spread disease vector of great concern throughout the world. With continuous rise in cases of Zika, dengue and Chikungunya worldwide, control of *Ae. aegypti* has become a prime concern. The present study investigated the larvicidal effects of individual and various combinations of *Citrus sinensis* hexane peel extract and a synthetic pyrethroid, alpha-cypermethrin against *Ae. aegypti*. Larvicidal bioassays were performed using WHO protocol with minor modifications. The investigated compounds were found effective individually as well in binary mixtures indicating the efficient synergism. Hexane extract of *Citrus sinensis* peels assayed against *Aedes aegypti* larvae resulted in LC_{50} of 46.53 ppm after exposure for 24 h, while alpha-cypermethrin treatment resulted in LC_{50} value of 0.0063 ppm. The binary mixtures of both the compounds in 1:1, 1:5 and 1:10 ratios also showed significant larvicidal potential. The 1:1 mixture was found most effective with co-toxicity coefficient and synergistic factor as 23.456 and 3.865, respectively, for the LC_{50} at 24h. The binary mixtures showed synergism as well as additive effects in all the ratios tested except 1:5 ratio for LC_{90} at 48h which showed inconsequential antagonistic effect. Results showed decreased synergistic effects with increase in the citrus extract proportion in the binary mixtures. We suggest that phytoextract/cypermethrin mixtures can be more operative than insecticide/phytoextract alone, and can be used as a good ecofriendly approach in vector control programs. Such mixtures could reduce the costs, reduce insecticide dose, and regulate insecticide resistance as part of integrated vector management.

Keywords: *Citrus sinensis*, *Aedes aegypti*, synergism, additive, antagonism, binary mixtures.

INTRODUCTION

Mosquito-borne diseases are the major cause of concern worldwide, especially in tropical countries. Different mosquito vectors, *Aedes*, *Culex* and *Anopheles* transmit a range of disease pathogens causing dengue, Chikungunya, malaria, filariasis and Zika, etc. Though, different species of mosquitoes are playing havoc at global level, yet since last decade, outbreak of *Aedes*-borne diseases has taken a

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ELSEVIER

Acta Ecologica Sinica

Volume 42, Issue 3, June 2022, Pages 156-161

Reduced physiological and reproductive fitness induced by *Nerium oleander* leaf extracts in the cotton bollworm, *Helicoverpa armigera* (Lepidoptera: Noctuidae)

Aadhya Sivakumar [a], Monika Mishra [b], Vinay Singh Dagar [b], Sarita Kumar [b]

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https://doi.org/10.1016/j.chnaes.2020.12.002

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Abstract

Helicoverpa armigera is one of the most devastating, cosmopolitan, polyphagous and multivoltine pests of agricultural crops. The growing side-effects of synthetic insecticides used to control agricultural pests, have amplified demand for the relatively safe and biodegradable compounds which offer benefits over synthetic chemical insecticides. Hence, the current study investigates the effects of Nerium oleander methanol leaf

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Original Paper | Published: 21 October 2020

Protection of surplus food from fungal spoilage using *Streptomyces* spp.: a green approach

Munendra Kumar, Prateek Kumar, Payal Das, Renu Solanki & Monisha Khanna Kapur

Archives of Microbiology **203**, 941–950 (2021) | Cite this article

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Abstract

Consortia of *Streptomyces* spp. (colonies 169, 194, 165 and 130) used in this study are an efficient producer of secondary metabolites like chitinases and antifungal compounds, which may help in the protection of surplus food from spoilage. Qualitative screening for chitinase production and taxonomy of these colonies were undertaken in our previous studies. In the current study, GC–MS analysis of extract produced from the consortia of *Streptomyces* strains was done for the identification of antifungal compounds. Treatment of surplus food with activated consortia of *Streptomyces* spp. has protected powdered food for a month, whereas fresh food (unpowdered) was preserved for two days. A control sample of surplus food (untreated) was kept to check the contamination, which resulted in the growth of three fungi

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Original Article | Published: 04 September 2020

Draft genome and secondary metabolite biosynthetic gene clusters of *Streptomyces* sp. strain 196

Prateek Kumar, Anjali Chauhan, Munendra Kumar, Bijoy K. Kuanr, Renu Solanki & Monisha Khanna Kapur

Molecular Biology Reports **47**, 6741–6747 (2020) | Cite this article

743 Accesses | **1** Citations | **3** Altmetric | Metrics

Abstract

Emergence of MDR 'superbugs' inflamed a severe sense of urgency amongst scientists aiming at the discovery of novel potential drug molecules. Bacteria of the genus *Streptomyces* are really worth investigating for their immense potential to produce natural compounds of pharmaceutical importance. In the present study, the genome of *Streptomyces* sp. strain 196 was sequenced, studied and secondary metabolite biosynthetic gene clusters (smBGCs) were detected. FAME analysis was used for taxonomic validation of strain 196. Genome of strain 196 was sequenced using the Illumina NextSeq system which has resulted in a draft genome of 7.4 Mb. Rapid annotation using subsystem technology (RAST) results revealed the presence of

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Published: 28 August 2020

Indicators for assessment of soil quality: a mini-review

Swati Maurya, Jeeva Susan Abraham, Sripoorna Somasundaram, Ravi Toteja, Renu Gupta & Seema Makhija

Environmental Monitoring and Assessment **192**, Article number: 604 (2020) | Cite this article

3630 Accesses | **40** Citations | **1** Altmetric | Metrics

Abstract

Soil quality is the competence of soil to perform necessary functions that are able to maintain animal and plant productivity of the soil. Soil consists of various physical, chemical, and biological parameters, and all these parameters are involved in the critical functioning of soil. There is a need for continuous assessment of soil quality as soil is a complex and dynamic constituent of Earth's biosphere that is continuously changing by natural and anthropogenic disturbances. Any perturbations in the soil cause disturbances in the physical (soil texture, bulk density, etc.), chemical (pH, salinity, organic carbon, etc.), and biological (microbes and enzymes) parameters. These physical, chemical, and biological parameters can serve as indicators for soil quality assessment. However, soil quality assessment cannot be possible by

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ELSEVIER

Journal of Molecular Structure

Volume 1199, 5 January 2020, 127003

Ibuprofen-based chemosensor for efficient binding and sensing of Cu^{2+} ion in aqueous medium

Shyam Lal [a], Kunal Prakash [b], Sunita Hooda [a], Vikrant Kumar [a], Pramod Kumar [c]

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https://doi.org/10.1016/j.molstruc.2019.127003

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Abstract

An ibuprofen based molecular receptor **R1** (N-[2-[(2-Hydroxy-benzylidene)-amino]-ethyl]-2-(4-isobutyl-phenyl)-propionamide) was developed for the detection of Cu^{2+} ion in aqueous medium by absorbance and fluorescence techniques. Binding constants ($4.89–5.67 \times 10^3 M^{-1}$) and detection limits (1.71–2.12 μM) showed significant sensing ability. SEM and PXRD techniques were employed to establish the complex formation between **R1** and Cu^{2+} ion and also showed promising behaviour of nanomaterial. The

FEEDBACK

Fabrication of a Gold-Supported NiAlTi-Layered Double Hydroxide Nanocatalyst for Organic Transformations

Garima Rathee, Sahil Kohli, Sagar Panchal, Nidhi Singh, Amardeep Awasthi, Snigdha Singh, Aarushi Singh, Sunita Hooda*, and Ramesh Chandra*

Cite this: *ACS Omega* 2020, 5, 37, 23967−23974
Publication Date: September 14, 2020
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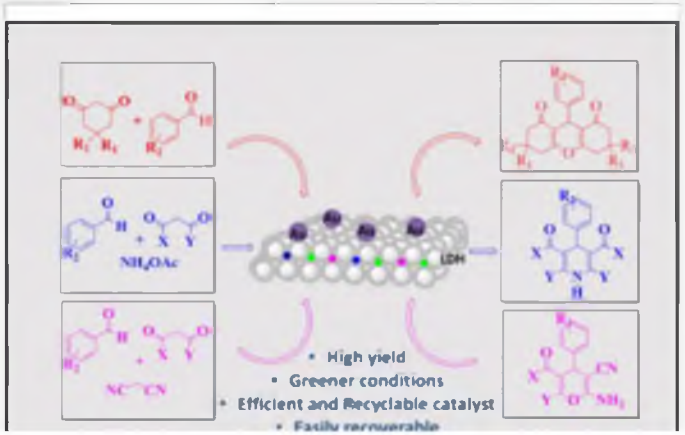
SUBJECTS: Catalysts, Catalytic reactions, Ethanol, Inorganic compounds, Reaction products

Abstract

This work is mainly focused on the synthesis of an efficient and reusable heterogeneous Au/NiAlTi layered double hydroxide (LDH) nanocatalyst and its applications in the preparation of biologically important xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives. NiAlTi LDH was designed hydrothermally and then gold was supported over the surface of LDH by using ion-exchange and $NaBH_4$ reduction methods. The synthesized nanocatalyst was physicochemically characterized by X-ray diffractrometry, Fourier-transform infrared spectroscopy, thermogravimetric analysis, scanning electron microscopy, and transmission electron microscopy (TEM). The TEM images confirmed the support of gold nanoparticles over the surface of LDH with a size distribution of 7−9 nm. The well-characterized nanocatalyst was tested for the synthesis of biologically important xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives. The advantages obtained were excellent yields in a lesser reaction time. Stability and reusability were also accessed; the catalyst was stable even after five cycles. High catalytic efficiency, easy fabrication, and recycling ability of Au/NiAlTi LDH make it a potential catalyst for the synthesis of xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives.



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Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review

Laishram Saya, Drashya Gautam, Vipin Malik, W. Rameshwor Singh, and Sunita Hooda*

Cite this: *J. Chem. Eng. Data* 2021, 66, 1, 11−37
Publication Date: November 9, 2020
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Journal of Chemical & Engineering Data

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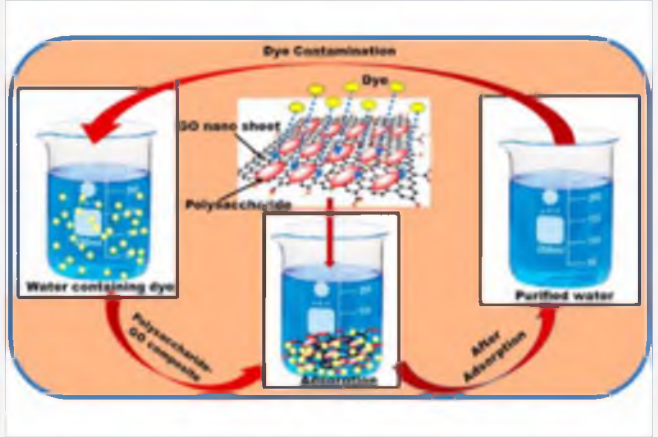
SUBJECTS: Adsorption, Carbohydrates, Dyes and pigments, Oxides, Two dimensional materials

Abstract

This article discusses the potential applications of natural polysaccharide-based graphene oxide nanomaterials in the field of wastewater remediation through the removal of organic and synthetic dyes. Being highly toxic, carcinogenic, and nonbiodegradable, dyes disposed from textile, paper, and printing industries etc. pose a serious threat to various life forms on earth. Recently, there has been an increased interest in the amalgamation of biopolymers, such as polysaccharides, with the high adsorption efficiency of graphene oxide. Polysaccharides, apart from being nontoxic, low cost, and eco-friendly, possess a variety of functional groups enabling them to be easily tuned for the desired applications. When grafted with GO nanosheets, they give rise to unique nanomaterials possessing diverse applications, especially in the eradication of harmful contaminants from wastewater. This review is an attempt to give consolidated and detailed information on different aspects of the adsorption behavior of various potentially low-cost polysaccharide-based GO nanoadsorbents toward lethal dyes. The characterization techniques used, adsorption isotherms, kinetics, thermodynamic behavior, recyclability, and swelling properties as well as the adsorption mechanism have been outlined in this article. The whole anthology of literature reports excellent dye removal efficiency with significant regeneration performance making these nanoadsorbents promising candidates for practical



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Journal of King Saud University - Science

Volume 32, Issue 8, December 2020, Pages 3351-3358

Original article

Self-nitrogen doped carbons aerogel derived from waste cigarette butts (cellulose acetate) for the adsorption of BPA: Kinetics and adsorption mechanisms

Norah S. Alhokbany [a], Mu Naushad [a b], Vikrant Kumar [c], Saad Al hatim [a], Saad M. Alshehri [a], Tansir Ahamad [a]

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https://doi.org/10.1016/j.jksus.2020.09.021

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Abstract

The fabrication of highly porous functionalized carbon materials is the demand of current scenario for the removal of toxic pollutants form aqueous solution. Therefore,

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Design and Synthesis of Various 5′-Deoxy-5′-(4-Substituted-1,2,3-Triazol-1-yl)-Uridine Analogues as Inhibitors of *Mycobacterium tuberculosis* Mur Ligases

by Vincent Hervin [1], Ritu Arora [2], Jyoti Rani [2,3], Srinivasan Ramchandran [3], Urmi Bajpai [2], Luigi A. Agrofoglio [1,*] and Vincent Roy [1,*]

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[*] Authors to whom correspondence should be addressed.

Molecules **2020**, *25*(21), 4953, **https://doi.org/10.3390/molecules25214953**

Received: 14 September 2020 / Revised: 17 October 2020 / Accepted: 19 October 2020 / Published: 26 October 2020

(This article belongs to the Special Issue **Nucleosides – Nucleotides – Oligonucleotides**)

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Abstract

The synthesis of hitherto unknown 5′-deoxy-5′-(4-substituted-1,2,3-triazol-1-yl)-uridine and its evaluation, through an one-pot screening assay, against MurA-F enzymes involved in *Mycobacterium tuberculosis* (Mtb), are described. Starting from UDP-*N*-acetylmuramic acid (UDP-MurNAc), the natural substrate involved in the peptidoglycan biosynthesis, our strategy was to substitute the diphosphate group of UDP-MurNAc by a 1,2,3-triazolo spacer under copper-catalyzed azide-alkyne cycloaddition conditions. The structure-activity relationship was discussed and among the 23 novel compounds developed, *N*-acetylglucosamine analogues **11c** and **11e** emerged as the best inhibitors against the Mtb MurA-F enzymes reconstruction pathway with an inhibitory effect of 56% and 50%, respectively, at 100 μM. Both compounds are selective inhibitors of Mtb MurE, the molecular docking and molecular dynamic simulation suggesting that **11c** and **11e** are occupying the active site of Mtb MurE ligase.

Keywords: Mur ligase; nucleoside analogues; copper-catalyzed azide-alkyne cycloaddition; antibacterial

NEEM FLOWERS (*AZADIRACHTA INDICA*) AS AN ABUNDANT SOURCE OF NECTAR FOR BUTTERFLIES IN AN URBAN LANDSCAPE IN DELHI, INDIA

RAJESH CHAUDHARY

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Reviewer: Peter Smetacek

Abstract

Most butterflies feed on floral nectar. The ability of butterflies to access nectar deep within a flower depends on the length of their proboscis. Adequate nutrition is known to maintain the reproductive potential of butterflies. In an urban context, lacking adequate parks and gardens, there is always a need of flowers that can provide nectar to butterflies. In this situation, avenue trees, bearing flowers with nectar accessible to a wide range of butterflies, could help maintain a reasonably diverse butterfly population. The Neem tree, *Azadirachta indica*, is planted along roads and in parks in urban areas of Delhi. Its small flowers were found to attract several species of butterflies belonging to all five major families present in Delhi. It is suggested that trees such as *Azadirachta indica* and other nectar trees, if planted as avenue trees, may help in the conservation of butterflies in an urban landscape.

Key words: Flowering tree, Food plant, Butterfly, Urban Landscape

Introduction

Butterflies are liquid-feeding insects; they acquire food by sucking through their long tubular proboscis (Krenn, 2010). Adult butterflies can be broadly categorised into two feeding guilds: nectar feeding (feeding on floral nectar) and non-nectar feeding (acquiring nutrition from decaying fruit, sap, honey dew, etc.). The feeding habits are associated with certain modifications in the microstructure of the proboscis, particularly at the tip (Krenn *et al.*, 2001, Molleman *et al.*, 2005; Krenn, 2010; Lehnert, *et al.*, 2016). A vast majority of butterflies feed on floral nectar (Krenn, 2010). The profitability of feeding on floral nectar depends in part on the depth of the corolla-tube (or the depth at which nectar is seated in flowers); the amount of nectar, proboscis length and wing load (Corbet, 2000; Tiple *et al.*, 2009). The shorter proboscis of small butterflies limits them from using flowers with deep seated nectar (May, 1992). Butterflies with a longer proboscis however, can harvest nectar from a broad range of flowers, including flowers with short as well as those with long corolla tubes (May, 1992; Corbet, 2000; Kunte, 2007; Sultana *et al.*, 2017). Nutrition is known to maintain high fecundity in female butterflies and increase their body weight and fat storage (Hill *et al.*, 1989; O'Brien *et al.*, 2004; Mevi-Schutz *et al.*, 2005; Geister *et al.*, 2008; Karlsson *et al.*, 2009). Butterflies obtain nectar from a range of flowers. The role of tree flowers as a source of nectar has not been appreciated by many researchers. Tree flowers however, can be an important source of nectar for butterflies living in or close to forested as well as urban landscapes. Here, I present an account of butterfly species which can benefit from feeding on the flowers of *Azadirachta indica* (A. Juss; Family: Meliaceae) commonly known as 'Neem tree'. The tree commonly grows in urban and rural areas in most parts of India and a few researchers have indicated

A COMPREHENSIVE CHECKLIST OF BUTTERFLIES SEEN IN CORBETT TIGER RESERVE, UTTARAKHAND, INDIA

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Reviewer: Peter Smetacek

Abstract

Corbett Tiger Reserve (CTR) conserves a wealth of flora and fauna and is a known destination for ecotourism in Northern India. Besides mammals and birds, for which CTR is known to many, frequent visits to CTR and its vicinity for watching butterflies are also on the rise in recent times. In this respect, an account of species of butterflies in the CTR and its vicinity would be useful not only for butterfly ecotourism but also for conservational, educational and scientific purposes. By virtue of photographic documentation of species of butterflies in CTR for over a decade, we provide here a list of butterflies seen in various tourist zones of CTR and its immediate vicinity. We recorded 94 genera and 130 species belonging to six families. On the basis of our records and work by others in CTR, a comprehensive checklist of 143 species of butterflies has been compiled.

Introduction

Corbett Tiger Reserve (CTR) is one of the key biodiversity areas in the foothills of Himalaya in Northern India. Established as a wildlife sanctuary with a total area of few hundred square kilometres in 1934, it was upgraded to a National Park in 1936 (Khanna *et al*., 2008). Presently, the CTR has a well-protected expanse of 1288.31 km² (NTCA, 2009). The spread of CTR encompasses a variety of habitats that support diverse flora and fauna (Pant, 1986, Editor-Director, 2008, Khan *et al*., 2008). Besides conserving wilderness, the location and approachability of CTR; and plentiful wildlife attracts lakhs of tourists every year (Badola *et al*., 2010; Gusain, 2015). The recreational value of CTR generates livelihood for the local community (Badola *et al*. 2010; Kumar *et al*., 2019).

Today, butterfly watching is one of the favourite recreational activities for many, and the trend is gradually on the rise. This makes butterflies important from the perspective of ecotourism; defined here as "low impact nature tourism which contributes to the maintenance of species and habitats either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people to value, and therefore protect, their wildlife heritage area as a source of income" (Fennel, 2015; Kurnianto *et al*., 2016; Singh *et al*., 2016). The diverse and pristine habitat of CTR is expected to be rich in the diversity of butterflies. However, literature on butterfly diversity in and around CTR is sparse. Only two reports provide an account of species of butterflies found in CTR (Kumar, 2008; Arya *et al*., 2020). The number of species of butterflies mentioned in these reports are 36 (Kumar, 2008), and 56 (Arya *et al*., 2020). The present communication reports 130 species of butterflies based on the observations made

OVIPOSITION BY *JAMIDES BOCHUS* (STOLL, [1782]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN NEW DELHI, INDIA

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Reviewer: Peter Smetacek

Several individuals of the Dark Cerulean (*Jamides bochus*) were sighted 3-4 times daily between 30. viii.2020 to 20.ix.2020, fluttering over the crown of *Millettia pinnata* (L.) Panigrahi (Fabaceae). On two occasions, more than two individuals were sighted at a time. On 22.ix.2020, a female *J. bochus* was observed laying eggs on nascent buds and leaves of *M. pinnata*, in the Rohini area of New Delhi. It was observed for 5 minutes from a distance of 2.5-3 m and the events were photographed (Figures 1). The butterfly returned twice to the same spot to lay eggs after fluttering for about 1 minute in the vicinity of the twig, where it had laid the first batch of eggs.

M. pinnata is a medium sized tree planted commonly alongside many roads in Delhi. Sightings of *Jamides bochus* in Delhi are rare. However, during the past few years it has been sighted several times. It was so far not known to breed in Delhi (Chaudhary *et. al.*, 2019, Dr. Surya Prakash, *pers. comm.*). The present observation provides supporting evidence towards the assertion by Chaudhary & Kumar (2019) that the records of the *J. bochus* in Delhi are of a breeding population rather than of migrants.

Reference

Chaudhary, R. & V. Kumar. 2019. Sightings of *Jamides bochus* (Stoll, [1782]) and *Prosotas nora* (C. Felder, 1860) (insecta: Lepidoptera: Lycaenidae) from urbanized parts of New Delhi. *Bionotes* 21 (1): 3-4.

Fig.1 & 2: Oviposition by *Jamides bochus* on nascent buds and leaf of *Millettia pinnata* in Delhi.

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Gene Reports

Volume 20, September 2020, 100759

Diabetes: Perspective and challenges in modern era

Yamini Goyal [a 1], Amit Kumar Verma [a 1], Deepti Bhatt [a], Arshad Hussain Rahmani [b], Yasheshwar [c], Kapil Dev [a]

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https://doi.org/10.1016/j.genrep.2020.100759

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Abstract

Prevalence of diabetes is increasing rapidly due to change in lifestyle and modernization. Other than genetic and lifestyle factors, research has been concentrated in recognizing the effect of in utero conditions and mechanisms of epigenetics in developing diabetes. It emphasizes the need of discovering new methods of prevention focusing on child and maternal health. The Diabetes prevalence is more in developing nations than developed nations. In modern era with the globalization diabetes is a major reason of medical care expenditure and mortality and it is one of the biggest health challenges of current and

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Vol. 15, Issue 2 (December 2020), pp. 1396 – 1406

Vertical Motion of the Variable Infinitesimal Mass In the Circular Sitnikov Problem

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Received: May 12, 2020; Accepted: September 18, 2020

Abstract

The circular case of Sitnikov problem is studied here when the infinitesimal body varies its mass according to Jeans law and it is moving along the z-axis which is perpendicular to the orbital plane of the two equal spherical primaries. The two primaries are moving in $xy-$plane on the same circular path. These two primaries are imposing the Newtonian forces on the third variable mass body but not influenced by it. Stability of equilibrium points is examined followed by the derived equations of motion. The time-series solutions of the equation of motion are performed by using the Lindstedt-Poincaré method which is used to remove the secular term. We have numerically performed the time-series which shows that variation parameters have great impact on it.

Keywords: Circular Sitnikov problem; Variable mass; Meshcherskii transformation; Lindstedt-Poincaré method

MSC 2010 No.: 70F15, 70K42, 70F07

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Published: 10 September 2020

Generalized Elliptic Restricted Four-Body Problem with Variable Mass

Abdullah A. Ansari & Sada Nand Prasad

Astronomy Letters **46**, 275–288 (2020) | Cite this article

169 Accesses | **18** Citations | Metrics

Abstract

The elliptic case of restricted four-body problem with variable mass of infinitesimal body is studied here. The three primary bodies which are placed at the vertices of an equilateral triangle and moving in the elliptical orbits around their common center of mass. Out of these primaries we have considered that one massive body is having radiating effect and other two bodies are oblate in shapes. The fourth body which have infinitesimal mass, are varying its mass according to Jeans law. We derive the equations of motion of the infinitesimal body under the generalized sense in the elliptic restricted four-body problem by using the Meshcherskii-space time transformations. Further we numerically study about the equilibrium points, Poincaré surfaces of section, regions of possible motion and basins of the

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THE MOTION PROPERTIES OF THE VARIABLE MASS PLANETOID IN THE ELLIPTICAL SITNIKOV PROBLEM

Abdullah A. Ansari[1,*], Laxmi Narain[2] and Sada Nand Prasad[2]

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July 25, 2020

Abstract

The aim of the study is to investigate the effect of variation parameters due to variable mass of the planetoid in the elliptical Sitnikov problem. Where both primaries are moving in elliptical orbits and imposing the gravitational forces on the third infinitesimal body which varies its mass according to Jeans law and it does not affect the motion of the primaries. Planetoid is moving along perpendicular line (z-axis) to the orbital plane of the primaries. We derive the equation of motion of the planetoid followed by the hamiltonian of the system. Then we solve the equation of motion of the Hill's type equation. And again the time-series solution to the equation with nonlinear force is determined using first the Courant and Snyder transformation followed by the Lindstedt–Poincaré perturbation method which is used to remove the secular term and then an application of Courant and Snyder transformation is used. We have numerically performed the time-series which shows that variation parameters have great impact on it. We also compare our results with the existing results and found significant role of the variation parameters used.

Keywords: Elliptical Sitnikov problem, Variable mass, Jeans law, Courant and Snyder transformation.

1 Introduction

Sitnikov configuration is an interesting problem which starts over decades by K. A. Sitnikov in 1960. This configuration of restricted problem has primaries which are moving either in elliptic or circular path in the same plane while third body is moving on the vertical straight line of the plane of the motion of the primaries. These

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EPQ Model with Product Stewardship Approach

Pratiksha Saxena, Chaman Singh & Kamna Sharma

Conference paper | First Online: 25 November 2017

1155 Accesses | 1 Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 583)

Abstract

From the past few decades, most of the researchers concentrate on recycling of consumer goods to reduce the impact on environment and health, but now it is time to change our basic approach. In this research paper, we elaborate a nascent issue of product stewardship. Economic production model (EPQ) is a production model in which production occur in a time cycle to fulfill the demand. The proposed model we consider a basic EPQ model with all basic

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Indian Journal of Science and Technology

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Year: 2020, **Volume**: 13, **Issue**: 37, **Pages**: 3850-3870

Year: 2020, **Volume**: 13, **Issue**: 37

Original Article

Green design and product stewardship approach for two-warehouse inventory model

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ABSTRACT

Background/Objectives: To trim down the recycling cost of any manufactured goods with the help of green design and product stewardship. **Methods/Statistical analysis:** For the planned EPQ (economic production quantity model) model, all costs are calculated to find total cost and this total cost is optimized with the help of the Hessian matrix. Sensitivity analysis is also carried w.r.t. different parameters, to illustrate the impact of these parameters on the proposed model. The convexity of the total cost function is also checked with the help of mathematical software Mathematica 9.0. **Findings:** Major finding of the proposed model are as follows: (i) Increase in the number of recycles results in the reduction of the total cost. (ii) Product stewardship parameter has a negative effect on total cost as the PS increases from 1 to 4 units, total cost decreases from 5926.00 to 5918.96 units (see Table 9) (similar findings can be written for numeric example 1 after correcting it). (iii) Green design costs have a positive effect on total cost, as the green design cost

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Vol. 16, Issue 2 (December 2021), pp. 1120 - 1129

Generalized cr3b Problem with Heterogeneous Primary and Secondary as Finite Straight Segment

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Received: April 4, 2021; Accepted: August 4, 2021

Abstract

The existence and stability of stationary points are investigated under the effects of heterogeneous primary having N-layers with different densities, radiating finite straight segment and the Coriolis as well as centrifugal forces in the frame of cr3bp. The equations of motion are determined with the help of which we evaluate five stationary points analytically as well as graphically, and examine their stability.

Keywords: Restricted three-body problem; Heterogeneous body; Finite straight segment; Radiation pressure; Stationary points

MSC 2010 No.: 70F15, 70F07, 70F05

Outline

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1. Introduction

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European Journal of Pharmacology

Volume 890, 5 January 2021, 173741

Review

A comprehensive review on potential therapeutics interventions for COVID-19

Heerak Chugh [a 1], Amardeep Awasthi [a 1], Yashi Agarwal [a], Rajesh K. Gaur [c], Gagan Dhawan [d], Ramesh Chandra [a b]

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Abstract

COVID-19 is an infectious respiratory disease caused by SARS-CoV-2, a new beta coronavirus that emerged in Wuhan, China. Being primarily a respiratory disease, it is highly transmissible through both direct and indirect contacts. It displays a range of symptoms in different individuals and thus has been grouped into mild, moderate, and severe diseases. The virus utilizes spike proteins present on its surface to recognize ACE-2 receptors present on the host cells to enter the cell cytoplasm and replicate. The viral invasion of cells induces damage response, pyroptosis, infiltration of immune cells, expression of pro-inflammatory cytokines (cytokine storm), and activation of the adaptive immune system. Depending on viral load and host factors like age and underlying medical conditions, the immune responses mounted against SARS-CoV-2 may cause acute respiratory distress syndrome (ARDS), multiple organ failure, and death. In

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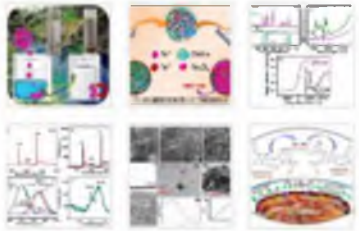

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Volume 2, December 2020, 100014

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Drashya Gautam [a], Laishram Saya [b], Sunita Hooda [a]

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Environmental Advances, Volume 7, April 2022, Pages 100139
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Abstract

Herein we report the development of easily separable, Fe_3O_4 loaded chitin nanomaterial (MCH NM) via simple Co-precipitation route, as a promising adsorbent for removal of Reactive Blue 13 (RB13) dye from aqueous solution in visible light ($\lambda \geq 420$nm). This nanomaterial was characterized using distinctive physicochemical techniques; MCH NM show band gap energy of 2.257 eV, evaluated by Tauc's plot using UV–visible spectroscopy. MCH NM show excellent swelling property due to the tendency of the polymer chains to reach elongated configurations at equilibrium beyond which an elastic

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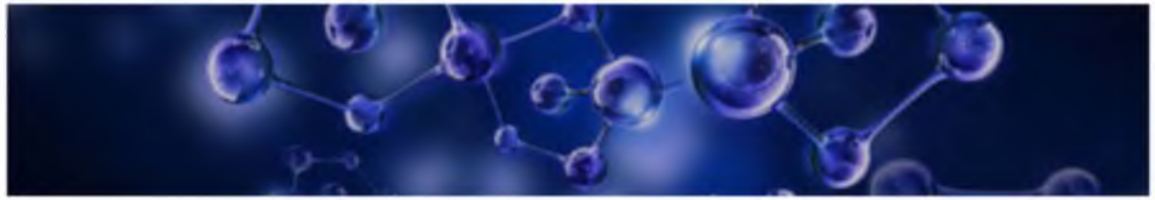

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Synthesis of Silver Nanoparticles by *Phyllanthus emblica* Plant Extract and Their Antibacterial Activity

Rajesh Kumar Meena[1*], Risikesh Meena[2], Dinesh Kumar Arya[3], Sapana Jadoun[4], Renu Hada[5] and Roopa Kumari[6]

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Artificial Intelligence Assisted Smart Mirror

Amit Garg[1], Prince Sharma[2#], Vivek Verma[3], Shruti Yadav[4], Aman Tyagi[5]

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Abstract— According to a survey [1] and research carried out by Today Show and AOL [2], the average person spends 55-56 minutes every day in front of the mirror. In today's fast-moving world, there is a need to manage time very efficiently while being healthy and content in one's life. Considering these observations, this paper constitutes the demonstration and creation of a project aiming to utilize every minute spent in front of a mirror in things like keeping track of mental health and making the best use of smart emerging technologies. In the proposed project idea, this paper presents another interactive smart mirror with some technological capabilities like emotion tracking, voice-activated talking bot with personal assistance, face recognition, the door unlocks, controlling lights, fans, and much more. The proposed mirror also displays day to day schedule, reminders, meetings and engagements fetching all of the required information from the user's Google account and real-time information such as live weather updates, local time, and latest headlines. Moreover, it keeps on displaying positive messages, compliments one's outfit, and greetings depending on what time it is.

Keywords— Smart Mirror, Raspberry PI, Artificial Intelligence, node.js, Python, JavaScript, Two-way mirror

I. INTRODUCTION

It is said that every second count and the saying is considered to be among the best of letter and spirit. There is rarely a home on earth without a mirror. Normally, a majority of people spend almost half of an hour in front of a mirror on a daily basis. With the advancement in technology the mirror should also adapt to move towards many emerging technologies like smartphones, tablets and laptops. The proposed solution to the problem is to turn the mirror into a Smart Electronic device like Alexa, Google Assistant.

Taking advantage of AI technology it is embedded in it to make smart and usable in all technological aspects. The most important goals of the Smart Mirror are to save the user's time and consequently, help in being more productive and also to allow receive all the updates on a timely basis. A smart mirror also reduces the great haste of completing morning routines by

II. RELATED WORK

The proposed smart mirror facilitates access to personalized services such as assistance, emotion tracking, face recognized door unlocks, retrieval of important engagements and notifications from user's Google account, real-time weather updates, and news headlines. Even while functioning as an ordinary mirror, it complements the user's outfit and greets concerning the time.

Some of the previous works in this field are written briefly in this section.

1. A system [1] that lets users control the household smart appliances and provide access to personalized services; ensuring comfort in accessing these services without requiring any human intervention
2. Mirror [2] embedded with additional functionality to display personalized updates and news and provide personal assistance as well. This mirror seeks the user's

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Journal of Alloys and Compounds

Volume 830, 25 July 2020, 154641

Enhancement in NH_3 sensing performance of ZnO thin-film via gamma-irradiation

Maqsood R. Waikar [a], Pooja M. Raste [a], Rakesh K. Sonker [b], Vinay Gupta [b], Monika Tomar [c], Mahendra D. Shirsat [d], Rajendra G. Sonkawade [a]

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Abstract

In this work, chemically synthesized Zinc Oxide (ZnO) thin films were exposed to Cobalt-60 (Co-60), 1.25 MeV average energy of gamma source at different doses for possible augmentation in NH_3 sensing. The hexagonal crystalline structure was confirmed by XRD spectra and an enhancement in crystallite size was observed with an increase in radiation followed by decrease at 50 kGy dose. The FTIR spectra showed there were no significant changes in the peak position after gamma-irradiation. The morphological investigation showed the maturation of 1D ZnO hexagonal nanorods over the surface of the film. However, after gamma-irradiation, the ZnO nanorods were found connected, forming bunches. The band-gap increased for 50 kGy doses as compared to pristine ZnO thin film. However, characterization result analysis showed that gamma-irradiation produced conspicuous improvements in chemically prepared ZnO microstructure. It was

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Outline

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1. Introduction

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CRediT authorship contribution statement

Declaration of competing interest

Acknowledgments

Appendix A. Supplementary data

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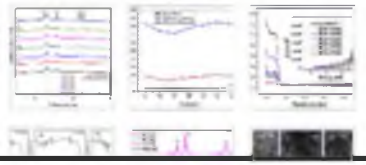

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Materials Science in Semiconductor Processing

Volume 110, May 2020, 104975

Post-γ -irradiation effects on structural, optical and morphological properties of chemical vapour deposited MWCNTs

Maqsood R. Waikar [a], Rakesh K. Sonker [b], Sakshi Gupta [c], Shiv Kumar Chakarvarti [d], Rajendra G. Sonkawade [a]

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Highlights

- The crystallite size increases with increasing γ dose at 60kGy as compared to pristine MWCNTs.
- Bandgap and structural parameters d, ε, δ and g decreases with increasing γ dose as compared to pristine MWCNTs.
- FTIR spectra peak shifted after γ irradiation is the evidence of changes in the structure of the MWCNTs.
- Raman spectra show the structural ordering at high dose (60 kGy) of MWCNTs.

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RESEARCH PAPER

Received: 24/01/2020 Revised: 28/03/2020 Accepted: 29/03/2020

Chemistry and Pharmacology of Miraculous *Echinacea purpurea* L.

Asha Verma, *Dinesh Kumar Arya and **Raaz K. Maheshwari
Department of Chemistry, University of Rajasthan, Jaipur, Rajasthan, India
*Department of Chemistry, Acharya Narendra Dev College, Delhi, India
**Department of Chemistry, SBRM Govt. P.G. College, Nagaur, Rajasthan, India

ABSTRACT

Echinacea purpurea L. (EP) is one of the most important perennial medical herbs with enormous pharmacological and aesthetic properties. Mainly Echinacea is focused on its immunomodulatory effects, anti-inflammatory, antimicrobial, antiviral, antifungal and urinary tract infections. Other aspects of its beneficial effects viz. antioxidant, antibacterial, antiviral, and larvicidal activities antianxiety, antidepression, cytotoxicity, and antimutagenicity as induced by the plant have been revealed in various studies. The chemistry and its pharmacological actions are well documented. Several groups of

Advances in Zoology and Botany 8(1): 12-19, 2020 http://www.hrpub.org
DOI: 10.13189/azb.2020.080103

Optimizing Synthesis of *Citrus limetta* Peel Silver Nanocomposites Possessing Larvicidal Potential against Dengue Vector, *Aedes aegypti* L.

Devina Aggarwal[1], Aarti Sharma[2], Sarita Kumar[3,*]

[1]Department of Science, Modern School, New Delhi, India
[2]Department of Life Sciences (SOS), Indira Gandhi National Open University, New Delhi, India
[3]Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

Received October 13, 2019; Revised November 25, 2019; Accepted December 4, 2019

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Abstract *Aedes aegypti* L. is the major vector accountable for the spread of several diseases of medical importance. The control strategies primarily relying on chemical insecticides have caused negative impact on our environment and human health. Thus, current study employed *Citrus limetta* peel extracts (CLPE) against larvae of *Ae. aegypti*. Silver nanocomposites (AgNCs) from CLPE were synthesised and the process of synthesis was optimized by varying temperature; volume and concentration of silver nitrate solution; and the volume of catalyst. A conspicuous change in colour of the reaction mixture was noticed from pale yellow to dark brown. This

diseases; like Yellow fever, Zika, Dengue fever and Chikungunya; has captivated attention of researchers, health organizations and vector control bodies. In the last few decades, the prevalence of *Aedes*-borne diseases; especially dengue; has augmented extensively at global level. According to World Health Organization, almost half of the world's population (3.9 billion) residing in 128 countries is prone to the dengue infection while more than 100 countries are endemic to dengue [1]. According to Union Health Ministry of India, the infections and fatalities caused by dengue virus are rising in India year by year raising serious concerns about the vector control.

Article | Open Access | Published: 06 May 2021

pH induced conformational alteration in human peroxiredoxin 6 might be responsible for its resistance against lysosomal pH or high temperature

Rimpy Kaur Chowhan, Sunaina Hotumalani, Hamidur Rahaman & Laishram Rajendrakumar Singh

Scientific Reports **11**, Article number: 9657 (2021) | Cite this article

999 Accesses | **11** Citations | Metrics

Abstract
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Abstract

Peroxiredoxin 6 (Prdx6), the ubiquitously expressed enzyme belonging to the family of peroxidases, namely, peroxiredoxins, exhibits a unique feature of functional compartmentalization within cells. Whereas, the enzyme localized in cytosol shows glutathione peroxidase activity, its lysosomal counterpart performs calcium independent phospholipase A2 (aiPLA2) activity. Like any true moonlighting protein, these two activities of Prdx6 are mutually exclusive of each other as a function of the pH of the cellular compartments. Differential substrate preference at different pH (i.e. peroxidised phospholipids at neutral pH and reduced phospholipids at acidic pH) is considered to be the reason for this behavior. To gain insight into the pH-induced structural–functional interplay we have systematically evaluated

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Review Paper | Published: 12 June 2021

Exploiting Emojis in Sentiment Analysis: A Survey

Vandita Grover

Journal of The Institution of Engineers (India): Series B **103**, 259–272 (2022) | Cite this article

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Abstract

Sentiment analysis is now a prominent field of interest owing to a growing trend of users expressing their opinions on social media, review pages, feedback forms, and other online channels. The machine learning approach to sentiment analysis focuses on feature extraction methods like constructing lexicons to learn sentiment polarity or learning word embeddings and applying them for their use in machine learning algorithms for sentiment classification. But most popular machine learning approaches still cannot capture nuanced emotions like sarcasm, irony, etc. Emojis are now being used along with text by the users to express emotions and hence can help researchers improve sentiment classification tasks. Sentiment analysis powered by emojis is still in the nascent phase and has gained some pace in the last five years. The primary goal of this paper is to discuss the use of emojis that supplement the

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Research Article

Optimisation of dielectric spacer layer thickness in Ag nanospheres/ITO/c-Si structure for plasmonic solar cells using FDTD simulation

Manju Rani, Jyoti Kashyap, Udaibir Singh & Avinashi Kapoor

Pages 1320-1328 | Received 27 Apr 2021, Accepted 01 Jun 2021, Published online: 15 Jun 2021

Download citation https://doi.org/10.1080/10667857.2021.1940046 Check for updates

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ABSTRACT

The thickness of dielectric spacer layer (DSL) plays an important role in performance of plasmonic solar cells. In this work, effect of thickness variation of ITO (indium tin oxide) DSL in silver (Ag) nanospheres/ITO/crystalline silicon(c-Si) structure on forward and backward scattering efficiencies has been investigated. Simulations were carried out using the open-source software MEEP via FDTD method for Ag nanospheres of sizes 50nm, 80nm and 100nm. Maximum forward scattering was observed with 80nm

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Applicability of Field Plate in Double Channel GaN HEMT for Radio-Frequency and Power-Electronic Applications

Nisha Chugh, Manoj Kumar, Subhasis Haldar, Monika Bhattacharya & R.S. Gupta

Silicon **14**, 1029–1038 (2022) | Cite this article

288 Accesses | **7** Citations | Metrics

Abstract

In the present communication, for the first time, applicability of Field Plate (FP) for Double Channel (DC) AlGaN/GaNHEMT is demonstrated. Impact of design space parameters such as field plate length (L_{FP}) and Silicon Nitride thickness (t_{SiN}) on breakdown voltage of DC HEMT is investigated and benchmarked with Single Channel (SC) HEMT. The investigation is carried out using ATLAS Technological Computer Aided Design (TCAD) Simulation tool, which is an efficient method in terms of time and cost to analyze and understand DC HEMT prior to the fabrication. The simulation shows new findings that breakdown voltage of DC device exhibited a large deviation with that of SC device. The breakdown voltage deviation is well corroborated

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Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)

Suveda Aarya,[1] Pawan Kumar,[2] Mamta Bhatia,[2] Sanjeev Kumar,[3] Jyotsna Sharma,[4] and **Siddhartha**[2]

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Academic Editor: Zeyun Xiao

Received	Revised	Accepted	Published
26 Jul 2020	16 Apr 2021	26 May 2021	08 Jun 2021

Abstract

Modifications taking place in ultrahigh molecular weight polyethylene (UHMWPE) films due to gamma ray radiation-induced and investigated in correlation with the applied doses. Films were irradiated in a vacuum at room temperature by a 1.25 MeV Co^{60} a source with doses ranging from 0 to 300 kGg. The optical, chemical, structural, and surface morphological properties of the irradiated and unirradiated UHMWPE films

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Superficial Synthesis of CdS Quantum Dots for an Efficient Perovskite-Sensitized Solar Cell

Rakesh K. Sonker*, Rajkamal Shastri, and Rahul Johari

Cite this: *Energy Fuels* 2021, 35, 9, 8430−8435
Publication Date: April 9, 2021
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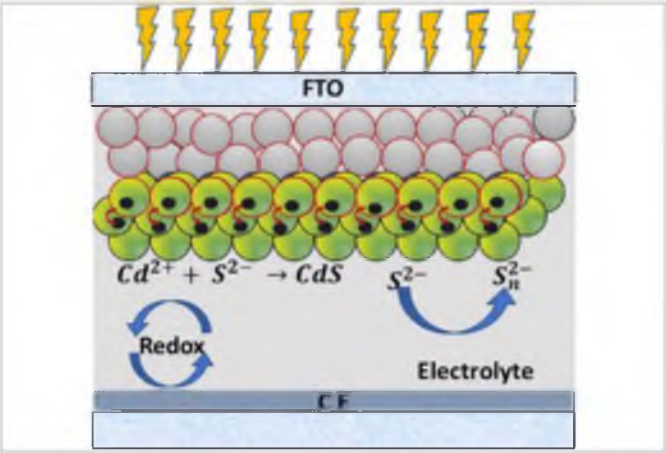
SUBJECTS: Cadmium sulfide, Chemical structure, Nanoclusters, Quantum dots,

Abstract

In this paper, a thorough investigation of cadmium sulfide nanoparticle characteristics has been studied as a result of the wide attention and enormous application in a solar cell. Perovskite-sensitized solar cells (PSSCs) are a favorably effectual and sanitary hybrid, organic−inorganic solar cell device. The simple way uses synthesized cost-effective CdS quantum dots (QDs) via the sol−gel approach and also investigates their structural, electronic, and vibrational properties of CdS nanoparticles with the density functional theory method in B3LYP. Moreover, we use high-resolution transmission electron microscopy (HRTEM) techniques to confirm our calculations and acquire good agreement to the structural analysis of CdS QD formation. The maximum grain diameter is obtained from a HRTEM image, at ~4 nm. The particle size analyzer that obtained ~4 nm of CdS QD nanoparticles was determine via a dynamic light scattering study. The results demonstrated that the fabricated CdS QD-based dye-sensitized solar cell and PSSC represented a maximum power conversion efficiency (η) of 0.5 and 1.8% at 1 sun condition. This efficiency was improved by approximately 72%, associated with that of the reference cell.



Original Research Article | Published: 03 March 2021

Influence of lufenuron on the nutrient content and detoxification enzyme expression in *Aedes aegypti* L. (Diptera: Culicidae)

Kungreiliu Panmei, Roopa Rani Samal, P. Lanbiliu & Sarita Kumar

International Journal of Tropical Insect Science **41**, 2965–2973 (2021) | Cite this article

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Abstract

Aedes aegypti is of utmost public health concern transmitting various diseases of human health concern. Employment of chemical-based control interventions has induced immunity in mosquitoes, harmed environment, and adversely affected human health and non-targets diverting the research focus on alternate measures. Current study investigates the efficacy of an Insect Growth Regulator, lufenuron, against early fourth instars of *Ae. aegypti*. The larvae exposed to lufenuron for 24 h were assessed for the effects on the development and adult emergence. The impact of sub-lethal and median-lethal dose of lufenuron was determined on the nutrients and detoxification enzymes of *Ae. aegypti*. The larvae exposed to lufenuron

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Original Research Article | Published: 02 October 2020

Cuticular thickening associated with insecticide resistance in dengue vector, *Aedes aegypti* L.

Roopa Rani Samal & Sarita Kumar

International Journal of Tropical Insect Science **41**, 809–820 (2021) | Cite this article

229 Accesses | **8** Citations | Metrics

Abstract

Aedes aegypti is a globally spread disease vector of supreme concern, primarily controlled by chemical insecticides. Current study investigates the comparative rate of acetamiprid and deltamethrin resistance development in *Ae. aegypti* larvae and; possible correlation between resistance and cuticular thickening. The larvae were selected with LC_{90} level of the respective insecticide for 10 successive generations and the level of resistance induced was estimated. The larvae of parent (PS), acetamiprid-selected (ACSF-10) and deltamethrin-selected (DLSF-10) strains were sectioned through first abdominal segment to elucidate the variation in cuticular thickness. The PS larvae of *Ae. aegypti* were 229.26-fold higher susceptible to deltamethrin as compared to acetamiprid, exhibiting corresponding LC_{50} values of

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Physiological and reproductive fitness cost in Aedes aegypti on exposure to toxic xenobiotics in New Delhi, India

PDF

Published Feb 12, 2021

DOI https://doi.org/10.31018/jans.v13i1.2470

Addea Gupta
Sanskriti School, New Delhi, India
Roopa Rani Samal
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India
Sarita Kumar
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India

Abstract

Aedes aegypti, is a well-known vector of dengue, Chikungunya and Zika at the global level. Primary use of pyrethroids as control interventions has caused the development of a considerable level of immunity in *Ac. aegypti*. The current study assessed the efficacy of a pyrethroid, ?-cypermethrin on the survival and various life parameters of *Ac. aegypti*. The larvicidal studies with ?-cypermethrin revealed the respective LC_{50} and LC_{90} values as 0.26526 mg/L and 0.60211 mg/L. The impact of LC_{50} level was assessed on the growth and life attributes; such as gonotrophic cycle, egg development, hatchability, development and survival of immature stages, adult longevity, reproduction rate and generation time: of fourth instar of susceptible (S) and ?-cypermethrin-exposed population (E). The exposed population showed diminished

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Review | Published: 21 June 2021

Proactive role of *Streptomyces* spp. in plant growth stimulation and management of chemical pesticides and fertilizers

M. Kumar, P. Kumar, P. Das, R. Solanki & M. K. Kapur

International Journal of Environmental Science and Technology **19**, 10457–10476 (2022) | Cite this article

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Abstract

In current agriculture practices, various chemical stimulants are being used to enhance crop productivity. However, these chemical fertilizers and pesticides show a deadly impact on the environment, food chain, and human health. The researchers are looking for the biological replacement of these chemical fertilizers and pesticides. Nevertheless, still, no strong bioalternative has replaced the use of such chemicals. Bacteria belonging to the genus *Streptomyces* are well-known producers of secondary metabolites, which can be potentially utilized to replace chemical fertilizers and pesticides. Metabolites from *Streptomyces* can degrade the chemical pesticides, help in the recoupment of essential minerals (e.g., iron,

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Dev | J Pure Appl Microbiol | 15(1):20-28 | March 2021
Article 6067 | https://doi.org/10.22207/JPAM.15.1.42
Print ISSN: 0973-7510; E-ISSN: 2581-690X

REVIEW ARTICLE OPEN ACCESS

Exploring Small Heat Shock Proteins (sHSPs) for Targeting Drug Resistance in *Candida albicans* and other Pathogenic Fungi

Rahul Dev

Department of Zoology, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi - 110 019, India.

Abstract

Fungal infections have predominantly increased worldwide that leads to morbidity and mortality in severe cases. Invasive candidiasis and other pathogenic fungal infections are a major problem in immunocompromised individuals and post-operative patients. Increasing resistance to existing antifungal drugs calls for the identification of novel antifungal drug targets for chemotherapeutic interventions. This demand for identification and characterization of novel drug targets leads to the development of effective antifungal therapy against drug resistant fungi. Heat shock proteins (HSPs) are important for various biological processes like protein folding, posttranslational modifications, transcription, translation, and protein aggregation. HSPs are involved in maintaining homeostasis of the cell. A subgroup of HSPs is small heat shock proteins (sHSPs), which functions as cellular chaperones. They are having a significant role in the many cellular functions like development, cytoskeletal organization, apoptosis, membrane lipid polymorphism, differentiation, autophagy, in infection recognition and are major players in various stresses like osmotic stress, pH stress, etc. Studies have shown that fungal cells express increased levels of sHSPs upon antifungal drug induced stress responses. Here we review the important role of small heat shock proteins (sHSPs) in fungal diseases and their potential as antifungal targets.

Keywords: *Candida albicans*, Drug resistance, Small heat shock proteins, Antifungals

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European Journal of Protistology

Volume 79, June 2021, 125779

Characterization of *Euplotes lynni* nov. spec., *E. indica* nov. spec. and description of *E. aediculatus* and *E. woodruffi* (Ciliophora, Euplotidae) using an integrative approach

Jeeva Susan Abraham [a], Sripoorna Somasundaram [a], Swati Maurya [a], Renu Gupta [b], Seema Makhija [a], Ravi Toteja [a]

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https://doi.org/10.1016/j.ejop.2021.125779

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Abstract

Four species belonging to the genus *Euplotes* have been investigated, namely: *E. lynni* nov. spec., *E. indica* nov. spec., *E. aediculatus*, and *E. woodruffi*. All populations are from India and were investigated using morphological and molecular markers. The phylogenetic relationships were inferred from small subunit ribosomal rRNA gene (SSU rRNA), internal transcribed spacer (ITS) region, and mitochondrial cytochrome c oxidase subunit I (COI) gene. Predicted secondary structure models for two new species using the hypervariable region of the SSU rRNA gene and ITS2 region support the distinctness of both species. Morphological characters were subjected to principal component analysis (PCA) and genetic variations were studied in-depth to analyze the relatedness of the two new species with their congeners. An integrative approach combining morphological features, molecular analysis, and ecological characteristics was carried out to understand the phylogenetic position of the reported species within the different clades of the genus *Euplotes*.

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ELSEVIER

Carbohydrate Polymers

Volume 261, 1 June 2021, 117851

Review

Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions

Laishram Saya [a d], Vipin Malik [b], Aarushi Singh [c e], Snigdha Singh [c e], Geetu Gambhir [b], W. Rameshwor Singh [d], Ramesh Chandra [c], Sunita Hooda [b]

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https://doi.org/10.1016/j.carbpol.2021.117851

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Abstract

Researchers nowadays are relentlessly on a race exploring sustainable materials and techniques for the sequestration of toxic dyes and metal ions from water bodies. Biopolymers such as guar gum, owing to its high abundance, low cost and non-toxicity, are potential candidates in this field. Plenty of hydroxyl groups in the polymer backbone enable guar gum to be functionalised or grafted in a versatile manner proving itself as an excellent starting substance for fabricating upgraded materials meant for diverse applications. This review offers a comprehensive coverage of the role of guar gum-based nanocomposites in removal of dyes and heavy metal ions from waste water through adsorption and photo-catalytic degradation. Isotherm and kinetics models, fabrication routes, characterisation techniques, swelling properties and reusability as well as adsorption and degradation mechanisms are outlined. A detailed analysis with convincing results suggests a good future perspective of implementation of these materials in real-time wastewater treatment technology.

REVIEW article

Front. Microbiol., 12 January 2021
Sec. Antimicrobials, Resistance and Chemotherapy
Volume 11 - 2020 | https://doi.org/10.3389/fmicb.2020.607099

This article is part of the Research Topic
Insights into New Strategies to Combat Biofilms
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Recent Advances in a Polydopamine-Mediated Antimicrobial Adhesion System

Indu Singh[1] Gagan Dhawan[1*] Seema Gupta[1*] Pradeep Kumar[2*]

[1] Acharya Narendra Dev College, University of Delhi, Delhi, India
[2] Nucleic Acids Research Laboratory, CSIR-Institute of Genomics and Integrative Biology, Delhi, India

The drug resistance developed by bacteria during antibiotic treatment has been a call to action for researchers and scientists across the globe, as bacteria and fungi develop ever increasing resistance to current drugs. Innovative antimicrobial/antibacterial materials and coatings to combat such infections have become a priority, as many infections are caused by indwelling implants (e.g., catheters) as well as improving postsurgical function and outcomes. Pathogenic microorganisms that can exist either in planktonic form or as biofilms in water-carrying pipelines are one of the sources

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Original Paper | Published: 22 September 2020

Antimicrobial, radical scavenging, and dye degradation potential of nontoxic biogenic silver nanoparticles using *Cassia fistula* pods

Indu Singh, Seema Gupta, Hemant K. Gautam, Gagan Dhawan & Pradeep Kumar

Chemical Papers **75**, 979–991 (2021) | Cite this article

241 Accesses | **7** Citations | Metrics

Abstract

Synthesis of metallic nanoparticles via green approach holds great potential in diverse fields of biotechnology and medicine with special mention to silver nanoparticles (AgNPs) which undoubtedly display antimicrobial, radical scavenging, and dye degradation properties. Currently, there is a need to explore more cost-effective and efficient methods to synthesize AgNPs. In this study, we have synthesized biogenic AgNPs using an aqueous extract of a flowering plant of the legume family, Fabaceae, subfamily Caesalpiniaceae, *Cassia fistula*, which is also well known for its medicinal values. Spectroscopically and physicochemically characterized AgNPs were evaluated for their cytocompatibility, antimicrobial effects, antioxidant and catalytic activity to establish their potential for various biomedical applications. DLS studies revealed their size ~ 237 nm with the surface charge of ~ − 30 mV. The results of the zone of inhibition and MIC assays showed the superiority of the activity of these particles over the pod extract. Catalytic reduction of toxic p-nitrophenol to benign p-

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Trends In Carbohydrate Research, Vol.13, No.1 (2021) 1-11 0975-0304/09

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Applications of Chitosan in Tissue Engineering

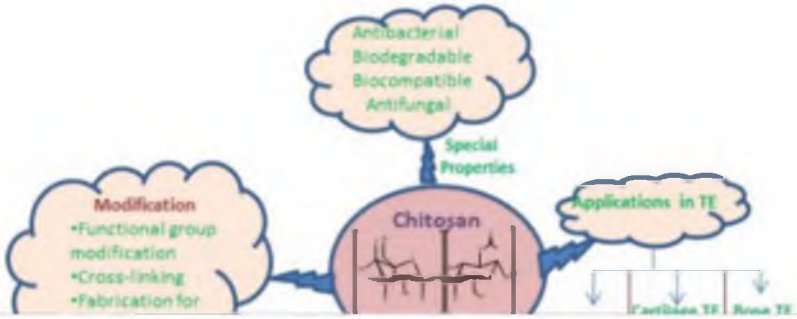
Smriti Rekha Deka,[1,*] Seema Gupta,[2] Pradeep Kumar[1,*]

[1]CSIR-Institute of Genomics and Integrative Biology, Mall Road, Delhi-110007, India

[2]Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi- 110019, India

Received: December 12, 2020, Revised: March 28, 2021, Accepted: March 29, 2021

GRAPHICAL ABSTRACT



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Mannosylated and mannan-modified nanovectors targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy

Indu Singh,[1,2] Seema Gupta,[2] Gagan Dhawan,[2] Pradeep Kumar[1]*

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Received: January 01, 2021, Revised: March 28, 2021, Accepted: March 30, 2021

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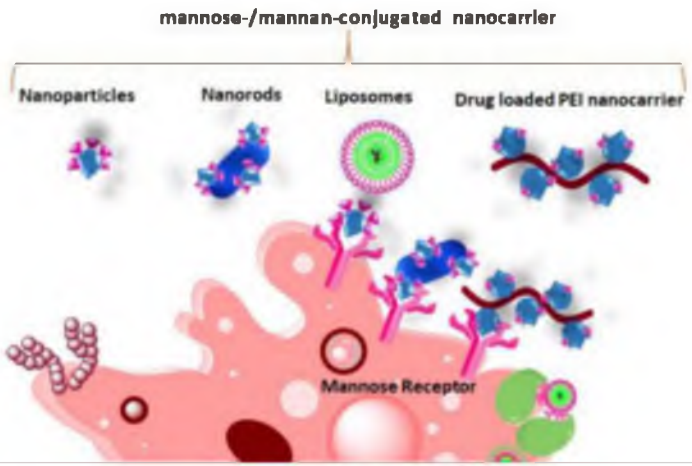

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Review Article

A review targeting the infection by CHIKV using computational and experimental approaches

Durgesh Kumar, Kamlesh Kumari, Ramesh Chandra, Pallavi Jain, Lata Vodwal, Geetu Gambhir & ...show all

Pages 8127-8141 | Received 04 Jun 2020, Accepted 11 Mar 2021, Published online: 30 Mar 2021

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Abstract

The rise of normal body temperature of 98.6 °F beyond 100.4 °F in humans indicates fever due to some illness or infection. Viral infections caused by different viruses are one of the major causes of fever. One of such viruses is, Chikungunya virus (CHIKV) is known to cause Chikungunya fever (CHIKF) which is transmitted to humans through the mosquitoes, which actually become the primary source of transmission of the virus. The genomic structure of the CHIKV consists of the two open reading frames (ORFs). The first one is a 5' end ORF and it encodes the nonstructural protein (nsP1-nsP4). The second is a 3' end ORF and it encodes the structural proteins, which is consisted of capsid, envelope (E), accessory peptides, E3 and 6 K. Till date, there is no effective vaccine or medicine available for early detection of the CHIKV infection and appropriate diagnosis to cure the patients from the infection. NSP3 of CHIKV is the prime target of the researchers as it is responsible for the catalytic activity. This review has updates of literature on CHIKV; pathogenesis of CHIKV; inhibition of CHIKV using theoretical and experimental approaches.

Communicated by Ramaswamy H. Sarma

Keywords: CHIKV | docking | MD simulations | inhibition

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Development of a theoretical model for the

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RESEARCH ARTICLE

Synthesis, comparative *in vitro* antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 M^{pro}

Sugandha Singhal, Pankaj Khanna, Leena Khanna

First published: 04 June 2021 | https://doi.org/10.1002/bio.4098 | Citations: 11

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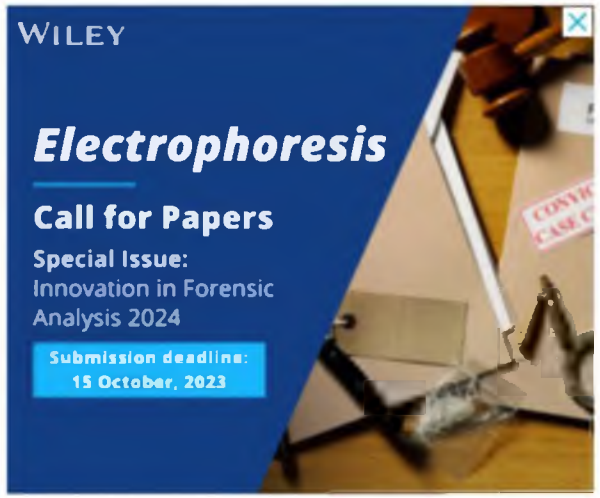

Abstract

In this study, synthesis of 15 novel bis indole-based Schiff bases (SBs) **4a**–**4o** was conducted by condensation of 2-(1-aminobenzyl)benzimidazole with symmetrical bis-

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Full Paper

Multitarget Diallyl Disulfides (DADS) against Aβ Aggregation: Screening through Molecular Docking with $A\beta_{42}$ & Zn^{II}-$A\beta_{16}$, ADME, DFT & Synthetic Strategy

Sugandha Singhal, Dr. Pankaj Khanna, Dr. Neeti Misra, Dr. Leena Khanna

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Screening of compound library identifies novel inhibitors against the MurA enzyme of *Escherichia coli*

Diksha Raina, Harshita Tiwari, Smriti Sharma, Deepika, Praveen Kumar Chinthakindi, Amit Nargotra, Payare L. Sangwan, Kandasamy Eniyan, Urmi Bajpai, Ram A. Vishwakarma, Farrah Gul Khan, Saurabh Saran & Inshad Ali Khan

Applied Microbiology and Biotechnology **105** 3611–3623 (2021) | Cite this article

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Abstract

Bacterial cell has always been an attractive target for anti-infective drug discovery. MurA (UDP-N-acetylglucosamine enolpyruvyl transferase) enzyme of *Escherichia coli* (*E.coli*) is crucial for peptidoglycan biosynthetic pathway, as it is involved in the early stages of bacterial cell wall biosynthesis. In the present study we aim to identify novel chemical structures targeting the MurA enzyme. For screening purpose, we used *in silico* approach (pharmacophore based strategy) for 52,026 library compounds (Chembridge, Chemdiv and in house synthetics) which resulted in identification of 50 compounds. These compounds were screened in vitro against MurA enzyme and release of inorganic phosphate (Pi) was estimated. Two compounds (IN00152 and IN00156) were found to inhibit MurA enzyme > 70% in primary screening and IC_{50} of 14.03 to 32.30 μM respectively. These two hits were further evaluated for their mode of inhibition studies and whole-cell activity where we observed 2-4 folds increase in activity in presence of Permeabilizer EDTA (Ethylenediaminetetraacetic

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SHELTER BUILDING BEHAVIOUR OF *HASORA CHROMUS* (CRAMER, 1780) LARVAE (INSECTA: LEPIDOPTERA: HESPERIIDAE)

RAJESH CHAUDHARY
Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019, India.
rajeshchaudhary@andc.du.ac.in

Reviewer: Peter Smetacek

Abstract
Larvae of many lepidopterans, including those belonging to the family Hesperiidae, construct leaf shelters. It has been indicated that these shelters confer protection to larvae from predators and harsh environmental conditions. The repertoire of shelter architectures constructed by given genera or species of Hesperiidae is fairly predictable. Thus, shelter building behaviour can also be important from the perspective of evolution. The present study provides an insight into shelter building behaviour of larvae of Common Banded Awl, *Hasora chromus* (Cramer), including various designs of shelter that larvae can make, and the role of shelters protection from predators. *H. chromus* larvae were found to construct at least four broad architectural types of shelters by folding and tying leaves. The shelters function as a barrier for arthropod predators (including wasps and spiders), and also effective in protecting larvae from avian predators too.
Keywords: Common Banded Awl, *Hasora chromus*, Hesperiidae, Larva, Ecobiology, Shelter-building, Predation, Protection.

Introduction

Larvae of lepidopterans have devised several ways to protect themselves from predators as well as environmental conditions such as solar heat, dislodgement due to shaking or wind blow (Greeney et al., 2015). Their protective strategies include chemical, physiological, morphological, and behavioural defences association with other organisms and avoiding encounters with predators by constructing shelters (Greeney et al., 2015). The latter strategy, *i.e.* shelter making, is widely utilized by larvae of Hesperiidae (Greeney et al., 2003). The larvae of this butterfly family construct shelters with a diverse array of architecture through precisely executed actions, including cutting, rolling, folding and tying a portion or whole of a leaf or several species is largely predictable, and this may be important from the point of view of phylogeny of this group of butterflies (Greeney et al., 2003, 2010; Greeney 2009). However, studies on shelter building behaviour, architectural details of shelter and its protective values (protection from predators and harsh environment) for larvae have not received much attention, particularly for Indian hesperids. In the present communication, these aforementioned aspects have been reported for Common Banded Awl (*Hasora chromus* Cramer, 1780), a common hesperid butterfly found in most parts of India. *Hasora chromus* lays eggs singly or in groups of 2-3 eggs on nascent leaves of its host plant. There are five larval instars, live in self-constructed leaf

Appl. Math. Inf. Sci. 15, No. 2, 189-197 (2021) 189

Applied Mathematics & Information Sciences
An International Journal

http://dx.doi.org/10.18576/amis/150211

Properties of Motion of the Infinitesimal Variable Mass Body in the Well Known Circular Restricted Three-Body Problem with Newtonian and Yukawa Potential

Abdullah A. Ansari[1,*], *Mehtab Alam*[1], *Kalu Ram Meena*[2] *and Ashraf Ali*[3]

[1]International Center for Advanced Interdisciplinary Research (ICAIR), Ratiya Marg, Sangam Vihar, New Delhi, India
[2]Department of Mathematics, Acharya Narendra Dev College,University of Delhi, Delhi-110019, India
[3]Faculty of Computer Studies, Arab Open University, Kingdom of Bahrain

Received: 2 Jan. 2021, Revised: 3 Feb. 2021, Accepted: 25 Feb 2021
Published online: 1 Mar. 2021

Abstract: The effects of Newtonian and Yukawa gravitational potentials are studied on the circular restricted three-body system under the assumption that infinitesimal body varies its mass according to Jeans law. The equations of motion are determined under these perturbations. The numerical studies are conducted where locations of equilibrium points, regions of motion, trajectories with Poincaré surfaces of section and the basins of attraction have been investigated by well known software Mathematica. Moreover, the stability of the locations of equilibrium points are determined and it was found that all these points are unstable.

Keywords: Attracting domain, Newtonian potential, Variable mass, Trajectories, Yukawa potential.

1 Introduction

[6], [7], [8], [9], have explored the effect of oblateness on

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Research Article

On Estimating Scale Parameter of the Selected Pareto Population under the Generalized Stein Loss Function

K. R. Meena, Aditi Kar Gangopadhyay & Omer Abdalghani

Pages 357-377 | Published online: 19 Mar 2021

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Abstract

The problem of estimation after selection can be seen in numerous statistical applications. Let $X_{i1}, \ldots, X_{in}$ be a random sample drawn from the population $\Pi_i, i = 1, \ldots, k$, where Π_i follows Pareto distribution with an unknown scale parameter θ_i and common known shape parameter β. This article is concerned with the problem of estimating θ_L (or θ_S), the scale parameter of the selected Pareto population under the generalized Stein loss function. The uniformly minimum risk unbiased (UMRU) estimators of θ_L and θ_S, scale parameters of the largest and the smallest population respectively, are determined. For $k = 2$, we have obtained a sufficient condition of minimaxity of θ_S and showed that the generalized Bayes estimator of θ_S is a minimax estimator for $k = 2$. Also, a class of linear admissible estimators of the form $dX_{(2)}(dX_{(1)})$ of θ_L and θ_S is found, and a sufficient condition for inadmissibility is provided. Further, we demonstrate that the UMRU estimator of θ_S is inadmissible. A comparison between the proposed estimators is conducted using MATLAB software and a real data set is analyzed for illustrative purposes. Finally, conclusions and discussion are reported.

KEY WORDS AND PHRASES: Generalized Bayes estimators | generalized Stein loss (GSL) function | inadmissibility | minimaxity | Pareto distributions | UMRU estimator

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Review | Open Access | Published: 22 November 2021 | 11, 53–78 (2022)

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Inorganic Nanoparticles as Antimicrobials

Bacteriophages as Antibacterial Agents

Repurposed Drugs

Enzymes as Antimicrobial Agents

Phage Lysins (Enzybiotics)

Abstract

Antimicrobials are essential for combating infectious diseases. However, an increase in resistance to them is a major cause of concern. The empirical use of drugs in managing COVID-19 and the associated secondary infections have further exacerbated the problem of antimicrobial resistance. Hence, the situation mandates exploring and developing efficient alternatives for the treatment of bacterial and fungal infections in patients suffering from COVID-19 or other viral infections. In this review, we have described the alternatives to conventional antimicrobials that have shown promising results and are at various stages of

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Synthesis and Characterization of Nanoselenium: A Step-by-Step Guide for Undergraduate Students

Gagan Dhawan*, Indu Singh, Uma Dhawan*, and Pradeep Kumar*

Cite this: *J. Chem. Educ.* 2021, 98, 9, 2982−2989
Publication Date: August 20, 2021
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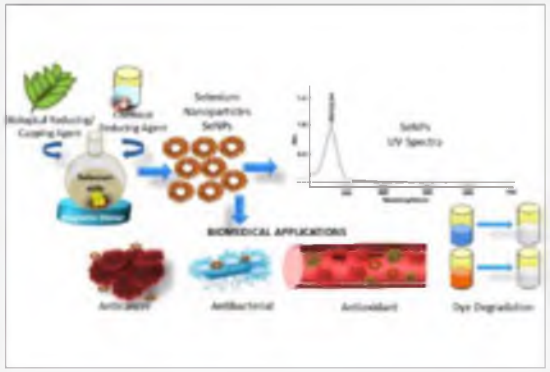
SUBJECTS: Metal nanoparticles, Nanoparticles, Selenium, Sodium, Students

Abstract



Nanoparticle synthesis is an important area of nanotechnology and has been performed by undergraduate students frpm various universities across the globe. Due to the availability of massive data on the synthesis of a wide variety of metallic nanoparticles, including silver, gold, selenium, zinc, copper, iron, palladium, platinum, titanium, etc., and their oxides, it has become tedious to select an ideal and workable protocol for their synthesis. Herein, we have focused on the standardized chemical and biological methodologies to prepare selenium nanoparticles (SeNPs or nanoselenium). Chemical methods exploit chemicals such as sodium selenite (Na_2SeO_3) and reductants (L-ascorbic acid, glutathione, etc.), along with stabilizing agents (Polysorbate 20, protic acid, lysozyme). Although these methods have been used for commercial purposes, they suffer from several drawbacks such as the use of excessive additives for controlled morphology, multistep synthesis, high running cost, and environmental toxicity. Biogenic synthesis using plant materials and microorganisms (algae, fungi, yeast, bacteria, and viruses), on the other hand, is a sustainable, environment-friendly, and cost-effective approach. The natural reducing agents facilitate the conversion of selenium salts into nanosized selenium particles in a single step and act as capping and stabilizing agents, which impart synergism in biological activities. Physical methods such as hydrothermal, irradiation, pulsed laser ablation, etc., have also been used for their production; however, high cost, stringent conditions, and high energy consumption have hampered their applications. Herein, we present a step-by-step methodology using chemical and biological reducing agents to synthesize selenium nanoparticles which will assist the undergraduate learners in selecting a well-tested method based on the conditions of an experiment and desired applications.

KEYWORDS: Second-Year Undergraduate, Upper-Division Undergraduate, Interdisciplinary/Multidisciplinary, Laboratory Instruction, Hands-On Learning/Manipulatives, Applications of Chemistry, Green

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Self-Assembled Biodegradable Core-Shell Nanocomposites of Amphiphilic Retinoic Acid-LMW bPEI Conjugates Exhibit Enhanced Transgene Expression in Hepatocellular Carcinoma Cells With Inherent Anticancer Properties

Zeba Ahmadi • Harekrushna Jena • Mahak Singh • Gagan Dhawan • Pradeep Kumar

Published: April 29, 2021 • DOI: https://doi.org/10.1016/j.xphs.2021.04.016 •

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Abstract

Low molecular weight branched polyethylenimines (LMW bPEIs) are almost nontoxic but display poor transfection efficiency due to lack of adequate complexation ability with nucleic acids followed by transportation across the cell membrane. Here, a series of amphiphilic retinoyl-bPEI conjugates (RP-1, RP-2 and RP-3) has been synthesized by allowing the reaction between bPEI (1.8 kDa) and a bioactive and hydrophobic vitamin A metabolite, all-*trans*-retinoic acid (ATRA), in varying

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Chinese Chemical Letters

Volume 32, Issue 11, November 2021, Pages 3342-3354

Review

Fluorine-containing pharmaceuticals approved by the FDA in 2020: Synthesis and biological activity

Yingjie Yu [a], Aiyao Liu [a], Gagan Dhawan [b], Haibo Mei [a], Wei Zhang [c], Kunisuke Izawa [d], Vadim A. Soloshonok [e f], Jianlin Han [a]

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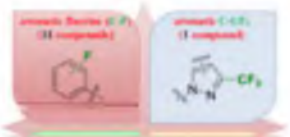
Abstract

Thirteen new fluorine-containing drugs, which have been granted approval by the US Food and Drug Administration (FDA) in 2020, are profiled in this review. Therapeutic areas of these new fluorinated pharmaceuticals include medicines and diagnostic agents for Cushing's disease, neurofibromatosis, migraine, Alzheimer's disease, myelodysplastic syndromes, hereditary angioedema attacks, and various cancers. Molecules of these approved drugs feature aromatic fluorine (Ar-F) (11 compounds), aromatic Ar-CF_3 (1), aliphatic CHF (1) and CF_2 (1) groups. For each compound, we provide a spectrum of biological activity, medicinal chemistry discovery, and synthetic approaches.

Graphical abstract



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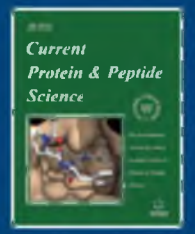

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Review Article

Peroxiredoxin-6: A Guardian of Lung Pathophysiologies

Author(s): Anju Kumari, Rimpy Kaur Chowhan, Pushpa Kakchingtabam, Sharifun Shahnaj, Hamidur Rahaman, Mohd Saquib Ansari and Laishram Rajendrakumar Singh*

Volume 22, Issue 9, 2021

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Abstract

The moonlighting protein, Prdx-6, exhibits peroxidase activity, phospholipase activity, and lysophosphatidylcholine acyltransferase (LPCAT) activity. Although it is ubiquitous in expression, its level is prominently high in the lung. Prdx-6 has been known to be an important enzyme for the maintenance of normal lung physiologies including, anti-oxidant defense, lung surfactant homeostasis, and cell signaling. Studies further unveiled that the altered activity (peroxidase or ai- PLA2) of this enzyme is linked with various lung pathologies or diseases. In the present article, we attempted to address the various pathophysiologies or disease conditions (like lung ischemia, hyperoxia, lung cancer, emphysema, and acute lung injury) wherein Prdx-6 is involved. The study implicates that Prdx-6 could be used as a common drug target for multiple lung diseases. Important future insights have also been incorporated.

Keywords: Peroxiredoxin-6 , reactive oxygen species (ROS) , antioxidants , hyperoxia , acute lung injury , pulmonary microvascular endothelial

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Review

Signaling mechanisms and biochemical pathways regulating pollen-stigma interaction, seed development and seedling growth in sunflower under salt stress

Satish C. Bhatla, Mansi Gogna, Prachi Jain, Neha Singh, Soumya Mukherjee & Geetika Kalra

Article: 1958129 | Received 23 Jun 2021, Accepted 15 Jul 2021, Published online: 25 Aug 2021
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ABSTRACT
Introduction
Biomolecules associated with pollen-stigma interaction
Major biochemical events during seed development
Signaling and enzymatic actions leading to oil body (OB) mobilization during seed germination

ABSTRACT

Sunflower (*Helianthus annuus* L.) is one of the major oilseed crops cultivated world over for its high-quality oil rich in linoleic acid. It also has established applications in pharmaceutical and biotechnological industries, mainly through recombinant production of unique oil body (OB) membrane proteins-oleosins, which are used for producing a wide variety of vaccines, food products, cosmetics and nutraceuticals. The present review provides a critical analysis of the progress made in advancing our knowledge in sunflower biology, ranging from mechanisms of pollen-stigma interaction, seed development, physiology of seed germination and seedling growth under salt stress, and finally understanding the signaling routes associated with various biochemical pathways regulating seedling growth. Role of nitric oxide (NO) triggered post-translational modifications (PTMs), discovered in the recent past, have paved way for future research directions leading to further understanding of sunflower developmental physiology. Novel protocols recently developed to monitor temporal and spatial distributions of various biochemicals involved in above-stated developmental events in sunflower, will go a long way for similar applications in plant biology in future.

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Published: 08 March 2021

Unraveling the AM fungal community for understanding its ecosystem resilience to changed climate in agroecosystems

Dipanti Chourasiya, Manju M. Gupta, Sumit Sahni, Fritz Oehl, Richa Agnihotri, Reena Buade, Hemant S Maheshwari, Anil Prakash & Mahaveer P Sharma

Symbiosis **84**, 295–310 (2021) | Cite this article

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Abstract

The changing global climate affects the agroecosystem making it challenging to achieve the world's sustainable development goals. Among the facets of belowground microbial communities, the arbuscular mycorrhizal fungi (AMF) hold an important place. They represent the most common symbiont phylum colonizing more than 80% of the plant families and are likely to be affected by global climate change. These fungi facilitate plant's mineral acquisition, improving growth and protecting them from biotic and abiotic stresses. The elevated carbon dioxide (eCO_2) level, temperature, increased nitrogen and phosphorus deposition influences the plant phenology and AMF functioning through changes in diversity and community composition of AMF. The interaction effects of soil management practices due to climate change affect the system productivity and perturb mineral cycling. Understanding the carbon and nitrogen cycling of an agro-ecosystem and its associated AMF communities concerning ecosystem productivity is the need of the hour. Plant-fungal associations require a

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Issue 22, 2021

From the journal:
Dalton Transactions

Al_2O_3/CuI/PANI nanocomposite catalyzed green synthesis of biologically active 2-substituted benzimidazole derivatives†

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Sahil Kohli, [ab] Garima Rathee, [a] Sunita Hooda *[b] and Rajesh Chandra *[a]

Author affiliations

Abstract

This work is generally focused on the synthesis of an efficient, reusable and novel heterogeneous Al_2O_3/CuI/PANI nanocatalyst, which has been well synthesized by a simple self-assembly approach where aniline is oxidized into PANI and aniline in the presence of KI also acts as a reductant. The nanocatalyst was well characterized by XRD, FTIR, SEM, EDX, TEM, BET and XPS techniques. In this study, the fabricated material was employed for the catalytic one-pot synthesis of 2-substituted benzimidazoles *via* condensation between *o*-phenylenediamine and aldehydes in ethanol as a green solvent. The present method is facile and offers several advantages such as high % yield, less reaction time, and no use of additive/bases. Also, the catalyst showed better values of green metrics including low E-factor: 0.17, high reaction mass efficiency: 85.34%, high carbon efficiency: 94%, and high process mass intensity: 1.17.

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Abstract

Aedes aegypti management is a global concern due to the absence of medication and effective vaccines. The pesticide mediated health hazards and rising insecticide resistance in mosquitoes have aggravated the issues. As graphene Oxide (GO) based nanoformulations are considered a novel mosquito management strategy; the present investigation evaluated the efficacy of GO based nanoformulations conjugated with malathion (ML) and endosulphan (EN) against *Ae. aegypti*. The GO was synthesised by Hummers' method and was confirmed by UV visible spectral analysis. The GO ML and GO EN binary mixtures (1:1 and 1:2) were assayed for toxic potential against mosquito larvae as per WHO protocol and the dead larvae were scrutinized for morphological deformations/abnormalities. The contact irritancy potential of GO nanoformulations was also evaluated against adult *Ae. aegypti*. The UV visible spectrum of GO showed a narrow and high peak at ~300 nm corresponding to an n-π^* plasmon peak. The GO insecticide binary mixtures augmented the ML and EN toxicity by 80.43% and 6.43 fold, respectively. The GO ML mixture exposed larvae revealed cuticular deposition of black soot while larvae exposed to GO EN exhibited disintegrated gut viscera. GO insecticide combinations increased flights in *Ae. aegypti* denoting irritant potential. The effectual toxic, abrasive and irritant activity of GO insecticide nanoformulations recommends developing graphene based toxicants for mosquito management

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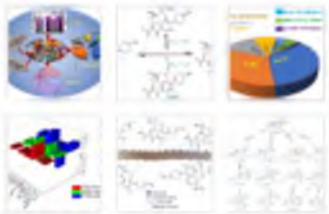

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Science of The Total Environment

Volume 813, 20 March 2022, 152529

Review

A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater

Laishram Saya [a b c], Vipin Malik [b], Drashya Gautam [b], Geetu Gambhir [b], Balendra [a], W. Rameshwor Singh [c], Sunita Hooda [b]

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Highlights

- Bioaccumulation of antibiotics like Levofloxacin in the environment is a cause of global concern.
- Maximum studies are carried out on adsorption and AOPs mainly photocatalytic degradation.
- Several photocatalysts exhibited up to 100% degradation of LEV making photocatalytic degradation the best method
- Biological degradation which may prove to be the most environment friendly is less reported for LEV removal.
- Hybrid techniques reserve a great scope of future research in the field.

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Synthetic Communications Reviews

"In water" synthesis of bis(indolyl)methanes: a review

Leena Khanna, Mansi, Shilpa Yadav, Neeti Misra & Pankaj Khanna

Pages 2892-2923 | Received 29 May 2021, Published online: 30 Jul 2021

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Abstract

Bis(indolyl) methane (BIM) derivatives have shown numerous biological properties which has influenced the scientific fraternity to explore the length and breadth of their synthesis. Mostly, the procedure involves a catalytic electrophilic substitution reaction of indoles with various aldehydes and ketones. However, many variations have been applied from time to time to promote this reaction under green conditions. The use of water as a solvent in organic synthesis, has gained much attention due to economic and eco-friendly reasons. It has also been observed that the reactions under aqueous conditions have shown high reactivities and chemo-selectivity, which are not found in organic media. "In water synthesis" of BIMs has gained considerable recent importance and several methods have been developed. Thus, in this review we have summarized different synthetic protocols used to prepare BIMs under aqueous conditions in the last fifteen years.

Keywords: Green protocols | aqua mediated | bis-indole | nanocatalyst | transition metal catalyst | acid catalysts

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Advanced Materials Letters

A DFT Study of Interaction of $(CdSe)_3$ Quantum Dots with Nucleobases

Document Type : Research Article

Authors

Pragati Malik Rita Kakkar

https://doi.org/10.5185/amlett.2021.081653

Abstract

Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) play important roles in the storage of genetic information and protein biosynthesis. Nucleobases, which are nitrogenous bases, are the functional units of these nucleic acids. It is very important to detect changes in the sequence of DNA/RNA, as any mutations in them may cause harm to the organism. Our aim is to verify the use of $(CdSe)_3$ Quantum Dots (QDs), owing to their distinctive optical and electronic properties, for sensing changes in DNA/RNA. Hence, in this work, we have focused on studying the interaction between $(CdSe)_3$ QDs and the five nucleobases (adenine, guanine, cytosine, thymine and uracil) at various probable sites by means of density functional calculations. Several structural, electronic and optical properties, and charge transfer on interaction between the two, have been discussed. The present band gap and charge transfer calculations indicate that binding of $(CdSe)_3$ to guanine is strongest and is weakest with uracil. The vibrational spectral analysis indicates that the intensities of the peaks due to $(CdSe)_3$ enhance on interacting with the nucleobase, and a blue shift is observed in all the interactions. The presence of both the frontier orbitals (HOMO and LUMO) on the QD indicates that $(CdSe)_3$ acts as a guardian of DNA and prevents it from damage. Hence, our studies direct that CdSe QDs can be successfully employed as sensors for these nucleobases.

Keywords

Nucleobase purine pyrimidine quantum dots sensing HOMO LUMO

Volume 12, Issue 8
August 2021
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Size-dependent structural and electronic properties of stoichiometric II–VI quantum dots and gas sensing ability of CdSe quantum dots: a DFT study

Jyoti Singh, Rakhi Thareja, Pragati Malik & Rita Kakkar

Journal of Nanoparticle Research **24**, Article number: 33 (2022) | Cite this article

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Abstract

The structural, electronic, and quantum confinement effects observed in II–VI quantum dots have been described using density functional theory. Various properties like binding energy, Fermi energy, charge distribution, and band gap of various clusters have been determined as a function of cluster size in order to find out the most stable of all the clusters considered. The binding energies are found to be a function of the cluster size but converge to a maximum. Cadmium is observed to possess a larger tendency to form clusters with higher coordination numbers compared to zinc and mercury. In mercury sulfide $(HgS)_n$, the clusters with $n = 6$ and 13 get dissociated into two graphene-like parallel layers. The adsorptions of single gas molecules on the $(CdSe)_{13}$ quantum dots are exothermic, indicating that most of the gas molecules adsorb spontaneously on the CdSe quantum dots. Among the various gases, O_2 and NO_2 are the gas molecules that get most strongly chemisorbed. The CdSe quantum dot acts as an electron donor when it interacts with the oxidizing gases, O_2, CO, NO_2, and SO_2 gases. The vibrational analysis of the combined systems indicates that the intensities of the peaks due to

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Journal of Catalysis

Volume 401, September 2021, Pages 297-308

Surface engineered Iridium-based magnetic photocatalyst paving a path towards visible light driven C-H arylation and cyanation reaction

Pooja Rana [a], Rashmi Gaur [a], Bhawna Kaushik [a], Pooja Rana [a], Sneha Yadav [a], Priya Yadav [a], Priti Sharma [c], Manoj B. Gawande [b], Rakesh K. Sharma [a]

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Abstract

The report presents the fabrication and application of a highly versatile, magnetic and robust iridium based photoredox nanocatalyst. Herein, $Ir(PPy)_3$ based photocatalyst sites have been chemically engineered over the magnetic nanoparticles to encompass the captivating features of homogeneous iridium photocatalyst with the magnetically recyclable core. A household photoreactor was designed and fabricated to achieve highly selective visible light driven oxidative C-H arylation and C-H cyanation under sustainable and ambient reaction conditions utilizing the Ir@PyBz@ASMNPs photoredox nanocatalyst. The environment friendly Ir@PyBz@ASMNPs shows excellent photocatalytic activity, broad substrate adaptability and outstanding recyclability compared to the analogous homogeneous catalysts. Indeed, the Ir@PyBz@ASMNPs possess some key features including high surface area, high iridium metal loading and excellent stability. This work is expected to enlighten and provide new insights in the rational design of high performance and recoverable photoredox nanocatalyst through surface engineering strategy.

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Issue 19, 2021

From the journal:
Materials Chemistry Frontiers

Unlocking the catalytic potency of a magnetic responsive $CoFe_2O_4$/Ni-BTC MOF composite for the sustainable synthesis of tri- and tetra-substituted imidazoles†

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Sneha Yadav,[a] Ranjana Dixit,[a] Shivani Sharma,[a] Sriparna Dutta,[a] Bhavya Arora,[a] Pooja Rana,[a] Bhawna Kaushik,[a] Pooja Rana,[a] Alok Adholeya,[b] Manoj B. Gawande[c] and Rakesh K. Sharma

Author affiliations

Abstract

With the advancements in materials engineering, unprecedented newer materials based on magnetic MOFs have emerged as one of the promising candidates in the strategic field of catalysis. Within this perspective, the present report unveils the fabrication of an intricately designed magnetic $CoFe_2O_4$/Ni-BTC based MOF composite *via* a one-pot solvothermal approach. The synthesized composite was comprehensively characterized using various analytical tools

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Enhanced catalysis through structurally modified hybrid 2-D boron nitride nanosheets comprising of complexed 2-hydroxy-4-methoxybenzophenone motif

Pooja Rana, Ranjana Dixit, Shivani Sharma, Sriparna Dutta, Sneha Yadav, Aditi Sharma, Bhawna Kaushik, Pooja Rana, Alok Adholeya & Rakesh K. Sharma

Scientific Reports **11**, Article number: 24429 (2021) | Cite this article

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Abstract

Tuning the structural architecture of the pristine two dimensional hexagonal boron nitride (*h*-BN) nanosheets through rational surface engineering have proven advantageous in the fabrication of competent catalytic materials. Inspired by the performance of *h*-BN based nanomaterials in expediting key organic transformations, we channelized our research efforts towards engineering the inherent surface properties of the exclusively stacked *h*-BN

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(IJACSA) International Journal of Advanced Computer Science and Applications,
Vol. 12, No. 8, 2021

Identifying Central Nodes in Directed and Weighted Networks

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***Abstract*—An issue of critical interest in complex network analysis is the identification of key players or important nodes. Centrality measures quantify the notion of importance and hence provide a mechanism to rank nodes within a network. Several centrality measures have been proposed for un-weighted, un-directed networks but applying or modifying them for networks in which edges are weighted and directed is challenging. Existing centrality measures for weighted, directed networks are by and large domain-specific. Depending upon the application, these measures prefer either the incoming or the outgoing links of a node to measure its importance. In this paper, we introduce a new centrality measure, *Affinity Centrality*, that leverages both weighted in-degrees as well as out-degrees of a node's local neighborhood. A tuning parameter permits the user to give preference to a node's neighbors in either incoming or outgoing direction. To evaluate the effectiveness of the proposed measure, we use three types of real-world networks - migration, trade, and animal social networks. Experimental results on these weighted, directed networks demonstrate that our centrality measure can rank nodes in consonance to the ground truth much better than the other established measures.**

***Keywords*—Centrality; weighted network; directed network; migration network; world input output trade network; community structure**

I. Introduction

Data analysts from diverse domains represent relationships online social networks [12], [25], detecting influential criminals [9], performing resilience analysis of power grid networks [13], locating key areas of activity in the urban infrastructure of a city [1], and traffic sampling for intrusion detection [28].

Several centrality measures have been formulated to quantify the notion of central nodes in un-weighted/ weighted, un-directed networks and are surveyed in [7], [3], [4], [5]. However, quantification of node centrality is more challenging in complex weighted and directed networks due to the dynamic effect of weighted reciprocal links on its computation. Very few measures exist for such networks, and the area remains under-explored.

A. The Problem and Motivation

PageRank (PR) proposed by Brin and Page to rank web pages is a popular and effective centrality measure [20], and there exist variations and extensions of PR for weighted, directed networks [27], [30]. These measures quantify the importance of a web page by iterative counting of the number and quality of its incoming links. The underlying assumption is that more important web pages have more *incoming* links from other central web pages. The problem is that this assumption, though correct for web pages, may not be valid for other domains. For example, in the migration networks, a state's

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Perception of youth on Digital India

Sunita Narang, Monica Singhania, Surinder Kaur and Shalu Mahajan

Published Online: July 8, 2021 · pp 365-388 · https://doi.org/10.1504/IJBIR.2021.116393

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Abstract

Digital India is seen as the engine for transition of India into an empowered nation. In this direction, several pro-people initiatives like MyGov, Digilocker, e-basta, and e-hospital are being implemented. Through a self-structured survey questionnaire, the study evaluates awareness about, implementation and utilisation of various e-services offered under the Digital India Program among Delhi University students. It examines the extent to which the services are being utilised and main barriers/challenges restricting its utilisation. The data has been analysed using ANOVA. The study reveals a high level of awareness among students. They believe it will improve the quality of services leading to good governance. Major factors restricting its implementation include lack of computer knowledge, fear of frauds and resistance to change. The study stressed on educating people about the benefits and usage of Digital India. The nation as a whole can move towards green and responsible governance by improving its acceptability.

Keywords

youth perception, Delhi University, Digilocker, e-basta, electronic basta, e-governance, electronic governance, Digital India Program, analysis of variance, ANOVA, e-learning, electronic learning, computer knowledge, good governance

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Keywords

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ISSN (Print): 2394-5443 ISSN (Online): 2394-7454
http://dx.doi.org/10.19101/IJATEE.2021.874417

Intensity quantification of public opinion and emotion analysis on climate change

Tishya Thukral[1], Ashwani Varshney[2] and Vibha Gaur[1*]
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Received: 13-July-2021; Revised: 09-October-2021; Accepted: 13-October-2021
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Abstract
Human-related activities are primarily accountable for climate change resulting in natural disasters. Therefore, it has become essential to analyze and evaluate public awareness of climate change globally. With the prevalence of social networks like Twitter, sentiment classification has been recognized as a powerful tool to determine public opinion and concern on such ecological issues. Therefore, this study proposes a framework to classify the tweets containing public opinion towards climate change using Bi-directional Long Short-Term Memory (Bi-LSTM) Networks. The proposed framework quantified the intensity of the public opinion classified by the Bi-LSTM model to measure the strength of the public concern towards climate change and validated it using three case studies: Earth Day, Delhi Air Pollution, and Australian Bushfires. The intensity values of the public sentiments concerning these events were obtained as 98.50%, 96.57%, and 98.33%, respectively. The proposed work was further augmented with a lexicon-based emotion analyzer to categorize the emotions associated with the tweets into positive, negative, neutral, and mixed to substantiate the results. This framework can be utilized before enforcing the policy decisions on the general public in any domain.

Keywords
Bi-LSTM networks, Sentiment analysis, Global warming, Social networks, Climate change.

1.Introduction
The large-scale shift in the weather patterns due to intensified global warming is becoming a severe issue globally with constant evolving outlooks. Rising temperatures, melting of glaciers, and changes in weather patterns are some of the indicators of climate change. Increased human emissions on the

Therefore, developing appropriate learning techniques to analyze and evaluate public awareness of the critical issues has become an absolute necessity for a promising future. For example, there have been instances of mass protests during the implementation of acts such as the Citizenship Amendment Act of (CAA) 2019 [4] and Farm Bills

RESEARCH-ARTICLE

A smart learning assistance tool for inclusive education

Authors: Sangeeta Srivastava, Ashwani Varshney, Supriya Katyal, Ravneet Kaur, Vibha Gaur Authors Info & Claims

Journal of Intelligent & Fuzzy Systems: Applications in Engineering and Technology, Volume 40, Issue 6 • 2021 • pp 11981–11994 • https://doi.org/10.3233/JIFS-210075

Published: 01 January 2021 Publication History

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Abstract

The government has established special schools to cater to the needs of children with disabilities but they are often segregated rather than receiving equitable opportunities. Artificial Intelligence

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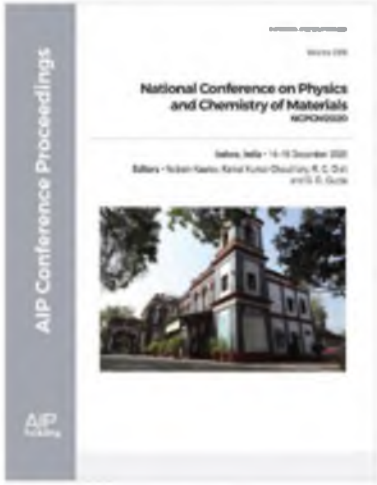

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Vishal Dhingra; Shani Kumar; Arijit Chowdhuri; Amit Garg

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AIP Conference Proceedings 2369, 020109 (2021)
https://doi.org/10.1063/5.0060996

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Efficient and enhanced gas sensing especially at room temperature is the demand for contemporary industrial applications. This has been made possible due to a paradigm shift from semiconducting metal oxides to 2D materials including Graphene Oxide (GO) and reduced GO (RGO). GO and its derivatives have ushered in a revolution mainly because of their high surface to volume ratio and

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Optimal ordering policy for deteriorating items with stock dependent demand, partial backlogging and trade credit period

Sachin Kumar Verma, Mohd. Rizwanullah and Chaman Singh

Published Online: September 6, 2021 · pp 95-120 · https://doi.org/10.1504/IJLSM.2021.117709

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Abstract

In this paper, policies of optimal ordering has been focussed on economic order quantity (EOQ) model, where we considered deteriorated as well as non-instantaneous nature items. In this inventory model, we are also assuming there is a stock-dependent demand and constant holding cost. Occurrence of shortage during the complete process of the system, taking into consideration with partial backlogging where deterioration of items follows the Weibull distribution. In the present study, it is considered that the supplier's proposed lucrative trade credit offers to the retailers to buy more to generate more revenue. Numerical examples parallel to the present inventory model gives an optimal result. Lastly, sensitivity analysis applied to different parameters and graphical representations have shown to validate the model.

Keywords

stock dependent demand pattern, partial backlogging, constant holding cost, trade credit, Weibull deterioration

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Acta Ecologica Sinica

Volume 43, Issue 1, February 2023, Pages 11-19

A systematic review on the eco-safe management of mosquitoes with diflubenzuron: An effective growth regulatory agent

Manu Sankar, Sarita Kumar

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https://doi.org/10.1016/j.chnaes.2021.09.019

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Abstract

Mosquitoes serve as the major vector transmitting malaria, dengue, yellow fever and several other diseases of human concern. Rising in mosquito-borne diseases and consequent fatalities throughout the world has made the management of mosquitoes of paramount importance. With the use of various insecticidal agents and their indiscriminate application in the fields for vector control: other issues such as multiple insecticide resistance, lethality to non-specific targets and adverse effects on human and environmental health have emerged making the situation more critical. Hence, the focus of researchers has diverted to the use of Insect Growth Regulators (IGRs) that affect the growth and development of the insects without inducing any appreciable toxic effects. The paper comprehensively reviews various IGRs and their potential use against insect pests and mosquito vectors. A special emphasis has been laid on the utilization of diflubenzuron, its larvicidal potency and growth regulatory effects against mosquitoes. The paper also delivers a detailed discussion on various approaches governing with the application of diflubenzuron. a chitin synthesis inhibitor, for its potent effects over a wide range of other insect species, low toxicity to humans, safety to other non-target animals, negligible deleterious environmental impact along with the possible

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Indigenous Plants Demonstrating Effective Antioxidant Properties

Karmanyaraj Singh Yadav, Roopa Rani Samal, Arunima Sahgal & Sarita Kumar

Biology Bulletin **48** S62–S72 (2021) | Cite this article

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Abstract

Increased production of antioxidant herbal supplements utilizing traditional medicinal plants has been attributed to a high margin of economic effectiveness, environmental friendliness, and accessibility. Current investigations determined the antioxidant properties of leaf and stem extracts of five plants, *Oxalis corniculata*, *Argemone mexicana*, *Thevetia neriifolia*, *Acacia karoo* and *Cassia fistula* using DPPH radical scavenging activity, Xanthine oxidase (XO) inhibition and Superoxide scavenging activity. Based on the individual extract activity, different binary formulations were prepared and assayed for their antioxidant properties to identify the most promising combination. The *A. mexicana* and *A. karoo* leaf extracts showed maximum DPPH activity while highest XO inhibition was induced by *A. mexicana* leaf extract (IC_{50} = 6.849 ± 1.502 µg/mL) followed by the *T. neriifolia* stem extract (IC_{50} = 10.366 ± 0.1.322 µg/mL). Superoxide (SO) scavenging effect of all the extracts was significantly higher in comparison to the control. The combinations of *A. mexicana* and *A. karoo* leaf extracts in 2 : 1 and 3 : 1 ratios; and that of *C. fistula* and *A. karoo* stem extracts exhibited synergistic antioxidant effects in comparison to the individual extracts. The antioxidant activity increased

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Formulation of Clitoria ternatea Leaves-mediated Silver Nanoparticles to Control Aedes aegypti Larvae

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Keywords: Larvicide, Nanocomposites, Clitoria ternatea, Aedes aegypti, DLS, SEM, TEM

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Research Article

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Original Article | Published: 07 May 2021

In vitro and in silico anticancer potential analysis of *Streptomyces* sp. extract against human lung cancer cell line, A549

Prateek Kumar, Anjali Chauhan, Munendra Kumar, Bijoy K. Kuanr, Aditi Kundu, Renu Solanki & Monisha Khanna Kapur

3 Biotech **11**, Article number: 254 (2021) | Cite this article

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Materials and methods
Anticancer activity analysis
Molecular docking
Results
Anticancer activity analysis
Discussion
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Abstract

During our previous investigation, bioactive compounds present in the extract of *Streptomyces* sp. strain 196 were characterized using LC–MS/MS and ^{1}H NMR studies. These compounds were K-252-C aglycone indolocarbazole alkaloid, decoyinine, and cycloheximide; the study of these natural drugs against lung carcinoma is still limited. Focus of the current investigation was to study the anticancer effect of strain 196 extract on lung cancer cells (A549). During in vitro studies, anti-proliferative effect of extract was studied using MTT assay in A549 cells. Effect of extract on cell survival was further evaluated using colony assay. Cell death was qualitatively assessed using apoptosis assay. The aftereffect of extract treatment on metastatic potential of cancerous cells was studied using wound closure assay. Effect of extract on the morphology and cytoskeletal arrangement of A549 cells was studied using phalloidin staining. The extract demonstrated concentration and time-dependent cytotoxicity with IC_{50} value at 0.5 mg/ml (6 h) and 0.15 mg/ml (24 h). The proliferation and metastatic potential of

SIGHTINGS OF THE TAILLESS LINEBLUE *PROSOTAS DUBIOSA* (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN DELHI, INDIA

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Reviewer: Piet van der Poel

The floristic composition of Delhi has changed significantly during past one and half centuries (Maheshwari, 1963; Anonymous, 1991). Several non-native plant species have been introduced for afforestation and beautification of gardens and parks (Maheshwari, 1963). In addition, the city has also witnessed an increased plantation of vegetable and fruit plants (Maheshwari, 1963). Factors such as change in floristic characteristics, appearance of new microhabitats, change in land use and climate change, alone or in combination can cause an alteration to the butterflies species diversity in a geographical area (Kwon *et al.*, 2021; Mukherjee *et al.*, 2019).For instance, in Delhi, a few species of butterflies,such as Common Jay (*Graphium doson* C. & R. Felder, 1864), Red Pierrot (*Talicada nyseus* Guérin-Méneville, 1843) and Plains Cupid (*Chilades pandava* Horsfield, 1829),that are fairly common at present, werenot recordedby previous workers (Donahue, 1967; Larsen,2002). These butterfly species are thought to have been introduced in Delhi duringthe last two decades along with their host plants, which have ornamental value. Also, species which were once considered extremely rare in Delhi such as the Common Lineblue (*Prosotas nora* C. Felder, 1860) and 2019; 2020).Besides these, there is a recent record of the Common Grass Dart (*Taractrocera maevius*) (Madan & Dey, 2018) that had not been reported previously from Delhi.In the present communication, we report sightings of the Tailless Lineblue (*Prosotas dubiosa*) from various parts of Delhi and its vicinity.

Two individuals of the Tailless Lineblue were sighted in the Sanjay Van area (28° 31′ 48″N, 77° 10′ 15″E) of South Delhi during thelate morning on2.x.2021 (Figure 1).Both the individuals were found puddling together on a footpath. These were observed for about 10 minutes and photographed. Another individual of this species was sighted and photographed on the morning of 13.x.2021, basking on a tree inthe R. K. Puram area (28° 33′ 20″N, 77° 10′ 49″E) of New Delhi. It is noteworthy that this butterfly species was also sighted by us on 14.x. and 16.x.2021 (two individuals each day) in Aravalli Biodiversity Park, Gurugram, Haryana (28° 28′ 56″N, 77° 06′ 39″E).Therefore, it islikely that the Tailless Lineblue is present in other parts of Delhi-NCR as well.

To the best of our knowledge, the Tailless Lineblue has not been reported previously from Delhi (Donahue, 1967; Larsen, 2002) or

SIGHTING OF PLAIN TIGER (*DANAUS CHRYSIPPUS* LINN., 1758) FORM *DORIPPUS* IN NEW DELHI, INDIA

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Reviewer: Peter Smetacek

Four forms of *Danaus chrysippus* are known from India, viz. *chrysippus, alcippoides, amplifascia* and *dorippus* (Smetacek, 2001). The first form is the most common in the country whereas sighting of the other three forms are rare (Smetacek, 2001). The form *dorippus*, known to be a common form in Africa, is sighted only rarely in India (Smith *et al*., 1997; Smetacek, 2001). This form is

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GENERA OF ANTS ASSOCIATED WITH LARVAE OF PLAINS CUPID (*CHILADES PANDAVA*, HORSFIELD, 1829) (INSECTA: LEPIDOPTERA: LYCAENIDAE) INFESTING *CYCAS*, IN DELHI, INDIA, AND AN INSIGHT INTO THE NATURE OF THEIR INTERACTION

RAJESH CHAUDHARY[1] AND VINESH KUMAR[2]

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Reviewer: Peter Smetacek

Abstract

Larvae of many species of Lycaenid butterflies are known to associate with ants. With respect to larvae, the association can be facultative or obligatory. Also, larvae of some species of Lycaenids maintain a parasitic, and many others a mutualistic relationship with ants. Larvae of *Chilades pandava* (Lepidoptera:Lycaenid:Polyommatini) -a butterfly that has recently extended its range along with the artificial introduction of its larval host plants, several species of *Cycas*, is known to associate with more than one genera/species of ants. We sampled ornamental *Cycas* plants in urban Delhi infested with *C. pandava* for the genera of ants that associate with the larvae of this butterfly. Results compiled from sampling studies in Delhi, and various reports from literature indicated that at least 13 genera of ants can associate with larvae of *C. pandava*. In the present communication, these results have been discussed in light of the nature of association between *C. pandava* and ants.

Keywords Lycaenid-ant Association, Mutualism

Introduction

The larvae of many Lycaenid butterflies are known to associate with ants- 'myrmecophily' (Pierce *et al.*, 2002). The relationship between larvae and ants can be parasitic, commensal or mutualistic (Baylis *et al.*, 1993; Fiedler, 2012). The latter type of relationship i.e. mutualism, occurs most frequently (Fiedler, 2006a; 2012). In mutualism, the butterfly larvae provide nutritious secretion-'larval nectar' (rich in sugars and amino acids) from Dorsal Nectary Organs (DNO, located in 7th abdominal segment of larvae) to ants. In return, the larvae are exempted from attack by ants and additionally, ants aggressively safeguard segment which are known to secrete volatile substances, and Pore Cupola Organs (PCO) distributed on abdomen (Pierce *et al.*, 2002; Ekka *et al.*, 2020). The function of substances secreted from TO is similar to the ant alarm pheromone; it alerts ants when larvae are alarmed, and can communicate the message of need for protection to several species of ants (Pierce *et al.*, 2002; Ekka *et al.*, 2020). Gnatzy *et al.* (2017) suggested that TO are mechanosensors. PCO is known to secrete substances to appease ants which otherwise may attack soft bodied larvae. Thus, the three organs, i.e. DNO, TO and PCO are important

REVIEW ARTICLE

COVID-19 and Cardiovascular Disease

Clinical Implications of Biochemical Pathways

Varmani, Shivani G[1,#]; Chowhan, Rimpy Kaur[2,#]; Sharma, Ishani[3]; Narang, Rajiv[4]

Author Information

Journal of the Practice of Cardiovascular Sciences 7(2):p 97-107, May–Aug 2021. | *DOI:* 10.4103/jpcs.jpcs_21_21

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Abstract

Coronavirus disease of 2019 (COVID-19) is a viral pandemic which has taken away more than over 4 million lives all over the world as of July 9, 2021, with the USA, India, and Brazil being the most affected

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Applications and Applied Mathematics: an International Journal (AAM)

(R1513) The Dynamical Study of Variable Mass Test Particle in Nonlinear Sense of Restricted 3-body Problem with Heterogeneous Primaries

Sada Nand Prasad, *Acharya Narendra Dev College, University of Delhi*
Kumari Shalini, *Zakir Hussain Delhi College, University of Delhi*
Abdullah A. Ansari, *International Center for Advanced Interdisciplinary Research (ICAIR)*

Abstract

The main idea of this paper is to study the non-linear stability property of the motion of the test particle which is moving under the influence of heterogeneous primaries having N-layers with different densities as well as varying its mass according to Jeans law. The system is also perturbed by the small perturbations in Coriolis as well as centrifugal forces. We evaluate the equations of motion of the test particle under the influence of the above said perturbations. From this system of equations of motion, we reveal analytically the locations of stationary points as well as the non-linear stability.

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Development of Dimethylisoxazole-Attached Imidazo[1,2-*a*]pyridines as Potent and Selective CBP/P300 Inhibitors

Alex Muthengi, Virangika K. Wimalasena, Hailemichael O. Yosief, Melissa J. Bikowitz, Logan H. Sigua, Tingjian Wang, Deyao Li, Zied Gaieb, Gagan Dhawan, Shuai Liu, Jon Erickson, Rommie E. Amaro, Ernst Schönbrunn*, Jun Qi*, and Wei Zhang*

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Journal of Medicinal Chemistry

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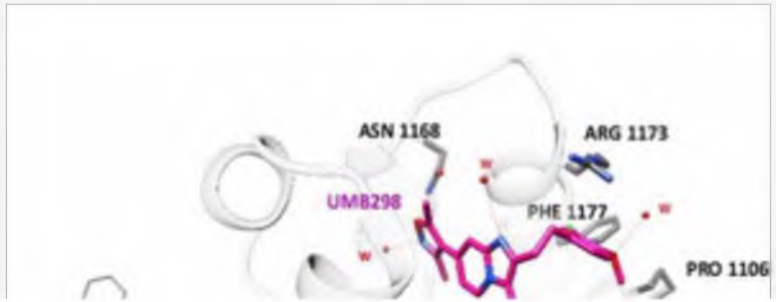
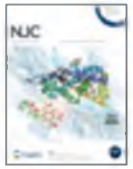
SUBJECTS: Assays, Inhibition, Inhibitors,

Abstract

The use of epigenetic bromodomain inhibitors as anticancer therapeutics has transitioned from targeting bromodomain extraterminal domain (BET) proteins into targeting non-BET bromodomains. The two most relevant non-BET bromodomain oncology targets are cyclic AMP response element-binding protein (CBP) and E1A binding protein P300 (EP300). To explore the growing CBP/EP300 interest, we developed a highly efficient two-step synthetic route for dimethylisoxazole-attached imidazo[1,2-*a*]pyridine scaffold-containing inhibitors. Our efficient two-



Issue 3, 2021



From the journal:
New Journal of Chemistry

Ex vivo binding studies of the anti-cancer drug noscapine with human hemoglobin: a spectroscopic and molecular docking study†

Check for updates

Heerak Chugh,[a] Pramod Kumar,[b] Neeraj Kumar,[a] Rajesh K. Gaur,[c] Gagan Dhawan[d] and Ramesh Chandra*[a]

Author affiliations

Abstract

Noscapine is a non-narcotic alkaloid known to display anti-cancer activity against a wide variety of tumors. Since plasma proteins play the central role in drug transport and targeting, herein we study the binding of noscapine hydrochloride (Nos) with human hemoglobin (Hb), a naturally encapsulated transport molecule. The molecular and biophysical basis of Nos–Hb binding has been investigated by using UV-vis, fluorescence spectroscopy, circular dichroism (CD) and computational methods. The Benesi–Hildebrand binding constant (K_b) and Stern–Volmer constant (K_{SV}) were determined to be 150 M^{-1} and 5.31×10^3 M^{-1}, respectively. The biomolecular-quenching constant (K_q), 1.06×10^{12} M^{-1} s^{-1}, indicated a rather static quenching mechanism and negative value for free energy (ΔG −12.5 kJ M^{-1}) which

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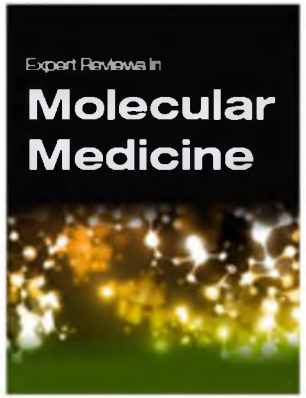

Expert Reviews in Molecular Medicine

Article contents

Abstract

Introduction

Unfolded protein response

Targeting unfolded protein response: a new horizon for disease control

Published online by Cambridge University Press: **04 March 2021**

Madhu Khanna, Nishtha Agrawal, Ramesh Chandra and Gagan Dhawan

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Abstract

Unfolded protein response (UPR) is an evolutionarily conserved pathway triggered during perturbation of endoplasmic reticulum (ER) homeostasis in response to the accumulation of unfolded/misfolded proteins under various stress conditions like viral infection, diseased states etc. It is an adaptive signalling cascade with the main purpose of relieving the stress from the ER, which may otherwise lead to the initiation of cell death via apoptosis. ER stress if prolonged,

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Inclusion of environmental awareness as basic tenet of education in India for realization of sustainable practices

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Res. J.Educational Sci., **Volume 9, Issue (1),** Pages 1-8, August,1 **(2021)**

Abstract

References

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Abstract

Worldwide Ambient Air Pollution (AAP) has been identified as a major hazard to all living beings covering the entire gamut from cities enveloped in smog to non-discernible polluted air inside homes and that are known to bring a negative influence on health and climate. World Health Organization (WHO) in its global report of 2019 attributed 7 million deaths to Air Pollution, both household (HAP) and AAP. In the scathing report while 3.8 million deaths were ascribed to inefficient fuel burning and dirty cook

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Pressure Ionization, Polarizability and Screening Constants in Confined Hydrogen Like Ions of Astrophysical Importance

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Volume 34, Part 3, 2021, Pages 767-770

Encompassing environment synthesis, characterization and photovoltaic utilization of cadmium sulphide quantum dots

Rahul [a b], Shruti Singh [c], Pramod K. Singh [b], Jitender Paul Sharma [e], Sunanda Kakroo [b], Rakesh Sonker [d], Zishan H. Khan [a]

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Abstract

Semiconductor QDs has been intensively studied to their interesting characteristics both from the views of fundamental research and practical applications. Colloidal quantum dots are grown in solution from precursors. In comparison amongst the quantum dots (QDs) available in the literature, cadmium supplied quantum dots (CdS QDs) are more popular because of their high luminescence, good quantum yield, wide band gap. The most popular method of preparation is hot organometallic precursor route. In this paper, very low cost and efficient CdS-QD has been synthesized using chemical bath method. The prepared CdS QDs are characterized by UV–Vis absorption, photoluminescence (PL), XRD. A quantum dot sensitized solar cell (QDSSC) will be proposed using a synthesized

International Journal of Computer Science Trends and Technology (IJCST) – Volume 9 Issue 5, Sep-Oct 2021

RESEARCH ARTICLE OPEN ACCESS

Reliable Time Slot Allocation Scheme among Mobile Nodes in MANET

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ABSTRACT
The broadcast protocol in MANET is less efficient and cannot guarantee collision free broadcasts due to high mobility of nodes. This article purposes a new slot allocation scheme between mobile nodes to control, collision; it requires 1-hop neighbour information and also the two-hop neighbor's coverage. Each node maintains a local topology of its 2-hop neighbourhood, and only a small subset of 1-hop neighbours forwards this message, which can reduce the possibility of collision, decrease the delay of the broadcast, and improve the throughput of the network. The subset of 1-hop neighbours selected should cover all the 2-hop nodes and it reduces the broadcast storm problem. Simulation results show that reliable time slot allocation among mobile node algorithm is efficient and reachability within the transmission range of the network. It is a collision free, reliable time slot allocation scheme among nodes and minimum time slot forward broadcast up to 2-hop nodes.
Keywords: Broadcast Storm Problem, Slot Allocation, Throughput, Topology, Reachability.

I. INTRODUCTION

In broadcasting, one node sends a packet to any or all other nodes within the network. Efficient broadcasting during a mobile unintended network focuses on selecting a small forward node set while ensuring broadcast coverage. Due to high mobility and dynamism in mobile ad hoc network, a collision occurs. Within the multi - hop environment, mobile nodes depend to each other's when they are transmitted. It is a distributed network, nodes frequent connectivity changes, due to mobility of nodes and high demand for channel access protocols. Mobile node's transmission on broadcast using omnidirectional antennas, then broadcast service available in mobile ad hoc network. The initial slot assignments between mobile nodes to make a frame schedule on that time collision occur, when new link detects for joining or removes the network in that case again the initial slot assignments. Many transmission scheduling protocols are proposed to improve the channel efficiency [3]. This research paper, we propose the Reliable Time Slot Allocation Among Mobile Nodes (RTSAAMN) algorithm using in Mobile Ad hoc Network. This algorithm involves a minimum time slot; it reduces collisions on the network and their network bandwidths of channels

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DOI: 10.1002/jmv.27708

RESEARCH ARTICLE

MEDICAL VIROLOGY WILEY

Adverse events and breakthrough infections associated with COVID-19 vaccination in the Indian population

Geetika Arora[1] | Jyoti Taneja[2] | Priya Bhardwaj[3] | Shorya Goyal[4] | Kumar Naidu[5] | Sunita. K. Yadav[2] | Daman Saluja[1] | Sunita Jetly[4]

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Abstract

Vaccines against COVID-19 provide immunity to deter severe morbidities associated with the infection. However, it does not prevent infection altogether in all exposed individuals. Furthermore, emerging variants of SARS-CoV-2 impose a threat concerning the competency of the vaccines in combating the infection. This study aims to determine the variability in adverse events and the extent of breakthrough infections in the Indian population. A retrospective study was conducted using a pre-validated questionnaire encompassing social, demographic, general health, the status of SARS-CoV-2 infection, vaccination, associated adverse events, and breakthrough infections in the Indian population. Informed consent and ethical approval were obtained as per Indian Council of Medical Research (ICMR) guidelines. Participants, who provided the complete information, were Indian citizens, above 18 years, and if vaccinated, administered with either Covishield or Covaxin, were considered for the study. Data have been compiled in Microsoft Excel and analyzed for statistical differences using STATA 11. The responses from 2051 individuals fulfilling the inclusion criteria were analyzed. Among 2051, 1119 respondents were vaccinated and 932 respondents were non-vaccinated. Among 1119 vaccinated respondents, 7 were excluded because of missing data. Therefore, out of 1112 vaccinated, 413 experienced adverse events with a major fraction of younger individuals, age 18–40 years, getting affected (74.82%; 309/413). Furthermore, considerably more females than males encountered adverse consequences to vaccination ($p < 0.05$). Among vaccinated participants, breakthrough infections were observed in 7.91% (88/1112; 57.96% males and 42.04% females) with the older age group, 61 years and above (odds ratio, 3.25 [1.32–8.03]; $p = 0.011$), and males were found to be at higher risk. Further research is needed to find the age and sex-related factors in determining vaccine effectiveness and adverse events.

J. Integr. Sci. Technol. 2022, 10(2), 61-66 Article

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SCIENCE & TECHNOLOGY

Association of Gender, Age, and Comorbidities with COVID-19 infection in India

Sunita Kumari Yadav,[1] Priya Bhardwaj,[2] Praveen Gupta,[3] Daman Saluja,[4] Sunita Jetly,[5] Jyoti Taneja[1*]

[1]Zoology Department, Daulat Ram College, University of Delhi, Delhi-110007 India. [2]Department of Zoology, University of Delhi, Delhi-110007 India. [3]Department of Neurology, Fortis Memorial Research Institute, Gurugram, Haryana-122022, India. [4]Medical Biotechnology Laboratory, Dr. B.R. Ambedkar Center for Biomedical Research, and Delhi School of Public Health, IoE, University of Delhi, Delhi-110007, India. [5]Department of Biomedical Sciences, Acharya Narendra Dev College, University of Delhi, Delhi-110019, India.

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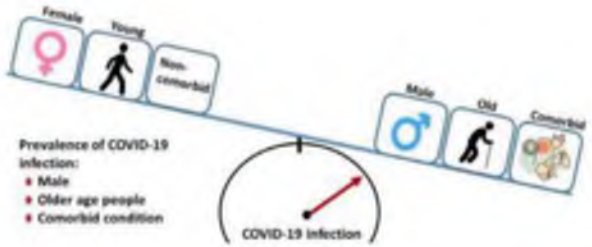
ABSTRACT



Due to a lack of data on various parameters with COVID-19 in the Indian population, this study was carried out to understand the relation among gender, age and comorbidities in Indian population. The data was collected using a questionnaire-based survey form that included questions on demographic characteristics, infection and any pre-underlying conditions (n=1146). The data showed that the male patients had suffered more from COVID-19 (58.6%). Also, the patients suffering from comorbidity are more likely to suffer from a severe form of COVID-19 and obesity/overweight was identified as the most prevalent (n=69) comorbid condition, followed by diabetes (n=35), thyroid (n=19) and hypertension (n=11). In severe COVID-19 cases, 85% of patients had a comorbid condition. In another study of COVID-19 hospitalized-cases, about 97% of patients were found to have an underlying medical condition. Among these, diabetes (55.9%) was identified as the most prevalent comorbidity. Males and older people are at a higher risk of developing COVID-19 infection in Indian population. The comorbid conditions also predisposed individuals to COVID-19 and aggravated the infection.

Keywords: COVID-19, comorbidity, age, gender, obesity, diabetes, hypertension

INTRODUCTION

15 December 2021, it has affected about 270 M people worldwide,

Hesitancy and Acceptance of COVID-19 Vaccination Amidst the Second Wave of Pandemic in India: A General Population Study

Asia Pacific Journal of Public Health
2022, Vol. 34(4) 446–449
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Sunita Jetly, PhD[1]*, Priya Bhardwaj, PhD[2]*, Geetika Arora, MSc[3], Daman Saluja, PhD[4], Sunita K. Yadav, PhD[5], Kumar P. Naidu, MSc[6], and Jyoti Taneja, PhD[5]

Introduction

Currently, with Delta, Omicron, and other variants on a rampage across the world, it is imperative to get vaccinated in time to curtail the burden of COVID-19 pandemic. The SARS-CoV-2 pandemic was devastating in India, infecting more than 34 million people and 4 million mortality as on December 22, 2021.[1] India is the second densest country with a population of more than 1.3 billion posing a challenge for COVID-19 vaccination.[2] In order to accelerate the pace of vaccination, the Government of India adopted an aggressive "Covid-19 Vaccine Communication Strategy" with the key elements being advocacy, capacity building, media, and social media engagement, social mobilization, community

Results

Demographic Profile of Respondents

A total of 2051 Indians participated in the online and offline surveys with a higher representation of respondents aged 18 to 40 years (70.9%), 41 to 60 years (23.8%), and 61 years and above (5.3%). Gender was found to be almost equally distributed among respondents. About 37.7% were academicians followed by professional and managerial occupations (32.3%) and frontline workers (15.7%). Of note, about 37.1% of the study participants had experienced COVID-19.

Basic Characteristics of Vaccine Hesitancy (VH)

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Bioorganic & Medicinal Chemistry

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Bioreducible polyethylenimine core–shell nanostructures as efficient and non-toxic gene and drug delivery vectors

H. Jena [a b], Z. Ahmadi [b c], P. Kumar [b], G. Dhawan [a d]

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Abstract

Low molecular weight branched polyethylenimine (LMW bPEIs 1.8 kDa) have received considerable attention for the fabrication of nucleic acid carriers due to their biocompatible and non-toxic nature. However, due to the inadequate nucleic acid complexation ability and transportation across the cell membrane, these show poor transfection efficacy, limiting their clinical applications. Therefore, to overcome these challenges, in this study, we have grafted bPEI 1.8 kDa with a disulfide bond containing hydrophobic moiety, 3-(2-pyridyldithio) propionic acid (PDPA), via amide linkages through EDC/NHS-mediated coupling to obtain N-[3-(2-pyridyldithio)] propionoyl polyethylenimine (PDPP) conjugates. The best formulation for nucleic acid transfection was evaluated after preparing a series of PDPP conjugates by varying the amount of PDPA. In an aqueous environment, these PDPP conjugates self-assembled to form spherical shaped core–shell PDPP nanostructures with size ranging from ~188–307 nm

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Research Articles

Exploring the role of framework mutations in enabling breadth of a cross-reactive antibody (CR3022) against the SARS-CoV-2 RBD and its variants of concern

Samvedna Saini, Manusmriti Agarwal, Amartya Pradhan, Savitha Pareek, Ashish K Singh, Gagan Dhawan ...show all

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Abstract

Cross-reactive and broadly neutralizing antibodies against surface proteins of diverse strains of rapidly evolving viral pathogens like SARS-CoV-2 can prevent infection and therefore are crucial for the development of effective universal vaccines. While antibodies typically incorporate mutations in their complementarity determining regions during affinity maturation, mutations in the framework regions have been reported as players in determining properties of broadly neutralizing antibodies against HIV and the Influenza virus. We propose an increase in the cross-reactive potential of CR3022 against the emerging SARS- CoV-2 variants of concern through enhanced conformational flexibility. In this study, we use molecular dynamics simulations, *in silico* mutagenesis, structural modeling, and docking to explore the role of light chain FWR mutations in CR3022, a SARS-CoV anti-spike (S)-protein antibody cross-reactive to the S-protein receptor binding domain of SARS-CoV-2. Our study shows that single substitutions in the light chain framework region of CR3022 with conserved epitopes across SARS-CoV strains allow targeting of diverse antibody epitope footprints that align with the epitopes of recently-categorized neutralizing antibody classes while enabling binding to more than one strain of SARS-CoV-2. Our study has implications for rapid and evolution-based engineering of broadly neutralizing antibodies and reaffirms the role of framework mutations in effective change of antibody

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Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites

Vipin Malik, Laishram Saya, Drashya Gautam, Shallu Sachdeva, Neelu Dheer, Dinesh Kumar Arya, Geetu Gambhir & Sunita Hooda

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Abstract

Large-scale industrialization and urbanization have led to such an alarming level of water contamination throughout the world that wastewater management has become one of the major global challenges attracting much research attention in recent times. Various techniques have been adopted for the treatment of polluted water among which adsorption has been preferred on a larger scale by virtue of its ease and cost-effective nature. This review highlights the efficiency of tamarind-based nanocomposites as potential adsorbents for a varying range of harmful organic and inorganic water pollutants including metal ions, fluoride ions and numerous kinds of dyes. A comprehensive analysis of fabrication routes, adsorption isotherms, kinetic and thermodynamic modeling as well as the adsorption mechanism and recyclability of these adsorbents is being presented in this work. In addition, various factors affecting the adsorption behavior such as pH, amount of adsorbent, concentration of ion/dye and influence of contact time are being elaborately outlined. The comparison of different composites on the basis of their effectiveness, selectivity, economic and environmental aspects has also been outlined. Moreover, a brief comparison of tamarind-based nanocomposites with

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A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions

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A new polymeric membrane sensor for Cd(II) ion based on methyl acrylate-acrylonitrile-methyl methacrylate terpolymer as membrane carrier has been synthesized via atom transfer radical polymerization (ATRP) method at 60 °C. Preliminary investigations with the membrane exhibited promising selectivity for Cd(II) ion with a slope of 32.02 mV/decade and the same could be estimated in the concentration range of $1 \times 10^{-4} - 1 \times 10^{-1}$ M in the working pH range of 4-6 for up to 90 days. The potentials generated across the membrane were reproducible and the response time was less than one minute. The electrode works well even in a partially non-aqueous media. The effect of surfactant and detergent on the working of Cd(II) selective electrode was also studied. A decrease in potential was observed in the presence of appreciable amount of surfactant and detergent. Addition of plasticisers was found to greatly improve the performance of membrane, best results being obtained with the membrane ratio (NaTPB:TP:TBP::1:100:06), exhibiting a working concentration range of $1 \times 10^{-4} - 1 \times 10^{-1}$ mol L^{-1} with a short response time of 10 s. The proposed sensor shows significantly good selectivity toward Cd(II) ion in comparison with some alkali, alkaline earth, transition and heavy metal ions. It was successfully employed as an indicator electrode in potentiometric titration of cadmium(II) ions against EDTA solution.

Keywords: Methyl methacrylate, Terpolymer, Sensor, Cadmium(II), Ion-selective electrode, Membrane.

INTRODUCTION

In recent times, there has been an unwanted accumulation of heavy metal ions in the environment due to their utilization on a wide scale in various activities such as agricultural, technological and industrial applications, *etc*. This has posed a serious threat to the eco-system, particularly human beings [1,2]. Amongst all heavy metals, cadmium is attracting much concerning attention as it is one of the most toxic metals associated with serious health effects. Cadmium is present in its inorganic form in phosphate rocks. However, huge amount of cadmium is introduced into the environment due to widespread use of phosphate fertilizers as well as from the waste effluents of industries like electroplating, smelting, alloy manufacturing, pigments, plastic, battery, mining and refining processes [3-5].

Chronic exposure to cadmium can cause adverse health problems such as destruction of the red blood cells, high blood pressure, damage to kidney, lungs and liver, *etc*. [6,7]. Cadmium is also known to cause severe joint and spine pain due to osteomalacia, osteoporosis and itai-itai disease as cadmium potentially interferes with mineralization of bone [8,9]. Cadmium is even deadly and a carcinogen [10]. The daily permissible limit for cadmium intake from various sources is 1.0-1.2 µg/g of human body weight as recommended by food scientists. According to the guidelines of United States Environmental Protection Agency (USEPA), the maximum cadmium content in drinking water is 5 ppb [11]. In this scenario, detection of cadmium content in water sources has become very important so that subsequent actions can be implemented for its removal or reducing to the minimal permissible level.

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A new polysaccharide-based ion-exchange resin for industrial wastewater treatment

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Abstract: A new ion-exchange resin was obtained by incorporating a tripropylamine group into a tamarind polysaccharide resin (TTA). The TTA resin was characterized by FTIR, elemental analysis, and other physicochemical properties. The influence of pH, treatment time and resin concentration on the adsorption of metal ions from industrial wastewater was investigated. It was found that the obtained TTA resin effectively removes heavy metal ions in the following order: Fe^{2+}> Cu^{2+}> Zn^{2+}> Cd^{2+}> Pb^{2+}.

Keywords: industrial wastewater, tamarind, tripropylamine, ion-exchange resin, adsorption, flocculants.

Nowa żywica jonowymienna na bazie polisacharydów do oczyszczania ścieków przemysłowych

Streszczenie: Nową żywicę jonowymienną otrzymano poprzez wbudowanie grupy tripropyloaminowej do żywicy polisacharydowej tamaryndowca (TTA). Żywicę TTA scharakteryzowano za pomocą FTIR, analizy elementarnej i innych właściwości fizykochemicznych. Zbadano wpływ pH, czasu obróbki i stężenia żywicy na adsorpcję jonów metali ze ścieków przemysłowych. Stwierdzono, że żywica TTA skutecznie usuwa jony metali ciężkich w następującej kolejności: Fe^{2+}>Cu^{2+}>Zn^{2+}>Cd^{2+}>Pb^{2+}.

Słowa kluczowe: ścieki przemysłowe, tamaryndowiec, tripropyloamina, żywica jonowymienna, adsorpcja, flokulanty.

In India ground water is used for domestic as well as agricultural purposes. Heavy metals ions such as iron, cobalt, cadmium, lead, mercury, chromium, selenium, arsenic, copper and zinc are invariably present in groundwater.These metal ions are considered to be toxins when they enter inside the body exceeding the prescribed limit, wherein they start causing illness [1–3]. Some of the heavy metal ions such as iron, cobalt, cadmium, lead, mercury, Zn^{2+}, Cd^{2+}, Pb^{2+} have extensive applications in electronic appliances such as LED, Mobile phones, and other devices due to their chemical, electrical, optical and magnetic values [5]. Growing demand for reduction of metal ions in water has enhanced the strive for development of feasible ways to remove harmful metal ions from industrial contaminated water. Environmentally friendly adsorbents have been investigated for preferential adsorption

Article

Assessment of Groundwater Quality for Drinking and Irrigation Use in Gurugram Block of Gurugram District, Haryana, India

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Vijay Laxmi · Jakir Hussain · Idris Husain · Geetu Gambhir

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Abstract

Groundwater is a vital and reliable source of water in all climates worldwide. In this work, a total of 26 groundwater samples were collected from the Gurugram Block of Gurugram District (a cosmopolitan city situtated proximately to capital of India) analyzed for electrical conductivity, pH, hardness, dissolved solids (TDS), Na+, K+, Ca2+, Mg2+, Cl- and alkalinity as HCO3 −, CO3 2−. Based on the analytical results, the sodium adsorption ratio, sodium percentage, residual sodium carbonate, chloro-alkaline index, base exchange index, meteoric genesis index, permeability index), magnesium hazard and Kelly index were calculated. The most abundant cations were Na+ and Ca2+, which accounted for 43% and 36% of total cations, respectively. Based on median value, the cations are in the following order: Na+ > Ca2+ > Mg2+ > K+. There are no dangers in any of the 22 villages (85%). They have fluoride levels which are less than the maximum desirable limit of 1.0 mg/L established by IS: 10500, 2012. There were 15 villages

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Research Article
Research Articles

A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions

Shilpa Yadav [a], Neeti Misra [b], Pankaj Khanna [b], Mansi [a], Kriti Batra [a], Leena Khanna [a]

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Abstract

The Diels-Alder reaction involves cycloaddition of dienes and dienophiles to form a six-membered ring. The reaction involves the formation of adduct which can have two possible configurations, viz, endo and exo. For a vast majority of the Diels-Alder reactions, endo is the major adduct. This first ever study focuses on the Diels-Alder reaction between dibenzazepine and 2,5-dimethylfuran depicted by the computational method using Gaussian 16 software at different basis set levels. The formation of adduct is studied under different temperatures in the gas phase and aqueous medium. The kinetically favored endo adduct is preferred at low temperatures as compared to exo adduct. The adduct gets dehydrated further to give tribenzazepine as the final product. The applicability of the reaction is also proved experimentally in absence or presence of

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Chromone functionalized pyridine chemosensor for cupric ions detection

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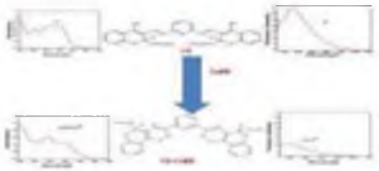
HIGHLIGHTS

- Chromone functionalized pyridine chemosensor was synthesized.
- CD can selectively detect cupric ions with limit of detection 1.2 · 10^{-6} M.
- The binding stoichiometry obtained as 1:2 for CD: Cu^{2+} complex from Job's plot.
- The Schiff base utilized for sensing cupric ions in a variety of spiked samples of water.

GRAPHICAL ABSTRACT



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ABSTRACT

A new Schiff base 2-ethoxy-3-[[(6-[[(2-ethoxy-4-hydroxy-2H-chromen-3-yl)methylidene]amino]pyridine-2-yl)imino]methyl]-2H-chromen-4-ol (**CD**) was synthesized as a result of the condensation of 2,6-diaminopyridine and 3-formyl chromone in 1:2 M ratio and used for cupric ions detection and characterized through FTIR, HRMS and ^{1}H NMR spectral techniques. The sensing capability of Schiff base for cupric ions as compared to other transition metal ions was examined by absorbance and emission studies. A considerable decrease in emission intensity appeared in Schiff base in the case of cupric ions while irrelevant changes were examined for the rest of the ions. The binding stoichiometry was obtained as 1:2 for **CD**: Cu^{2+} complex intended from the job's plot which was confirmed through HRMS spectral technique. DFT calculations were carried for the confirmation of structural relationships and absorption–emission data. The Regression coefficient, Limit of detection, and Association constant were obtained as 98.7%, 1.2 x 10^{-6} M, and 3.26 · 10^4 M^{-1} respectively using Benesi-Hildebrand (B-H) equation. The sensing power of Schiff base **CD** to recognize cupric ions was unaltered by the addition of the rest of metal ions, which was authenticated through interference studies. Schiff base **CD** and its complex with cupric ions were found stable over an extensive time period as revealed by time-reliant studies. The data collected by pH studies revealed that the preferred pH range for detecting cupric ions by Schiff base **CD** was 6 to 11. The Schiff base was finally utilized for sensing cupric ions in a variety of spiked samples of water like canal water, tap water, groundwater, distilled water.

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Chromone derived effective probe for the detection of metal ion (Cu^{2+}) and chemical explosive (p-nitrotoluene)

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ABSTRACT

A new chromone based Schiff base probe 1,3-bis[[(4-oxo-4H-chromen-3-yl)methylidene]amino]-urea (**CCH**) has been synthesized in one step by the condensation reaction between 3-formylchromone and carbohydrazide in a 2:1 M ratio. The characterization of **CCH** was done by employing various analytical techniques: FTIR, ^{1}H NMR, ^{13}C NMR, HRMS and FESEM. The probe **CCH** showed a naked eye colorimetric response from colourless to yellow for the Cu^{2+} ions with greater selectivity over other metal ions taken for analysis. The binding constant and limit of detection of **CCH** for Cu^{2+} ions were calculated to be $4.5 \cdot 10^{4} M^{-1}$ and $11.4 \cdot 10^{-7} M$, respectively, using UV–Visible titrations. The DFT (Density functional theory) results also confirmed the experimental studies. In addition, **CCH** has shown its applicability for the detection of nitroaromatic compound i.e., p-nitrotoluene (**pNT**). The sensing mechanism of **pNT** was studied by UV–Visible and fluorescence studies. A significant quenching of the emission intensity of **CCH** at 402 nm in the case of **pNT** was noted above other nitroaromatics taken for study. The binding constant and limit of detection for **pNT** were calculated to be $1.2 \cdot 10^{5} M^{-1}$ and $25 \cdot 10^{-8} M$, respectively, using B-H plot. The presence of other nitroaromatics negligibly affects the detection of **pNT** in **CCH** solution, as confirmed by anti-interfering studies. FESEM analysis of **CCH** with **pNT** confirmed the formation of an adduct. The time resolved fluorescence lifetime measurement also ensured the **CCH**-**pNT** adduct formation and the average life time data revealed that the quenching process was dynamic. The **CCH**-**pNT** adduct formation was also validated via DFT studies. Overall results suggested that the Schiff base **CCH** could be an efficient option to detect Cu^{2+} ions colorimetrically and **pNT** by fluorimetrically.

1. Introduction

Schiff bases are compounds having an active imine linkage (C – N) which is prominently responsible for their various applications in several fields [1,2]. Nowadays, Schiff bases are primarily used as colorimetric and optical sensors for the detection of different analytes such as; metal ions, anions, explosives, etc. [3-9]. This is possible because they possess strong binding affinity towards metal ions to form stable complexes [10,11]. Schiff bases are electron-rich compounds, which makes them suitable for the sensing of nitroaromatics (electron-deficient species) by providing an easy electron transfer process from ligand to nitroaromatics [12]. Several chemosensors other than Schiff bases are also known for analyte detection, but Schiff bases are more preferred now days because of their simplicity, high stability, structural flexibility and an easy synthetic route, in addition they produced with a water molecule as a side product only [13,14]. A number of analytical methods have been introduced for the detection of analytes using chemosensors, namely: fluorescence sensing, electrochemical sensing, atomic absorption spectroscopy, inductively coupled plasma-mass spectrometry, surface-enhanced Raman spectroscopy (SERS), chemiluminescence, thermal neutron analysis, cyclic voltammetry, high performance liquid chromatography (HPLC), energy-dispersive X-ray diffraction, gas chromatography (GC), [15-20]. Among these methods, colorimetric sensing and optical sensing (UV–Vis and fluorescence) are more suitable because of their cost-effectiveness, easy sample preparation, high selectivity, sensitivity, and rapid detection of analytes, which makes them more useful tools over other techniques. Colorimetric detection is more facile approach as it involves the naked eye detection of the analyte with less equipment [21,22]. Imbalanced consumption of metal ions can cause severe environmental and health issues [23]. As a result, the design and synthesis of sensors for the detection of such ionic species are crucial. Copper is the third most abundant trace element in

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WET CHEMICAL GROWTH OF ONE DIMENSIONAL ZnO FILM

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ABSTRACT

The present work focuses on the growth of ZnO films vertically on indium tin oxide substrate using a wet chemical method. The morphological and structural study of the prepared films confirmed the formation of one-dimensional growth with a polycrystalline single-phase hexagonal wurtzite structure. The computed texture coefficient indicates the c-axis growth of the film. The optical spectra study exhibited a strong and sharp characteristics absorption band. The numerical derivative method and the Tauc plot method for the different transition values have been used to compare energy bandgap calculations.

Keywords: ZnO Film, SEM, XRD, Rietveld Refinement, UV-Visible Spectroscopy, Tauc Plot Method

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INTRODUCTION

In the recent era, metal oxide nanostructures showcase many applications in every field that exists, mainly biosensors, solar cells, photocatalysis, bio-imaging, UV-light emitters, piezoelectric transducers, chemical sensors.[1] There are many metal oxide nanostructures existing in nature, out of which ZnO is the most promising nanostructures (nanomaterial) due to its wide bandgap, thermal stability, high electron mobility, conductance variability, etc.[2] According to the literature, these ZnO nanostructures can be subdivided into various categories such as nanodots, nanoflowers, nanowires, nanopores, nanotubes, nanorings, nanorods, etc.[1] Among these, nanorods and nanowires are being extensively used for practical applications, such as nanowires are used for field-effect transistor (FET) devices, nanogenerators, and nanorods are used for heterojunction devices such as varistors, four-probe electrode systems, sensing applications, etc.[3-6] In addition to these applications, ZnO nanorods in the form of films are being used in FET, dye-sensitized solar cells (DSSCs), light emitters, light detectors, biosensors, gas sensors, etc.[7-8] Various methods are reported in the literature for synthesizing these nanorods, such as electrochemical deposition technique, hydrothermal method, sputter chemical deposition, etc.[9-10] However, certain criteria need to be met to use these methods, mainly high reactant concentration, and high reaction temperature. On similar grounds, these processes are complex and expensive. Therefore, the more accessible approach to synthesize ZnO nanorods is by using the wet chemical method due to its easy processing and cost effectiveness.[11-12]

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An *In Silico* investigation for acyclovir and its derivatives to fight the COVID-19: Molecular docking, DFT calculations, ADME and td-Molecular dynamics simulations

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ABSTRACT

In the present work, we have designed three molecules, acyclovir (A), ganciclovir (G) and derivative of hydroxymethyl derivative of ganciclovir (CH_2OH of G, that is D) and investigated their biological potential against the Mpro of nCoV via *in silico* studies. Further, density functional theory (DFT) calculations of A, G and D were performed using Gaussian 16 on applying B3LYP under default condition to collect the information for the delocalization of electron density in their optimized geometry. Authors have also calculated various energies including free energy of A, G and D in Hartree per particle. It can be seen that D has the least free energy. As mentioned, the molecular docking of the A, G and D against the Mpro of nCoV was performed using iGemdock, an acceptable computational tool and the interaction has been studied in the form of physical data, that is, binding energy for A, G and D were calculated in kcal/mol. It can be seen the D showed effective binding, that is, maximum inhibitions that A and G. For a better understanding for the inhibition of the Mpro of nCoV by A, G and D, temperature dependent molecular dynamics simulations were performed. Different trajectories like RMSD, RMSF, Rg and hydrogen bond were extracted and analyzed. The results of molecular docking of A, G and D corroborate with the td-MD simulations and hypothesized that D could be a promising candidate to inhibit the activity of Mpro of nCoV.

1. Introduction

Drug repurposing is the concept of utilising the FDA-approved drugs for a new problem, infection or illness other than the one for which it was originally approved. These repurposing drugs save the time and money, accelerated their admittance into experimental clinical trials against other diseases. This process involved the activity based on an experimental or computational approach to develop the new employ of a drug for its biological potency [1–3]. COVID-19 is named for coronavirus disease-19 and it can cause a range of illness from common cold to severe respiratory syndrome and also infects other organs of the body. Coronaviruses (CoV) are a family of encapsulated viruses with single-stranded RNA and pathogens. In comparison of previously identified SARS-CoV (2002) and MERS-CoV (2013), SARS-CoV-2 or nCoV is a more virulent variant [4–7]. New SARS-CoV has recently received huge attention worldwide and has been declared as a public health emergency of global concern. Repurposing drug like acyclovir is a well-known antiviral drug and was approved for the treatment of infections due to herpes viruses and zoster virus. A clinical research report has been published, showing the acyclovir as a promising drug against the infection due to SARS-CoV-2 [8]. Heidary et al. has reported a study for acyclovir to be a potential candidate against COVID-19 [9]. Acyclo-GTP is a more efficient inhibitor of viral DNA. Ganciclovir and acyclovir have shown good efficacy against cytomegalovirus infection [10]. A case has

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II-VI core/shell quantum dots and doping with transition metal ions as a means of tuning the magnetoelectronic properties of CdS/ZnS core/shell QDs: A DFT study

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ARTICLE INFO

Keywords:
Quantum dots
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Magnetic
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Transition metal ions
Doping

ABSTRACT

This paper examines the alterations in the properties of II-VI Quantum Dots (QDs) when these are coated with a shell made of another material of the same family and investigates the structural, electronic and magnetic properties of doped CdS/ZnS core/shell QDs. The core/shell QDs have been constructed by building the shell over the bare core QD and it is found that this construction of a shell over the bare QD can bring about dramatic changes in its optical properties. On changing the shell by varying either the cation or the anion, substantial variations are brought about in the band gap and electrophilicity. The trend of Fermi energies is more negative for core/shell QDs than for the QDs without a shell, and the value is almost the same for core/shell QDs with the same core. Swapping of the core and the shell materials brings greater stability in the case of shells of the wider band gap materials. Binding energy data demonstrates that the CdS/ZnS, CdSe/ZnSe, CdSe/CdS core/shell systems are more stable than ZnS/CdS, ZnSe/CdSe, CdS/CdSe core/shell systems, respectively. An augmentation in the properties is found on doping the QD with transition metal ions. The binding energies are found to be functions of the kind of dopant as well as the spin multiplicity and account for the stability of one spin state over the other at a specific site of the QD. The most fascinating property that plays a decisive role in the extent such as the introduction of magnetism in core/shell QDs as a result of the entry of unpaired electrons within the CdS/ZnS QDs on doping with transition metal ions. The deviation of the observed magnetic moments from the expected values increases as the dopant is varied from Mn^{2+} to Fe^{2+} to Co^{2+} to Ni^{2+} to Cu^{2+}. Hirshfeld charge analysis shows that the doped ion accepts negative charge from the sulfide ions in the core, with the smallest charge transfer seen in the case of Hg^{2+} ions. As we move from Mn^{2+} to Hg^{2+}, the trend followed for the Hirshfeld charges indicates that the overall charge on the core is lower and that on the shell is higher for all the doped cases in comparison to the undoped CdS/ZnS core/shell QD. The band gap values reveal that the Fe^{2+} doped CdS/ZnS core/shell structures have the smallest band gaps. Hence, we expect that this paper will help researchers to develop a strategy to produce QDs of the anticipated properties for various applications, and transition metal ions can be successfully employed for modification of various magnetoelectronic properties of the host semiconductor for future applications in nanotechnology.

1. Introduction

Recent advances in the synthesis of highly monodisperse nanocrystallites have paved the way for numerous spectroscopic studies assigning the quantum dot (QD) electronic states and mapping out their evolution as a function of size. QDs, due to their reduced dimensions, have very high surface to volume ratios, with roughly 60% of the atoms residing on the surface. Hence, their optical and structural properties are significantly affected by the atoms present on the surface. The presence of atoms on the surface with unsaturated valencies, called surface defects, leads to the generation of surface trap states acting as non-radiative recombination sites, which degrade the fluorescence quantum yield of the QDs [1]. On passivating the QD surface with organic ligands, these trap states get reduced, but still the complete passivation of surface defects does not occur. In order to passivate the surface in a more complete manner, a secondary layer of semiconductor may be

Abbreviations: QDs, Quantum dots, NCs, Nanocrystals, DOS, Density of states, PDOS, Partial density of states, DSPP, DFT-semilocal pseudopotentials.

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Full Length Article

Precisely engineered type II ZnO-CuS based heterostructure: A visible light driven photocatalyst for efficient mineralization of organic dyes

Bhawna Kaushik [a], Sneha Yadav [a], Pooja Rana [a], Pooja Rana [a], Kanika Solanki [a], Deepti Rawat [b], R.K. Sharma [a,*]

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ABSTRACT

Herein, type II band alignment of magnetic ZnO/CuS has been achieved by assembling p-type CuS nanoparticles on n-type ZnO heterostructures to accomplish the photocatalytic degradation of two colored cationic dyes, namely, methylene blue (MB) and toluidine blue (TB). The material exhibited excellent photocatalytic efficiency towards MB and TB with 93% and 87.5% degradation in just 16 and 18 min respectively. The efficacy of doped photocatalyst (FSZCS) was found to be 6 times higher than the undoped material (Fe_3O_4@SiO_2@ZnO; FSZ) whereas pristine CuS degraded only 50% of the dye sample under identical conditions. Therefore, the dramatic enhancement of the photocatalytic degradation performance could be attributed to the synergetic effect created by doping CuS over magnetic ZnO nanocomposites which extended the photoresponse of ZnO by driving the entire degradation process under visible light irradiation and also reducing the charge recombination rate. The plausible mechanistic pathway and identification of degradation products was discussed in detail on the basis of scavenger studies as well as GC-MS analysis. Furthermore, the designed catalyst could be recycled and reused up to 5 runs without any significant decrease in its photocatalytic activity. The reported procedure exhibited multiple advances as it proceeded by utilizing renewable household LEDs as power source at room temperature without the use of any additional oxidant under neutral pH conditions thus, paving a strong path towards sustainable, green and responsible chemistry.

1. Introduction

Photocatalytic degradation has surfaced as a burgeoning technique contributing immensely towards environmental remediation via the use of renewable, clean and abundant solar energy [1]. As a green and sustainable approach, it has found numerous applications in the arena of treatment of perilous and toxic effluents such as dyes, pesticides, pharmaceutical by-products, industrial waste etc. A wide range of photoresponsive materials like metal oxides, metal nitrides and oxy-nitrides, alkali metal base, metal sulfides and carbon-based components have been employed for carrying out the degradation of harmful organic pollutants into environmentally benign products [2–6]. Amongst them, metal oxide and sulfide based semiconductors have occupied a central place in the field of environmental reformation owing to their wide band gap due to deep 2p oxygen orbital in their valence band [7,8]. The process is set off by the generation of electrons when light with wavelength lesser than or equal to the band gap of the semiconductor is illuminated in turn separating the charge carriers (electrons and holes). Semiconductors with wide band gap such as TiO_2 and ZnO have invariably proved their worth as dynamic photocatalysts [9–11]. ZnO specifically with a band gap of 3.37 eV has the potential of detoxifying water owing to its prominent reaction and mineralization rates, lower toxicity, economic nature, higher number of active sites and the fact that it can be moulded to obtain various morphologies [12]. Unfortunately, it works best in the UV region, which constitutes less than 5% of the solar energy thus conspicuously confining its photocatalytic utility. Another factor limiting its photocatalytic efficiency is the rapid charge recombination. Therefore, it is indispensable to shift the optical absorption band of ZnO towards the visible range and simultaneously circumvent the issue of charge recombination [13]. One of the simplest yet appealing pathway to overcome this roadblock is by doping such single-component semiconductor with another narrow band gap semiconductor which can synergistically bring the band gap in visible region and ensure prolonged separation of charge carriers [14]. Copious

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Ingeniously designed Silica nanostructures as an exceptional support: Opportunities, potential challenges and future prospects for viable degradation of pesticides

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Photocatalytic degradation
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Sustainability

ABSTRACT

Despite significant advancements in modern agricultural practices, efficient handling of pesticides is a must as they are continuously defiling our terrestrial as well as aquatic life. During the last couple of decades, substantial efforts by various research groups have been devoted to find innovative solutions to remove pesticides from our environment in a greener way. In this regard, functionalized silica nanoparticles (NPs) have gained considerable attention of scientific community due to their notable properties such as amenable design, large surface area as well as fine tunable and uniform pore structures which make them an ideal material for pesticides removal. The present review aims to profiler current scientific progress attained by silica-based nanostructures as an excellent material for effective removal of noxious agrochemicals. Further, a brief discussion on the synthetic strategies as well as intrinsic benefits associated with different morphologies of silica have also been highlighted in this article. It also summarizes the recent reports on silica assisted degradation of pesticides via enzymatic, chemical as well as advanced oxidation protocols. Additionally, it presents a critical analysis of different support materials for decontamination of our ecosystem. The review concludes with potential challenges, their possible solutions along with key knowledge gaps and future research directions for successful deployment of silica supported materials in degradation of pesticides at commercial scale.

1. Introduction

For many decades, population spurt has been a topic of deliberation and preoccupation calling for an immediate action to intensify the global agricultural production to ensure food security. According to the "World Population Prospects 2019", a United Nations (UN) report, world population is further expected to reach 9.7 billion by 2050 ([illegible]). Thus, the ever expanding number of inhabitants stresses on the requirement to boost the crop production without increasing farmland footprint. To enhance crop productivity and make agriculture profitable in face of rising valuation, use of pesticides, herbicides and fertilizers have proliferated exponentially. Pesticides refer to a group of chemical compounds used to kill undesirable organisms in farmlands and have been playing a pivotal role in agronomics since the dawn of agricultural revolution ([illegible]). According to their usage, pesticides can be classified broadly in four categories namely, herbicides, insecticides, fungicides and rodenticides. Synthetic organic pesticides generally contain carbamates, organophosphates, coumarins, organochlorines, organonitrogens, pyrethroids along with arsenic and mercury derivatives ([illegible]).

Nevertheless, with the rapid development and proliferation of chemical industries, their indiscriminate and sporadic use has led to 200,000 human deaths annually along with the contamination of natural resources ([illegible]). Most of the chemical pesticides are retained within the body of organism because of their lipophilicity and exhibit detrimental effects on human health due to their carcinogenic nature and ability to damage central nervous system ([illegible]). Starting from flora to fauna, pesticides owing to their longer half-lives not only extensively accumulate but also remain persistent in water and soil, thereby posing serious threat to the environment ([illegible]; [illegible]). Another major limitation associated with the use of conventional pesticides is that their

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Issue 18, 2022

From the journal
New Journal of Chemistry

Magnetically separable type-II semiconductor based ZnO/MoO_3 photocatalyst: a proficient system for heteroarenes arylation and rhodamine B degradation under visible light†

Check for updates

Bhawna Kaushik,[a] Pooja Rana,[a] Deepti Rawat,[b] Kanika Solanki,[a] Sneha Yadav,[a] Pooja Rana[a] and R. K. Sharma[a]

Author affiliations

Abstract

Herein, a new strategy is used to systematically tailor the band arrangement in a ZnO-based heterostructure to realize its bifunctionality towards the synthesis of heteroarylated products and degradation of Rhodamine B under visible light. A Type-II band alignment transition is carried out *via* introducing MoO_3 rods which subsequently enhance its light-harvesting properties, prolonged charge separation and abundant active sites. The designed heterostructure displayed broad functional group compatibility for both electron-donating and electron-withdrawing group substituted substrates with good product yield. Comparably, their visible light driven heteroarylation process is significantly enhanced to more than 4 times that of pristine ZnO and is superior to most photocatalysts reported previously. ZnO/MoO_3 also displayed remarkable degradation ability of 96.8% towards RhB into innocuous products under neutral conditions without utilizing any oxidant. More impressively, the developed catalyst demonstrated long-term stability and excellent reusability up to five runs without any significant change in efficiency. Hence, this work not only for the first time exhibits the untapped potential of using a highly active, economically efficient and magnetically separable ZnO/MoO_3 core–shell heterostructure to substitute for expensive metals in photocatalysis but also presents a new opening for synthesising hybrid materials with excellent performance in environmental remediation.

Issue 6, 2022

From the journal:
Dalton Transactions

An Earth-abundant cobalt based photocatalyst: visible light induced direct (het)arene C–H arylation and CO_2 capture†

Check for updates

Pooja Rana,[a] Bhawna Kaushik,[a] Rashmi Gaur,[a] Sriparna Dutta,[a] Sneha Yadav,[a] Pooja Rana,[a] Kanika Solanki,[a] Bhavya Arora,[a] Ankush V. Biradar,[b] Manoj B. Gawande[c] and R. K. Sharma[*a]

Author affiliations

Abstract

In this work, we have reported a noble metal free heterogeneous photocatalyst to carry out direct (het)arene C–H arylation and solvent-free CO_2 capture *via* single-electron transfer processes at room temperature and under pressure. The catalytic system comprises a cobalt(III) complex grafted over the silica coated magnetic support for the efficient recovery of the photocatalytic moiety without hampering its light harvesting capability. The novel Earth-abundant cobalt(III) based photocatalyst possesses various fascinating properties such as high surface area to volume ratios, large pore volume, crystalline behaviour, high metal loading, excellent stability and reusability. The general efficacy of the highly abundant and low-cost cobalt based heterogeneous nanocatalyst was checked for the selective conversion of aryldiazonium salts into synthetically and pharmaceutically significant biaryl motifs under ambient conditions upon irradiation with visible light. The highly efficient photocatalytic conversion of carbon dioxide (CO_2) to a value-added chemical was accomplished under mild reaction conditions with high selectivity, showing the added benefit of operational simplicity.

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Magnetic Boron Nitride Nanosheets Decorated with Cobalt Nanoparticles as Catalyst for the Synthesis of 3,4-Dihydropyrimidin-2(1*H*)-ones/thiones

Pooja Rana, Ranjana Dixit, Shivani Sharma, Sriparna Dutta, Sneha Yadav, Bhavya Arora, Bhawna Kaushik, Pooja Rana, and Rakesh K. Sharma*

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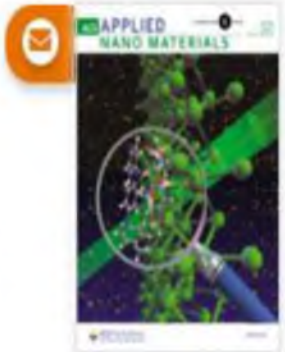

ACS Applied Nano Materials

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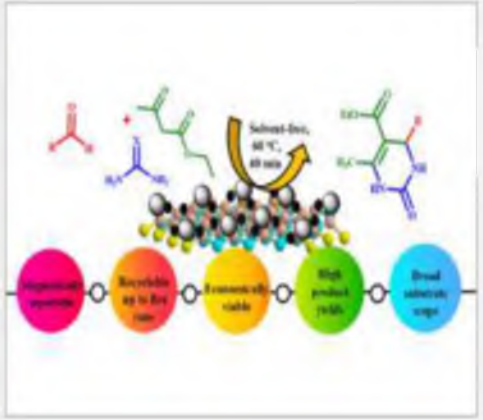
SUBJECTS: Catalysts, Cobalt,

Abstract



Atomically thin two-dimensional boron nitride nanosheets have spawned futuristic advancements in the arena of nanocatalysis research through their intriguing capability to act as exceptional support matrixes. Motivated by their phenomenal attributes, we have fabricated a magnetic boron nitride nanosheet-based cobalt catalytic system wherein boron nitride nanosheets are initially integrated with magnetic Fe_3O_4 nanoparticles (NPs), and the resulting nanostructure is further surface-engineered with cobalt NPs to yield an *h*-BN/Fe_3O_4/Co hybrid. For gaining an insight into their structural and morphological features, reliable spectroscopic and microscopic characterization techniques including TEM, SEM, XRD, FT-IR, VSM, ED-XRF, XPS, BET, TGA, and AAS were employed. The developed nanohybrid material was then utilized to provide ready access to a library of highly bioactive 3,4-dihydropyrimidin-2(1*H*)-ones/thiones under ambient conditions. A plausible mechanistic route for furnishing 3,4-dihydropyrimidin-2(1*H*)-ones catalyzed by *h*-BN/Fe_3O_4/Co has also been delineated. Ambient reaction conditions, solvent-free conditions, high product yield, and excellent thermal and mechanical stability of the catalyst along with facile magnetic retrievability and efficient recyclability are some of the phenomenal characteristics of this methodology. The present protocol besides exhibiting a wider functional group tolerance and a high turnover number was devoid of any additive, thus making it superior to literature precedents reported to date. In consideration of the striking catalytic activity of the *h*-BN/Fe_3O_4/Co nanomaterial, it can be anticipated that the present catalyst can not only possess a stupendous potential to expedite substantial manufacturing of other industrially demanding organic motifs but may also unlock insights for designing next-generation 2D catalytic materials.

KEYWORDS: nanocomposites, heterocyclic motifs, heterogeneous catalytic system, catalytic efficacy, recoverability, recyclability

Issue 22, 2022

From the journal:
New Journal of Chemistry

Unravelling the catalytic potential of a magnetic $CoFe_2O_4$/Cu–ABDC MOF composite in the sustainable synthesis of 2*H*-indazole motifs†

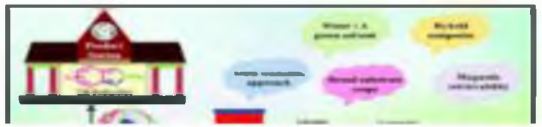
Check for updates

Sneha Yadav,[a] Ranjana Dixit,[a] Shivani Sharma,[a] Sriparna Dutta,[a] Bhavya Arora,[a] Pooja Rana,[a] Bhawna Kaushik,[a] Kanika Solanki[a] and Rakesh K. Sharma [a]

Author affiliations

Abstract

Incessant advancements made in catalytic processes during the past few decades prompted researchers to design prodigious sustainable materials that lie within the domain of green synthesis. From this perspective, metal organic frameworks (MOFs) with abundant chemical functionalities and ultra-high chemical as well as structural tunability have emerged as the most prolific heterogeneous catalysts in synthetic organic chemistry. Herein, we report the fabrication of a magnetic $CoFe_2O_4$/Cu–ABDC (ABDC = 2-aminoterephthalate) hybrid composite *via* a one-pot solvothermal strategy whose catalytic efficiency has been investigated in a three-component coupling reaction to obtain biologically active and pharmacologically significant 2*H*-indazole scaffolds (up to 98% yield). By integrating magnetic inverse spinel cobalt ferrite nanoparticles with the functional properties of the MOF, two most important parameters, *i.e.* environmental compatibility and recyclability, have been well established on a single platform. Aided by the advanced microscopic, spectroscopic and property characterization tools, the morphological as well as structural information of the developed hybrid composite has been deduced well. The aim of this study is to design a sustainably viable process that would provide highly demanding pharmacophores, *i.e.* 2*H*-indazoles, in surprisingly high yields from comparatively cheap benchmark substrates – "substituted anilines, 2-bromobenzaldehydes and sodium azide". Furthermore, our protocol has successfully accomplished the remarkable task of replacing toxic volatile organic solvents with eco-friendly solvents such as water. A broad substrate scope, high atom economy, ambient and greener reaction conditions devoid of any ligands, additives or activators, a lower reaction time and temperature, a high turnover frequency and magnetic retrievability are some of the salient features of this methodology which render it highly promising in industry and academia. Besides, the present study is the first report employing a magnetic MOF as a heterogeneous catalyst for the preparation of 2*H*-indazole moieties.



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Review

Functionalized MCM-41: Versatile Catalysts for Organic Transformations

Dr. Sharda Pasricha, Dr. Pragya Gahlot, Dr. Kavita Mittal, Devansh Rai, Nishita Avasthi, Harsimar Kaur, Shrub Rai

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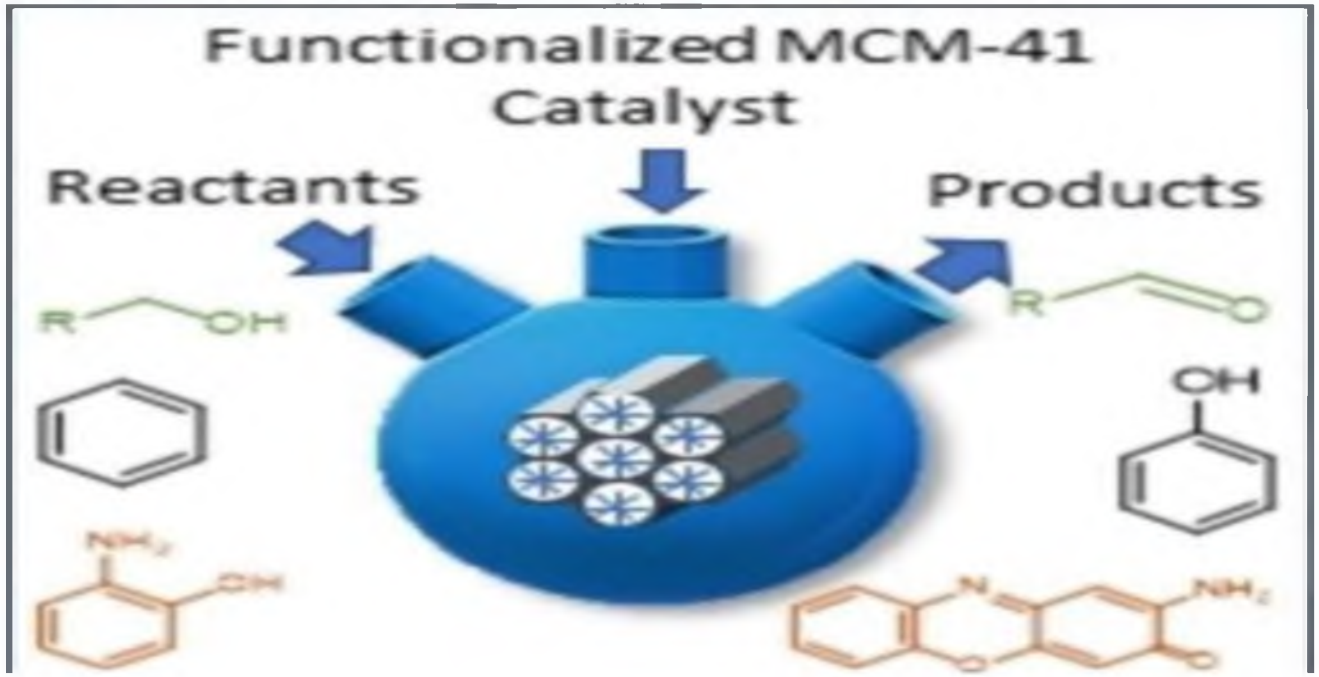
Graphical Abstract

The scope of seven surface functionalized MCM-41 catalysts in organic transformations discussed. Functionalized MCM-41 are innovative and need based catalyst systems for reactions like Sonogashira, Suzuki, Heck, Aldol, Knoevenagel, Friedel Craft reaction and Pechmann condensation etc. Several other reactions like oxidation, reduction, dehydration, esterification, trans-esterification, epoxidation as well as C–S, C–N, C–O and S–S coupling reactions also possible with MCM-41 based catalysts. Multicomponent synthesis of bioactive heterocycles is reported. Major challenges and future prospects of functionalized MCM-41 catalysts are discussed.



Coupling Fear and Contagion for Modeling Epidemic Dynamics

Publisher: IEEE

Cite This

PDF

Kirti Jain ; Vasudha Bhatnagar ; Sadanand Prasad ; Sharanjit Kaur All Authors

2 Cites in Papers

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Abstract

Document Sections

I. Introduction

II. Archetypal Model of Fear

III. Individual-Based Fear Model

IV. Differential Equation-Based Model

Abstract:

The emotion of fear related to an infectious disease not only influences an individual's behavior but also transmits to social contacts. Therefore, modeling human behavior is a precursor to reliable estimates of epidemic size and duration. In this paper, we present an abstract model of fear, which is realized using an Individual-based Fear Model (IBFM). In this model, fear is coupled with contagion to study the influence of human behavior on epidemic dynamics. Since fear is an inherent characteristic of an individual that determines susceptibility to infection, the model discerns between individuals by maintaining a fear-index . Variations in innate fear levels in populations with cultural differences are also accommodated. Since the fear level of individuals is affected by the changing size of the epidemic, IBFM provides a mechanism to update fear in the population realistically. The mechanism gives rise to multiple epidemic waves observed in real-world epidemics. We compare the epidemic dynamics for IBFM and differential equation-based realization of the abstract model. We present a detailed empirical study to understand the interplay of fear and contagion in IBFM.

Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body problem

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Abstract. The main goal of the present study is to reveal the behaviour of motion of the infinitesimal body in case of circular restricted three-body problem where all the participating bodies have oblate shapes and both primaries have the effect of solar radiation pressure. The third infinitesimal body is varying its mass according to Jeans law. We also consider that the system is affected by the small perturbations in Coriolis and centrifugal forces. We evaluate the equations of motion of the infinitesimal oblate body under the generalized sense in the perturbed circular restricted three-body problem by using the Meshcherskii-space time transformations to preserve the dimensions of the position as well as time, and then determine the Jacobi-integral. Further we numerically illustrated the equilibrium points, Poincaré surfaces of section, regions of possible and forbidden motion and then basins of the attracting domain by supposing the effects of all the parameters used. Further more, we examine the stability of these

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Study and prediction of prostate cancer using fuzzy inference system

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Keywords:
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Prostate specific antigen
Prostate volume
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ABSTRACT

The essential driver of passing among men on the planet is prostate disease. In the chief stage, for early identification of the prostate disease by applying fuzzy Inference System (FIS) has been depicted in this study. The age of the patient, Prostate Volume (PV), % Free PSA (FPSA) and Prostate Specific Antigen (PSA) are utilized as input parameters in FIS for computing the risk factor of the prostate cancer. In this study Mamdani method is used for evaluation and analysis of the Prostate Cancer Risk (PCR). The present FIS additionally required the base estimation decreases horribleness lessens dismalness, mortality and more dependable from other system. It can likewise be considered in medicine to decrease manual assignments and human mistake. This review advocate that, this FIS might consequence on work on the productivity to recognized the distinctive kind of the malignant growths just as lessening the expense of care of the patients.

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1. Introduction

In the past decades, Egawa et al. [10] used PSA renders for differentiating prostate carcinoma, Catalona [7] used PSA concentrations for detection of Prostate cancer, Allahverdi, and Yaldiz, [1] developed and design the pre-diagnosis expert system for medicine. Roehlborn et al. [27] investigates the growth of prostate by Serum PSA which was a stronger predictor. Boegla et al. [5] applied fuzzy knowledge to use fuzzy system, while in same time Lascio [18] developed a fuzzy system analysis of diabetic neuropathy. Allahverdi [2] investigates the impact of fuzzy set theory in to numerous medical difficulties with Artificial intelligence which extensively used in various fields including robotics, marketing, medical applications. Numerous expert systems were considered for progress of Fuzzy logic which plays a significant part in medication regions [24] to predict the forecast to treatment with citalopram in liquor dependency [30] to investigate diabetic neuropathy [18]; To investigate the volumes of brain tissue for the MRI to analyse the MRI data [19]; and to investigate the blood pressure by using fuzzy logic. Lu et al. [19] developed fMRI activation detection for image segmentation without supposition of time series. PERSI et al. [25] investigate a fuzzy expert system to diagnosis of prostate cancer by input parameters as PSA (prostate specific antigen) and PV (prostate volume) and PCR (prostate cancer risk) output parameter.

Gawedal, Bries, and Zurada [11,12] developed and used a fuzzy rule-based system to help the doctors who decided about the dose of medicine to treat the 200 dialysis patients. Danaei et al. [8] analysed first time to give cause of cancer and their 12 attributes with nine risk factors. Benecchi [4] developed a fuzzy neuro system which gave good accuracy other than tPSA (total prostate-specific antigen) and %FPSA (percent free PSA) for detection of prostate cancer. Miller et al. [22] has set the limit by using particular PSA value for detection of prostate cancer and discusses their testing. Keles et al. [14] investigates neuro fuzzy system rules for

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Selling price, time dependent demand and variable holding cost inventory model with two storage facilities

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Own Warehouse (OW)
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ABSTRACT

Customer service stock-out rates, as well as the company's business sales and marketing productivity, are controlled by the storage facility (warehouse). In this study, a two-storage production inventory model with demand dependent on price and time described. The rate of demand is governed by the selling price and the time. In this analysis, we hypothesized that the deterioration rate is constant and that the holding cost for own storage is time-dependent (OW). For rental storage, the deterioration rate is considered to be time-dependent, while the holding cost is assumed to be constant (RW) which is more realistic. This study assists to reduce total inventory costs by finding the best replenishment strategy. A numerical example is used to demonstrate the model's method, as well as a sensitivity analysis on a few parameters.
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1. Introduction

A storage facility (warehouse) is a huge structure where raw supplies or produced substances are kept till they are exported or dispersed to trade outlets for sale. In recent years, the problem of two storage or two shops inventory models has received a lot of attention in the beginnings of multi-national enterprises. Two storage facility models play an important role for middle-order retail outlets and smaller shops of multinational companies to stay competitive for sale prices. When the price of commodities becomes less than purchasers can purchase quantities in bulk so it becomes important to purchasers to keep this extra stock in the storage house (warehouse).

Several scholars have addressed a variety of two-warehouse inventory models throughout the previous two decades. Hartley [9] was the first to suggest this type of system. They assumed that the holding cost of RW was higher than that of OW in that scenario. Sarma [20] investigated inventory model of two storage facilities and having an optimum release rule and extend the Hartly model by considering the cost of transportation. Mandeshwar and Sathe (1985) developed lot size two shop model and consider the rate of production fixed. Sarma [21] and Benkherouf [1] investigated an order level deterministic model with two warehouses and consider the preserving capacities in a leased warehouse were higher for those who kept goods in own warehouse. Dave [4] modified the model of Sarma [20]. Sarma [22] extended and investigated the two shop model developed by Dave [4] under effect of two new parameters. Goswami and Chaudhuri [8] developed a linear trend of demand an EOQ model with two storage facilities for worsening items.

Pakkala and Achary [16] developed two shop model dependent on discrete time and Pakkala and Achary [17] generated release rule for warehouse or storehouse when purchaser purchased deteriorating goods in bulk. Bhunia and Maiti [2] extended a two shops model in which Stock level reliant on the rate of consumption. Bhunia and Maiti [3] modified and devolved two shop model for decaying products by considering continuous release rule for transferring goods from shops. Wu [25] investigated a two shops model by considering a demand function constant as well as deter-

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TWO WARE-HOUSES FUZZY INVENTORY MODEL FOR DETERIORATING ITEMS WITH RAMP TYPE DEMAND AND SHORTAGES

Garima Sethi, Research Scholar, SRM Institute of Science and Technology, Delhi-NCR Campus
Ajay Singh Yadav, SRM Institute of Science and Technology, Delhi-NCR Campus
Chaman Singh, Acharya Narendra Dev College

ABSTRACT

In this paper we developed a fuzzy inventory model for single spoilage two-parameter weibull-distribution degradation rate, ramp type demand, and partial backordering at a constant rate. In the current market scenario, an increase in the cost of the inverter affecting the total cost of inventory costs due to inflation can increase at any time of the order length.The increase in the cost of the components of the inventory cannot be pre-determined due to the uncertainty of the market situation. Therefore, we have considered the interval based fuzzy concept to handle the uncertainty condition. Ordering cost, the cost of holding in both ware-houses is considered a triangular fuzzy number.

Keywords: Weibull deterioration distribution; Partial backlogging; Ramp type demand; Fuzzy holding cost; Ordering cost.

INTRODUCTION

In traditional models, many researchers have considered the rate of demand to be constant, linear time dependent, stock dependent or accelerating over time and the same trend of considering this type of demand still continues but it is not always true that demand occurs in the same pattern. The assumption of a constant demand rate is generally valid in the mature phase of a product's life cycle. Several models have developed inventory models for items stored in two ware-houses under modelling assumptions. The rate of demand in these models is assumed to be constant over time. However, in practice a person will accept the demand for separation over time.Most classical inventory models assumed that the utility of the inventory remains constant during the period of their storage. But in real life, degradation occurs during the storage period. The deterioration of physical objects is a common phenomenon in the real world that can occur for various reasons and has attracted a lot of attention from various researchers.In recent years, the problem of inventory worsening has received considerable attention. Most products such as medicine, blood, fish, alcohol, gasoline, vegetables, and radioactive chemicals have self-life, and once spoiled they begin to deteriorate. The listed researchers, above, have taken care of deteriorating objects in their models and have developed models accordingly. In addition to inventory deterioration, limited storage is also a major practical problem for real life.Due to lack of large storage space at important market places, one should be forced to own a small ware-

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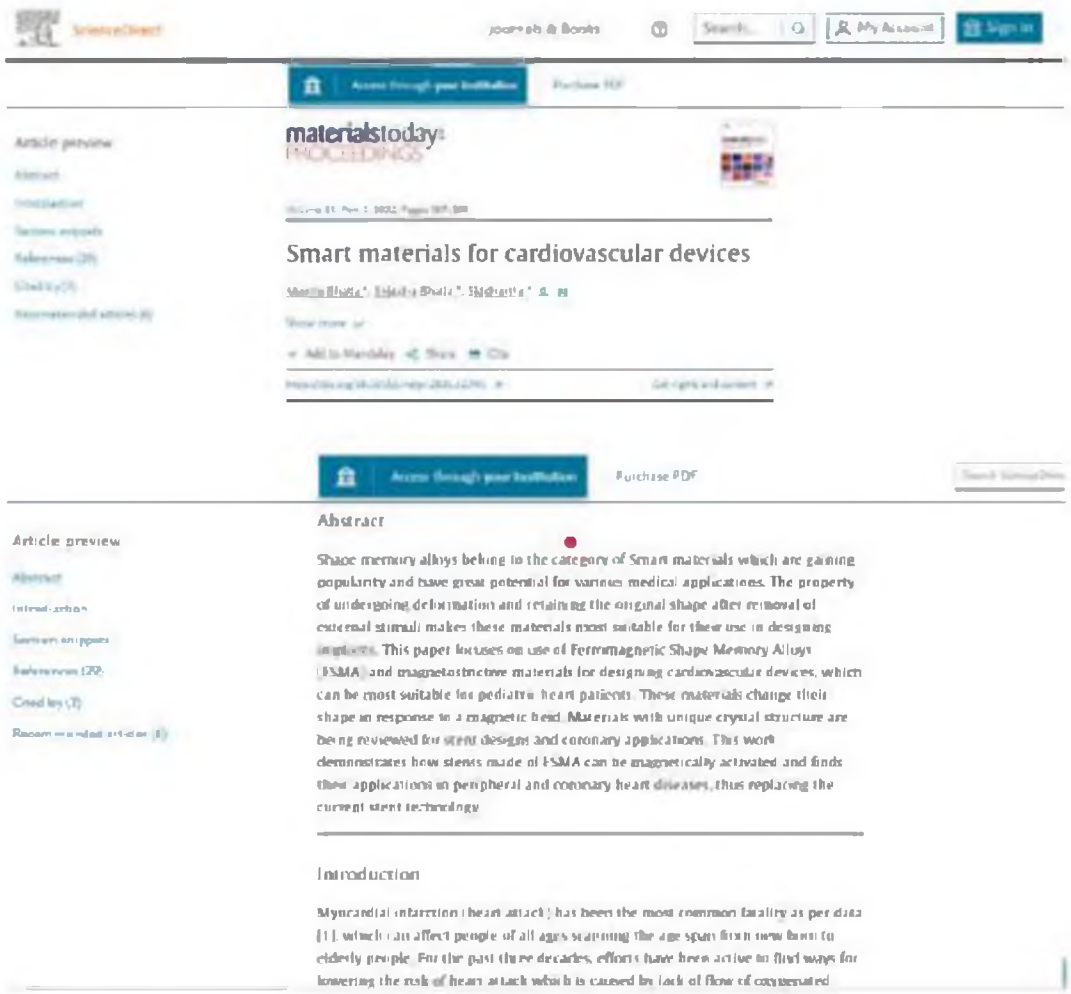

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Smart materials for cardiovascular devices

Abstract

Shape memory alloys belong to the category of Smart materials which are gaining popularity and have great potential for various medical applications. The property of undergoing deformation and retaining the original shape after removal of external stimuli makes these materials most suitable for their use in designing implants. This paper focuses on use of Ferromagnetic Shape Memory Alloys (FSMA) and magnetostrictive materials for designing cardiovascular devices, which can be most suitable for pediatric heart patients. These materials change their shape in response to a magnetic field. Materials with unique crystal structure are being reviewed for stent designs and coronary applications. This work demonstrates how stents made of FSMA can be magnetically activated and finds their applications in peripheral and coronary heart diseases, thus replacing the current stent technology.

Introduction

Myocardial infarction (heart attack) has been the most common fatality as per data [1], which can affect people of all ages scanning the age span from new born to elderly people. For the past three decades, efforts have been active to find ways for lowering the risk of heart attack which is caused by lack of flow of oxygenated

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ENERGY STORAGE

SPECIAL ISSUE ARTICLE

Studies on energy storage properties of BFO/WO_3 bilayer thin film capacitor

Shiva Sakhuja, Savita Sharma, Monika Tomar, Anil Chowdhury

First published: 05 April 2022 | https://doi.org/10.1002/est2.302 | Citations: 1

Funding information: Department of Science and Technology, New Delhi, India

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Retention properties with high temperature resistance in (Bi, Pr)

Abstract

Present work reports the growth of BFO/WO_3 bilayer thin film structures over Silicon, corning and ITO coated glass substrates. BFO layer in BFO/WO_3 bilayer structure was deposited using Pulsed Laser deposition (PLD) technique at optimized laser energy (200 mJ) while WO_3 nanostructured layer was deposited using rf-magnetron sputtering technique at varying glancing angle from 65° to 80°. For the realization of MBM (metal bilayer-metal) device, top Gold (Au) electrodes have been deposited using thermal evaporation technique. The BFO/WO_3 bilayer structure fabricated at 70° glancing angle exhibited the saturation (P_s) and remnant (P_r) polarization as 45.45 μC/cm^2 and 21.52 μC/cm^2 respectively, which are appreciably higher than the earlier reports for pure BFO thin films. Enhanced energy storage characteristics were obtained in Au/BFO/WO_3/ITO structure fabricated at 70° glancing angle with charge-discharge efficiency (63%) and enlarged recoverable energy density (467 mJ/cm^3). Achieved results indicate the utilization of fabricated Au/BFO/WO_3/ITO structures towards high energy storage applications.

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Double quantum ionization cross-sections for more general exponential cosine screened coulomb potential

Rachna Joshi

Abstract

Double-quantum ionization cross-sections for hydrogen atom have been calculated for the more general exponential cosine screened coulomb (MGECSC) potential. The ionization cross-sections are calculated as a function of the wavelength of the incident photons, as well as the potential parameters, a, b and c, using linearly and circularly polarized radiation. The transition matrix elements are calculated using the efficient pseudostate summation technique which has proved to be very accurate in these calculations. Numerical data is also presented for the double-quantum ionization cross-sections for hydrogen atom under the effect of MGECSC potential.

Double-quantum ionization cross-sections for hydrogen atom have been calculated for the more general exponential cosine screened coulomb (MGECSC) potential. The ionization cross-sections are calculated as a function of the wavelength of the incident photons, as well as the potential parameters, a, b and c, using linearly and circularly polarized radiation. The transition matrix elements are calculated using the efficient pseudostate summation technique which has proved to be very accurate in these calculations. Numerical data is also presented for the double-quantum ionization cross-sections for hydrogen atom under the effect of MGECSC potential.

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Regular Article – Atomic Physics | Published: 24 February 2022

Micrometre double-quantum ionization of Rydberg hydrogen using linearly and circularly polarized light

The European Physical Journal D 76, Article number: 17 (2022) | Cite this article

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Abstract

Double-quantum ionization for Rydberg hydrogen is studied. The variation of ionization rates with wavelength is shown for linearly polarized (LP) and circularly polarized (CP) radiations. For performing the infinite summations over the intermediate states, pseudo-state summation technique (PST) is used which is fast and efficient. Presently, the numerical values of two-quantum and three-quantum ionization rates from ground state and metastable 2s state only are available in the literature. The present work reports the calculations for the double-quantum ionization rates from higher excited levels of hydrogen. Numerical data is also presented for comparison with future experiments.

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High harmonic generation spectra for lithium embedded in plasma environment
Abstract
Effect of plasma on High harmonic generation of Lithium is investigated. Variation of the strength of different harmonics with respect to changes in Debye length is shown. The unperturbed energy eigenvalues and wavefunctions are calculated using the pseudostate summation technique while for the time evolution of wavefunctions the symplectic method is applied. Results for the numerical simulation of High harmonic generation spectra for plasma embedded Lithium are reported.
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A numerical evaluation of Shannon entropy for modified Hulthen potential

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Abstract

We calculate Shannon entropy for Modified Hulthen potential (MHP). Dependence of Shannon entropy on various parameters of the potential is investigated. For solving Schrodinger equation, i.e., for calculation of the wavefunctions, Numerov method has been employed which is fast and efficient. Numerical simulation is performed for the purpose. Novel data for Shannon entropy is presented for a wide range of the parameters of MHP.

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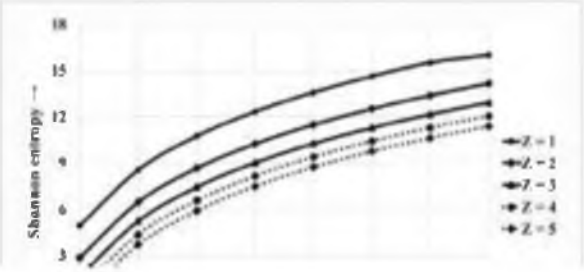

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Abstract

Applied Surface Science Advances 7 (2022) 100189

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Favourable tuning of optical absorbance, bandgap and surface roughness of ZnO thin films by C ion implantation at the critical angle

Rajesh V. Hariwal [a,*], Hitendra K. Malik [b], Ambika Negi [c], K. Asokan [a]

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ARTICLE INFO

Keywords:
Low energy ion implantation
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Thin film
Band gap
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Surface roughness

ABSTRACT

Low energy ion implantation with exquisite control of angle allows manipulating the applications of thin films. Here we present a favourable and efficient strategy of 50 keV Carbon ion implantations on ZnO thin films at three different tilt angles 0°, 30° and 60°. This plays a significant role in tuning of optical absorbance, bandgap, grain size and surface roughness simultaneously. The TRIM simulations are performed to elucidate the theoretical understanding and to compare the modifications in the physical properties using different characterization tools. These experimental results demonstrate that the ion implantations at 30° result in a significant reduction of 89% in the grain size and 35% reduction in the optical transmittance along with an improvement of 25% in the surface roughness of these thin films. The optical bandgap is also tuned from 3.27 to 3.20 eV. These results establish a new approach in designing the exotic materials with lower grain size, lower bandgap and smoother surface along with higher absorbance of ultraviolet (UV) light that will help increasing the data storage capacity and getting higher energy efficiency with reduced UV light emissions.

1. Introduction

The role of ion implantations has been extensively investigated for the applications in electronics industry and now these are being employed in the nano-structuring and nano-patterning in the semiconductors such as Si, Ge, etc. [1] The energetic incident ions transfer their kinetic energy and momentum to the host atoms which result in the atomic mass redistributions and cascade collisions at the surface of materials. This leads to the surface modifications and the nano-patterning of vivid types [2–7]. In general, structural, optical and magnetic changes are induced by the ion implantations due to the variation in the ion fluence and the energy [8–11]. ZnO thin films are selected due to their excellent metal-oxide material properties and as these have a large probability of intrinsic defects like Oxygen vacancy (V_O) and Zinc vacancy (V_{Zn}) in the surface or volume. The implantation of p-type non-metals like C, N, B, P and Si into ZnO has been found to improve the characteristic properties [12]. There are other advantages with this material such as higher exciton binding energy (approximately 60 meV) along with high tolerance for radiation and wide direct bandgap energy (up to 3.37 eV). This material is selected mostly for scientific research and also for industrial applications [13,14], which have led to the development of promising technologies based on engineering and control of their important and useful physical properties. Various metal and non-metal ion irradiations at high energy (hundreds of MeV) and ion implantations at low energy (tens of keV) at different angles have been performed mainly for generating the ripples on the surfaces. Buddhi et al. [15] have reported that the formation of nano-ripples on gold surfaces is possible by 30 keV Ar cluster ion beam bombardment at different angles. Further, it has also been confirmed using atomic force microscopy (APM) that the maximum roughness of the gold surface is obtained at an incident angle of 60°. A significant mass redistribution was found by Ar ion beam bombardment at room temperature that led to the formation of nano-ripples on the surface. In the case of off-normal incidence, the target atoms receive the energy from the ions and move in the forward direction. As per the scientific reports, the ion incidence at a grazing angle removes the surface atoms in a very effective manner and smoothens the surface of the thin films without any erosion. Since 1972, ZnO and TiO_2 have been found to have outstanding sustainability and photocatalytic performances because of which these materials are being widely explored [16–18]. ZnO has a bandgap of about 3.24 eV and ultraviolet (UV) light will be required to start the photocatalytic reactions. In general, only 5% UV light can be

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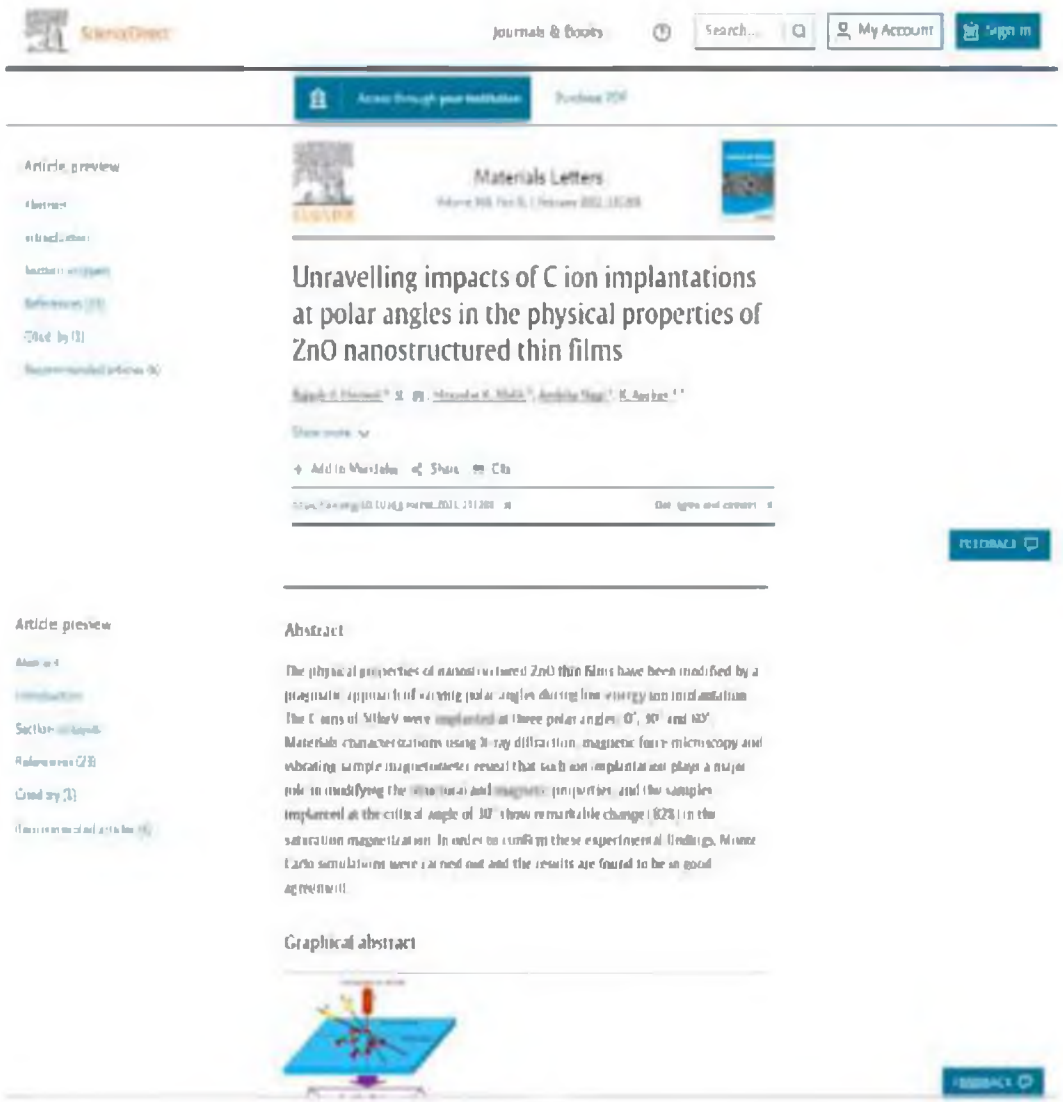
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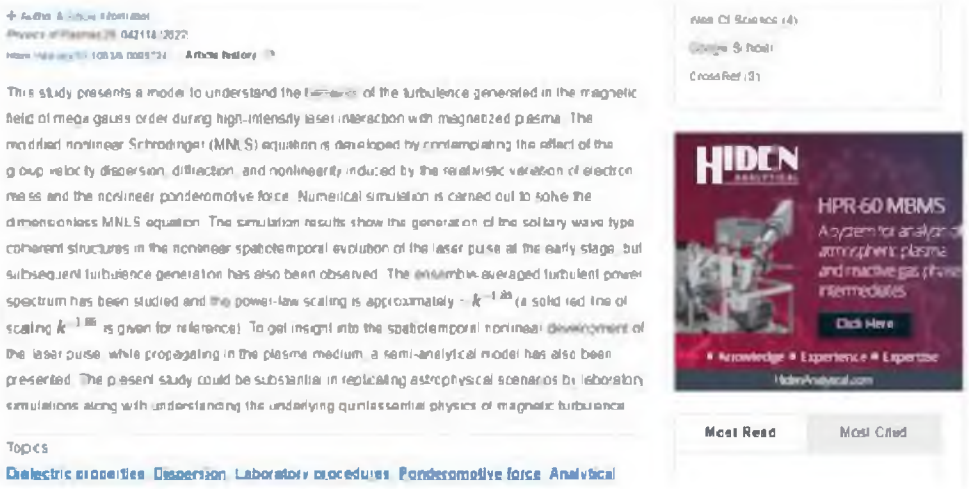
This study presents a model to understand the of the turbulence generated in the magnetic field of mega gauss order during high-intensity laser interaction with magnetized plasma. The modified nonlinear Schrödinger (MNLS) equation is developed by contemplating the effect of the group velocity dispersion, diffraction, and nonlinearity induced by the relativistic variation of electron mass and the nonlinear ponderomotive force. Numerical simulation is carried out to solve the dimensionless MNLS equation. The simulation results show the generation of the solitary wave type coherent structures in the nonlinear spatiotemporal evolution of the laser pulse at the early stage, but subsequent turbulence generation has also been observed. The ensemble-averaged turbulent power spectrum has been studied and the power-law scaling is approximately $\sim k^{-1.85}$ (a solid red line of scaling $k^{-1.85}$ is given for reference). To get insight into the spatiotemporal nonlinear development of the laser pulse while propagating in the plasma medium, a semi-analytical model has also been presented. The present study could be substantial in replicating astrophysical scenarios by laboratory simulations along with understanding the underlying quintessential physics of magnetic turbulence.
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Physica B: Condensed Matter

Volume 432, 1 May 2021, 413762

Effect of Ag doping on structural, morphological and optical properties of CdO nanostructured thin films

Z.R. Khan [1], [2], Abdullah S. Alshammari [1], Mahdi Sirkar [1], M. Sawaat [1], Marwan Mahmoud [1], Manish Kumar [1], Pawan K. Sarkar [1]

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Abstract

Pure CdO nanostructured thin films and Ag doped with 1.0, 2.0 and 4.0wt% doping concentrations were fabricated successfully on glass substrates with a cost-effective spin coating technique. The prepared films exhibit a cubic crystal structure oriented along (111) plane. The surface morphology of the pure CdO films shows a cauliflower shape structure, becomes granular and compact at high Ag doping concentration. Raman spectra of the films reveal LO (longitudinal optical) and TO (transverse optical) vibration modes at 406.80cm^{-1} and 566.54cm^{-1}. The absorption of the films significantly varies with Ag doping concentrations and as a result, the electronic structure of the films is tailored. Moreover, the optical band gaps vary in the range of 1.42–1.70eV. In addition, the optical parameters n, k were studied in correlation with Ag doping concentrations. The obtained room temperature photoluminescence spectra of the prepared films show a broad peak at ~350nm. The third order nonlinear optical parameters of the films were also examined systematically.

Bulletin of Entomological Research

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Research Paper

Cite this article: Samal RR, Panna K, Lambiliotou P, Kumar S (2022). Reversion of CYP450 monooxygenase mediated acetamiprid larval resistance in dengue fever mosquito, *Aedes aegypti* L. *Bulletin of Entomological Research* **112**, 557–566. https://doi.org/10.1017/S0007485321001140

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Acetamiprid; *Aedes aegypti*; monooxygenase; PBO; resistance; synergism

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Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, *Aedes aegypti* L.

Roopa Rani Samal, Kungrellu Panmei, P. Lanbiliu and Sarita Kumar

Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi 110019, India

Abstract

Aedes-borne diseases are on the rampant rise despite continued application of chemical insecticide-based interventions. The appearance of high degree of insecticide resistance in *Aedes* species and noxious effects on environment and non-targets have raised further concerns. Among new chemical interventions, neonicotinoids are considered a safe and effective approach. The present study investigated the control potency of acetamiprid and development of resistance in *Aedes aegypti* larvae; and the involvement of CYP450 monooxygenases in inducing resistance. The early fourth instars of *Ae. aegypti* parent susceptible strain (PS) were selected with acetamiprid for 15 generations (ACSF strain) increasing the resistance to 19.74-fold in ACSF-10 and 36.71-fold in ACSF-15. The ACSF-10 larvae were assayed with acetamiprid combined with piperonyl butoxide (PBO) in three different ratios (1:1, 1:5 and 1:10) and selected for next five generations with 1:10 combination. Selection with synergized acetamiprid (APSF strains) reversed as well as reduced the rate of resistance development resulting in only 1.35-fold resistance in APSF-15. The APSF strains showed %monooxygenase dependency ranging from 86.71 to 96.72%. The estimation of the monooxygenases levels in parent and selected larvae showed increased monooxygenase level in the ACSF strains by 2.42–2.87-fold. The APSF-15 strains exhibited 57.95% lower enzyme production than ACSF-15 strain. The reduction and reversion of resistance by using PBO and the elevated levels of monooxygenases in ACSF and reduction in APSF strains recommend the involvement of CYP450-mediated mechanism in the development of acetamiprid resistance in *Ae. aegypti*. These studies could help in devising resistance management strategies in order to preserve the efficiency of pre-existing insecticides.

Introduction

Aedes aegypti L. is a widespread mosquito responsible for the transmission of ever-increasing infections causing extensive though variable degree of health hazards in the world, especially in tropical and sub-tropical regions. In several countries, *Aedes*-borne disease, dengue, has become a principal health concern due to worrisome rise to 390 million annual dengue infections with 96 million clinical manifestations (Bhatt *et al.*, 2013). India has recorded a total of 39,419 dengue cases and 56 deaths in year 2020 and 39,419 suspected cases of Chikungunya (NVBDCP, 2021*a*, 2021*b*).

In the absence of vaccines and adequate medication, mosquito-borne diseases are primarily kept under check via mosquito management, at larval as well as adult stage. The traditional ways of interventions, such as use of mosquito bed nets, window screens, etc., are still in practice widely. Yet, application of chemical-based measures is on rampant rise to manage complicated-resistant mosquitoes quickly and effectually (Liu *et al.*, 2006; Kumar *et al.*, 2009). Various groups of chemical toxicants have been used against mosquitoes; however, the negative impact of these on the surroundings, and non-target organisms along with the appearance of high insecticide resistance levels among mosquitoes has caused concerns (Bonner *et al.*, 2007; Moore *et al.*, 2009). Several countries have reported insecticide resistance in *Ae. aegypti*, including India (Kushwah *et al.*, 2015), Brazil (Lima *et al.*, 2011), China (Li *et al.*, 2015), Colombia (Fonseca-Gonzalez *et al.*, 2011), Malaysia (Ishak *et al.*, 2015) and Thailand (Yanola *et al.*, 2011); and revealed metabolic detoxification and decreased sensitivity of insecticide-target proteins as the prime cause for the resistance (Bansal *et al.*, 2012; Yang and Liu, 2014).

Among the new approaches and chemical interventions, neonicotinoids, synthetic derivatives of nicotine, are one of the fastest-growing insecticides and considered a safe replacement of the conventional insecticides currently used in the mosquito management. These chemicals induce toxicity in the target insect pest by interacting with nicotinic acetylcholine receptors (nAChRs) of the insect nervous system mediating fast cholinergic transmission (Li *et al.*, 2012). Acetamiprid, a neonicotinoid, reacts with nAChRs located in the post-synaptic neural

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https://doi.org/10.1155/2022/2977454

Research Article

Attractive Sugar Bait Formulation for Development of Attractive Toxic Sugar Bait for Control of *Aedes aegypti* (Linnaeus)

Sarita Kumar,[1] **Aarti Sharma**,[1] **Roopa Rani Samal**,[1] **Manoj Kumar**,[1] **Vaishali Verma**,[2] **Ravinder Kumar Sagar**,[1] **ShriPati Singh**,[2] **and Kamaraju Raghavendra**[2,3]

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Background. Attractive toxic sugar bait (ATSB), based on "attract and kill" approach, is a novel and promising strategy for mosquito control. Formulation of an attractive sugar bait (ASB) solution by selecting an efficient olfaction stimulant and preparation of an optimized sugar-attractant dosage is a significant component for the success of the approach. *Methods.* Current study evaluated relative potential of nine ASBs, formulated by combination of sugar and fresh fruit juices (guava, mango, muskmelon, orange, papaya, pineapple, plum, sweet lemon, and watermelon) in attracting *Aedes aegypti* adults. Freshly extracted and 48-hour-fermented juices were combined with 10% sucrose solution (w/v) in 1 : 1 ratio. Cage bioassays were conducted against two laboratory strains (susceptible: AND-*Aedes aegypti*; deltamethrin-selected: AND-*Aedes aegypti*-DL10) and two field-collected strains (Shahdara strain of *Aedes aegypti*-SHD-Delhi, Govindpuri strain of *Aedes aegypti*-GVD-Delhi). Each of the nine ASBs was assayed, individually or in groups of three, for its attraction potential based on the relative number of mosquito landings. The data were analysed for statistical significance using PASW (SPSS) software 19.0 program. *Results.* The prescreening bioassay with individual ASB revealed significantly higher efficacy of ASB containing guava/plum/mango juice than that containing six other juices ($p < 0.05$) against both the laboratory and field strains. The bioassay with three ASBs kept in one cage, one of the effective ASBs and two others randomly selected ASBs, also showed good attractancy of the guava/plum/mango juice-ASB ($p < 0.05$). The postscreening assays with these three ASBs revealed maximum attractant potential of guava juice-sucrose combination for all the four strains of *Ae. aegypti*. *Conclusion.* Guava juice-ASB showed the highest attractancy against both laboratory and field collected strains of *Ae. aegypti* and can be used to formulate ATSB by combining with a toxicant. The field studies with these formulations will ascertain their efficacy and possible use in mosquito management programs.

1. Introduction

Aedes aegypti (Linnaeus) is the major insect disease vector for transmitting viral diseases, dengue, yellow fever, Chikungunya, and Zika [1]. In 2019, the largest number of dengue cases (5.2 million) were ever reported worldwide affecting all WHO regions [2]. Since the use of chemical-based control interventions is associated with environmental concerns, there is a need for natural and environmentally safe interventions [3].

Insecticide-laced attractive toxic sugar bait (ATSB) is considered a new mosquito control method based on the feeding behaviour of mosquitoes [4]. The mosquitoes feed on plant sugars (sucrose and fructose), nectar, honeydew, etc., as a source of energy for their nutrition and survival [5] and use visual and olfaction cues to locate flowers and fruits [6]. Sugar-seeking mosquitoes are attracted by the volatile components of fruits and flowers [7], damaged and rotted fruits [8], and various fruits, edible seeds, flowers, and insect honeydew [9]. Thus, a combination of sugar, an attractant

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Published: 24 January 2012

Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in freshwater ciliate, *Euplotes aediculatus*

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Abstract

Heavy metal pollutants in the environment are increasing exponentially due to various anthropogenic factors including mining, industrial and agricultural wastes. Living organisms exposed to heavy metals above a certain threshold level induces deleterious effects in these organisms. To live in such severe environments, microbes have developed a range of tolerance mechanisms which include upregulation of stress-responsive genes and/or antioxidant enzymes to detoxify the metal stress. Single cell eukaryotic microorganisms, i.e., ciliates, are highly sensitive to environmental pollutants mainly due to the absence of cell wall, which make them suitable candidates for conducting ecotoxicological studies. Therefore, the present investigation describes the effects of heavy metals (cadmium and copper) on freshwater ciliate, *Euplotes aediculatus*. The activities of antioxidant enzymes, i.e., catalase and glutathione peroxidase in *E. aediculatus* were determined under heavy metal exposure. Besides, the expression of stress-responsive genes, namely, heat-shock protein 70 (Hsp70) and catalase (cat), has also been determined in this freshwater ciliate species under metal stress. The present study showed that the enzyme activity and the expression of these genes increased

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Abstract

Indian J Microbiol (July–Sept 2022) 62(3):323–337
https://doi.org/10.1007/s12088-022-01029-6

REVIEW ARTICLE

Microbial Journey: Mount Everest to Mars

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Abstract A rigorous exploration of microbial diversity has revealed its presence on Earth, deep oceans, and vast space. The presence of microbial life in diverse environmental conditions, ranging from moderate to extreme temperature, pH, salinity, oxygen, radiations, and altitudes, has provided the necessary impetus to search for them by extending the limits of their habitats. Microbiology started as a distinct science in the mid-nineteenth century and has provided inputs for the betterment of mankind during the last 150 years. As beneficial microbes are assets and pathogens are detrimental, studying both have its own merits. Scientists are nowadays working on illustrating the microbial dynamics in Earth's subsurface, deep sea, and polar regions. In addition to studying the role of microbes in the environment, the microbe-host interactions in humans, animals and plants are also unearthing newer insights that can help us to improve the health of the host by modulating the microbiota. Microbes have the potential to remediate persistent organic pollutants. Antimicrobial resistance which is a serious concern can also be tackled only after monitoring the spread of resistant microbes using disciplines of genomics and metagenomics The cognizance of microbiology has reached the top of the world. Space Missions are now looking for signs of life on the planets (specifically Mars), the Moon and beyond them. Among the most potent pieces of evidence to support the existence of life is to look for microbial, plant, and animal fossils. There is also an urgent need to deliberate and communicate these findings to layman and policymakers that

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DEGRADATION, REHABILITATION AND CONSERVATION OF SOILS | Published: 20 June 2022

A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the Landfill and the Soil from the Human Inhabitant Land

T. Mahato, A. A. Abubakar, S. Somanathan Jendeni, C. Dogra, R. Lama, S. Mishra, E. Bhagat, A. R. Lama

Eurasian Soil Science 55, 1161–1172 (2022) | Cite this article

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Abstract

Landfilling is considered to be a safe and economical approach for waste disposal but this is true only for engineered landfills. Engineered landfills are seldom found in developing countries like India. The generation of leachate from the landfilled municipal solid waste (MSW) is a major concern nowadays. Leachate is the result of two main phenomena occurring in a landfill: infiltration of water in the deposited waste mass and mass transfer of substances from waste to infiltrating water. This leachate can cause severe environmental degradation and also pollute natural resources like soil and soil microbes. In the present study, the physical and chemical parameters and ciliate diversity of leachate contaminated soil from the Okhla landfill (Okhla L) and non-contaminated soil from human inhabitant site Acharya Narendra Dev College (ANDC) were compared. It was observed that the physical and chemical parameters namely, water holding capacity, pH, electrical conductivity, calcium and magnesium, calcium carbonate, soil organic matter, nitrogen and cation exchange capacity of soil contaminated with leachate from Okhla L was found to be significantly different from the ANDC. The concentration of various heavy metals such as Co, Ni, Cu, Zn, Cd and Pb were

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The Role of Nanotechnology in Antiviral Regime: An Overview

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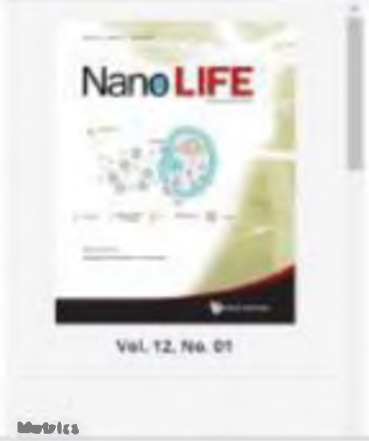
Abstract

Nanomedicine or nanotechnology exhibits outstanding features to challenge severe health issues including pathogenic viral infections, the most culpable invaders in the



of nanomaterials, such as nanogels, nanosphere, nanocapsules, liposomes, nanoparticles and many others, that have been investigated in vivo and in vitro for successful drug delivery, vaccination, diagnostic assay and device development with anticipation to be translated as advanced clinical practices, need a collective review. This paper intends to contribute insightful critique of current studies on the efficacy of nanoplatforms as drug transporter, diagnostic tool and vaccine candidates against pathogenic viruses covering the highly pathogenic and accessible "coronaviruses".

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Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi simulation of integrated networks of implicated human genes

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In type 2 diabetes mellitus (T2DM) patients, chronic hyperglycemia and inflammation underlie susceptibility to tuberculosis (TB) and result in poor TB control. Here, an integrative pathway-based approach is used to investigate perturbed pathways in T2DM patients that render susceptibility to TB. We obtained 36 genes implicated in type 2 diabetes-associated tuberculosis (T2DMTB) from the literature. Gene expression analysis on T2DM patient data (GSE26168) showed that *DEFA1* is differentially expressed at $P_{adj}<0.05$. The human host TB susceptibility genes *TNFRSF10A*, *MSRA*, *GPR148*, *SLC37A3*, *PXK*, *PROK2*, *REV3L*, *PGM1*, *HIST3H2A*, *PLAC4*, *LETM2*, and *EMP2* and hsa-miR-146a microRNA were also differentially expressed at $P_{adj}<0.05$. We included all these genes and added the remaining 28 genes from the T2DMTB set and the remaining differentially expressed genes at $P_{adj}<0.05$ in STRING and obtained a well-connected network with high confidence score (≥ 0.7). Further, we extracted the KEGG pathways at FDR<0.05 and retained only the diabetes and TB pathways. The network was simulated with BioNSi using gene expression data. It is evident from BioNSi analysis that the NF-kappa B and Toll-like receptor pathways are commonly perturbed with high ranking in multiple gene expression datasets of type 2 diabetes versus healthy controls. The other pathways, necroptosis pathway and FoxO signalling pathway, appear perturbed with high ranking in different gene expression datasets. These pathways likely underlie susceptibility to TB in T2DM patients.

Keywords. BioNSi; differential expression; simulation; text mining; tuberculosis; type 2 diabetes

1. Introduction

Patients with type 2 diabetes mellitus (T2DM) are reportedly at risk of acquiring tuberculosis (TB) (Chaudhry *et al.* 2012; Niazi and Kalra 2012; Kapur and Harries 2013). T2DM develops due to insulin resistance. It is on the rise, affecting an increasing number of people every year worldwide (Faurholt-Jepsen *et al.* 2011). The majority of diabetic patients are of T2DM type (Agarwal *et al.* 2016). Also, 10% of deaths due to TB cases are linked to diabetes in low- and middle-income countries (Faurholt-Jepsen *et al.* 2011). Drugs used to treat TB are reported to cause diabetes-associated conditions. Rifampicin reportedly

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Original research article | Published: 01 November 2022

Pharmacological Manipulation of UPR: Potential Antiviral Strategy Against Chikungunya Virus

Nishtha Agrawal, Tanjesh Saini, Madhu Khanna, Gagan Dhawan & Uma Dhawan

Indian Journal of Microbiology 62, 634–640 (2022) | Cite this article

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Abstract

Viruses invade the host cells and maneuver the cellular translation machinery to translate the viral proteins in substantial amounts, which may disturb Endoplasmic Reticulum homeostasis leading to induction of Unfolded Protein Response (UPR), a host response pathway involved in viral pathogenesis. Here, we investigated the effect of UPR pathways on the pathogenesis of chikungunya virus infection. We observed that chikungunya virus mediated the modulation of UPR. A positive modulation was observed in the activation of IRE1 and ATF6 branch while the PERK branch of UPR observed suppressed upon virus infection. We further investigated the effect of the inhibition of UPR pathways on chikungunya virus replication using inhibitors for each branch. Cells treated with 3-ethoxy-5,6-dibromosalicylaldehyde (IRE1 inhibitor) and AEBSF (ATF6 inhibitor) significantly inhibits the viral replication process. This study has provided a novel perspective in designing antivirals against chikungunya virus.

Graphical Abstract

Review Paper

Realizing the New Reality: Machine Learning Curbing Antimicrobial Resistance in *Cutibacterium acnes*

Gupta Romasha[1], Dhawan Gagan[1], Kumar Bipul[1,2] and Gautam Hemant K.[1,2,3]*
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Abstract

Increase in antibiotic resistance is the current cause of global concern facing the human healthcare sector. Dermatologists, particularly face a major challenge, especially when treating acne due to the over-prescription of antibiotics. In an era of tremendous technological advancement, the need for the development of bioinformatics tools and the availability of public databases is the new holy grail to combat antibiotic resistance. With the emergence of machine learning approaches, screening of drug-resistant microbes and identification of known and novel resistant genes have been facilitated for the rapid development of drugs or techniques to combat the problem of resistance.

The whole-genome sequences of Cutibacterium acnes are stored digitally in the PATRIC database for research purposes. With the amalgamation of machine learning algorithms along with the availability of genomic sequences, the prediction of antimicrobial resistance is becoming a reality. The swift and accurate prediction of antibiotic resistance using machine learning tools and algorithms would lower the increasing rate of antibiotic resistance encountered in Cutibacterium acnes and will help dermatologists to combat the problem of Acne vulgaris more efficiently.

Keywords: Antimicrobial resistance, Machine learning, PATRIC database, Whole genome analysis.

Introduction

In recent times, the astronomical growth of antimicrobial-resistant (AMR) infections has become a matter of great concern exposing public health to innumerable threats. According to an estimate, AMR infections are causing around 70, 0000 deaths worldwide on an annual basis. It is also believed that this number will amount to 10 million per year by 2050[30].

Bacteria, which are considered as one of the oldest life forms existing on the earth, have mastered the artwork of evading detrimental conditions that threaten their existence. Selective mutations have empowered them to continue to exist for billions of years making them resistant to the available conventional antibiotics that are being used to treat infections caused by them. Over time, many causative organisms have become smarter and tailored themselves to dodge the medications designed to kill them, rendering the products less effective[26]. Since most bacteria, viruses and other microbes multiply expeditiously, they can quickly evolve and broaden resistance to antimicrobial drugs[10].

The rapid increase of use of antimicrobials readily available in the market is undoubtedly boosting antimicrobial resistance[16]. It is a common practice to administer antibiotics without professional oversight. For instance, it is commonly observed that people suffering from the common cold and flu-like conditions take medication on their own without proper prescription or consultation. An increase in antibiotic resistance is driven by an amalgamation of germs unveiled to antibiotics. Antibiotic resistance is not biased, rather it can affect any individual at any level of life irrespective of their gender and age[2].

Antibiotics are generally administered to cure an infection in the body, however, when the patients stop responding, it does not mean that the body is becoming resistant to antibiotics, rather it is the micro-organism that becomes resistant against the prescribed antibiotics to kill them. These factors lead to the emergence, spread and persistence of multidrug-resistant (MDR) bacteria, which are also referred to as "superbugs"[18,24]. The antibiotics prescribed by a physician against resistant bacteria will only increase the level of resistance and will delay the patient's recovery.

Acne, the most common chronic disease, is the result of abnormal sebaceous production inside pores and skin follicles[11,20]. This leads to abnormal keratinization inside the follicle resulting in a comedo formation. The inflammation process is then prompted and propagated with the aid of *Cutibacterium acnes*, a bacterium that infects the skin. Erythromycin, clindamycin and oral tetracyclines are the most frequently used antibiotics for the treatment of acne[33]. These antibiotics are known to inhibit the growth of bacteria (commonly known as bacteriostatic) rather than killing the bacteria (commonly known as bactericidal). Exposure to such bacteriostatic agents repeatedly results in the emergence of antibiotic-resistant strains of *Cutibacterium acnes* in recent times.

A complete genomic DNA sequence depicts the structural details of the individual traits of an organism or population. Microbial genome sequencing helps in detecting the antibiotic resistance for various pathogens and provides

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Review
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Upsurge in biomedical waste due to COVID-19 in India: A statistical correlation, challenges and recommendations

Ritu Khosla[1†], Ashima Jha[2†], Shweta Dua[3], Shivani G. Varmani[2*], Namita Rajput[4] and Balaram Pani[5]

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Proper management of Biomedical Waste (BMW) is an essential component of any sustainable healthcare sector. With the burst of COVID-19 pandemic when every hospital and treatment facility was overburdened patients, efficient handling of the huge amount of generated BMW became a task for the entire world. This review compares the BMW generated before and during the second wave of COVID-19, highlights the challenges in managing the exuberated amount of COVID-19 waste and sites recommendations to promote sustainable design thinking, in order to address this grave concern in the current setting of the Indian system. The study indicated that inappropriate management of waste and the lacunae in the entire chain from segregation to collection until its disposal has posed a serious threat to the well-being of healthcare workers, sanitation staff as well as the operators and housekeeping staff at the hospitals, isolation centers and Municipal Corporation. Many states had inadequate number of common BMW treatment facilities (CBMWTFs) leading to inefficient treatment of the excess waste. The behavioural and attitudinal barriers of neglect and ignorance of different stakeholders further aggravated the problem of BMW management to manifolds. To achieve better management we recommend spreading awareness regarding the kind and infectious nature of waste generated by COVID-19 patients and their caregivers, segregation and decontamination of such waste at source and increasing the capacity as well as number of CBMWTFs. Creative ways to recycle the waste must be devised so as to reduce the burden on disposal sites.

KEYWORDS
COVID-19, biomedical waste, India, recommendations, challenges

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Research Articles | Published: 06 July 2022

Evaluation of stigma receptivity and its properties in *Helianthus annuus* L. (Asteraceae)

B. Sharma G. Kalra & H. Verma

Vegetos **36**, 474–483 (2023) | Cite this article

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Abstract

Stigma receptivity has a critical role in the development of flowering plants. The time of stigma receptivity is important as it results in pollen recognition, adhesion and formation of pollen tube. The duration of receptivity may vary from few hours to few days. At receptivity, the stigma accumulates different biomolecules required for reproductive success. The purpose of present investigation is to identify the biomolecules and assess their critical role, in receptivity of stigma. Receptivity of *Helianthus annuus* L. (family Asteraceae), is evaluated by activity of enzymatic markers (through enzymatic method for histochemical localization), and the associated signaling molecules (localized by confocal microscopy). Esterases and Peroxidases act as the marker enzymes for receptivity in flowering plants. Interplay of reactive oxygen species (ROS), hydrogen peroxides and flavonoids facilitate stigma to override the stressful environmental conditions and also provide it resistance against pathogens. Present investigations, further reveal that the secondary metabolites present in stigma of sunflower act efficiently against the gram negative (*Escherichia coli*) and gram positive (*Staphylococcus* spp.) bacteria thereby highlighting stigma's ability to defend itself and inflorescence as a whole, from microbial infection during its development. The study, thus highlights the interplay of enzymes, reactive oxygen species and flavonoids in increasing cross-tolerance in

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Research Article

Hydrotrope assisted green synthesis of dicoumarols and *in silico* and *in vitro* antibacterial, antioxidant and xanthine oxidase inhibition studies

Meru, Pankaj Khanna, Deepshikha Gupta, Shilpa Yadav & Leena Khanna

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Abstract

Aqueous hydrotrope has been employed for the first time to synthesize heteroaryl dicoumarols by condensation of 4-hydroxycoumarin and different heterocyclic aldehydes. This method is highly efficient and green, and the same aqueous hydrotropic solution can be used up to five times without any considerable loss of yield in the product. The synthesized compounds showed good antibacterial potential against Gram-positive (*Staphylococcus aureus*/NTCC 0997 and *B. oceanisediminis*) and Gram-negative (*Escherichia coli*/D0157:H7 and *E. coli rosetta*) bacterial strains using the Resazurin microtiter plate visual method. The MIC value of 312 µg/ml for compounds **3b**, **3k** and **3l** for *S. aureus* while 39 µg/ml for compounds **3a**, **3b** and **3k** for *E. coli* and 625 µg/ml for **3a** and **3b** for *B. oceanisediminis* was observed. The compounds were screened via computational methods like molecular docking studies and molecular dynamic simulations with PDB id's 2W9S and 2EX6. Antioxidant activity was assessed

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Molecular docking, dynamics simulation and pharmacokinetic studies of Cyperus articulatus essential oil metabolites as inhibitors of Staphylococcus aureus

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An understanding of coronavirus and exploring the molecular dynamics simulations to find promising candidates against the Mpro of nCoV to combat the COVID-19: A systematic review

Madhur Babu Singh [a], Ritika Sharma [b], Durgesh Kumar [c], Pankaj Khanna [d], Mansi [e], Leena Khanna [f], Vinod Kumar [f], Kamlesh Kumari [g], Akanksha Gupta [h], Preeti Chaudhary [i], Neha Kaushik [j,k], Eun Ha Choi [j], Nagendra Kumar Kaushik [j,k], Prashant Singh [l,m]

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Molecular dynamics simulations

ABSTRACT

The first infection case of new coronavirus was reported at the end of 2019 and after then, the cases are reported in all nations across the world in a very short period. Further, the regular news of mutations in the virus has made life restricted with appropriate behavior. To date, a new strain (Omicron and its new subvariant Omicron XE) has brought fear amongst us due to a higher trajectory of increase in the number of cases. The researchers thus started giving attention to this viral infection and discovering drug-like candidates to cure the infections. Finding a drug for any viral infection is not an easy task and takes plenty of time. Therefore, computational chemistry/bioinformatics is followed to get promising molecules against viral infection. Molecular dynamics (MD) simulations are being explored to get drug candidates in a short period. The molecules are screened via molecular docking, which provides preliminary information which can be further verified by molecular dynamics (MD) simulations. To understand the change in structure, MD simulations generated several trajectories such as root mean square deviation (RMSD), root mean square fluctuation (RMSF), hydrogen bonding, and radius of gyration for the main protease (Mpro) of the new coronavirus (nCoV) in the presence of small molecules. Additionally, change in free energy for the formation of complex of Mpro of nCoV with the small molecule can be determined by applying molecular mechanics with generalized born and surface area solvation (MM-GBSA). Thus, the promising molecules can be further explored for clinical trials to combat coronavirus disease-19 (COVID-19).

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UHPLC ANALYSIS OF POLYCYCLIC AROMATIC HYDROCARBONS (PAH) COMPOUNDS FROM THE SOIL BY QuEChERS AOAC METHOD FROM MANESAR INDUSTRIAL AREA, HARYANA, INDIA

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ABSTRACT

An Ultra-High Performance Liquid Chromatography (UHPLC) method was developed and validated as per ICH guidelines for the analysis of 16 PAH compounds as per USEPA and various soil samples were analyzed in Manesar located 60 km away from Delhi, capital of India 28.3542° N, 76.9400° E in different seasons. The sampling was done in the industrial areas, agricultural fields, and residential plots all within 10 km radius of the industrial area. In the present study, the QuEChERS method was used for sample preparation, which has shown good recoveries around 80 to 120%. The extraction time was only 10 minutes, followed by the UHPLC technique of run time of just 16 minutes. Average PAH concentration in Manesar soil was found highest in the winter session of industrial areas. ∑16 PAH was 143 ppb in the industrial area in winter, 64 ppb in agricultural fields, and 54.7 ppb in residential plots. The lowest PAH levels were observed in the monsoon season. These values are very less if compared to Brazil, UK, Germany, and Korea.

Keywords: Soil, Manesar, PAH, QuEChERS, UHPLC

INTRODUCTION

Polycyclic Aromatic Hydrocarbons (PAH) are known carcinogenic and mutagenic compounds which are formed by burning organic matter with less oxygen presence and heavy vehicle emissions (**Sorensen, 1994; Nam *et al.*, 2003**). Such compounds need to be monitored and checked from time to time in industrial areas. Apart from mutagenicity, they are responsible for many other lungs and respiratory diseases (**Gilliman *et al.*, 1983; Yang *et al.*, 1991; Rost and Leibner, 1003**). In soil, these compounds are retained in humus and organic matter for a very long time as they are hydrophobic (**Krauss *et al.*, 2000**). Hence soil is the best place to trace out and check for PAH contamination (**Ockenden *et al.*, 2003**). Few studies have already been done in India, like in Delhi (**Kannan and Kapoor, 2004**), Mumbai (**Sahu *et al.*, 2001**), and Ahmedabad (**Ranjani and Shah, 1993**). PAHs are one of the most dangerous pollutants found in soil as per IARC. Higher ring PAHs are more carcinogenic (**Yang *et al.*, 1991; Massel and Ollikun, 2004**). The study of PAH becomes very essential in areas where the industries are very close to residential apartments and agricultural fields. Manesar located 60 km away from Delhi, the capital of India 28.3542° N, 76.9400° E is one of the fastest-growing industrial areas and townships. As per Human Rights Documentation Indian Social Institute (India) Manesar has fertile lands which are used for farming. It's becoming more important to check the PAH levels in Manesar as it is a hub of farming lands, residential, industries, and all within 10 km area. The PAH-contaminated soil can be harmful to farming as PAH can percolate from soil to vegetables (**Wennrich *et al.*, 2002**). Many studies have shown that if vegetables are grown in PAH-contaminated soil, it may lead to the uptake of PAH in them (**Wennrich *et al.*, 2002**). High concentrations of PAH compounds were found in vegetables like a tomato at 0.2 µg/kg, spinach at [illegible], and cabbage 20.4 µg/kg (**M. Klwicka, 2003**). So, the study of soil is very crucial to trace out PAH. Currently available and reported PAH analysis methods are long and time taking and use a classical sample preparation and analysis approach. Classical soxhlet extraction technique takes 8 to 12 hours of extraction of PAH from soil and uses a huge amount of extraction solvents which is then analyzed by HPLC technique whose run time was around 30 to 40 minutes for analysis of 16 PAH. This study has identified the use Quick, Easy, Cheap, Effective, Rugged, and Safe (QuEChERS) AOAC method which is very quick and rugged. QuEChERS (Quick, Easy, Cheap, Effective, Rugged, and Safe) is an acetonitrile-based extraction technique followed by dispersive solid-phase extraction (SPE) (**Anastassiades *et al.*, 2003**). Followed by this extraction technique a new UHPLC method was also developed and validated as per ICH guidelines which separate 16 PAHs in just 16 minutes.

MATERIALS AND METHODS

Regional site descriptions

Manesar located 60 km away from Delhi, the capital of India 28.3542° N, 76.9400° E has become the hub of industrialization and real estate. The faster growing industrialization needs the huge movement of heavy vehicles run on diesel. NH8 is the highway that connects Manesar to Gurugram and Delhi. Apart from the main highway NH8 various other roads pass through agricultural fields. One such road is Patauli road which is the easiest and most popular road considered as an alternative to NH8. The frequency of heavy and small vehicles increased drastically throughout the last 5 years due to the sudden outburst of industrialization and real estate construction in Manesar. This road is surrounded by farmlands. PAH study is very essential to check the levels as heavy vehicle exhausts are a potential source of PAHs. Manesar itself has many factories which release smoke from chimneys. Chimneys are potential sources for PAH releases. During winter seasons, many organic materials are burnt like wood and coals as a source of fuel, which is again a potential source of PAH. Hence PAH study has become essential in Manesar and surrounding areas. The climate of Manesar is dry and hot with a temperature range from 32°C to 48°C. In winter, the temperature ranges from 4°C to 30°C.

Sample collections

For sample collection, the entire Manesar area was categorized into three parts: industrial area, agricultural area, and a residential area. For analysis, 5 cm topsoil was taken through an auger and sieved through 20 mesh sieve, and stored in airtight plastic tubes in a refrigerator at 4°C. Total of 240 samples were collected, 80 samples from each location.

Extraction and analysis of PAH

QuEChERS AOAC technique was used for the extraction of PAH from the soil. In a 50 ml tube, 5gm soil samples were taken, followed by 20ml water and sonicated

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Review | Published: 21 June 2022

Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles

Sharda Pasricha, Kavita Mittal, Pragya Gahlot, Harsimar Kaur, Nishita Avasthi & Shweta

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Access

Abstract

Natural and synthetic hybrid molecules are an attractive scaffold for therapeutic agent development due to their dual/multiple modes of action, minimum or no side effects, favorable pharmacokinetics and other advantages. Coumarin-fused/linked heterocycles are important classes of natural products affording intriguing array of pharmacological activities, which make them ideal for building effective biological scaffolds for medicinal research. Given their promising medicinal applications, an extraordinarily large emphasis is placed on the design of efficient and greener synthetic procedures. Multicomponent reactions (MCRs) are an important tool to expedite the tailoring of a vast number of organic molecules. In recent years, MCRs have simplified access to diverse coumarin heterocycles through molecular hybridization. This review highlights the broad range of science that has arisen from the multicomponent synthesis of coumarin-fused/linked templates bearing heterocycle ring/s either fused or linked to positions 3 or 4 of the pyran ring or the phenyl ring. The review facilitates a better understanding of the role of homogenous or heterogeneous catalyst, inert support and substituents, on the reaction parameters, stereo-/chemo-/regioselectivity of the product. The effect of catalyst functionalization on the number and types of catalytic sites (acidic or basic), stability of the catalyst and synergic catalysis are also discussed. The role of

Sections

Abstract

Research Article

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Entropy for item inclination in sub-community based recommender system

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Abstract
To overcome the new user cold-start problems in collaborative filtering, an innovative framework has been proposed that used entropy for item inclination in sub-community based recommender system (EISR). It administered demographic filtering on user and item attributes for finding similar users and applied collaborative filtering on rating preferences. The proposed framework leveraged the advantages of traditional group aggregation strategies for delivering good quality recommendations using item preferences of the members of a refined group detected using two-tier approach. At Tier-I, user communities were detected using demographic attributes, which were decomposed into discernible sub-communities by exploiting the item preferences of users. A novel entropy-based hybrid group aggregation method called pragmatic propensity was used to combine the item preferences of members of these sub-communities. Also, experiments conducted using the MovieLens and Book-crossing datasets revealed the better quality of recommendations and the comparison with other algorithms confirmed the effectiveness of the proposed framework.

Keywords
Group recommender systems, Cold start problem, Community detection, Social network, Entropy, Item inclination, collaborative filtering, Demographic filtering, Group aggregation strategies.

1.Introduction
Machine learning (ML) entails self-learning via data usage and experience [1]. It requires no human intervention to uncover patterns in data [2]. Recent work in this area includes classification of liver tumours [3]; extraction of clinical attributes from the breast cancer dataset [4]; prediction of student performance [5]; accurate recognition of complex physical human activity acquired using body-worn sensors [6]. Recommender system (RS) is also an exciting application of ML for suggesting relevant items to a user [7]. ML driven recommendation engines [8] have become ubiquitous in the last few decades. Intelligent web engines have crept in everywhere, recommending everything from movies, songs, food, social media posts to anything conceivable. Unconsciously, everybody is following these recommendations. The apparent reasons are convenience and satisfaction; else, dealing with a profusion of information on the web is quite cumbersome.

Famous online service providers like Facebook, Netflix, Spotify, Amazon, and LinkedIn use recommendation engines to boost sales and enhance customer satisfaction by utilising data filtering techniques of underlying RS [9].

RS uses traditional filtering techniques [10, 11] viz. collaborative filtering (CF), content-based filtering (CbF), demographic filtering (DF), and knowledge-based filtering (KF), along with hybrid filtering techniques that combine the benefits of former techniques [12]. Liao et al. have found that users trust systems that use CF for recommendation over those using CbF or DF and have given pointers for solving cold-start problems [13]. CF is the most sought-after technique that collects users' preferences and predicts their interests. However, unfortunately it suffers from cold-start problems (non-availability of preference information for the new user/item). Recent research points towards the inclusion of user demographic attributes (age, gender and location) to abate these problems [14]. Recently, González et al. have also utilized demographic information to evaluate the bias and unfairness of recommendations given to the minority groups [15].

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Research Square

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Evaluation of Cost benefit Analysis using One-R Supervised Machine Learning Algorithm for Healthcare

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Research Article

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PAPER

Mildly reduced graphene oxide membranes for water purification applications

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Keywords: Mildly reduced graphene oxide, swelling, membrane, water purification

Abstract

Presently carbon allotropes namely graphene, graphene oxide (GO) and reduced graphene oxide (RGO) are being extensively utilized for water purification applications. The presence of myriad types of oxygen functional groups in the GO, however, makes this material very hydrophilic, allowing it to absorb water and to swell in moist or watery environments and to significantly damage its intended performance. In contrast, fully reduced graphene oxide membranes are not stable due to fewer oxide groups which are mainly responsible for GO flakes stacking. In the present work, the aforementioned problems are overcome by optimizing the oxygenated functional groups to develop mildly reduced graphene oxide (MRGO) membrane over PVDF (polyvinylidene fluoride) support. GO is reduced by L-Ascorbic Acid (LAA) with different amounts of wt.% and an optimized MRGO membrane is achieved at 10 wt.% of LAA, which is stable and showing comparatively lower swelling than GO membrane. All related structural and optical characterizations like XRD, SEM, EDAX, Raman, FTIR, and Contact angle have been done to evaluate the effect of mild reduction of GO. The studies are indicative of their potential application in water purification.

1. Introduction

Water purification is a method that eliminates harmful chemical compounds [1], organic/inorganic substances [2] including pharmaceutical wastes [3], cations [4] and biological pollutants [5] from water. It also involves distilling (turning a liquid in vapor and further condensing it in liquid form) and deionizing (ion removing by extracting dissolved salts) [6]. The purification of water is mainly aimed at providing clean water. Water purification also meets the needs of safe and drinking water applications in medical, pharmacological, chemical and industrial applications. The purification process reduces contaminant concentrations such as suspended particles, parasites, bacteria, algae, viruses, and fungi [7]. Many technologies are being used for water purification in which membrane-based separation is at high demand because it operates without heating and thus utilizes less electric energy than standard processes of heat separation like distillation, sublimation or crystallization [8]. Since the practical discovery of the first 2D material called graphene, much focus is paid to two dimensional structures in condensed matter physics, material science and chemistry [9, 10]. Due to its unique atomic thickness and micrometer lateral dimensions, 2D materials have increasingly been explored as a fundamental medium to establish separation technologies [11–14]. Graphene oxide (GO), the oxidative form of graphene, is rated at a high level due to its unique permeation path, large surface area, outstanding anti-fouling properties, high chemical tolerance, high hydrophobicity [15, 16]. It is a single layer of carbon monoatomic on the basal planes and sides, formed in a honeycomb with oxide groups (epoxide, carboxyl, and hydroxyl) [17, 18]. Water permeance and dye rejection depend on various parameters. In a recent review article by Moghadam *et al* [19], membranes in form of atomically thin nanosheets or assembled laminated sheets using 2D materials like graphene, the filtration mechanism of gas and liquid species depend on size and density of pores, defects in the

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An Inclusive Science Laboratory for Visually Impaired Students

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Abstract : Education is a powerful tool that has the potential to improve the social and economic condition of a person in a developing country like India. The greatest challenge for the Government is the accomplishment of quality education in inclusive and accessible arrangements for persons with disabilities. The teaching techniques adopted in traditional classrooms aren't usually designed to cater to the need of visually impaired students. Visually impaired students are usually held back from pursuing STEM (Science Technology Engineering and Maths) education and are encouraged to take up humanities and commerce. The lack of resources is mostly responsible for holding back visually impaired students from pursuing Science along with other factors such as the incompetence and attitude of the facilitators. In this work, an inclusive science laboratory for visually impaired students is envisaged using assistive technology that can facilitate them in performing lab experiments. Assistive technology plays a crucial role in the shift of the education system for visually impaired students to an inclusive model. Low cost, easy to use and store, hardware modules with talkable features has been designed to measure temperature, time, to detect contrast and color using Arduino UNO. With the help of these modules, a visually impaired student can be assisted to perform laboratory experiments effortlessly, which otherwise is not made accessible to them.

Keywords: Arduino, assistive technology, Inclusive science laboratory, visually impaired.

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1. Introduction

The economic status of a citizen has its dependence on access to education. Educated youth is incredibly skilled to mold and reinforce growth prospects. Education can enable a person to make an informed decision and further can result in participative citizenship in a democratic environment. The Constitution of India guarantees equality of all its citizens in every respect and this is pertinent to education as well. The right to Education Act was passed by the parliament of India in 2009. It made education, a fundamental right of all children of the age group 6-14 years irrespective of their caste, creed, social status, and even physical disability. To date significant steps have been taken by the Indian Government, both at the central level and at the state level, to promote education amongst children. The Central Government has supported many schemes like District Primary Education Programme (DPEP), Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), Samagra Shiksha to

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FLEXIBLE INVENTORY SYSTEM OF IMPERFECT PRODUCTION UNDER DETERIORATION AND INFLATION

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Abstract: This study emphasizes the development of a flexible inventory system considering rework requirements on imperfect and defective items. This work has considered defective items could be sold at a lower price in the market as compared to the perfect items. The developed model has considered Weibull deterioration and inflation to balance the same amount in the future due to its potential earning capacity. And demand's function depends on price as well as inventory level because a large pile of goods and their price strategy attracts more customers to generate higher demand. The work also supports managerial decision-making by focusing on the volume flexibility system for smooth production runs. The mathematical formulation of the developed inventory system tries to optimize the inventory cost function under a realistic scenario. A solution procedure has been illustrated and assisted with a numerical example. Later, a validation test is also performed to check the robustness of the proposed mathematical model. The findings of the study will support policymakers, strategists, and firms to implement

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Effects of Mass Variation in the Collinear Perturbed Moulton-Copenhagen Configuration

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Abstract. The main idea of this paper is to investigate the motion properties of the smallest body under the gravitational forces of the three collinear spherical primaries. Here we place the three primaries on the same line where the masses of two primary bodies are taken equal and third primary body is having the solar radiation effect. The effects of Coriolis and centrifugal forces on the system is considered. Therefore this system is recognized as collinear perturbed Moulton-Copenhagen configuration. After determining the equations of motion and quasi-Jacobi integral, we numerically illustrate the locations of equilibrium points (in-plane and out-of-plane), regions of motion, Poincare surfaces of section, basins of attraction and periodic orbits. And then the examination of stability for the equilibrium points lie either in-plane or out-of-plane are examined.

1. Introduction

One of the extensions of the restricted three-body problem is the restricted four-body problem in the fields of Mathematics and theoretical Physics. Where two types of configurations are found in the literature. First when the three-primaries are placed at the vertices of a triangle and the second when the three-primaries are placed at the same horizontal line. Till now many researchers have studied about the first type of configuration with various types of perturbations while the second type of configuration is studied by very few researchers. But it is also an interesting configuration for study.

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Key words and phrases. perturbed Moulton-Copenhagen configuration; variable mass; Jeans law; out-of-plane equilibrium points.

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The Implementation of the Pentagonal Fuzzy Number toward the Solution of the Fuzzy Inventory Model with Ramp Demand Function and Three Parameters Weibull Deterioration

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Abstract

The purpose of this study is to provide an ordering strategy for commodities that deteriorate over time using ramp-type demand rates, shortfalls, and deterioration rates. The ramp-type demand function moves up and down through duration up to a particular point before becoming constant. It is predictable. The three-parameter Weibull deterioration rate, which considers both things that have recently deteriorated while being received into an inventory system and items that may deteriorate in the future, shows the changes in deterioration rate over time. Owing to the inclusion of uncertainty, model factors such as deterioration, ordering, carrying, and shortage costs are examined by a fuzzy approach and defuzzy by the GMI method, which optimises the entire average cost for the model. This seems to be applicable for seasonal items as well as newly introduced high-tech items like computers, tablets, and smart phones.

Keywords: Weibull deterioration, Graded mean integration (GMI), Fuzzification
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1. Introduction

Nowadays, numerous organizations allow their businesses to flourish by effectively managing their inventory. As a result, maintaining and controlling stocks is a huge burden for businesses. "Inventory refers to any economically valuable resources that are being prepared for sale at various phases. Inventory management is crucial to the efficient and effective operation of an organization. On the one hand, having too much inventory might add a significant expense to the firm. Holding relatively few stocks, on the other hand, may result in stock-outs and the loss of future clients. The inventory hypothesis provides a solution to these kinds of difficulties by addressing the fundamental considerations of when and how much more to order. One of the fundamental models of inventory theory is the economic order quantity (EOQ) model developed [1]. Nowadays, it is difficult for retailers and distributers to accurately assess demand. Furthermore, most of the time, the inventory decision-maker does not have access to appropriate historical data or statistical assumptions are ridiculous. Using classic inventory models in real life is difficult in each circumstance. To deal with unreliable data in decision-making, it is preferable to use a fuzzy number to define inventory parameters. In developing an inventory model, the impact of deterioration must be considered as a

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Volume 46, Part 1, 2022, Pages 166–171

Optimal strategy for remanufacturing system of sustainable products with trade credit under uncertain scenario

Pranty Pamuni [a], Anand Chauhan [a], Deo Datta Aarya [a], Vishal Boadh [a], Yogendra Kumar Rajeela [a], Shikha Mehta Gupta [a]

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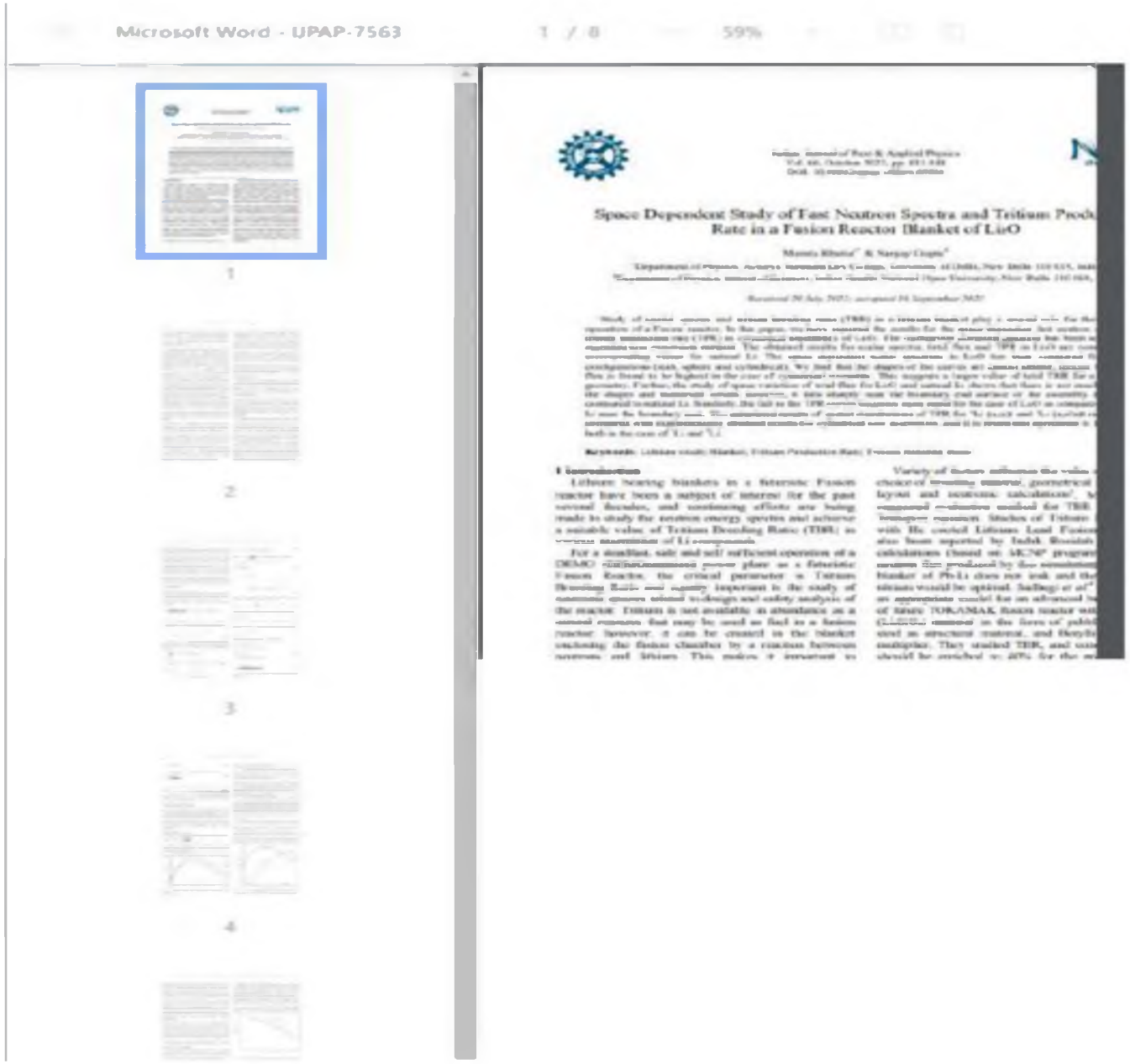
Abstract

The manufacturing of commodities using cost-effective strategies that decrease adverse environmental effects while conserving raw materials and energy is based on sustainable manufacturing. Through sustainable production, employees, the community, and product safety are all improved. Carbon emissions are also considered as another factor for developing a sustainable strategy during the production process. To develop a policy for the production period for both the manufacturer and the remanufacturer under a fuzzy environment present study, a three-layer fuzzy sustainable manufacturing model has been established, with the producer, remanufacturer, and retailer as contributors, and the effects of economic and environmental factors were addressed. The aim of the article is to minimize overall cost by developing a manufacturing model that takes into account trade-credit policies, product recycling, and carbon emission effects. By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Space Dependent Study of Fast Neutron Spectra and Tritium Prod
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RESEARCH ARTICLE | OCTOBER 07 2022

Effect of variation in glancing angle deposition on resistive switching property of WO_3 thin films for RRAM devices

Shiva Lamichhane, Savita Sharma, Monika Tomar, Arijit Chowdhuri

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Journal of Applied Physics 132, 134102 (2022)
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In this paper, nanostructured tungsten oxide (WO_3) thin films are deposited using the RF-magnetron sputtering technique in Glancing Angle (GLAD) arrangement. Variation in the structural, morphological, optical, and resistive switching (RS) characteristics of nanostructured WO_3 film is investigated as a function of GLAD angle (60°–80°). Electrical studies on nanostructured WO_3 films deposited at room temperature are found to exhibit enhanced bipolar resistive-switching properties in metal–insulator–metal pattern [Au/WO_3/ITO]. The R_{OH}/R_{OFF} ratio between high and low resistance states was noted to be about 190 besides a minimum set voltage of ~2.22 V in the case of the WO_3

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metal–insulator–metal pattern [Au/WO_3/ITO]. The R_{OH}/R_{OFF} ratio between high and low resistance states was noted to be about 190 besides a minimum set voltage of ~2.22 V in the case of the WO_3 thin film deposited at the 70° glancing angle. A detailed current transport mechanism analysis indicates the existence of ohmic behavior and trap-assisted space charge limited conduction as the governing mechanisms at the state of low and high applied bias, respectively. Good data retention characteristics coupled with reproducible and fast RS capabilities obtained with Au/WO_3/ITO device structure promise scope of rapid development in future RS-based novel memory device applications.

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Volume 515, Issue 4
October 2022

JOURNAL ARTICLE

Ensemble-based unsupervised machine learning method for membership determination of open clusters using Mahalanobis distance

Suranita Deb, Arunji Barman, Subhareti Kumar

Monthly Notices of the Royal Astronomical Society, Volume 515, Issue 4, October 2022, Pages 4685–4701, https://doi.org/10.1093/mnras/stac2116
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Volume 515, Issue 4
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ABSTRACT

We present an improved method for the determination of membership of an open cluster using ensemble-based unsupervised machine learning techniques. The working principle of this method relies on two stages: (i) choosing a suitable range of three astrometric parameters (ϖ, $\mu_\alpha \cos\delta$, μ_δ) using k-nearest neighbour (kNN) algorithm on the data downloaded for the cluster within a smaller search radius, (ii) application of two component Gaussian mixture modelling (GMM) on the resulting one dimensional Gaussian distribution of Mahalanobis distance (MD) of stars using the range of parameters obtained from the earlier step, but with the data downloaded within a bigger search radius. MD is calculated from the mean of each of the parameters in three dimensions. Thus the use of MD reduces the input of the GMM from the 3D parameter space into a 1D parameter space for the cluster membership determination. The method has been tested on a few clusters including those which have overlaps in some/all the parameters using the data obtained from the *Gaia* DR3 data base. It is found that the approach can easily separate the cluster members from the field stars. The clean colour-magnitude diagrams and similar direction of proper motions of the member stars obtained for the clusters shows that this method is very efficient and robust in

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Regular Article | Published: 02 September 2022

Two-photon bound-to-bound transitions under strong screening potential

Rachna Joshi

The European Physical Journal Plus 137, Article number 996 (2022) | Cite this article

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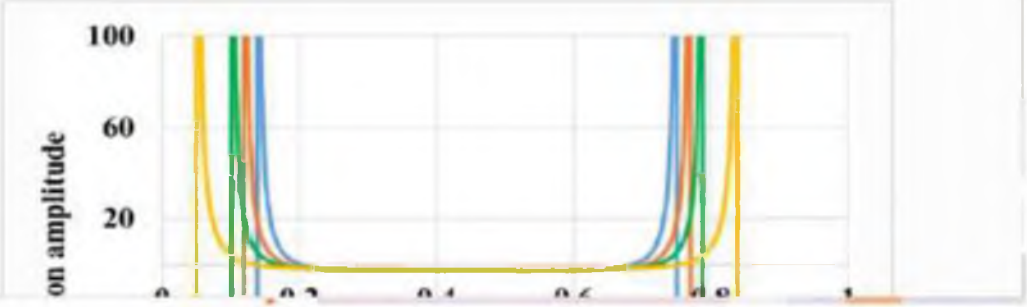
Abstract

Two-photon transition amplitudes for bound-to-bound transitions in hydrogen are calculated for the most general exponential cosine screened Coulomb (MGECSC) potential which is of relevance in many branches of physics. The variation in transition amplitude with different potential parameters is investigated. Enhancement in the transition amplitudes is observed when, on absorption of a single photon, the system is in resonance with an intermediate level. To the best of the knowledge of the author, the MGECSC potential has not been applied previously to the problem of two-photon excitation.

Graphical abstract



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Regular Article – Atomic Physics | Published: 26 August 2022

Theoretical analysis of relativistic energy corrections, partition function and thermodynamic properties of spherically confined hydrogen atom

Rachna Joshi, Arun Goyal, Pranav Kumar & Man Mohan

The Europeon Physical Journal D 76 Article number: 149 (2022) | Cite this article

Abstract

The relativistic energy corrections for the spherically confined hydrogen with penetrable wall are calculated for various orbitals as a function of pressure and confinement radius. The relativistic corrections at high pressures of the order of 10^8–10^9 atm are found to be more than thousand times higher than the corresponding values for the free atom. For calculating the energy eigenvalues, the efficient Numerov method is adopted. The partition function and other thermodynamic properties are also calculated for temperature range 10^4 K to 10^{10} K at low (0–10 atm) and high pressures (10^4–10^8 atm). We investigate the behaviour of partition function and thermodynamic parameters graphically with pressure and temperature. We discuss the effect of high temperature and reduction of confinement radius on these parameters. The present study will be useful in Industrial applications like development of hydrogen fuel and in various physics branches such as in fusion and astrophysical plasma, condensed matter, statistical mechanics and also in other research areas where we encounter atoms which are subjected to high pressures.

Graphical abstract

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Data Availability Statement: All relevant data are within the paper.

RESEARCH ARTICLE

A novel RP-HPLC method for quantification of cholinesterase activity in human blood: An application for assessing organophosphate and carbamate insecticide exposure

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Abstract

Several methods have been reported to estimate Acetylcholinesterase (AChE) enzyme activity in blood samples. The Ellman assay is the most important among all but with several shortcomings, and there is a need to develop a method which is accurate, sensitive and quick for analyzing AChE. Therefore, we have developed an assay utilizing RP-HPLC with UV detection for the determination of AChE activity. This method measured the conversion of 1-naphthol acetate to 1-naphthol to estimate AChE activity in blood samples. Performance was judged on the basis of reproducibility, sensitivity, accuracy, and the ability to screen enzyme activity within 20minutes. A series of experiments were performed, varying the concentration of blood and substrate, with optimal sensitivity using 50 μM substrate and 10μL blood. The validation parameters such as linearity (R^2 of ≥ 0,9842 for 1-naphthol and ≥ 0,9897 for 1-naphthol acetate), precision (94,21–96,41%), accuracy (85,2%–99,6% and 82,6%–99,3% for 1-naphthol and 1-naphthol acetate respectively), and robustness were validated according to International Conference on Harmonization (ICH) guidelines. Blood samples were collected from healthy people, farmers exposed to spraying of pesticides, and suicidal patients who ingested pesticides and were hospitalized and were analyzed by the developed method. The AChE level was approximately 21 units/mL compared to 24units/mL in controls, whereas suicidal patients showed the least AChE levels of 1 unit/mL. The employment of this method is recommended for estimating AChE level on various matrices.

Introduction

Pesticides are routinely used in agriculture, especially organophosphorus (OP) and carbamate pesticides. Pesticide residues in drinking water and food have sparked health concerns. There

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Original Research
12 October 2022
10.3389/fphys.2022.1031295

Morphological and physiological changes induced by *Achyranthes aspera*-mediated silver nanocomposites in *Aedes aegypti* larvae

Aarti Sharma[1], Monika Mishra, Vinay Singh Dagar and Sarita Kumar*[1]

Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

Aedes aegypti is responsible for the global spread of several ailments such as chikungunya, dengue, yellow fever, and Zika. The use of synthetic chemicals is the primary intervention in mosquito management. However, their excessive utilization resulting in the spread of toxic ingredients in the environment and posing threats to beneficial organisms has prompted the recommendation for the use of biologically synthesized nanocomposites as a promising approach for vector control. Silver nanocomposites were synthesized using leaf (AL-AgNCs) and stem (AS-AgNCs) extracts of *Achyranthes aspera*. The early fourth instars of *A. aegypti* were exposed to lethal doses of these nanocomposites to evaluate their effects on larval development, behavior, morphology, and mid-gut histoarchitecture. The cellular damage and deposition of nanocomposite residues in the mid-gut were studied using light and transmission electron microscopy. The *A. aspera* silver nanocomposite (AA-AgNC)-exposed larvae exhibited dose-dependent extended duration of development and diminished adult emergence, but did not exhibit modified behavior. Intense damage to the cuticle membrane and slight contraction in the internal membrane of anal papillae were noticed. Morphologically, the mid-gut appeared disorganized, darkly pigmented, and shrunk. Histological investigations of the mid-gut revealed significantly disordered internal architecture with lysed cells, damaged peritrophic membrane and microvilli, disintegrated epithelial layer, and a ruptured and displaced basement membrane. Visualization of the larval mid-gut through TEM showed severe cellular damage and aggregation of black spots, indicating the deposition of silver particles released by AA-AgNCs. The investigations revealed the bio-efficacy of *A. aspera*-mediated AgNCs against *A. aegypti* inducing stomach and contact toxicity in the larvae. The utilization of AA-AgNCs is recommended for *A. aegypti* management as a safe and effective intervention.

KEYWORDS

Achyranthes aspera, *Aedes aegypti*, development, histological architecture, morphology, silver nanocomposites, stomach poison, TEM

J. Entomol. Res. Soc., 24(2): 209-218, 2022
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Research Article
Online ISSN:2651-3579

Docking-Based Virtual Screening Ascertaining β-Sitosterol-Induced Alterations in the *Helicoverpa armigera* Hübner Gut Enzymes

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ABSTRACT

Present investigation attempts to study binding of β-sitosterol with *Helicoverpa armigera* midgut enzymes; alanine aminotransaminase (ALT), aspartate aminotransaminase (AST) and alkaline phosphatase (ALP); through docking-based virtual screening. Extraction of the protein sequence of the enzymes revealed a respective linear chain of 535, 522 and 430 amino acids for ALP, ALT and AST. The binding energy for ALT-ligand complex was lowest as compared to the AST and ALP-docked complexes. The ALT-docked complex had ligand efficiency of (-) 0.32 with an inhibition constant of 104.01, more hydrogen bonds and hydrophobic interactions leading to a more stable complex. However, unfavored bumps in AST and ALP complexes may have led to comparatively unstable complexes. The dietary β-sitosterol exhibits differential binding with midgut enzymes of *H. armigera* larvae. The strong binding of β-sitosterol with ALT indicates the highest inhibition of ALT activity due to the activity-stability trade-off. The enzymes, AST and ALP exhibited relatively higher activity as a resultant of lesser stabilization of the β-sitosterol-enzyme complex. *In silico* studies have indicated that β-sitosterol can be used an effective control agent against *H. armigera*.

Keywords: *Helicoverpa armigera*, β-sitosterol, alanine aminotransaminase (ALT), aspartate aminotransaminase (AST), alkaline phosphatase (ALP), docking-based virtual screening.

Mishra, M., Sharma, A., Dagar, V.S., & Kumar, S. (2022). Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the *Helicoverpa armigera* Hübner gut enzymes. *Journal of the Entomological Research Society*, 24(2), 209-218.

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An overview on non-*Apis* bees *vis-à-vis* the exploration of integrated taxonomic approach (Hymenoptera: Apoidea)

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Abstract
Easy and proficient identification of species or organisms is important for various users, such as conservationists, physiologists and ecologists, etc. Taxonomy is a significant branch of biological sciences to classify the different species and understand their relationships. Currently, taxonomy's existence is under crisis and its future protection is required in coming times. Majority of taxonomists are using phylogenetic approach for classifying different species. However, scientists believe that taxonomy should be integrative based on a comprehensive framework for delimiting and describing taxa through integrated information using various data and methodologies. This novel approach does not aim to replace the traditional taxonomy but stresses upon the delimitation of species over naming new species. Integrative taxonomy defines the units of species diversity employing multiple approaches, like population genetics, phylogeography, ecology, comparative morphology, development and behaviour, etc. Disagreements among disciplines over the number and demarcation of species can be resolved by using molecular data explaining the evolutionary relationships among species. We present a comprehensive review to explore and identify various non-*Apis* bees and their relationships using integrated taxonomical approaches. We believe that the phylogenies and supportive data can collectively provide a comparative framework for understanding the evolutionary relationships among bee families.

Key words: Integrative taxonomy, non-*Apis* bees, phylogenetic relationships, review, species delimitation.

Introduction

Taxonomy is a highly significant branch of biological sciences which mainly aims to classify the different species and understand their relationships between them. Currently, scientists believe that taxonomy' existence is under crisis and its future protection is required in coming times (Wheeler et al. 2004). It is estimated that around 10 million more species exist in nature which still remain to be discovered and in order to do this, we must clarify the nature of primarily two taxonomic tasks, namely delimiting and classifying species (Wheeler et al. 2004). These two scientific tasks are currently performed by taxonomists in different ways.

Earlier species diversity and identification studies completely relied on the traditional taxonomy based on morphological characters. Currently, phylogenetic study is a major approach of taxonomists for classification of different species an to reconstruct innate relationships among living organisms; though, in early 1970s, phylogenetic method was a challenge to the taxonomists (Felsenstein 1979). Traditional taxonomists, however were not only in consonant with population biologists and phylogeographers but they also disagreed methodology developed by them for delimiting species (Sites & Marshall 2003). The communication gap between different disciplines involved in delimiting species resulted in 'taxonomy crises'. In order to solve this, scientists believed on integrative taxonomy proposing that this amalgamation will decide the future of taxonomy in coming times.

The term 'Integrative taxonomy' came into existence in 2005 implying a comprehensive framework for delimiting and describing taxa through integrated information using various data and methodologies (Will et al. 2005). The diversity and phylogenetic relationships studies on the families of various major insect groups, such as Coleoptera (Bhardwaj & Jyoti 2018), Hymenoptera (Shankey et al. 2011), Diptera (Cameron et al. 2007) and Hemiptera (Medeiros et al. 2013) have been carried out by many researchers worldwide. However, the suspect of many systematists that majority of species would remain undescribed using

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Metabolic detoxification and *ace-1* target site mutations associated with acetamiprid resistance in *Aedes aegypti* L

Roopa Rani Samal[1], Kungreiliu Panmei, P. Lanbiliu and Sarita Kumar*[1]

Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

Despite the continuous use of chemical interventions, *Aedes*-borne diseases remain on the rise. Neonicotinoids are new, safer, and relatively effective pharmacological interventions against mosquitoes. Neonicotinoids interact with the postsynaptic nicotinic acetylcholine receptors (nAChRs) of the insect central nervous system, but the absence of nAChR polymorphism in resistant phenotypes makes their involvement in neonicotinoid resistance uncertain. Thus, an investigation was carried out to understand the role of metabolic detoxification and target site insensitivity in imparting acetamiprid resistance in *Aedes aegypti* larvae. Studies were conducted on the parent susceptible strain (PS), acetamiprid-larval selected strain for five generations (ACSF-5; 8.83-fold resistance) and 10 generations (ACSF-10; 19.74-fold resistance) of *Ae. aegypti*. The larval selection raised α-esterase and β-esterase activities by 1.32-fold and 1.34-fold, respectively, in ACSF-10 as compared to PS, while the corresponding glutathione-S-transferase and acetylcholinesterase activity increased by 22.5 and 2%. The *ace-1* gene in PS and ACSF-10 showed four mismatches in the 1312—1511 bp region due to mutations in the Y455C codon (tyrosine to cysteine) at the 1367th position (TAC→TGC); I457V codon (isoleucine to valine) at 1372 bp and 1374 bp (ATA→GTG); and R494M codon (arginine to methionine) at 1484 bp (AGG→ATG). The R494M mutation was the novel and dominant type, observed in 70% ACSF-10 population, and has not been reported so far. The studies evidenced the combination of metabolic detoxification and target site mutation in imparting acetamiprid resistance in *Ae. aegypti*.

KEYWORDS
Aedes aegypti, acetamiprid, resistance, metabolic detoxification, mutation, target site

Introduction

Aedes aegypti L. is a widespread disease vector posing a wide range of health risks, particularly in tropical and subtropical areas owing to favorable climatic conditions. Ever since the emergence of various *Aedes*-borne diseases, dengue has become a major public health concern, with reports of 390 million annual dengue infections and 96 million

EVIDENCE OF BREEDING OF *JAMIDES BOCHUS* (STOLL, [1782]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN NEW DELHI, INDIA

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Reviewer: Peter Smetacek

The butterfly Dark Cerulean (*Jamides bochus*) was first recorded in Delhi by Larsen in 1985, who considered it a case of migration (Larsen, 2002). It was also reported from Delhi in the late 1990s (Chaudhary *et al.*, 2019, Dr. Surya Prakash, *pers. comm.*). The sighting of Dark Cerulean however has become quite frequent in Delhi during the last five years, with several sightings between July to March every year (Chaudhary *et al.*, 2020, Rajesh Chaudhary unpublished records). It was also found laying eggs on its host plant *Millettia pinnata* (L.) Panigrahi (Fabaceae) in Delhi on one occasion in the year 2020, indicating that it might have extended its breeding range towards drier parts of North-west India (Chaudhary *et al.*, 2020).

In the present communication, we report additional supporting evidence which strengthens our assertion that the recent sighting records of Dark Cerulean in Delhi are members of a breeding population rather than of migrants.

An individual of Dark Cerulean butterfly was spotted hopping on the ground in a residential area of South Delhi (28° 32 '22" N, 77° 15' 46" E) on 31.viii.2022, close to its host plant *Millettia pinnata* (Figure 1). On close examination, it was found that both the wings on one side of the butterfly were malformed (Figure 1). The butterfly was also found to be freshly eclosed. It could barely fly 1-2 meters at a time.

The above observations indicate that this individual of Dark Cerulean eclosed with malformed wings in the area where it was spotted. Therefore, it is additional evidence which affirms the breeding status of Dark Cerulean in Delhi.

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SIGHTING OF RUDDY MEADOW SKIMMER *NEUROTHEMIS INTERMEDIA* (RAMBUR, 1842) (INSECTA: ODONATA: LIBELLULIDAE) IN DELHI, INDIA

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Reviewer: Peter Smetacek

The dragonfly, Ruddy Meadow Skimmer (Paddyfield Parasol) *Neurothemis intermedia* (Rambur, 1842) is widely distributed in India, Sri Lanka and many South-East Asian countries (Fraser, 1936; Subramanian, 2009; Singh, 2022). In India, it is found throughout peninsular India, Bengal, Assam, and Sikkim (Fraser, 1936; Subramanian, 2009). In northwest India, it has been reported from the states of Uttarakhand, Uttar Pradesh, Punjab, Himachal Pradesh, Haryana and Rajasthan (Singh, 2022). Despite its widespread occurrence in northwest India, it has not been reported from Delhi (Kumar, 1997; Singh, 2022). This dragonfly is usually found in grasslands, marshy vegetations near ponds and lakes, and paddy fields (Suri Babu, 2000; Subramanian, 2009; Singh, 2022). It is seen on the throughout the year except during winter months as long spells of cold temperature slow down the development of larval stage (Suri Babu, 2000).

Males of the Ruddy Meadow Skimmer have a bright red abdomen with brownish ventro-lateral stripes; rusty-brown thorax; transparent wings with an amber-yellow patch at the base of both the pairs of wings. Females are similar to males, but have more defined ventro-lateral abdominal markings; pale-yellow wings, and lack the amber-yellow patch at the base (Fraser, 1936; Subramanian, 2009; Singh, 2022). An andromorphic form of female Ruddy Meadow Skimmer has been reported in one instance from central India (Prasad, 2000; Joshi *et al.*, 2020).

An individual of *Neurothemis intermedia* was observed in the residential area in northwest Delhi (28° 42' 30" N, 77° 07' 49" E) on 2nd August 2020, at 10:30 am. The dragonfly was roosting on a cable wire, and was photographed using digital SLR camera (Figure 1). The features of dragonfly notable from the photographs include-pale labrum, clypeus and frons; eyes - reddish-brown above and pale-grey below; thorax, rusty-brown and bright red abdomen with ventro-lateral blackish-brown stripes interrupted at apical end of the segments; both pairs of wings with amber-yellow base and dark reddish-brown pterostigma. These features are indicative of the individual being a male. However, it possessed female-like anal appendages (Figure 1C). Thus, the observed individual of Ruddy Meadow Skimmer was an andromorphic form of female.

The observed Ruddy Meadow Skimmer could be a vagrant to Delhi. It is also possible that the species is a resident of Delhi, and the observed individual has migrated into the residential area from its

OVIPOSITING RECORD OF TAILLESS LINEBLUE *PROSOTAS DUBIOSA* (SEMPER, [1879]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) FROM THE VICINITY OF DELHI

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Reviewer: Peter Smetacek

The butterfly, Tailless Lineblue is widely distributed in India (Varshney & Smetacek, 2015; Kehimkar 2016). It was, however, recorded only recently from Delhi and its immediate vicinity (Chaudhary *et al.*, 2021). Since then, it has been reported on several occasions from the aforementioned area during monsoon and post-monsoon months i.e. August to December (Rajesh Chaudhary, *personal observations*). It is not apparent if the recent sightings of Tailless Lineblue in the area are a case of chance migration or if the observed individuals belong to a breeding population (Chaudhary *et al.*, 2021). In the present communication, the ovipositing of Tailless Lineblue at the Aravalli Biodiversity Park, Gurugram is reported. The Park touches the southwestern boundary of Delhi and is an ecological restoration site planted with flora native to the Aravalli hills.

Two individuals of Tailless Lineblue were seen laying eggs on nascent flower buds of the tree *Acacia leucophloea* (Roxb.) Willd. in Aravalli Biodiversity Park, Gurugram (28°29'02"N, 77°06'50"E) on 15.x.2022 (Figure 1). These individuals were observed for about 20 min. and photographed using a digital SLR camera fitted with a telephoto zoom lens. Throughout the duration of observation, both individuals laid eggs several times on the *Acacia leucophloea* tree.

The above observations indicate that individuals of Tailless Lineblues which are being sighted so often in Delhi and its vicinity in recent times belong to a population breeding in this area. The present observation adds Tailless Lineblue to the list of butterfly species that are known to breed in Delhi and its immediate vicinity.

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Arbuscular mycorrhizal fungi and host-plant relationship with respect to heavy metal remediation of soil

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ABSTRACT

A multitude of contaminants have entered the environment and are harmful to living beings. Agricultural plantations growing in unfavourable environments undergo various abiotic stresses due to heavy metals. These factors reduce plant growth and pose a threat to the plant population. Various traditional techniques are used to remove contaminants from the contaminated soil, like incineration, soil washing, chemical precipitation, soil excavation, detoxification, and many more. Recently, phytoremediation is proving to be very effective as a green method of soil remediation and involves using plants to extract, sequester and detoxify pollutants. Many recent studies have shown that using hyperaccumulators associated with efficient endophytic or rhizosphere microbial communities is efficient in enhancing phytoremediation. In this context, arbuscular mycorrhizal (AM) fungi may be a highly suitable contender because they are an indispensable member of rhizosphere microflora. Their application to hyper-accumulators is important. The combined effect of both can improve the efficiency of the remediation process by shortening the mitigation cycle and can help maintain the stability and persistence of remediation. This review will explain two main aspects of AM fungal - Plant relationship with respect to HM remediation of soil.

Key words: Heavy metals, Soil remediation, Phytoextraction, Phytostabilization

INTRODUCTION

In the environment, many contaminants pose a threat to living organisms. Among these heavy metals, pesticides, radionuclides, and persistent organic pollutants (POPs) are key contaminants of concern. Pesticides, notably chlorinated organic chemicals (aldrin, DDT, dieldrin, lindane, endosulfan, and others), were used extensively in farming techniques, resulting in their persistence in air, water, and soil, as well as biomagnification or bioaccumulation in living systems/cells. This is owing to their hydrophobicity, nonpolarity, lipid solubility, and volatility (Hagen and Walls, 2005; Jayaraj *et al.*, 2016). Similarly, the usage of heavy metals such as arsenic (As), copper (Cu), lead (Pb), cadmium (Cd), nickel (Ni) and mercury (Hg) in different medicinal, industrial manufacturing, and agricultural sectors resulted in significant environmental discharge. Furthermore, radioactive wastes produced by nuclear power plants, industries, nuclear research facilities, or medical facilities emit hazardous ionizing radiation into the environment (Hatra, 2018). All these pollutants induce a variety of diseases or abnormalities in lower and higher animals, including humans, ranging from metabolic issues to reproductive failure, neurotoxicity, developmental disorders, and cancer (Brenner *et al.*, 2003; Stewart *et al.*, 2008; Briz *et al.*, 2011; Alavanja and Bonner, 2012; Huang *et al.*, 2019; Vardhan *et al.*, 2019). Among the several pesticide chemical families, organophosphates, organochlorines, pyrethroids, and carbamates are the most well-known insecticides. Chlorinated pesticides such as benzene hexachloride (BHC), dichloro-diphenyl-trichloroethane (DDT), aldrin, hexachlorocyclohexane (HCHs), dieldrin, heptachlor, and others have long-lasting effects. During the 1940s and 1970s, pyrethroids were the most popular insecticides. However, their toxicity, persistence, and bioaccumulation in nontarget organisms were phased out and replaced by relatively less toxic compounds, carbamates, organophosphates, and pyrethroids compounds (Shen and Wania, 2005; Ritter, 2009; Hussain *et al.*, 2009). Heavy metals such as Cd, Hg, Co, As, Pb, chromium (Cr), zinc (Zn), and Ni are required in different biological processes such as cell metabolism (Co), electron and oxygen transport (Cu and Fe), hormone and antioxidant production (Se), enzymatic activity (Mg). They have deleterious effects in all organisms (humans, animals, and plants) at low concentrations (Nagajyoti *et al.*, 2010; Chibuike and Obiora, 2014; Ayangbenro and Babalola, 2017; Li *et al.*, 2019). Heavy metals are extensively used in medicine (diagnostic imaging, drugs), industry (electric appliances, automobiles, machinery, tools, utensils), agriculture (fertilizers/biocides), and domestic infrastructure (buildings, bridges) due to their beneficial properties such as electrical conductivity, strength, and durability (Tchounwou *et al.*, 2012). This results in their widespread presence in the environment. However, a strong affinity for sulfur (thiol group-SH), higher electro-negativity (hexavalent chromium), and lipid solubility (Hg) cause myeloma, CNS disorders, metabolic, and degenerative conditions/disorders in living organisms via various routes like occupational exposure in humans, bioaccumulate transfer (through food chain), and dermal absorption (Tchounwou *et al.*, 2012; Pratush *et al.*, 2018; Vardhan *et al.*, 2019; Phian *et al.*, 2022).

Agricultural plantations growing in unfavorable environments undergo various abiotic stresses due to heavy metals. These factors reduce plant growth as well as pose a threat to the plant population. Metal stress in soil reduces the

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Hydrothermally Fabricated Bio-nanocomposite of Guar gum as a Promising Adsorbent for Reactive Green 19 Dye from Wastewater

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Abstract*-Reactive dyes which are mainly used for dyeing cotton and other cellulose-based fibers are released in huge quantities into water bodies. They are associated with several harmful effects including allergic dermatoses, respiratory diseases, colonic and rectal cancers, etc. In this paper, we report a novel and facile synthesis of bio-nanocomposite of magnetic guar gum (BMGG) wherein the polymeric network of guar gum is decorated with spinels of magnetic nanoparticles via a simple hydrothermal method which shows promising removal efficiency for reactive dyes. Physicochemical techniques such as FESEM, TEM, EDAX, FTIR, Raman, TGA, VSM, pH$_{zpc}$ and XRD have been used for characterizing the as-synthesized nanocomposite. Batch adsorption studies carried out on BMGG showed rapid and excellent adsorption potential of the semi-synthetic material exhibiting a removal efficiency of up to 98.44 % within an hour with a maximum adsorption capacity of 526.32 mg g^{-1} for anionic Reactive green 19 dye from aqueous medium. The adsorption kinetics data fitted best into the pseudo-second-order model. Out of various isotherm models being studied such as Langmuir model, Freundlich and Temkin model, the adsorption equilibrium was found to be best described by the Langmuir isotherm model. The spontaneous as well as the exothermic nature of the adsorption phenomenon, as clearly evident from the thermodynamic studies. BMGG composites also showed significant regeneration capacity showing retention in adsorption efficiency even up to several cycles of adsorption-desorption process. Hence, the reported semisynthetic nanomaterial holds a good scope of playing a significant role in solving the perpetual challenge of water pollution.

Keywords: **adsorption, kinetics, isotherms, reactive green 19, adsorption capacity**

I. INTRODUCTION

Over the last 10 years, researchers from various domains have been putting in relentless efforts in the field of exploration and design of sustainable materials that can be utilized as adsorbents for the removal of toxic contaminants from wastewater, most importantly synthetic dyes. Among several categories of dyes, being synthesized, Reactive dyes are the ones that are used on an extensive scale. A Reactive dye primarily has chromophores containing an azo or anthraquinone moiety along with a number of other reactive groups such as an activated double bond (e.g., vinyl sulphone) or a heterocycle (e.g., trichloropyrimidine, chlorotriazine or difluorochloropyrimidine) (Mahmoud et al., 2007). Reactive dyes, owing to a multitude of advantages such as chemical stability, easy accessibility, fast and facile binding with the fabric, have been used on large scale for coloring cellulosic cotton fabric. Due to their chemical stability and high solubility in aqueous medium, these dyes are non-biodegradable due to which they pass untreated from the effluents through most of the conventional treatment methods (Ozacar et al., 2013). Various basic parameters such as temperature, salt concentration, and alkaline condition along with the reactivity and diffusion coefficient of the dye play a crucial role in determining the dye fixation efficiency of reactive dyes on cellulosic fabrics (Hossain et al., 2020, Lee et al., 2019). Nevertheless, the efficiency of dye fixation on cellulosic fibers is considerably low varying from only 50-90%, which results in low absorption of these dyes on the fabrics. This, in turn, leaves a high content

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Bibliometric Analysis of Peer-Reviewed Literature on Stress Factors Affecting Agricultural Productivity

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Abstract

Sustaining agricultural productivity is essential to ensuring food security. Climate change, increasing population and dwindling resources are factors of concern threatening crop productivity. Research across the globe have focused on seeking innovative measures to protect and enhance crop yield. We explored and analyzed peer-reviewed literature to provide an understanding of current and emerging trends in the field. A bibliometric method was followed using the database Scopus. Search queries used to retrieve documents were "Agriculture/crop productivity" and "Plant stress". The study period was restricted to the last five years, from 2017-2021. The search query found 2207 documents in Scopus under the agriculture and plant stress theme. Increasing growth of publications was observed in successive years. Research activities in this field have the most contributors from Asian countries – China and India followed by the US. The major stresses affecting agricultural productivity being investigated were-Water stress, Temperature stress, Salinity stress. Amongst these, the theme related to water stress/ precipitation/ drought stress was the most investigated. The availability of water has a pivotal role in sustainable agriculture. The use of conservation agricultural practices such as intercropping, no-tillage, and soil mulching has proven to be effective in retaining soil water content and reducing the dependency on irrigation, especially in rainfed areas, thereby assisting in drought mitigation and increasing crop yield. Precision agriculture approach employing satellite data to predict weather and rainfall and early detection of stress signals using hyperspectral reflectance has shown promising results in ensuring sustained productivity. Breeding and transgenic approaches for plants with higher water use efficiency (WUE) and the ability to tolerate water stress are key areas of research being followed throughout the world.

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Impact of Covid-19 on Corporate Social Responsibility: A Study of Indian IT Sector

Sandeep Kumar Goel, Stuti Jain

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Corporate social responsibility has come to the limelight with the outbreak of Covid-19 pandemic. The aim of this paper is to study and analyze the impact of Covid-19 on corporate social responsibility with a special focus on Indian IT sector, to make a comparison of CSR obligation and CSR spending between pre and post pandemic period. It also study the activity wise spending of CSR of select sample companies for the years 2019-20 and 2020-21. Paired sample t test was used to test the formulated hypotheses. Findings of the study reveals that Indian IT companies played a pivotal role in fight against the pandemic and devoted much of its CSR funds towards healthcare and disaster relief. Statistical analysis reveals that there is a significant improvement in the CSR obligation of select companies in the post pandemic period (2020-21), as compared to pre pandemic period (2019-20).

Keywords

Corporate Social Responsibility; CSR; Covid-19; Pandemic; IT Sector; CSR

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Phool: Journey from Waste to Wealth

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Abstract

With increasing awareness about sustainable living, there are many entrepreneurs who think of innovative sustainable business models but are hesitant to take the initial steps as they are sceptical about the challenges that they may have to face in the journey and where to look for the solutions. Thus, there is a need to document the journey of successful green businesses right from the point when the idea clicked to its transformation in to successful business, their triumphs and low points and what kept them going. This will not only serve to give recognition to these entrepreneurs for their work but will also guide upcoming entrepreneurs. The present work is in this direction. The present case study seeks to document the journey of Phool.co. The objective of the present case study is to examine unconventional business model adopted the company, identify the challenges faced by the company and explore strategies adopted by company to overcome these challenges, and its key success factors.

All the data and information for the study has been collected from the company's website, published interviews of its founders and key managerial personnel. The study revealed that company was able to succeed due to its unique packaging and marketing model. Its ability to innovate new green products such as florafoam, and fleather gave it recognition across the globe. The research findings about the way the founders of Phool toiled day and night and crossed initial hurdles regarding procurement of raw material, technological innovation, and securing finances for the project will certainly serve as a guide to other green entrepreneurs go wholeheartedly in their quest for sustainable living. In future, the work can be extended to comparative study of some more such start-ups to get better understanding of challenges faced by such entrepreneurs and how to resolve these.

Key Words: *Green Businesses, Sustainability, Zero waste solutions, Innovations in Business, Green Manufacturing Processes, Sustainable Business Models, Environment Protection, Eco-friendly Businesses*

1. Introduction

Green entrepreneurs in India are changing the basic network of production, marketing and consumption through eco-friendly concepts utilizing innovative product designs, raw materials, process design and marketing policies. They are the people who recognize the links between innovation and sustainability and thereby develop a comparative advantage for their firms/companies by selling differentiated products and services based on their environmental benefits. They are playing a crucial role towards sustainable economies not just by devising innovative production/marketing

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Perpetual Innovation

A Simulation-based Approach to Evaluate and Regulate the Reputation Score of a Software Agent in E-Market

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Abstract

Reputation is a crucial factor that governs the importance of a software agent in the agent mediated e-market. In the e-market, various buyers and service providers are involved in buying and selling the products. A buyer agent (BA) acts on behalf of a buyer to buy the products from a service provider agent (SPA) preferably having a good reputation score (Rep Score). The conventional customer rating mechanism for online transactions lacks adequate analysis and investigation of customer reviews and hence does not reflect the accurate reputation of the service providers. This research investigates the reputation of a software agent using customer feedback based on product attributes such as product quality, design, price, delivery time, and defects. A knowledge rule set is formed to establish a link between customer feedback and the repute of a software agent. Further, a simulation based approach using the Rosetta toolkit and the Fuzzy Control System is applied to quantify and fine-tune the reputation of a software agent. There could be a chance of an unfair relationship between the same

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(R1985) Study the Effect of Modified Newtonian Force on the Restricted 3-body Configuration in Non-Linear Sense

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MEASURING COMPLEXITY AND CHAOS IN THREE-SPECIES FOOD CHAIN SYSTEM WITH THE BEDDINGTON-DEANGELIS FUNCTIONAL RESPONSE

SADA NAND PRASAD, I. M. SAHA AND ABDULLAH A. ANSARI*

(*Received* 27 August 2020; *Revised* 8 April 2022)

Three species food chain system with the Beddington-DeAngelis Functional response investigated for regular and chaotic evolutions under different feasible conditions in the framework of nonlinear dynamics. The Euler's method employed to transform the continuous model into discrete model. A number of bifurcation plots obtained by varying certain system parameters in turn while keeping other parameters constant. These diagrams show clearly regular evolution followed by chaos for certain range of changing parameter. Regular and chaotic attractors obtained for different parameter spaces. Numerical calculations further extended to calculate Lyapunov exponents (LCEs), topological entropies and correlation dimensions of chaotic attractors for different sets of parameter values. Results of obtained are presented through graphics and tables and analysed properly.

1. Introduction

Most of the existing real phenomena in nature are nonlinear and their evolutionary dynamical behavior often displays properties like unpredictability, chaos and complexity. Because of these researchers are attracted to carry more investigations on real phenomena. Population dynamics and ecological system problems are among those studied frequently. Investigations relating to problems of interaction between ecological populations, such as consideration of two-species continuous or discrete time evolution systems, in form

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Key words and phrases: bifurcation, chaotic attractors, Lyapunov exponents; topological entropy, correlation dimension

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Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population

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Abstract: This study was aimed to investigate the long term change in quality of life post COVID-19 in all age groups from different parts of India. Three different survey methods were used to get in touch with COVID-19 survivors that included offline, online and telecommunication. Data was then categorized into three different categories as mild, severe and critical as per the level of severity of symptoms evaluated post-investigation. Individuals and area was treated as a random effect, with all covariates (age, sex, vaccination status, initial COVID-19 symptoms, level of severity of symptoms, time duration for which the symptoms lasted, post- recovery symptoms persisting more than 6 months, status of booster dose and safety precautions whether taken or not) treated as fixed effects. A total of 2600 individuals from various parts of India i.e. Delhi, Ghaziabad, Faridabad, Dehradun, Bangalore, Rajasthan, Tamil Nadu and Kerala were interviewed during the study. 602 positive cases were found with 255 individuals with mild symptoms, 273 severe symptoms, 72 critical cases and 2 special cases.

Results highlights the influence of COVID-19 on longer run, symptoms may resolve over time however, the influence of health on daily activities, work, and social activities may not. Through this communication we also highlights the fact that though COVID-19 has slowed down its infection rates but still precautions needs to be taken and various social programs should be organized to encourage people for booster dose.

Keywords: COVID-19, Symptoms, Health, Survey, Vaccination, Recovery, Precautions, Health

Citation: Sharma Sneha, Pranav, Shivam, Rana Neha, Vashishtha Khushi, Chauhan Bhumika, Misra Monica and Sharma Bindu: Post COVID-19 long term effects persisting more than 6 months in various age groups of Indian population. Intern. J. Zool. Invest. 8(2): 674-680, 2022.
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Introduction

A bunch of analogous cases of pneumonia were recognized by the Chinese officials on 29th December 2019 in the Wuhan city of China. Soon the causative agent for these increased incidences of pneumonia was found to be novel coronavirus which was later named SARS COV 2 (Zhu *et al.*,

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Re-characterization of Potential Zoonotic Trematode Parasite Parasitizing Intestine of Snakehead Fish, (*Channa striata*) Utilizing Multiple Sequence Alignment Tools (MSA)

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Abstract: Metacercariae of *Clinostomum* Leidy, 1856 are frequently encountered in freshwater fish. The species configuration and taxonomic antiquity of the genus *Clinostomum* has been very unsteady and under discussion. Two species, i.e. *Clinostomum complanatum* Rudolphi, 1814 and *Clinostomum marginatum* Rudolphi, 1819, have been specifically troublesome and their taxonomic validation has been debated. 19 human incidences of *Clinostomum complanatum* have been reported to cause pharyngitis and lacramalitis from Japan, Thailand and Korea. *Clinostomum marginatum* is commonly known as yellow grub as it causes pinhead sized lumps in fishes that are white to yellow or black. In the present communication, we have made use of cytochrome oxidase c subunit 1 gene as DNA barcode for validating the taxonomy of *C. complanatum* and *C. marginatum* harboring phylogenetic studies and multiple sequence alignment tools. Currently, in India species of this group are distinguished mainly on the basis of morphological characters that underlie possible confusions. Therefore, we disinterred the species through molecular analysis. The current findings are salient to authenticate the phylogenetic place and relationship among two trematode spp. and bypass misidentification regarding their validation, as it is more necessary in that case when many species harbours the same host and are of zoonotic importance.

Keywords: Zoonotic, Helminth, *Clinostomum complanatum*, Taxonomic, Cox1, molecular, *Clinostomum marginatum*

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Introduction

The global aquaculture production has exceeded 91.4 million tons and generated an average income of more than US$ 145.4 billion (Aohagi *et al.*, 1992; Sosa *et al.*, 2016). Aquaculture has served as a prominent key factor in the economy of India. Increased parasitism and disease outbreaks have negative impacts not only on the fish production, but also leads to economic losses.

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Impact of Climatic Change on Respiratory Health

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Abstract: Threatening effects of climate change are widely visible to the entire population. Though known to all, its adversity is understood only by a handful. With this study, we aimed to broaden its reach. Aiming at creating a louder voice of climate change, we wish to enlighten people about the adverse health effects it has in store for us. While reasons and results may be innumerable, yet precautions are few. Innumerable unknown repercussions have been approximated as well. Naturally occurring gases like carbon dioxide, nitrogen oxides and black carbon cause air pollution which aggravates allergenicity of plants causing earlier and longer pollen seasons. This worsens the situation for people already prone to asthma, allergens and other respiratory tract infections. Additionally, climate changes can exacerbate the issue evermore. Though the effects are perceptible, the reasons and cures are still being studied extensively.

Keywords: Climate, Pollution, Respiratory diseases, Asthma, COVID-19

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Introduction

Climate change is a constantly aggravating situation which is hidden from none. The long-term effects which lead to changes in temperature and rainfall patterns are appertained to climate change. It is a global havoc created by man-made interventions. A change in climate has caused widespread problems and has put earth's ecosystem and life of unborn generations in trouble. The visible effects have grown dramatically over the past few years and it has been estimated that it will grow fourfold in the next ten years if the present rates of deterioration continue. As per UN reports, an increase of 1.5°C in global temperature would help maintain survivable conditions but an estimate of 3.2°C increase has been drawn based on current climate plans.

Contrary to popular belief, climate change is not only about rising temperatures. It encapsulates fervent droughts, famine, dreadful

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PCR primer design for mitochondrial cox-1 gene from *Clinostomum complanatum* towards diagnosis

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Abstract:
Metacercariae of *Clinostomum* Leidy, 1856 are frequently encountered in freshwater fish. *Clinostomum complanatum* is a digenetic zoonotic parasite harbouring the intestine and body cavity of the fishes. 19 human incidences of *Clinostomum complanatum* infection have been

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REVIEW ARTICLE

A Literature Review on Reckless and Hazardous Contraceptive Practices used since Primeval Times

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ABSTRACT

Historians have extrapolated that primitive society used a diversity of methods to restrain populations such as physical segregation of men and women, infanticide and rallying of practices that would prevent pregnancies. The lack of education, perceived stigma from friends, alienation from parents and stringent financial implication were some of the utmost reasons considered as major drawback that leads to unplanned pregnancies and turning out with severe deadly consequences. The authors in the present communication accentuates the usage of harmful elements like lead, arsenic , plastic bags, oils , honey ,etc as method of contraception in ancient times that was absolutely not only myths but also hazardous. The utility of few herbal plants had already proved to have 100% effectiveness on birth control in distinct animal groups but still there usage remains unseasoned in humans. The authors also spotlights on the fact that certain authentic research is still needed to substantiate the use of herbs as natural mode of birth control as the present day practices of oral contraceptives (OC) retain hormonal imbalances and side effects.

Keywords: Contraceptive , women , fertility, birth control , sperm, human.

INTRODUCTION

In spite of the accessibility of secure and potent forms of contraception till today, societies in both developing as well as the developed world endure from unsatisfactory elevated rates of coincidental and nasty pregnancies. Though much progress has been made in recent decades in fertility abstraction in developing countries but still around 120 million (10–12%) married women in many regions and also more than 24% in sub-Saharan Africa, persevere to report an envious demand for contraception(Sirtuk Ware *et al.*,2013).The expeditious hike in the population growth has remarkably expanded the number of individuals per family and many cases of serious shortage of food and shelter have been reported that eventually leads to high maternal and infant mortality

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RESEARCH ARTICLE

Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior Pituitary Hormones in Different Animal Groups

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ABSTRACT

The neuroendocrine control of gonadotropin secretion is attained by the ensemble of Luteinizing Hormone Releasing Hormone (LHRH) secreting neurons that are distributed within the anterior hypothalamus. These neurons are the main element of hypothalamo-hypophysiotropic association and their activity in turn is modulated by neurotransmitter or peptidergic synaptic inputs. In recent years, considerable attention has been focused to evaluate the role of neuropeptides that have been identified in the Central Nervous System (CNS) especially in the hypothalamus. Some of the neuropeptides of the hypothalamus modulate the release of LHRH and which in turn regulates the LH release. One such peptide released from the hypothalamus is Neuropeptide- Y, that acts as both neurotransmitter and neurohormone with multiple diverse effects like stimulation of feeding, inhibition of sex behaviours and modulation of cardiovascular parameters .Its role has also been found in severe stress and pathogenesis of bulimia ,low renin hypertension and in Alzheimer's disease which further signifies the importance of its study. NPY shows high degree of conservation throughout evolution. The present review is on the effect of Neuropeptide- Y on the levels of GnRH with major effects on LHRH .

Keywords: neuropeptide , hypothalamus , NPY , neurons , LHRH , LH ,FSH ,GnRH.

INTRODUCTION

Neuropeptides are small sized disparate group of hypothalamic signaling molecules that plays a significant role in communication among the cells in the central nervous system (CNS) and also a crucial role in cell-to-cell

Monkeypox: Endemic to Epidemic
A review of the current scenario of Monkeypox disease outbreak

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Abstract - The recent outbreak of Monkeypox disease in different parts of the world has drawn attention and concerns of the scientific communities, medicine world and the governments. The world has witnessed what havoc a virus can cause if it jumps from an animal to human beings. Are we moving towards the next pandemic? How safe are the use of animals in medicine and biological research? What will be the consequence of this new zoonotic disease? To avoid another pandemic, it is important that we watch the progress of this disease closely and understand the causes, consequences, treatment, and possible control before it gets out of hands. This article is a compilation of all the information about Monkeypox disease that is available in different domains, to give an overview of the current scenario of the disease.

Index Terms – Monkeypox, virus, MPV, epidemiology of MPV

I. INTRODUCTION

Monkeypox is a viral, zoonotic (transmitted to human from animals), and rare disease that is caused by infection with monkeypox virus (MPV or MPXV) with symptoms close to smallpox but not as severe as smallpox. Monkeypox was first discovered in 1958, when outbreaks of a pox-like disease occurred in monkeys used for research. About a few thousand cases occurred in Africa especially in central and western parts of the African continent [1]. The cases outside Africa were limited to a small number with a travel history of people visiting Africa or with the import of the infected animals.

In 1970, the Democratic Republic of the Congo reported the first human case of monkeypox. Since then, many cases have been reported from various central and west African countries. Most cases are reported from poorest and most marginalized communities in the world [2][3]. Incidents of MPV infections are on a rise since early May 2022. About 18 countries across the world have reported confirmed or suspected cases of monkeypox to the WHO. Since the reports are from different parts of the world, this can no longer be considered endemic to the African region [14].

The cases detected outside the endemic places in the early May 2022 has surpassed the total number detected and this rapid spread has put the scientists worldwide on high alert. There has been a sudden and unexpected occurrence of monkeypox simultaneously in many non-endemic countries, which suggests that there is a possibility of some undetected transmissions for an unknown duration of time followed by recent amplifying events [14].

Epidemiological investigations are going on, however, from the various cases that are reported, so far, no established travel links to endemic areas has been established. Based on currently available information, a unique observation has been established which highlights the possibility of the spread of the disease, mainly but not exclusively, amongst men who have sex with men (MSM) and are seeking primary care in primary clinics or sexual health clinics. A scientific clinical link has yet to be established.

II. WHAT IS MPV?

Monkeypox virus is a double stranded DNA virus which belongs to genus *Orthopox virus* belonging to the Poxviridae family. The *Orthopox virus* genus also includes variola virus responsible for smallpox and cowpox virus. Various animal species have been known to be susceptible to the monkeypox virus. The natural reservoir of monkeypox has been a question of interest from many scientists since its discovery. However, it has been detected from rodents of African region, non-hominids primates such as monkey (hence the name 'Monkeypox'). Further research is needed to know the exact reservoir(s) of the virus and the route of its entry into the human population.

III. PATHOGENESIS

Pathogenesis is the progression of an infection which leads to disease. The general viral pathogenicity includes (a) implantation of virus at the portal of entry, (b) viral replication in the host cell [3], spread of viral agent to target organs causing the disease and (c) migration of virus to sites of shedding into the environment.

Factors that affect the pathogenic mechanisms are (a) accessibility of host tissue to the virus (b) host cell susceptibility to virus multiplication, and (c) virus susceptibility to host defences. Low-virulent strains of pathogenic virus strains are favoured by natural selection forces.

In case of monkeypox, infection may begin from the respiratory epithelium or the dermis. The virus further progresses and enters the lymphatic system leading to the swelling of the lymph nodes. Other organs that are susceptible to infected are mucus lining of nose and buccal cavity.

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IN VITRO MICROPROPAGATION OF *ACACIA HOLOSERICEA* A. CUNN. EX G. DON THROUGH COTYLEDONS

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Abstract

Cotyledonary explants were excised from 15-day-old seedlings of *Acacia holosericea* A. Cunn ex G. Don and cultured on B_5 medium supplemented with different growth regulators. Caulogenesis was observed both directly and indirectly in different cytokinin adjuvanted media. Of all the cytokinins tested, zeatin supported maximum multiple shoot differentiation. Friable to compact nodular green calluses developed at cut ends of explants and on their surface within 15-20 days of inoculation. Caulogenesis was observed only after 40-45 days of initial culture, and an average of 4.3±2.7 shoots per explant were formed on 2.5 mg/l zeatin containing B_5 medium in 40% of explants. The addition of 200 mg/l Ad.S enhanced the percentage of explants forming shoot buds to 50 and raised the number of shoot buds per explant to 12.0±6.8. Cent percent of the *in vitro* raised shoots when excised and subcultured on B_5 basal medium, developed roots directly at their base.

Keywords: *Acacia Holosericea*, Cotyledons, Fabaceous Tree, Micropropagation

Abbreviations: Ad.S., Adenine Sulphate; B_5, Gamborg Et Al Medium; BA, N^6-Benzyladenine; 2ip, (6-Dimethyl Allylamine)-Purine; Kn, Kinetin.

Introduction

The last three decades have witnessed a large proportion of forests being denuded. The availability of land for crop production is gradually shrinking at an alarming rate due to industrialization, urbanisation, etc. The environment has been strikingly degraded both in rural and urban areas. Maintenance of higher living standards, obviously, always craving for much more than required consumption of natural resources have been the chief cause for environmental degradation in the urbanised world, whereas it is poverty and overpopulation in rural areas which have led to the degradation of the environment in the developing countries. Hence, reforestation is an urgent priority for mitigating such hazardous and catastrophic developments. This can be done by planting trees that are multipurpose, fast-growing, high-yielding, capable of withstanding abiotic and biotic stresses, resistant to diseases and pests as well as have the ability to fix atmospheric nitrogen directly, ultimately acting as artificial fertilisers[1][2]. Some such woody species are the leguminous trees, whose potential has been recognized the world over. There has been a conspicuous lacuna in the axenic morphogenesis due to their recalcitrant nature under *in vitro* conditions. However, it has now been possible to micropropagate some of the most valuable woody legumes such as *Acacia*, *Albizia*, *Dalbergia*, *Prosopis*, etc.

Acacia holosericea A. Cunn. Ex G. Don, is a native of Australia and was introduced in India for afforestation projects. It is a small tree, well adapted to a wide range of harsh habitats in arid lands, and plays a significant role in the revegetation of denuded lands. The tree grows well even under environmentally stressed conditions such as water scarcity, low nutrients and high levels of salinity. It is also known to be responsible for altering the soil microbiota by modifying the structure of Arbuscular Mycorrhizal fungal communities [3]. Besides being adaptable to arid regions, it is often grown as an ornamental tree [4]. This tree taxon has appreciably high productivity, useful for biochar, bio-oil and biogas production [5]. It grows profusely which makes it not only suitable but also important for introduction in Indian deserts [6]. The present study reports micropropagation of *A. holosericea* through the cotyledonary explants.

Materials and methods

Seeds of *Acacia holosericea* were soaked in concentrated sulphuric acid for 30 min. and surface sterilised by treating with freshly prepared chlorine water for 45 min. Chlorine was obtained by adding 30 ml of concentrated hydrochloric acid (LR) to 4 g of potassium permanganate. The chlorine water was prepared by bubbling chlorine in 500 ml of distilled water for 15-20 min. Thereafter, the seeds were washed thrice with sterilised water and implanted aseptically on semi-solid Knop's medium [7].

Cotyledons were excised from 15-day-old *in vitro* raised seedlings and cultured on B_5 [8] medium either alone or supplemented with growth regulators such as cytokinins and/or auxins. In addition, a few adjuvants such as adenine sulphate and coconut water were also tried.

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AXENIC PROPAGATION OF A WOODY LEGUME - PROSOPIS CINERARIA (L.) DUCE THROUGH COTYLEDONARY NODE EXPLANTS

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Abstract: Cotyledonary node explants of Prosopis cineraria (L.) Duce were excised from 10-day-old seedlings grown in vitro on Knop's medium [1] and cultured on Murashige & Skoog medium [2] supplemented with various cytokinins like N^6-benzyladenine,(6-dimethyl allylamine)-purine, kinetin or zeatin. Maximum number of shoots developed in 63% explants on 11µmol (2.5mg/l) N^6-benzyladenine adjuvanted MS medium after 60 d of culture. The adventive shoots differentiated in the axil of cotyledons. 89% shoots formed roots within 20-25d when subcultured on MS medium supplemented with 13.2µmol (3mg/l) indole-3-butyric acid. The plants developed in vitro were gradually transferred to the soil.

Keywords: Cotyledonary Node, Fabaceous Tree, Micropropagation, Prosopis Cineraria

Abbreviations: AC, activated charcoal; B_5, Gamborg et al.'s medium; BA, N^6-benzyladenine; 2iP, (6-dimethyl allylamine)-purine; F.A.A., Formalin-acetic acid-alcohol; IAA, Indole-3-acetic acid; IBA, Indole-3-butyric acid; Kn, Kinetin; MS, Murashige & Skoog medium; NAA, α-Naphthalene acetic acid; NOA, β-Naphthoxyacetic acid.

Introduction

Micropropagation of trees is being increasingly recognised as a potential bypass technology for rapid afforestation to achieve enhanced biomass production. In addition, it offers means not only to conserve elite and rare tree germplasm but also for bringing about their genetic improvement. Prosopis is an important multipurpose fabaceous tree of arid tropics and has several species of value, predominant in the Thar desert. Though considered as a problematic and recalcitrant species to in vitro regeneration, during the past few years, a few reports with limited success have appeared employing both juvenile and mature explants [3,4,5].
The present investigations were undertaken to develop a protocol for micropropagation of a fabaceous taxon Prosopis cineraria, which is one of the two tree species that serve as lifeline for inhabitants of drier regions of Rajasthan in India.

Material and Methods

Seeds of Prosopis cineraria belonging to subfamily Mimosoideae were obtained from the Central Arid Zone Research Institute, Jodhpur, India. They were scarified and soaked in distilled water for 8hr at room temperature and surface sterilized with freshly prepared chlorine water (3.5±0.5mg/l) for 45min. Chlorine was obtained by addition of 30ml of concentrated hydrochloric acid to 4g of potassium permanganate. The chlorine water was prepared by bubbling chlorine in 500ml of distilled water for 15-20min. Thereafter, the seeds were washed three times with sterilized distilled water and germinated aseptically on Knop's medium containing 2% sucrose (British Drug House, Poole, England) and 0.8% agar (Hi-media, Mumbai, India). The pH of media was set at 5.8 before autoclaving at 121°C at 1.06 kg/cm^2 pressure for 15min.

About 0.8-1cm long segments of cotyledonary node were excised from 10-day-old seedlings and cultured on MS basal medium alone as well as adjuvanted with cytokinins (BA, Kn, 2iP or zeatin) at 0.5 to 3mg/l levels. The media contained 3% sucrose and 0.8% agar. Cultures were maintained at 25±2°C and 55±10% relative humidity under white fluorescent light at 40µ cEm^{-2}s^{-1} irradiance emitted by 40W Crompton incandescent tubes programmed for 16 hr photoperiod. Explants were subcultured on a fresh medium after every 25-30 days and data were recorded at an interval of 10-15d. The final data were scored after 60d of culture. The in vitro reared shoots were excised and reared on MS medium supplemented with 1-3mg/l auxins (IAA, IBA, NAA or NOA) for root induction. A minimum of 30 replicates were raised for each treatment and all experiments were repeated at least once. The average number of shoots per responding explant has been represented as mean value indicating the standard deviation (mean±S.D).

For histological studies, tissues were fixed in F.A.A. and dehydrated through a graded ethanol-xylene series, followed by infiltration and embedding in paraffin wax. Serial sections, 20-25µm thick, were cut with a rotary microtome and affixed to slides. These were dewaxed, stained with safranin-fast green combinations, dehydrated and mounted in canada balsam. Photomicrographs were taken by a 35mm camera attached to the Leitz Orthoplan Universal Microscope.

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Research Article

SYNTHESIS, CHARACTERIZATION AND APPLICATION OF NOVEL GUAR GUM-N,N-DIMETHYLANILINE RESIN FOR WASTE WATER TREATMENT

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ABSTRACT

The polymeric ion exchange resin has found extensive applications in recovery and removal of transition metal ions from process solutions due to their selectivity particularly against alkali metal ions. The ion exchanger based on guar gum is hydrophilic and biodegradable, whereas ion exchangers prepared from petrochemical products are hydrophobic and not biodegradable. Its cost is low, locally available in large quantities from agricultural resources and is environment friendly. N,N-Dimethylaniline group has been incorporated in Guar gum based polysaccharide by a modified Porath's method of functionalization of polysaccharide in order to develop a hydrophilic, flocculants cum ion exchanger. The characterization of synthesized resin [GGMA] was carried out by FT-IR spectrum, moisture content, ion exchange capacity, solubility of resin in different solvent, resin durability and elemental analysis. The adsorption of different metal ions on GGMA resin follows the order: Fe > Cu > Zn > Cd > Pb. The adsorbency of different metal ions on GGMA resin was studied up to 10 cycles. The effects of pH, treatment time, treatment temperature, and resin dose on the removal of metal ions from industrial effluent were also studied. The GGMA resin was found to be applicable for the removal and recovery of heavy metal ions from Faridabad ground water.

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INTRODUCTION

Water pollution due to hazardous heavy metals has been a major global concern for us. Heavy metal ions not only reach surface water but also contaminate ground water in trace amounts by leaching from soil after rain. Heavy metals are detected in ground water. Water pollution affects plants and animals living in these bodies of water as well as human communities that use the polluted water. The removal of heavy metal ions from waste water can be achieved by several processes, such as precipitation, solvent extraction, chemical, electrochemical techniques[1] and advanced oxidation process[2]. The presence of lead, cadmium and other heavy metals ions in the environment has become a major threat to plant, animal and human life due to their bioaccumulations tendency and toxicity, therefore must be removed from municipal and industrial effluents before discharge.

A number of chelating ion exchange resins have been produced by resin manufacturers to overcome this problem and to encourage ion exchange to a broader range of processing solutions using high capacity cation and anion exchange resins with metal complexing effluents[3].

The separation of many transition and post transition metals was accomplished using various ion exchange resins[4]. Ion exchange method during the last decade has become increasingly important in various analysis in organic and inorganic chemistry[5-8]. Ion exchange process has been recognized as a powerful tool in separation, purification and metal recovery systems. The process involves a reversible exchange of ions which takes place between liquid and solid phase of ion exchangers during two sequential processes: adsorption/metal loading and elution. Adsorption/metal loading is interpreted as the extraction process in which the targeted ions from the liquids are exchanged with mobile ions from the ion exchangers[9-10]. The interest in the chelating resins or ion exchange resins is due to the rapid adsorption of metal ions, higher selectivity and less swelling, in comparison with the analogous organic polymer. Chemically, guar gum (Figure 1) is a polysaccharide composed of the sugars galactose and mannose. The backbone is a linear chain of β 1, 4-linked mannose residues to which galactose residues are 1, 6-linked at

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Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior : An Empirical Analysis

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Abstract

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Credit Card, Plastic Money, Reward Points, Convenience, Impulsive Buying Behavior, Debt, Random Forest Technique, Mobile Phones

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Review

Antibiotic Resistance: A Global Health Crisis

Renu Solanki[1] · Shailly Anand[1] · Mugdha Anand[1] · Pratiek Kumar[1] · Munendra Kumar[1] · Monisha Khanna Kapur[1]*

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Abstract

Antimicrobial Resistance (AMR) has been recognized as a global health crisis. It occurs when the microbial pathogens develop mechanisms by means of which the existing antibiotics become ineffective against them and the management of infections caused by them become difficult. According to the data of World Health Organization (WHO) the most common multidrug resistant (MDR) microbes include *Mycobacterium tuberculosis*, *Neisseria gonorrhoeae*, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Pseudomonas aeruginosa*, *Clostridium difficile*, *Klebsiella pneumoniae* and many more. Overpopulation, globalization, misuse of antibiotics by humans, injudicious use of antibiotics in livestock, poor hygiene standards in hospitals and lack of development of new antibiotics constitute the major causes for the rise in antimicrobial resistance. Although, the development of new antibiotics is considered as a potential solution to tackle the spread of AMR, newer alternative strategies including vaccines, bacteriophages, monoclonal antibodies, other bioactive molecules like peptides and development of effective diagnostic tools are also being explored by scientists to overcome this issue. This global concern thus requires collaborative efforts from countries across the world. Therefore, different organizations like World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Infectious Diseases Society of America, World Economic Forum are working tirelessly towards the control of AMR.

Keywords: Antibiotics, anti-microbial resistance, health, global challenge

Introduction

Antibiotics are the chemical substances which kill or stop the growth of microbes including bacteria and fungi. On the basis of their mode of action, antibiotics are divided into two broad categories [1]:

(i) Bacteriostatic: These antibiotics prevent the bacteria from multiplying further mainly by hampering the cell wall synthesis.

(ii) Bactericidal: These antibiotics kill the bacteria by preventing the DNA replication, protein synthesis or by affecting other metabolic pathways (Figure 1).

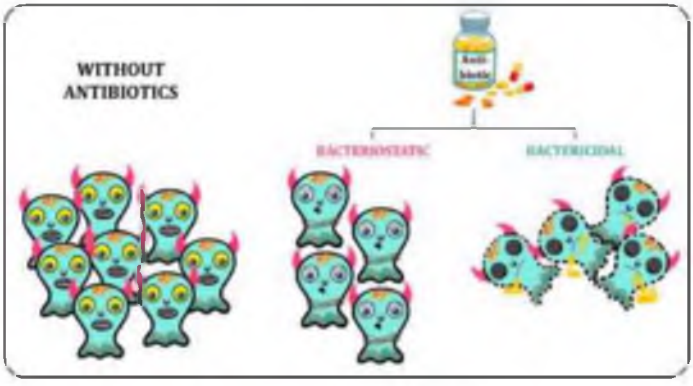

Figure 1: Bacteriostatic and Bactericidal antibiotics

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Review

Role of abiotic and biotic components in remediating environmental pollutants: A review

Sripoorna Somasundaram[1] · Jyoti Dagar[1] · Jeeva Susan Abraham[1] · Swati Maurya[1] · Sandeep[1] · Seema Makhija[1] · and Ravi Toteja[1*]

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Abstract

Increasing environmental pollutants due to various anthropogenic activities are of great concern nowadays since they affect the health of both terrestrial and aquatic ecosystems. Pollutants such as pesticides, heavy metals, fertilizers are non-biodegradable and persist in the environment for a longer duration affecting the health of living organisms. In this context, bioremediation technology is gaining considerable attention. Bioremediation technology involves various living organisms for the removal of toxic pollutants. This review discusses detoxification methods adopted by various microorganisms. An attempt has also been made to understand how these detox-mechanisms can be exploited to clean up the environment in a natural way. Finally, various environmental factors that regulate bioremediation processes and the methods to improve the rate of bioremediation have been mentioned. This comprehensive study may help to understand the fundamental aspects and future perspectives of microbial remediation of pollutants which could help in commercial success of waste management processes.

Keywords: Bioremediation; Biotechnology; Detoxification; Environmental pollution; Microbes

Introduction

Environmental pollution is of great concern worldwide due to increasing industrialization, urbanization, mining, usage of agro-chemicals and other anthropogenic activities [1]. Pollutants including both organic and inorganic compounds such as fertilizers, pesticides, heavy metals, herbicides, insecticides, greenhouse gases, hydrocarbons, oil, dyes, nuclear wastes, e-waste, etc. are reported to contaminate terrestrial and aquatic environments [2, 3]. These pollutants are known to enter the food chain of various living organisms, causing adverse effects [4]. To control this prevailing condition, many research studies are being conducted to clean-up or reduce the increasing environmental pollutants [3]. Previously, the pollutants or wastes were disposed of in a traditional manner, where they were dumped by digging holes [5]. But this method of waste management has become very difficult and unsuccessful due to increasing demand for new places every time to dump the rapidly increasing environmental waste. Nowadays, microbial remediation is gaining attention since it is considered to be a successful cleaning or waste management technique, where the microorganisms are predominantly involved in detoxifying the environmental contaminants [6]. Thus, bioremediation is commonly defined as a biological mechanism that helps in recycling toxic wastes to non-toxic compound by any of the process such as degradation, eradication, immobilization, or detoxification [6]. Since bioremediation processes are environmental and budget friendly in relation to other physical and chemical methods, they have come into extensive usage in remediating technologies [3, 6]. Bioremediation technology generally employs various microorganisms which include bacteria, ciliates, algae and fungi [3]. The versatility of microbes with respect to their nutritional demands and also their metabolic activity confers them the ability to survive even in the harsh environmental conditions and contribute efficiently in bioremediation [2].

This review focuses on various microbial detoxification processes that help in altering the toxic pollutants to non-toxic materials by exhibiting a unique array of mechanisms. This review also talks about the abiotic factors which play predominant role in determining the biodegradation rate of pollutants and about various methods involved in regulating these abiotic factors for proper microbial activity. In addition, the limitations/challenges of bioremediation have been discussed. Thus, the current review will impart an updated information on the remediation strategies to remove environmental pollutants using microorganisms.

Detoxification mechanisms exhibited by various microorganisms

The various microorganisms used in bioremediation processes have been summarized in Table 1.

Following are the different mechanisms adopted by the microorganisms to detoxify the pollutants:

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RESEARCH ARTICLE

Estimation after selection from bivariate normal population with application to poultry feeds data

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Abstract

In many practical situations, it is often desired to select a population (treatment, product, technology, etc.) from a choice of several populations on the basis of a particular characteristic that associated with each population, and then estimate the characteristic associated with the selected population. The present paper is focused on estimating a characteristic of the selected bivariate normal population, using a LINEX loss function. A natural selection rule is used for achieving the aim of selecting the best bivariate normal population. Some natural-type estimators and Bayes estimator (using a conjugate prior) of a parameter of the selected population are presented. An admissible subclass of equivariant estimators, using the LINEX loss function, is obtained. Further, a sufficient condition for improving the competing estimators is derived. Using this sufficient condition, several estimators improving upon the proposed natural estimators are obtained. Further, an application of the derived results is provided by considering the poultry feeds data. Finally, a comparative study on the competing estimators of a parameter of the selected population is carried-out using simulation.

Mathematics Subject Classification (2020). 62F07, 62F15, 62C15

Keywords. Estimation after selection, bivariate normal distribution, improved estimators, LINEX loss function, natural selection rule

1. Introduction

The estimation of a characteristic after selection has been recognized as an important practical problem for many years. The problem arises naturally in multiple applications where one wishes to select a population from the available $k(\geq 2)$ populations and then estimate some characteristics (or parametric functions) associated with the population selected by a fixed selection rule. For example, in modeling economic phenomenons, often the economist is faced with the problem of choosing an economic model from $k(\geq 2)$ different models that returns a minimum loss to the capital economic. After the selection

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Abstract

Expert systems for medical applications have emerged as a result of recent developments in artificial intelligence. Additionally, in the recent [illegible], computational tools have been developed to enhance the knowledge and skills of doctors when it comes to making decisions regarding their patients. The second leading cause of cancer related death is breast cancer, which is the most prevalent malignancy in women. About one-third of women with breast cancer pass away from the condition, even though it is treatable when found early. One of the main causes of death in the globe is cancer. Prostate cancer is one type of cancer that claims lives among men. This study is to evaluate the model's accuracy to expert forecasts regarding prostate cancer. Based on patient prostate volume, age, and prostate specific antigen data, predictions are made. Due to the absence of a prostate-like appearance in women, this disease mainly affects men. However, it might be challenging to distinguish between benign and malignant mammographic results, therefore in this work, we designed an expert system for Diagnosis of Breast Cancer and Prostate Cancer. The findings demonstrate that the proposed fuzzy model can be used effectively to aid in the diagnosis and analysis of the possibility of prostate cancer and is one of the factors that doctors consider when determining whether or not a biopsy is necessary for these patients. The PCR value provided by the fuzzy model is within the PCR interval predicted by a specialist doctor. This technique makes it possible to avoid needless biopsy. Additionally, this technique can be useful for training medical students. © 2022 Walters Kluwer Medknow Publications. All rights reserved.

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Surface texturisation for the reduction of light reflection in ZnO/Si heterojunction

ABSTRACT

In this paper, the impact of pyramidal texture on a silicon substrate in ZnO/p-Si heterojunction was investigated. The texturisation of p-type silicon (100) substrate was obtained using the KOH anisotropic wet chemical etching method for different etching times. The RF magnetron sputtering technique was used to deposit ZnO thin films on textured Si substrates and planar Si substrates to form ZnO/Si heterojunction. The surface morphology was studied with field emission scanning electron microscopy (FE-SEM) and atomic force microscopy (AFM). Optical properties were investigated using UV-Visible spectroscopy and photoluminescence (PL). The results show that the PL intensity in the visible region of the electromagnetic spectrum increases with the etching time, while a significant reduction is observed in the reflectance. Due to impressive anti-reflection response, ZnO/Si (textured silicon-TS) heterojunction can be effective in improving the efficiency of solar cells.

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Synthesis of ternary 0.49BF-0.20PMN-0.31PT ceramic at morphotropic phase boundary for excellent die-/piezo-/ferro-/pyro-electric response

Sam Kumar, Abid Hussain, Abhijeet J. Joseph, Sahil Goel, Rajib Gupta, Naorem Santarius Singh & Udeshi Singh

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Abstract

Abstract

A ternary 0.49BF-0.20PMN-0.31PT ceramic with composition at morphotropic phase boundary has been synthesized using the solid state reaction method. The perovskite phase of synthesized 0.49BF-0.20PMN-0.31PT ceramic with monoclinic structure was confirmed by powder XRD. Dense microstructure with uniform grain was revealed by the FESEM micrograph. An excellent dielectric response with a high dielectric constant value, high-phase transition temperature (T_r = 275 °C) and low dielectric loss was obtained. A large value of piezoelectric coefficient (d_{33}^* = 632 pm/V) was achieved from the butterfly loop. The pyroelectric study revealed an excellent pyroelectric response for the ceramic. BF-PMN-PT ceramic displayed excellent ferroelectric P-E hysteresis loops with good fatigue resistance. The magnetic hysteresis loop (M-H) was traced at room temperature which displayed weak ferromagnetic nature of the sample. The obtained properties of the synthesized MPB composition of BF-PMN-PT indicate its great potential in ferroelectric device applications.

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Review

Recent Trends in Carbon Nanotube Electrodes for Flexible Supercapacitors: A Review of Smart Energy Storage Device Assembly and Performance

Himadri Tanaya Das [1,*], Swapnamoy Dutta [2], Tamilarasan Elango Balaji [2], Nigamananda Das [2], Payaswini Das [3], Neelu Dheer [4], Rajni Kanojia [5], Preety Ahuja [6] and Sanjeev Kumar Ujjain [6,*]

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Abstract: In order to upgrade existing electronic technology, we need simultaneously to advance power supply devices to match emerging requirements. Owing to the rapidly growing wearable and portable electronics markets, the demand to develop flexible energy storage devices is among the top priorities for humankind. Flexible supercapacitors (FSCs) have attracted tremendous attention, owing to their unrivaled electrochemical performances, long cyclability and mechanical flexibility. Carbon nanotubes (CNTs), long recognized for their mechanical toughness, with an elastic strain limit of up to 20%, are regarded as potential candidates for FSC electrodes. Along with excellent mechanical properties, high electrical conductivity, and large surface area, their assemblage adaptability from one-dimensional fibers to two-dimensional films to three-dimensional sponges makes CNTs attractive. In this review, we have summarized various assemblies of CNT structures, and their involvement in various device configurations of FSCs. Furthermore, to present a clear scenario of recent developments, we discuss the electrochemical performance of fabricated flexible devices of different CNT structures and their composites, including additional properties such as compressibility and stretchability. Additionally, the drawbacks and benefits of the study and further potential scopes are distinctly emphasized for future researchers.

Keywords: carbon nanotubes; flexible; energy storage; supercapacitor; nanocomposites

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1. Introduction

Development of flexible energy storage systems has improved in recent times, due to the rise in demand for next-generation technology. Recent technologies such as smart wearable and portable electronic devices have encouraged the utilization and further advancement of energy storage components such as supercapacitors or batteries [1–4]. To make existing or upcoming upgraded electronics slimmer, lighter, and more flexible, enhanced energy supply systems are necessarily required. Enhanced electronic devices or technologies which have exhibited great scope of application include electronic textiles, flexible displays, distributed sensors, artificial electronic skin, etc. [5–7]. However, researchers continue to search for promising energy storage systems to achieve desired features for more complex electronic devices [8–10]. Supercapacitors have potential for energy storage utilization in future electronics devices, owing to characteristics including

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In silico prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2

Jyoti Rani[a,b], Anasuya Bhargav[b,c], Faez Iqbal Khan[d], Srinivasan Ramachandran[b,c], Dakun Lai[d] and Urmi Bajpai[a]

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ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused a colossal loss to human health and lives and has deeply impacted socio-economic growth. Remarkable efforts have been made by the scientific community in containing the virus by successful development of vaccines and diagnostic kits. Initiatives towards drug repurposing and discovery have also been undertaken. In this study, we compiled the known natural anti-viral compounds using text mining of the literature and examined them against four major structural proteins of SARS-CoV-2, namely, spike (S) protein, nucleocapsid (N) protein, membrane (M) protein and envelope (E) protein. Following computational approaches, we identified fangchinoline and versiolactone C as the compounds to exhibit strong binding to the target proteins and causing structural deformation of three structural proteins (N, S and M). We recommend the inhibitory effects of these compounds from our study should be experimentally validated against SARS-CoV-2.

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KEYWORDS
SARS-CoV-2; natural antiviral compounds; docking; simulation; COVID-19

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) from the Coronaviridae family has created an unprecedented healthcare crisis (Khan et al., 2020). It has disseminated around the world with a mortality rate of 2.15% (22 July, 2021) (WHO). Further, the emergence of new variants of SARS-CoV2 and their high transmission rate has created an unparalleled disruption in human life and still poses a big threat to human health and global economy. In the past decades, several epidemics have been caused by coronavirus, which include SARS-CoV in 2003 with a mortality rate of 10% (Cheng et al., 2007; Lee et al., 2003) and Middle East Respiratory Syndrome (MERS) in 2012 with 35% mortality rate (de Groot et al. 2013; Zaki et al., 2012). The pathogenicity of SARS-CoV-2 is relatively less than SARS-CoV and MERS, but it is infectivity is higher than other harmless human coronaviruses (Dömling & Gao, 2020). The recent launch of several vaccines has opened the possibility of containing the infection and providing protection to a large populace. However, effective drugs for the treatment of infections caused by coronaviruses (Wu et al., 2020) are still not available and a hunt for drugs against SARS-CoV2 remains critical for the therapeutic interventions.

For discovery of new drugs, natural compounds serve as rich resources (Lin et al., 2014) and nearly a quarter of approved drugs have plant origins (Thomford et al., 2018). Several well-characterized natural compounds have been documented for their antimicrobial, anti-inflammatory and other beneficial effects on humans and animals thereby offering promising sources for drug development (Clark, 1996; El Sayed, 2000). Advancement in the synthetic biology also has accelerated the mass production of natural compounds (Chen et al., 2021). The ethno-medical literature has listed various herbal plants for their appealing antiviral activity (Ganjhu et al., 2015; Mukhtar et al., 2008; Potroz & Cho, 2015). Natural products include extracts from herbal plants, phytoconstituents, and precise extracts of seed, root, fruit, stem, and flower of plants (Boukhatem & Setzer, 2020; Rates, 2001). Several derivatives of medicinal herbs have been widely considered for antiviral activity (Ganjhu et al., 2015). Antiherpetic acyclovir', amoebicide 'emetine' and antimalarial quinine are good examples of drugs modeled on natural products (El Sayed, 2000; Ganjhu et al., 2015). Some of the medicinal plants have also shown antiviral activity against SARS-CoV-2 (Benarba & Pandiella, 2020; Mesli et al., 2021; Mouffouk et al., 2021).

SARS-CoV-2 genome contains approximately 30,000 bases but encodes only a few proteins (Dömling & Gao, 2020). The structural proteins, namely, spike protein, envelope protein, membrane protein and nucleocapsid protein are essential to complete the viral structure. Spike (S) protein mediates the entry of virus into host cells (Wrapp et al., 2020); membrane

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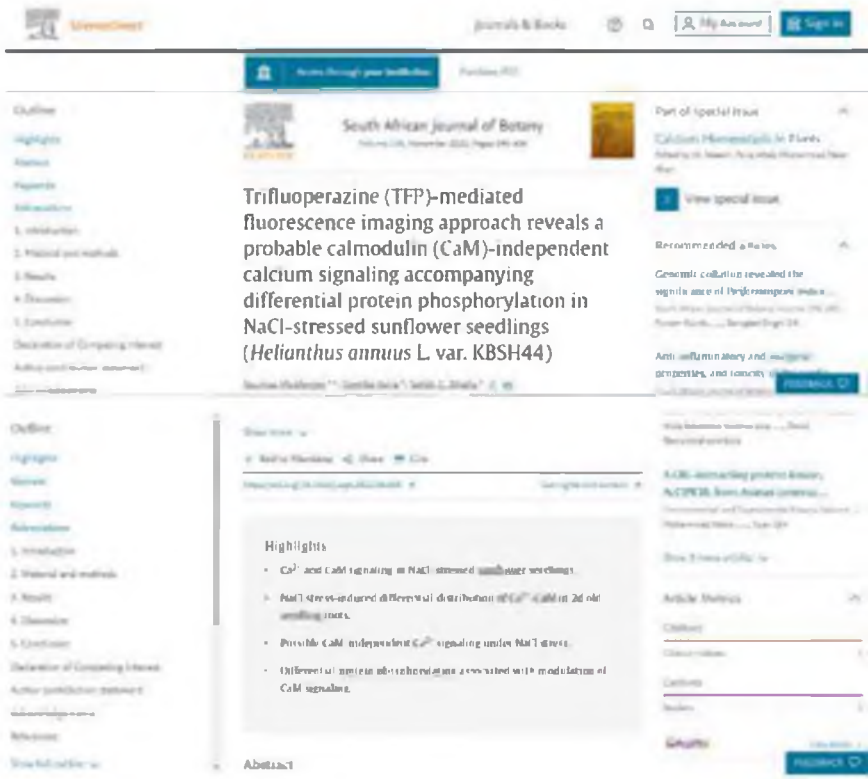
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ORIGINAL RESEARCH
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Breeding System and Response of the Pollinator to Floral Larceny and Florivory Define the Reproductive Success in *Aerides odorata*

Arjun Adit[1], *Vineet Kumar Singh*[2], *Monika Koul*[3] *and Rajesh Tandon*[1]*

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Consumption of pollination reward by felonious means in a plant species can influence the foraging behavior of its pollinator and eventually the reproductive success. So far, studies on this aspect are largely confined to interaction involving plant-pollinators and nectar robbers or thieves. However, a foraging guild in such interactions may also include floral herbivores or florivores. There is a paucity of information on the extent to which nectar larcenists may influence the foraging behavior of the pollinator and reproductive fitness of plants in the presence of a florivore. We investigated various forms of larceny in the natural populations of *Aerides odorata*, a pollinator-dependent and nectar-rewarding orchid. These populations differed in types of foraging guild, the extent of larceny (thieving/robbing), which can occur with or without florivory, and natural fruit-set pattern. The nectariferous spur of the flower serves as an organ of interest among the foraging insects. While florivory marked by excision of nectary dissuades the pollinator, nectar thieving and robbing significantly enhance visits of the pollinator and fruit-set. Experimental pollinations showed that the species is a preferential outbreeder and experiences inbreeding depression from selfing. Reproductive fitness of the orchid species varies significantly with the extent of floral larceny. Although nectar thieving or robbing is beneficial in this self-compatible species, the negative effects of florivory were stronger. Our findings suggest that net reproductive fitness in the affected plant species is determined by the overarching effect of its breeding system on the overall interacting framework of the foraging guild.

Keywords: floral herbivory, foraging guilds, orchids, nectar robbing, mixed-mating

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INTRODUCTION

Floral nectar, the major pollination reward among the flowering plants, is presented to the pollinators in two ways – openly or selectively. The selective mode is associated with flowers in which nectar is concealed. The hidden floral reward can be consumed by a suitable pollinator only when it is legitimately accessed (Fenster, 1991). The dynamics of production and presentation of nectar by a plant play a crucial role in maintaining constancy with suitable pollinators and sustaining fruit-set (fitness). Altered foraging behavior of the pollinator can adversely influence the fitness when there is discontinuous provisioning of rewards. A variety of foragers who illegitimately

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REVIEW ARTICLE

An Insight of Nanomaterials in Tissue Engineering from Fabrication to Applications

Ritika Sharma[1] · Sanjeev Kumar[2,3] · Bhawna[2,3] · Akanksha Gupta[4] · Neelu Dheer[5] · Pallavi Jain[6] · Prashant Singh[7] · Vinod Kumar[2,8]

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Tissue engineering is a research domain that deals with the growth of various kinds of tissues with the help of synthetic composites. With the culmination of nanotechnology and bioengineering, tissue engineering has emerged as an exciting domain. Recent literature describes its various applications in biomedical and biological sciences, such as facilitating the growth of tissue and organs, gene delivery, biosensor-based detection, etc. It deals with the development of biomimetics to repair, restore, maintain and amplify or strengthen several biological functions at the level of tissue and organs. Herein, the synthesis of nanocomposites based on polymers, along with their classification as conductive hydrogels and bioscaffolds, is comprehensively discussed. Furthermore, their implementation in numerous tissue engineering and regenerative medicine applications is also described. The limitations of tissue engineering are also discussed here. The present review highlights and summarizes the latest progress in the tissue engineering domain directed at functionalized nanomaterials.

Keywords Tissue engineering · Nanomaterials · Nanotechnology · Regenerative medicine · Biomimetics · Conductive hydrogels · Polymers · Scaffolds

1 Introduction

In tissue engineering (TE) domain, tissue growth is initiated by 3D-scaffolds; the cells proliferate and differentiate into several types or from a base of cells. These scaffolds are combined with growth factors (GFs) to direct cell behaviour and enable the production of tissue. These engineered tissues are functional and capable of implant growth and regeneration [1–5]. Currently, it has become an impressive tool for repairing and reconstructing impaired organs and tissues. In the past two decades, the immense implementation of nanomaterials (NMs) in TE has progressed tremendously (Fig. 1).

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Advanced Performance Materials

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Research Article

Broadband light trapping in a-Si:H based plasmonic solar cells using Au core-Al_2O_3 shell composite nanospheres using FDTD method

ABSTRACT

In this work, two different geometries of Au core-Al_2O_3 shell composite nanospheres (CNS) in ITO/a-Si:H based solar cell structure have been considered. A finite-difference time domain (FDTD) analysis of optical and electrical properties for both geometries has been conducted using open-source software MEEP. When embedded in the active layer of the cell, Au core-Al_2O_3 shell CNS exhibit relatively high scattering efficiency over a broad spectrum. Maximum normalized scattering efficiency for CNS on top geometry has been found 18.16 while that for embedded CNS geometry it boosts up to 19.62. The localized surface plasmon resonance wavelength achieves a value of 738.9nm for CNS on top and 835.8nm for embedded CNS configurations. Furthermore, reflectance of the incident radiation reduces significantly with the shell thickness leading to effective light trapping. This study provides an important design to enhance the efficiency of silicon based plasmonic solar cells.

Related Research

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A Novel Framework for Assessing the Criticality of Retrieved Information

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Abstract: Data created by microblogging platforms provide an exceptional opportunity to mine valuable insights; however, their application in critical information retrieval is still at its inflection point. Taking advantage of Deep Learning (DL) and Natural Language Processing (NLP) techniques, this paper proposes a novel framework for retrieving critical information from Twitter to manage emergencies effectively. The proposed framework classifies the tweets into relevant and irrelevant classes using Bidirectional Encoder Representations from Transformers (BERT). Subsequently, relevant tweets are clustered using a k-means algorithm based on textual semantic similarity obtained using Universal Sentence Encoder (USE). Finally, the critical value of tweets is computed to segregate the relevant information that may assist the management teams to plan and organize their operations efficiently. The proposed work was tested on a real-world dataset of Uttarakhand Floods that occurred in February 2021. The critical information retrieved may be deployed to quickly manage disastrous situations and take the appropriate measures in time.

Keywords: Text Classification, BERT, k-means, Semantic Similarity, Clustering, Information Retrieval, Critical information.

1. Introduction

The advent of social media has marked a shift in information collection and dissemination during emergencies [1]. Researchers have leveraged social media to conduct numerous studies, including but not limited to outbreak detection [2], [3], information retrieval [4], evacuation behavior [5], [6], hazard assessment [6], and damage assessment [7], [8]. Twitter is one of the microblogging platforms that facilitate researchers in carrying out their studies on real-world data. It has 316 million users [9], empowering it with the capability of real-time feedback. Therefore, the potential of Twitter as a dependable and relevant data source is evident [10], [11]. It provides a platform for sharing crucial information and opinions on news updates, government and non-government initiatives and policies, and even requesting assistance during critical times [3], [12], [13]. Many studies [14], [15], [16], [17], [18] have proved that social media platforms like Twitter have also been beneficial to spread situational awareness during an emergency. Situational awareness may be defined as the available knowledge to assess and cope with a situation [18]. Thus, it plays an essential role in helping people during an emergency.

During critical times, government and non-government organizations look for related information to mitigate the adverse impact of the tragedies. Public authorities rely on timely and vital information to launch their operations timely for rescue management. The concerned authorities may send out alerts and learn the urgent needs of affected people to allocate the resources and take appropriate actions [8], [19]. Although social media platforms are promising data resources for emergencies, identifying helpful information for decision-making and action-taking is still challenging [20].

The vast volume of data on social media may contain an enormous amount of unwanted information, which can be overwhelming and bewildering to anyone trying to retrieve crucial details [21], [22]. Thus, it is essential to filter out the irrelevant information and segregate the relevant information to ensure that the precise information reaches the concerned authorities in time. Further, it may reduce the response time for relief and recovery measures during the emergency and increase situational awareness. As natural disasters are occurring more frequently than ever before, a system that could collect the data quickly during the crisis and facilitate assessing the severity of the situation

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Multiple ionisation and Coulomb explosion in terawatt photoexcitation of Xenon clusters: An experimental and theoretical study

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Abstract

Multiple ionisation and Coulomb explosion following photoexcitation of xenon clusters has been studied at $\sim 10^{12}$ W/cm^2 at three different wavelengths in UV and visible region. Multiply charged xenon ions Xe^{n+} up to +4, +6 and +10 states were observed in time of flight mass spectra at 266, 355 and 532 nm respectively. Energetic electrons were also detected and electron energy distribution was measured at all the three wavelengths. The maximum electron energy was found to be dependent on the ionising wavelength. It has been established that [illegible] Xe^+ ions and the energetic electrons cause secondary ionization of singly charged xenon ion Xe^+ to give rise to higher charged states of xenon. An analytical model has been developed to understand the multiple ionization of xenon clusters at terawatt laser intensity. It reveals that lowering of ionization potential and excitation to Rydberg states of ions are important factors to generate high charge states like Xe^{10+}. Our measurements are with the experimental results.

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Genome-based reclassification of *Amycolatopsis eurytherma* as a later heterotypic synonym of *Amycolatopsis thermoflava*

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REVIEW
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Endophytic Nanotechnology: An Approach to Study Scope and Potential Applications

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Nanotechnology has become a very advanced and popular form of technology with huge potentials. Nanotechnology has been very well explored in the fields of electronics, automobiles, construction, medicine, and cosmetics, but the exploration of nanotecnology's use in agriculture is still limited. Due to climate change, each year around 40% of crops face abiotic and biotic stress; with the global demand for food increasing, nanotechnology is seen as the best method to mitigate challenges in disease management in crops by reducing the use of chemical inputs such as herbicides, pesticides, and fungicides. The use of these toxic chemicals is potentially harmful to humans and the environment. Therefore, using NPs as fungicides/ bactericides or as nanofertilizers, due to their small size and high surface area with high reactivity, reduces the problems in plant disease management. There are several methods that have been used to synthesize NPs, such as physical and chemical methods. Specially, we need ecofriendly and nontoxic methods for the synthesis of NPs. Some biological organisms like plants, algae, yeast, bacteria, actinomycetes, and fungi have emerged as superlative candidates for the biological synthesis of NPs (also considered as green synthesis). Among these biological methods, endophytic microorganisms have been widely used to synthesize NPs with low metallic ions, which opens a new possibility on the edge of biological nanotechnology. In this review, we will have discussed the different methods of synthesis of NPs, such as top-down, bottom-up, and green synthesis (specially including endophytic microorganisms) methods, their mechanisms, different forms of NPs, such as magnesium oxide nanoparticles (MgO-NPs), copper nanoparticles (Cu-NPs), chitosan nanoparticles (CS-NPs), β-d glucan nanoparticles (GNPs), and engineered nanoparticles (quantum dots, metalloids, nonmetals, carbon nanomaterials, dendrimers, and liposomes), and their molecular approaches in various aspects. At the molecular level, nanoparticles, such as mesoporous silica nanoparticles (MSN) and RNA-interference molecules, can also be used as molecular tools to carry genetic material during genetic engineering of plants. In plant disease management, NPs can be used as biosensors to diagnose the disease.

Keywords: nanotechnology, nanoparticles, crop yield, genetic engineering, molecular approaches, gene carriers

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Synthesis, comparative in vitro antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 M^{pro}

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Abstract

In this study, synthesis of 15 novel bis indole-based Schiff bases (SBs) derivatives was conducted by condensation of 2-(1-aminobenzyl)benzenediamide with symmetrical bis (aldehyde) linked via flexible alkyl chains (n = 2-6). These were subjected to ADME (absorption, distribution, metabolism and excretion), physicochemical properties, molecular docking, in vitro antibacterial and antioxidant studies. The in silico studies indicated lower toxicity with metabolic stability for nearly all the derivatives proving relatively leading candidates. The comparative antibacterial activity against Staphylococcus aureus and Escherichia coli was showed a superior inhibition than reference drug and these more compounds. The increase in linker alkyl chain length and variation of substituents in indole further predicted increased inhibition with maximum inhibition for compound 4h at 50 µg/ml. The in vitro calf thymus DNA (ct-DNA) binding ability of compounds 4c, 4d, 4e, 4f, 4h, 4m, and 4o was evaluated via ultraviolet-visible and fluorescence spectroscopy techniques. A hyperchromic effect was observed with no apparent wavelength shift which predicted for the groove binding mode. A moderate binding constant for 4o in fluorescence results confirms groove binding. The molecular docking of 4o with ct-DNA (PDB ID: 1BNA) and SARS-CoV-2 M^{pro} (3cl protease, PDB ID: 6LU7) prove its activity as potential DNA binder and antiviral agent.

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BENTHAM SCIENCE

REVIEW ARTICLE

Structure, Transmission, Diagnostic Symptoms, Host and Entry Mechanism of COVID-19: A Review

Prashant Swapnil[1], Mukesh Meena[2*], Tansukh Barupal[3], Yashwant Sompura[3] and Deepa Hada[3]

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Abstract: In Wuhan, China, a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been reported and caused coronavirus disease 19 (COVID-19). The coronavirus infection is pathogenic and highly transmittable and spread quickly around the world by the human to human contact. Through genomic analysis, it has been revealed that the primary reservoir of SARS-CoV-2 is bats due to having severe acute respiratory syndrome-like (SARS-like) viruses phylogenetically. The viral infection is rapidly transmitted by the human to human contact, but the intermediate source of their origin and transfer is not known. To date, any clinically approved vaccine or antiviral drug has not been prepared against COVID-19. However, researchers and scientists have evaluated some broad-spectrum antiviral drugs against COVID-19 through clinical trials and they have found satisfactory clinical recovery. This review summarizes the comparative analysis of the emergence and pathogenicity of COVID-19, severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV). This review is also focused on the development of effective vaccines or antidrug and also provides details related to an approach to practice therapeutic combinations to fight against this viral outbreak.

Keywords: COVID-19, SARS-CoV-2, glycoprotein, infection, symptoms, prevention.

1. INTRODUCTION

The term corona has been raised from the crown-like appearance (Corona is a Latin word it means crown-like). Nucleic acid material of coronavirus constituted with single-stranded RNA. The virus is also known as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), and the family of coronavirus is divided into different classes such as alpha (α), beta (β), gamma (γ), and delta (δ). The β class of coronavirus was reported as the main cause of COVID-19. This disease has been declared as a pandemic and zoonotic disease due to quick transmission in animals and humans. Previously, it is known that this virus is only transmitted in animals until the world witnessed in humans. In Guangdong, China 2003, SARS-CoV has been identified as the outbreak of SARS-CoV-1 [1]. In Middle Eastern countries, an endemic was announced due to another pathogenic coronavirus, called the Middle East respiratory syndrome (MERS-CoV), only a decade later [2]. Recently, Wuhan emerged as the business hub of china at the end of 2019. An outbreak of a novel coronavirus reported more than 177000 deaths and over sixteen lakhs of infections. Previously, SARS-CoV-2 has been named as the Wuhan coronavirus or 2019 novel coronavirus (2019-NCOV) in China, which further finally named as SARS-CoV-2 by the International Committee on Taxonomy of Viruses (ICTV) and this disease called COVID-19 [3-5]. In 2003, SARS-CoV infected around 8098 individuals with 9% mortality rate across 26 countries globally, while novel coronavirus 2019 caused infection and death around 4098018 and 283271 in individuals with a 2.9% mortality rate across 215 countries.

2. NOMENCLATURE

According to the World Health Organisation (WHO), U.S. Centers for Disease Control and Prevention (CDC), and ICTV, COVID-19 stands for CO-corona, VI-virus, D-disease, 19-2019 while SARS-CoV-2 for severe acute respiratory syndrome coronavirus-2 [6].

3. CLASSIFICATION

According to ICTV [1, 7], the classification of coronavirus is given below:

Category	Coronaviruses
Realm	*Riboviria*

contd....

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Computational identification and characterization of antigenic properties of Rv3899c of *Mycobacterium tuberculosis* and its interaction with Human leukocyte antigen (HLA)

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REVIEW ARTICLE

Taxonomically Characterized and Validated Bacterial Species Based on 16S rRNA Gene Sequences from India During the Last Decade

Princy Hira[1] · Priya Singh[2] · Anil Kumar Pinnaka[3] · Suresh Korpole[3] · Rup Lal[4]

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Abstract Microbial taxonomy dealing with identification and characterization of prokaryotes like bacteria and archaea has always been a major area of research all over the world. Exploring diversity of microbes and description of novel species with different genes and secondary compounds is of utmost importance for better future and sustenance of life. India having an enormous range of ecosystems and diverse species inhabiting these niches is considered to be one of the richest biodiversity regions of the world. During the last decade, with newer methodologies and better technology, the prokaryotic taxonomy from India has extended our inventory of microbial communities in specific niches. However, there still exist some limitations in classifying the microbes from India as compared to that is done world-over. This review enlists the taxonomic description of novel taxa of prokaryotes from India in the past decade. A total of 378 new bacterial species have been classified from different habitats in India in the last ten years and no descriptions of archaeal species is documented till date.

Keywords Microbial taxonomy · Classification · Niches · Novel species · Indian biodiversity

Princy Hira and Priya Singh have contributed equally to this work.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s12088-019-00845-7) contains supplementary material, which is available to authorized users.

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Introduction

Among one of the richest biodiversity regions of the world, India encompasses from greater Himalayas in the north to the second largest peninsula in the south that show diverse environmental conditions across it and contain three unique biodiversity hotspots viz., Western Ghats, eastern Himalayas and the Indo-Burma region. Also, it has desert in west, world's largest alluvial plain (Great plain of north India) and the thick forests in east. This results into richness of the diversity of both flora and fauna with respect to various environmental conditions. While the wealth of this diversity with respect to higher forms of life, viz., plants and animals is well explored and inventoried, such efforts in prokaryote diversity are recent that need lot more to be discovered and classified. The field of microbial taxonomy in India has taken a new dimension in the last decade and exponentially added the descriptions of new taxa of prokaryotes in the catalogue using polyphasic approach. Along with the description of novel species, the identification of new genes important for environment and human health has various industrial and biotechnological applications [1]. Therefore, taxonomical classification of commercially important organisms acts as a base for further studies on microbiological research. While there are quite a few research groups carrying out microbial taxonomy in India, but with the new and improved methodologies in the recent years' microbiologists have managed to unravel the

ORIGINAL RESEARCH ARTICLE

Prediction of Transcription Factors and Their Involvement in Regulating Rifamycin Production in *Amycolatopsis mediterranei* S699

Nirjara Singhvi[1] · Vipin Gupta[1] · Priya Singh[1,2] · Om Prakash[3] · Andreas Bechthold[4] · Yogendra Singh[1] · Rup Lal[5]

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Abstract *Amycolatopsis mediterranei* S699 produces rifamycin B and successors of this strain are in use for the industrial production of rifamycin B. Semisynthetic derivatives of rifamycin B are used against *Mycobacterium tuberculosis* that causes tuberculosis. Although the rifamycin biosynthetic gene cluster was characterized two decades ago, the regulation of rifamycin B biosynthesis in *Amycolatopsis mediterranei* S699 is poorly understood. In this study, we analysed the genome and proteome of *Amycolatopsis mediterranei* S699 and identified 1102 transcription factors which comprise about 10% of the total genome. Using interactomics approaches we delineated 30 unique transcription factors directly involved in secondary metabolism that regulate rifamycin B biosynthesis. We also predict the role of RifN as hub in controlling the regulation of other genes involved in rifamycin biosynthesis. RifN is important for maintaining the integrity of the rifamycin-network. Thus, these transcription factor can be exploited to improve rifamycin B production in *Amycolatopsis mediterranei* S699.

Keywords Transcription factors · *Amycolatopsis mediterranei* · Rifamycin · Regulation · Interactomics

Nirjara Singhvi and Vipin Gupta have contributed equally.

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Introduction

In prokaryotic cells, transcription factors (TF) are proteins that play important role in controlling the rate of transcription of a gene. TF's bind to specific DNA sequences enabling RNA-polymerases to perform the transcription process. There are a wide range of transcription factors. Some harbour DNA binding regions that bind directly to promoters. Others bind to the enhancer region of a gene. Proteins binding directly to the promoter region initiates the transcription process. TFs binding to the enhancer regions are indirectly stimulating or repressing the transcription process [1]. It is known that regulation of transcription factor is the most important form to control a gene expression. TF have been identified in bacterial family actinobacteria like genus *Streptomyces* have been reported to control gene expression and their regulation within the organized network [1, 2].

Amycolatopsis mediterranei S699 is a well-known actinobacterium that produces rifamycin B. It has been developed as industrial strains for the production of rifamycin B primarily by using classical strain improvement methods [3]. Semisynthetic derivatives of rifamycin B are

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PGPR-mediated induction of systemic resistance and physiochemical alterations in plants against the pathogens: Current perspectives

Mukesh Meena [1,2], Rashmi Swapnil [2,3], Kumari Divyanshu [1], Sunil Kumar [2], Harish [4], Yashoda Nandan Tripathi [3], Andleeb Zehra [3], Avinash Marwal [1], Ram Sanmukh Upadhyay [2]

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Abstract

Plant growth-promoting rhizobacteria (PGPR) are diverse groups of plant-associated microorganisms, which can reduce the severity or incidence of disease during antagonism among bacteria and soil-borne pathogens, as well as by influencing a systemic resistance to elicit defense response in host plants. An amalgamation of various strains of PGPR has improved the efficacy by enhancing the systemic resistance opposed to various pathogens affecting the crop. Many PGPR used with seed treatment causes structural improvement of the cell wall and physiological/biochemical changes leading to the synthesis of proteins, peptides, and chemicals occupied in plant defense mechanisms. The major determinants of PGPR-mediated induced systemic resistance (ISR) are lipopolysaccharides, lipopeptides, siderophores, pyocyanin, antibiotics 2,4-diacetylphloroglucinol, the volatile 2,3-butanediol, N-alkylated benzylamine, and iron-regulated compounds. Many PGPR inoculants have been commercialized and these inoculants consequently aid in the improvement of crop growth yield and provide effective reinforcement to the crop from disease, whereas other inoculants are used as biofertilizers for native as well as crops growing at diverse extreme habitat and exhibit multifunctional plant growth-promoting attributes. A number of applications of PGPR formulation are needed to maintain the resistance levels in crop plants. Several microarray-based studies have been done to identify the genes, which are associated with PGPR-induced systemic resistance. Identification of these genes associated with ISR-mediating disease suppression and biochemical changes in the crop plant is one of the essential steps in understanding the disease resistance mechanisms in crops.

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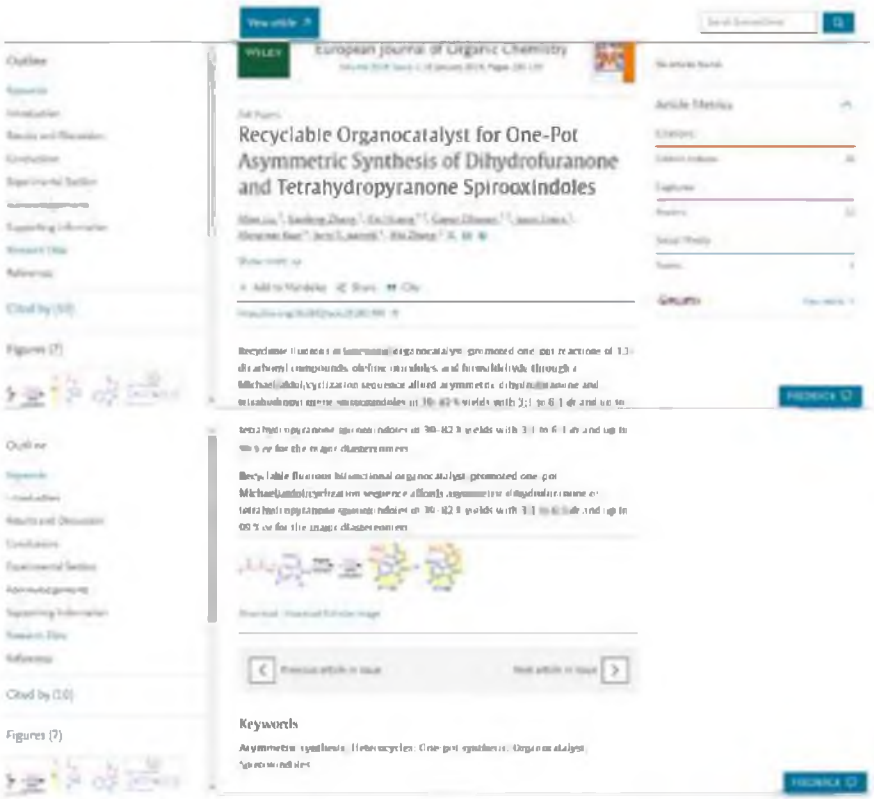
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A modified intuitionistic fuzzy c-means clustering approach to segment human brain MRI image

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Abstract

Fuzzy c means (FCM) is one of the prominent method utilized for medical image segmentation. The research work [1] suggested intuitionistic fuzzy c-means to handle uncertainty and vagueness associated with real data. The author defined an objective function which incorporated the hesitation degree along with membership degree. However, instead of solving the objective function analytically, the approximate solution is obtained. In this paper, we have proposed a modified intutionistic fuzzy c-means algorithm (MIFCM) and solved analytically the objective function of modified intuitionistic fuzzy c means algorithm (MIFCM) using Lagrange method of undetermined multiplier. To incorporate hesitation degree, two parametric intuitionistic fuzzy complements namely Sugeno's negation function and Yager's negation function are investigated. The performance of the proposed MIFCM method is compared with three intuitionistic fuzzy clustering methods and the FCM on two publically available MRI dataset and a synthetic dataset. The performance measures (average segmentation accuracy, dice score, jaccard score, false negative ratio and false positive ratio) are used to compare the performance of the proposed method with three variants of intuitionistic fuzzy clustering methods and the FCM. Experimental results demonstrate the superior performance of the proposed method over others.

1 Introduction

Image segmentation is one of the important phase in image analysis and pattern recognition because of its wide real life applications such as medical image analysis, computer vision, industrial inspections etc.. In last few years, medical image analysis is used for diagnosis of various disease such as Parkinson, Alzheimer, Schizophrenia etc.. For this, many medical imaging modalities, such as Computed

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Sultan Ahmed[1,2], Ahsan Ahmed[3] and M Rafat[1]

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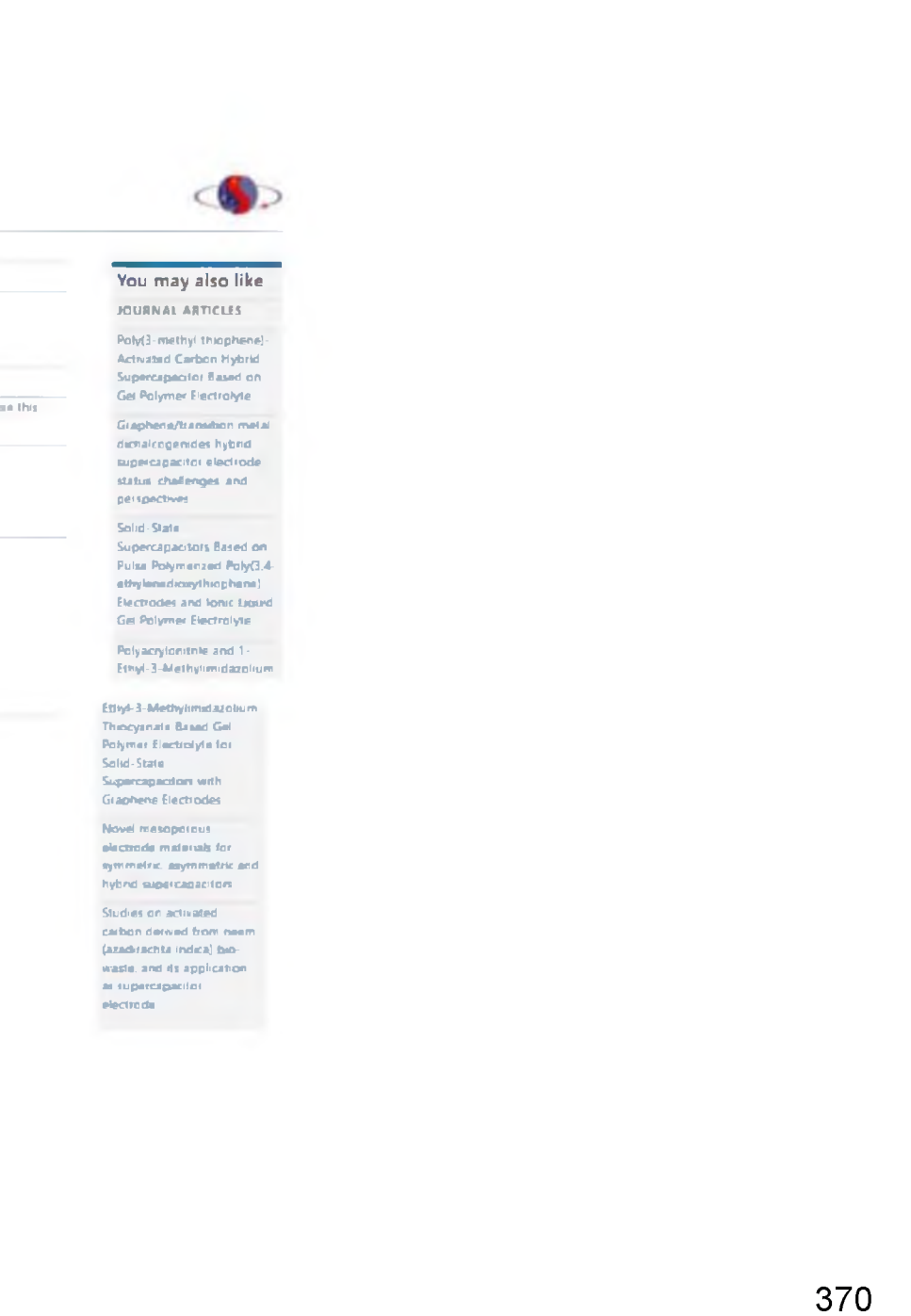
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Emergence of MapReduce (MR) framework for scaling data mining and machine learning algorithms provides for *Volume*, while handling of *Variety* and *Velocity* needs to be skilfully crafted in algorithms. So far, scalable clustering algorithms have focused solely on *Volume*, taking advantage of the MR framework. In this paper we present a MapReduce algorithm—data aware scalable clustering (DASC), which is capable of handling the 3 Vs of *big data* by virtue of being (i) single scan and distributed to handle *Volume*, (ii) incremental to cope with *Velocity* and (iii) versatile in handling numeric and categorical data to accommodate *Variety*. DASC algorithm incrementally processes infinitely growing data set stored on distributed file system and delivers quality clustering scheme while ensuring recency of patterns. The up-to-date synopsis is preserved by the algorithm for the data seen so far. Each new data increment is processed and merged with the synopsis. Since the synopsis itself may grow very large in size, the algorithm stores it as a file. This makes DASC algorithm truly scalable. Exclusive clusters are obtained on demand by applying connected component analysis (CCA) algorithm over the synopsis. CCA presents subtle roadblock to effective parallelism during clustering. This problem is overcome by accomplishing the task in two stages. In the first stage, *hyperclusters* are identified based on prevailing data characteristics. The second stage utilizes this knowledge to determine the degree of parallelism, thereby making DASC data aware. *Hyperclusters* are distributed over the available compute nodes for discovering embedded

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Bioacoustics or pitfall traps: comparison of a modern and traditional method to estimate Ensifera richness

The order Orthoptera occur in a variety of [illegible] and serve as an [illegible] [illegible] and prey base for bats[1], birds and spiders[2]. Orthopteran communities are affected by vegetation structure and composition and respond strongly to changes in plant [illegible]. Hence, they are suitable for monitoring and conservation studies[3,4]. A variety of sampling methods such as sweep netting, pitfall traps and malaise traps or light traps are employed for estimation of Orthoptera diversity and their abundance from a localized or over a large area[5,6]. Studies on transect [illegible], [illegible] and sweep netting have been carried out mainly in grasshoppers and in a few cases in katydids and field crickets for comparing efficiency of [illegible] [illegible] [illegible][7,8]. One of the most [illegible] techniques for collecting surface-active invertebrates is pitfall trapping[9]. However, pitfall traps for Orthoptera species [illegible] due to changes in [illegible][10]. Species-specific calls of ensiferan insects serve as a reliable method for species identification as each species has a unique frequency and temporal pattern. [illegible] is widely used for [illegible] [illegible][11,12]. Though studies on effectiveness of acoustic methods with respect to traditional methods have been carried out in birds and amphibians, studies are lacking in [illegible][13,14]. Also, distribution and [illegible] of Orthoptera at an urban ecosystem level has received little attention in India and worldwide[15,16,17].

The aim of the present study is to (1) [illegible] of Ensifera (Insecta: Grylloidea) in Delhi and suburban region using [illegible], (2) Compare the [illegible] and pitfall trapping in estimating species richness of Ensifera (Infraorder: Grylloidea), and (3) quantify diversity of other [illegible] captured in the pitfall traps.

The acoustic sampling of ensiferans was carried out at four locations in Delhi region (28.613°N, 77.209°E). Site one (S1) was a [illegible] grassland area, site two (S2) was an urban residential area, site three (S3) had [illegible] vegetation characteristics of an arid region with *Prosopis* sp. and *Acacia* sp. as dominant tree species and site four [illegible] [illegible] garden with [illegible] [illegible] managed by civic authorities. The acoustic and pitfall sampling were carried out from January to April during 2013 and 2014 respectively. The temperatures ranged from 10°C in January to 38°C in April, and relative humidity varied from 50% to 67% during the sampling months.

Call of the ensiferan males was recorded in the field in the evening between 6:00 and 9:00 pm. Individual calling insects were first tracked by ear and located. Recordings were made by holding a digital recorder (TASCAM DR-08, TEAC America Inc., USA, 44.1 kHz, 16 bit, wav format) at a distance of 25 cm from the calling animal. As the calling orthopterans are active only in the evening, the acoustic sampling was restricted to 1 h per evening for a total of 42 days. Only two individuals of a call type were preserved in 70% alcohol for taxonomic identification and the rest were released back in the place where they were captured. Song analysis was performed using the signal processing software RAVEN Pro 1.4 (Cornell Lab of Ornithology, Ithaca, NY, USA) and Spectra Plus 5 (Pioneer Hill Software, Poulsbo, WA, USA) for temporal and spectral analysis.

Pitfall traps were laid in the same locations where [illegible] sampling was carried out previously. Cylindrical plastic pots of diameter 17 cm and depth 16 cm were used as pitfall to catch orthopteran and other insects. Each pit was covered with a funnel to make sure that the captured insect does not jump out. A non-invasive method of pitfall trap was used to avoid unnecessary killing of invertebrates. Funnel traps without any additional preservative were demonstrated as a viable alternative to trap Orthoptera species previously[17]. Each trap was monitored every alternate day (spanning a period of 42 days) to check for captured insects. Captured invertebrates were photographed. For taxonomic [illegible] and invertebrates trapped in the pitfalls were counted and released back in the field but some from [illegible] check for captured insects. Captured invertebrates were photographed for taxonomic [illegible] and invertebrates trapped in the pitfalls were counted and released back in the field but every from the pit. In case of Orthoptera, two individuals per species were preserved. A total of 50 pits were laid for data collection. However, over a period of time 27 pits were stolen and hence, sampling had to be abandoned for these sites. Hence a comparison between the two methodologies, i.e. acoustic and pitfall sampling is limited to a period of four months.

Orthopteran [illegible] were identified up to the genus level using keys in Chopard[18] [illegible] were classified till order level using entomology keys[19]. A standardized abundance of each taxon was estimated by dividing the number of individuals in each taxon by the sampling effort (number of pits) to correct for unequal sampling efforts in

Table 1. [illegible]

Ensifera species	S1	S2	S3	S4	Total no. of individuals
1. Superfamily: Grylloidea					
Family: Gryllidae					
Gryllidae sp.	1	1	1	1	4
Gryllus timavlaiae	–	–	–	1	1
Gryllus X	1	1	2	2	6
Gryllus Y	–	–	–	1	1
Family: [illegible]					
Natronchis sp.	1	1	1	1	4
2. Superfamily: Grylloptera					
Family: Gryllotalpidae					
Gryllotalpa sp.	1	1	1	2	5
Total individuals	4	4	5	10	27

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Bioacoustics or pitfall traps: comparison of a modern and traditional method to estimate Ensifera richness

Manisha Tomar, Abhay Pratap Singh and Swati Dhaskar

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3.3.1 Number of papers published per teacher in the Journals notified on UGC website during the last five years (5)

S. No	Title of paper	Name of the author/s	Department of	Name of journal	Year of publica	ISSN numbe	Link to the recognitio	Link to paper/ abstract of	Provide the link to Journal website	Indicate Journal's indexing in
	a	b	c	d	e	f	g	h	i	j
1	**One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates**	Zhang, X., **Dhawan, G.**, Muthengi, A., Liu, S., Wang, W., Legris, M., &	Biomedical Science	Green Chemistry	2017	1463-9262	https://doi.org/10.1039/C7GC01380A	https://pubs.rsc.org/en/content/articlelanding/2017/GC/C7GC01380A	https://mjl.clarivate.com:/search-results?issn=1463-9262&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
2	**A robust replenishment model for deteriorating items considering ramp-type demand and inflation under fuzzy environment**	Sharma, A., Sharma, U., & **Singh, C.**	Mathematics	International Journal of Logistics Systems and	2017	1.7E+07	https://doi.org/10.1504/IJLSM.2017.086944	https://www.inderscienceonline.com/doi/abs/10.1504/IJLSM.2017.086944	https://www.scopus.com/sourceid/4700151504	Indexed in UGC Care List and SCOPUS
3	**Supply chain model with two storage facility for stock dependent demand incorporating learning and inflationary effect under**	**Singh, C.**, & Singh, S. R.	Mathematics	International Journal of Fuzzy System Applications	2017	2156-177X	10.4018/IJFSA.2017040105	https://www.igi-global.com/gateway/article/179322#pnlRecommendationForm	https://www.scopus.com/sourceid/21100301444	Indexed in UGC Care List and SCOPUS
4	**Inhibition of gut proteases and development of dengue vector, Aedes aegypti by Allium sativum protease inhibitor**	Shamsi, T. N., Parveen, R., Ahmad, A., Samal, R. R., **Kumar, S.**, &	Zoology	Acta Ecologica Sinica	2017	1872-2032	https://doi.org/10.1016/j.chnaes.2018.01.002	https://www.sciencedirect.com/science/article/abs/pii/S1872203217301695	https://mjl.clarivate.com/search-results?issn=1000-0933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
5	**Assessment of Achyranthes aspera induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of Aedes**	**Sharma, A.**, Kumar, S., & Tripathi, P.	Zoology	Journal of Parasitic Diseases	2017	0971-7196	https://doi.org/10.1007/s12639-017-0935-1	https://link.springer.com/article/10.1007/s12639-017-0935-1	https://mjl.clarivate.com:/search-results?issn=0971-7196&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
6	**Assessment of Achyranthes aspera induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of Aedes**	Sharma, A., **Kumar, S.**, & Tripathi, P.	Zoology	Journal of Parasitic Diseases	2017	0971-7196	https://doi.org/10.1007/s12639-017-0935-1	https://link.springer.com/article/10.1007/s12639-017-0935-1	https://mjl.clarivate.com:/search-results?issn=0971-7196&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
7	**A facile and rapid method for green synthesis of Achyranthes aspera stem extract-mediated silver nanocomposites with cidal**	Sharma, A., **Kumar, S.**, & Tripathi, P	Zoology	Saudi Journal of Biological Sciences	2017	1319-562X	https://doi.org/10.1016/j.sjbs.2017.11.001	https://www.sciencedirect.com/science/article/pii/S1319562X17302759	https://mjl.clarivate.com:/search-results?issn=1319-562X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

8	**A facile and rapid method for green synthesis of Achyranthes aspera stem extract-mediated silver nanocomposites with cidal**	**Sharma, A.**, Kumar, S., & Tripathi, P	Zoology	Saudi Journal of Biological Sciences	2017	1319-562X	https://doi.org/10.1016/j.sjbs.2017.11.001	https://www.sciencedirect.com/science/article/pii/S1319562X17302759	https://mjl.clarivate.com:/search-results?issn=1319-562X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
9	**Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora;**	Gupta, R., Abraham, J. S., Sripoorna, S., **Toteja, R.**, Makhija, S., & El-	Zoology	Acta Protozoologica	2017	0065-1583	10.4467/16890027AP.17.008.7483	https://www.proquest.com/openview/14a339a68fe019b3b23e8a868614850f/1?pq-	https://mjl.clarivate.com:/search-results?issn=0065-1583&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
10	**Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora;**	Gupta, R., Abraham, J. S., Sripoorna, S., Toteja, R., **Makhija, S.**, & El-	Zoology	Acta Protozoologica	2017	0065-1583	10.4467/16890027AP.17.008.7483	https://www.proquest.com/openview/14a339a68fe019b3b23e8a868614850f/1?pq-	https://mjl.clarivate.com:/search-results?issn=0065-1583&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
11	**Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora;**	Gupta, R., Abraham, J. **S., Sripoorna, S.**, Toteja, R., Makhija, S., & El-	Zoology	Acta Protozoologica	2017	0065-1583	10.4467/16890027AP.17.008.7483	https://www.proquest.com/openview/14a339a68fe019b3b23e8a868614850f/1?pq-	https://mjl.clarivate.com:/search-results?issn=0065-1583&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
12	**Taxonomic and morphogenetic description of the freshwater ciliate Aponotohymena isoaustralis n. sp. (Ciliophora;**	Gupta, R., **Abraham, J**. S., Sripoorna, S., Toteja, R., Makhija, S., & El-	Zoology	Acta Protozoologica	2017	0065-1583	10.4467/16890027AP.17.008.7483	https://www.proquest.com/openview/14a339a68fe019b3b23e8a868614850f/1?pq-	https://mjl.clarivate.com:/search-results?issn=0065-1583&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
13	**Diversity and abundance of ammonia-oxidizing bacteria and archaea in a freshwater recirculating aquaculture system**	**Khangembam, C. D.**, Sharma, J. G., & Chakrabarti, R.	Zoology	Hayati Journal of Biosciences,	2017	2053-9711	https://doi.org/10.1016/j.hjb.2017.11.003	https://www.sciencedirect.com/science/article/pii/S1978301917301596	https://mjl.clarivate.com:/search-results?issn=2053-9711&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
14	**Beyond the "Code": a guide to the description and documentation of biodiversity in ciliated protists (Alveolata, Ciliophora)**	Warren, A., Patterson, D. J., Dunthorn, M., Clamp, J. C., Achilles-Day, U. E. M., Aescht, E., Al-Farraj, S. A.,	Zoology	Journal of eukaryotic Microbiology,	2017	1066-5234	https://doi.org/10.1111/jeu.12391	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12391	https://mjl.clarivate.com:/search-results?issn=1066-5234&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-	Indexed in UGC Care List, SCOPUS and Web of Science
15	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	Abraham, J. S., Sripoorna, S., **Choudhary, A.**, Toteja, R., Gupta, R.,	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

16	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	Abraham, J. S., **Sripoorna, S.**, Choudhary, A., Toteja, R., Gupta, R.,	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
17	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	Abraham, J. S., Sripoorna, S., Choudhary, A., **Toteja, R.**, Gupta, R.,	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
18	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	Abraham, J. S., Sripoorna, S., Choudhary, A., Toteja, R., Gupta, R.,	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
19	**Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea; Ciliophora) from Delhi, India**	**Abraham, J.** S., Sripoorna, S., Choudhary, A., Toteja, R., Gupta, R.,	Zoology	Current Science	2017	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/113/11/2141.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
20	**Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater**	**Toteja, R.**, Makhija, S., Sripoorna, S., Abraham, J. S. & Gupta, R	Zoology	Indian Journal of Experimental Biology	2017	0019-5189	https://nopr.niscpr.res.in/handle/123456789/42844 /	http://nopr.niscpr.res.in/bitstream/123456789/42844/1/IJEB%2055%2810%29%206	https://mjl.clarivate.com:/search-results?issn=0019-5189&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
21	**Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater**	Toteja, R., Makhija, S., Sripoorna, S., **Abraham**, J. S. & Gupta, R	Zoology	Indian Journal of Experimental Biology	2017	0019-5189	https://nopr.niscpr.res.in/handle/123456789/42844 /	http://nopr.niscpr.res.in/bitstream/123456789/42844/1/IJEB%2055%2810%29%206	https://mjl.clarivate.com:/search-results?issn=0019-5189&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
22	**Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater**	Toteja, R., **Makhija, S.**, Sripoorna, S., Abraham, J. S. & Gupta, R	Zoology	Indian Journal of Experimental Biology	2017	0019-5189	https://nopr.niscpr.res.in/handle/123456789/42844 /	http://nopr.niscpr.res.in/bitstream/123456789/42844/1/IJEB%2055%2810%29%206	https://mjl.clarivate.com:/search-results?issn=0019-5189&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
23	**Influence of copper and cadmium toxicity on the activity of an antioxidant enzyme, superoxide dismutase in freshwater**	Toteja, R., Makhija, S., **Sripoorna, S.**, Abraham, J. S. & Gupta, R	Zoology	Indian Journal of Experimental Biology	2017	0019-5189	https://nopr.niscpr.res.in/handle/123456789/42844 /	http://nopr.niscpr.res.in/bitstream/123456789/42844/1/IJEB%2055%2810%29%206	https://mjl.clarivate.com:/search-results?issn=0019-5189&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science

24	**Assessment of Particulate Matter (PM)concentrations at a typical construction site in Bangalore, India.**	**Chowdhuri A** and Gupta C K	Physics and Botany	International Research Journal of Environmen	2017	ISSN : 2319 - 1414	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	**PEER REVIEWED**
25	**Assessment of Particulate Matter (PM)concentrations at a typical construction site in Bangalore, India.**	Chowdhuri A and **Gupta C K**	Physics and Botany	International Research Journal of Environmen	2017		https://doi.org/10.1016/j.snb.2016.07.040	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	http://www.isca.in/IJENS/Archive/v6/i2/3.ISCA-IRJEvS-2016-177.php	**PEER REVIEWED**
26	**Distinct detection of liquor ammonia by ZnO/SAW sensor: study of complete sensing mechanism.**	**Raj V B,** Singh H, Nimal A T, Sharma MU, Tomar M and Gupta V	Physics	Sensors and Actuators B	2017	ISSN: 0020-0255	https://doi.org/10.1016/j.snb.2016.07.040	https://www.sciencedirect.com/science/article/pii/S0925400516310759	https://www.sciencedirect.com/science/article/pii/S0925400516310759	**SCOPUS INDEXED**
27	**Sensitivity Enhancement Studies of SAW vapor sensor by oscillator tuning using Varactor diode**	Singh H, Parmar Y, **Raj V B,** Pandya H M, Kumar J, Mishra M, Nimal A T	Physics	IEEE Sensors	2017	ISSN:1530-437X	DOI: 10.1109/JSEN.2016.2647282	https://ieeexplore.ieee.org/document/7803545	https://ieeexplore.ieee.org/document/7803545/authors#authors	**SCOPUS INDEXED**
28	**Alterations in the reactive oxygen species in peripheral blood of chronic myeloid leukemia patients from Northern India**	**Jetly, S.,** Verma, N., Naidu, K., Faiq, M. A., Tulika, S., & Saluja, D.	Biomedical Science	Journal of clinical and diagnostic research	2017		doi: 10.7860/JCDR/2017/28565.10425	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5620896/	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5620896/	**SCOPUS INDEXED**
29	**An analysis upon various strategies for redesign and direct evolution of enzyme engineering**	Sharma, S. V., & **Hooda, S.**	Chemistry	Journal of Advances in Science and Technology	2017	2230-9659	http://ignited.in/p/55520	http://ignited.in/p/55520	- http://ignited.in/p/55520	**PEER REVIEWED**
30	**Comparative study of removal of Cu and Pb from aqueous solution by using modified rice husk ask as an adsorbent**	Kumar, R., **Arya, D. K.,** Singh, N., & Vats, H. K.	Chemistry	International Journal of Chemistry and Applications	2017	2278-8719	https://www.researchgate.net/publication/334446847_Com	https://www.researchgate.net/publication/334446847_Comparative_study_of_Remo	- https://www.researchgate.net/publication/334446847_Comparative_study_of_Removal_	**PEER REVIEWED**

31	**Developing a low cost activated carbon from agricultural waste for the removal of heavy metal from cotaminated waste**	Kumar, R., **Arya, D. K.,** Singh, N., & Vats, H. K.	Chemistry	International Journal of Applied Chemistry	2017	0973-1792	**https://www.ripublication.com/ijac17/ijacv13n3_06.pdf**	**https://www.ripublication.com/ijac17/ijacv13n3_06.pdf**	https://www.ripublication.com/ijac17/ijacv13n3_06.pdf	**PEER REVIEWED**
32	**Sportsmen's energy package Cordyceps sinensis: Medicinal importance and responsible phytochemical constituents**	Joshi, Y. C., Joshi, M. C., Chopra, V., Joshi, R. K., Sharma, R. Kant., & **Kumar, V**.	Chemistry	American Journal of Essential Oils and Natural	2017	2321-9114	**https://www.essencejournal.com/archives/2017/5/2/A/5-2-**	**https://www.essencejournal.com/archives/2017/5/2/A/5-2-2**	https://www.essencejournal.com/archives/2017/5/2/A/5-2-2	**PEER REVIEWED**
33	**Online signature verification: A review**	Chaudhary, U., **Samal, C. K.,** & Kumar, V.	Computer Science	IOSR Journal of Computer Engineering	2017	2278-8727	UGC Journal No. 4899	https://www.researchgate.net/publication/303805873_Online_Signature_Verificatio	https://www.researchgate.net/publication/303805873_Online_Signature_Verification_A_Review	**PEER REVIEWED**
34	**Comparative analysis on path planning algorithm's on mobile robot in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	Journal of Advance Engineering and Research	2017	2348-4470	https://issuu.com/editorijaerd/docs/comparative_analysis_on_	https://issuu.com/editorijaerd/docs/comparative_analysis_on_path_planni	https://issuu.com/editorijaerd/docs/comparative_analysis_on_path_planni	**PEER REVIEWED**
35	**Impact of DDA optimization on mobile robot path planning for mixed image in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	International Journal of Advanced Research in Computer	2017	0976-5697	https://doi.org/10.26483/ijarcs.v8i8.4624	http://ijarcs.info/i	http://ijarcs.info/index.php/Ijarcs/article/view/4624	**PEER REVIEWED**
36	**Target assignment in robotics and its distance optimality using DDA optimization in image processing**	Choudhury, R. K., & **Samal, C. K.**	Computer Science	International Journal of Science and Research Methodolo	2017	2454-2008	https://ijsrm.humanjournals.com/wp-content/upl	https://ijsrm.humanjournals.com/wp-content/uploads/2017/10/4.Rama-	https://ijsrm.humanjournals.com/wp-content/uploads/2017/10/4.Rama-Kanta-Choudhury-Chandra-	**PEER REVIEWED**
37	**Mobile robot path planning approach: A review**	Choudhury, R. K., Kumar, S., & **Samal, C. K.**	Computer Science	International Journal of Advanced Scientific Research	2017	2455-6378	UGC Journal No. 63502	**https://ijasrm.com/issues/volume-2-issue-8/**	https://ijasrm.com/issues/volume-2-issue-8/	**PEER REVIEWED**
38	**Architecture based on environmental monitoring system using zigbee wireless sensor networks**	**Samal, C. K.** & Choudhury, R. K.	Computer Science	Journal of Advanced Scientific Research and	2017	2455-6378	UGC Journal No. 63502	**https://ijasrm.com/issues/volume-2-issue-8/**	https://ijasrm.com/issues/volume-2-issue-8/	**PEER REVIEWED**

39	**Low power consumption in zigbee wireless networks: A, review**	**Samal, C. K.,** Choudhury, R. K., Kumar, V., & Mishra, S.	Computer Science	International Journal of Advance Engineering and	2017	2348-4470	UGC Journal No. 44839	https://issuu.com/editorijaerd/docs/low_power_consumption_in_zigbee_wir	https://issuu.com/editorijaerd/docs/low_power_consumption_in_zigbee_wir	**PEER REVIEWED**
40	**Society and Sex Work in *The Autobiography of a Sex Worker by* Nalini Jameela.**	**Garg, M. K.**	English	Language in India	2017	1930-2940	http://www.languageinindia.com/july2017/v17i7july2017.pdf	http://www.languageinindia.com/july2017/v17i7july2017.pdf	http://www.languageinindia.com/july2017/v17i7july2017.pdf	**PEER REVIEWED**
41	**The White Woman's Gaze**	**Rakshit, J. D.**	English	International Journal of English Language, Literature in	2017	2321-7065	http://www.ijellh.com/the-white-womans-gaze	http://www.ijellh.com/the-white-womans-gaze	http://www.ijellh.com/the-white-womans-gaze	**PEER REVIEWED**
42	**Free and open source software: A key enabler for digital India**	Ranjan Kumar, **Subhash Kumar**, Sanjay K. Tiwari	Physics	South Asia Journal of Multidisciplinary Studies,	2017	0973-4562	https://pubs.aip.org/aip/pop/article-split/24/8/082111/2122	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**
43	**Free and open source software: A key enabler for digital India**	Ranjan Kumar**,** Subhash Kumar, **Sanjay K. Tiwari**	Physics	South Asia Journal of Multidisciplinary Studies,	2017	0973-4562	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**
44	**Nanosecond Laser- Cluster Interactions at 109-1012 W/cm2**	**Rohtash Singh,** V. K. Tripathi, R. K. Vatsa, and D. Das	Physics	Phys. Plasmas 24, 082111	2017	1089-7674	https://doi.org/10.1063/1.4997452	https://pubs.aip.org/aip/pop/article-split/24/8/082111/212250/Nanos	https://pubs.aip.org/aip/pop/article-split/24/8/082111/212250/Nanosecond-laser-cluster-interactions-at-	**SCOPUS INDEXED**
45	**Pulse compression and self focusing of Gaussian laser pulses in plasma having relativistic ponderomotive nonlinearity**	S. Kumar, **P. K. Gupta,** R. K. Singh, S. Sharma, R. Uma and R. P. Sharma	Physics	Laser and particle beams 35, 429	2017	0263-0346	https://doi.org/10.1017/S0263034617000416	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/ab	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/pulsecompression-and-	**SCOPUS INDEXED**
46	**Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film**	M. Singh, B.C. Yadav, A. Ranjan, **Rakesh Kumar Sonker**, M. Kaur	Physics	Sens. Act. B: Chemi. 249, 96-104	2017	1872-6291	https://doi.org/10.1016/j.snb.2017.04.075	https://www.sciencedirect.com/science/article/abs/pii/S0925400517306755	https://www.sciencedirect.com/science/article/abs/pii/S0925400517306755?via%3Dihub	**SCOPUS INDEXED**

47	**Growth and characterization of sol-gel processed rectangular shaped nanostructured ferric oxide thin film followed by**	B.C. Yadav, K. S. Chauhan, S. Singh, **Rakesh Kumar Sonker**, S. Sikarwar and	Physics	J. Mater. Sci: Mater Electron., 28 , 5270-5280	2017	0957-4522	DOI 10.1007/s10854-016-6184-8	https://link.springer.com/article/10.1007/s10854-016-6184-8	https://link.springer.com/article/10.1007/s10854-016-6184-8	**SCOPUS INDEXED**
48	**LPG detection using SnO_2, PANI-SnO_2 and Ag-SnO_2 composite film fabricated by Chemical route**	**Rakesh Kumar Sonker,** S.R. Sabhajeet, B.C. Yadav, Rahul Johari	Physics	Int. J. Electroactive Mater. 5, 6-12	2017	1936-7317	http://dx.doi.org/10.1166/asl.2014.5476	https://www.electroactmater.com/download.php?pdf=5-1-6-12.pdf	https://www.electroactmater.com/download.php?pdf=5-1-6-12.pdfhttps://www.ingentaconnect.com/cont	**PEER REVIEWED**
49	**Preparation of PANI doped TiO_2 nanocomposite thin film and its relevance as room temperature liquefied petroleum gas sensor**	**Rakesh Kumar Sonker,** S.R. Sabhajeet, B. C. Yadav	Physics	J. Mater. Sci: Mater Electron., 28, 14471–144	2017	0957-4522	DOI 10.1007/s10854-017-7309-4	https://link.springer.com/article/10.1007/s10854-017-7309-4	https://link.springer.com/article/10.1007/s10854-017-7309-4	**SCOPUS INDEXED**
50	**Development of Fe_2O_3-PANI nanocomposite thin film based sensor for NO_2 detection**	**Rakesh Kumar Sonker,** B. C. Yadav	Physics	J. Taiwan Ins. of Chemical Eng., 77, 276-281	2017	1872-6291	https://doi.org/10.1016/j.jtice.2017.04.042	https://www.sciencedirect.com/science/article/abs/pii/S1876107017302262	https://www.sciencedirect.com/science/article/abs/pii/S1876107017302262	**SCOPUS INDEXED**
51	**Self-compression of two co-propagating laser pulse having relativistic nonlinearity in plasma**	S. Kumar, **P. K. Gupta,** R. K. Singh, S. Sharma, R. Uma and R. P. Sharma	Physics	Laser and particle beams 35,	2017	0263-0346	https://doi.org/10.1017/S0263034617000787	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/ab	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/abs/selfcompression-of-two-	**SCOPUS INDEXED**
52	**Partially synchronized states in an ensemble of chemo-mechanical oscillators**	**P Kumar,** DK Verma, P Parmananda	Physics	Physics letters A	2017	0020-0255	https://doi.org/10.1016/j.physleta.2017.05.032	https://www.sciencedirect.com/science/article/pii/S0375960116311896	https://www.sciencedirect.com/science/article/pii/S0375960116311896	**SCOPUS INDEXED**
53	**Partially synchronized states in an ensemble of chemo-mechanical oscillators**	P Kumar, **DK Verma,** P Parmananda	Physics	Physics letters A	2017	0020-0255	https://doi.org/10.1016/j.physleta.2017.05.032	https://www.sciencedirect.com/science/article/pii/S0375960116311896	https://www.sciencedirect.com/science/article/pii/S0375960116311896	**SCOPUS INDEXED**
54	**Impact of *Ocimum basilicum* leaf essential oil on the survival and behaviour of an Indian strain of Dengue Vector, *Aedes aegypti L.***	**Kumar, S.,** Warikoo, R., Mishra, M., Samal, R. R., Rana, S., Panmei, K.	Zoology	Vector Biology Journal	2017	2473-4810	https://doi.org/10.4172/2473-4810.1000122	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-thesurvival-and-	**PEER REVIEWED**

55	**Impact of *Ocimum basilicum* leaf essential oil on the survival and behaviour of an Indian strain of Dengue Vector, *Aedes aegypti L.***	Kumar, S., Warikoo, R., Mishra, M., Samal, R. R., **Rana, S.,** Panmai, K.,	Zoology	Vector Biology Journal	2017	2473-4810	https://doi.org/10.4172/2473-4810.1000122	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-the-survival-and-	**PEER REVIEWED**
56	**Impact of *Ocimum basilicum* leaf essential oil on the survival and behaviour of an Indian strain of Dengue Vector, *Aedes aegypti L.***	Kumar, S., Warikoo, R., **Mishra, M.**, Samal, R. R., Rana, S., Panmai, K.,	Zoology	Vector Biology Journal	2017	2473-4810	https://doi.org/10.4172/2473-4810.1000122	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-the-survival-and-	**PEER REVIEWED**
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60	**Impact of *Ocimum basilicum* leaf essential oil on the survival and behaviour of an Indian strain of Dengue Vector, *Aedes aegypti L.***	Kumar, S., Warikoo, R., Mishra, M., Samal, R. R., Rana, S., Panmai, K.,	Zoology	Vector Biology Journal	2017	2473-4810	https://doi.org/10.4172/2473-4810.1000122	https://www.scitechnol.com/peer-review/impact-of-ocimum-basilicum-leaf-essential-oil-on-the-survival-and-	**PEER REVIEWED**
61	***Pseudomonas aeruginosa:* Isolation, characterization and evaluation of larvicidal efficacy against *Aedes aegypti* L.**	**Shukla, R. K.**, Kumar, S., & Tripathi, P.	Zoology	European *Journal of Biomedical and Pharmaceu*	2017	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	**PEER REVIEWED**
62	***Pseudomonas aeruginosa:* Isolation, characterization and evaluation of larvicidal efficacy against *Aedes aegypti* L.**	Shukla, R. K., **Kumar, S.,** & Tripathi, P.	Zoology	European *Journal of Biomedical and Pharmaceu*	2017	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	https://www.ejbps.com/ejbps/abstract_id/3088	**PEER REVIEWED**

63	**Bioprospecting xylanase enzymes from diverse ecological habitats**	Das, P., Kumar, P., Kumar M., Solanki, R., & **Kapur, M. K**.	Zoology	International Research Journal of Natural and Applied	2017	2349-4077	https://www.researchgate.net/publication/328261822_BIOP	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZYMES_FROM_DIVERSE	**PEER REVIEWED**
64	**Bioprospecting xylanase enzymes from diverse ecological habitats**	Das, P., Kumar, P., Kumar M., **Solanki, R.,** & Kapur, M. K.	Zoology	International Research Journal of Natural and Applied	2017	2349-4077	https://www.researchgate.net/publication/328261822_BIOP	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZYMES_FROM_DIVERSE	**PEER REVIEWED**
65	**Bioprospecting xylanase enzymes from diverse ecological habitats**	**Das, P**., Kumar, P., Kumar M., Solanki, R., & Kapur, M. K.	Zoology	International Research Journal of Natural and Applied	2017	2349-4077	https://www.researchgate.net/publication/328261822_BIOP	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZYMES_FROM_DIVERSE	**PEER REVIEWED**
66	**Bioprospecting xylanase enzymes from diverse ecological habitats**	Das, P., Kumar, **P., Kumar** M., Solanki, R., & Kapur, M. K.	Zoology	International Research Journal of Natural and Applied	2017	2349-4077	https://www.researchgate.net/publication/328261822_BIOP	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_	https://www.researchgate.net/publication/328261822_BIOPROSPECTING_XYLANASE_ENZYMES_FROM_DIVERSE	**PEER REVIEWED**
67	**Purification and molecular characterization of chitinases from soil actinomycetes**	Das, P., Kumar, P., **Kumar, M.**, Solanki, R., & Kapur, M. K.	Zoology	African Journal of Microbiology Research	2017	1996-0808	http://dx.doi.org/10.5897/AJMR2017.8612	https://www.researchgate.net/journal/African-Journal-of-Microbiology-	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-0808	**PEER REVIEWED**
68	**Purification and molecular characterization of chitinases from soil actinomycetes**	Das, P., Kumar, P., Kumar, M., Solanki, R., & **Kapur, M. K.**	Zoology	African Journal of Microbiology Research	2017	1996-0808	http://dx.doi.org/10.5897/AJMR2017.8612	https://www.researchgate.net/journal/African-Journal-of-Microbiology-	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-0808	**PEER REVIEWED**
69	**Purification and molecular characterization of chitinases from soil actinomycetes**	**Das, P**., Kumar, P., Kumar, M., Solanki, R., & Kapur, M. K.	Zoology	African Journal of Microbiology Research	2017	1996-0808	http://dx.doi.org/10.5897/AJMR2017.8612	https://www.researchgate.net/journal/African-Journal-of-Microbiology-	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-0808	**PEER REVIEWED**
70	**Purification and molecular characterization of chitinases from soil actinomycetes**	Das, P., Kumar, P., Kumar, M., **Solanki, R**., & Kapur, M. K.	Zoology	African Journal of Microbiology Research	2017	1996-0808	http://dx.doi.org/10.5897/AJMR2017.8612	https://www.researchgate.net/journal/African-Journal-of-Microbiology-	https://www.researchgate.net/journal/African-Journal-of-Microbiology-Research-1996-0808	**PEER REVIEWED**

71	**Crystal structure of UDP-N-acetylglucosamine-enolpyruvate reductase (MurB) from Mycobacterium tuberculosis**	Eniyan, K., Dharavath, S., Vijayan, R., **Bajpai, U.**, & Gourinath, S	Biomedical Science	Biochimica et Biophysica Acta (BBA)-Proteins	2018	1.6E+07	https://doi.org/10.1016/j.bbapap.2017.11.013	https://www.sciencedirect.com/science/article/abs/pii/S1570963917302819?via%3D	https://mjl.clarivate.com:/search-results?issn=1570-9639&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
72	**Crystal structure of UDP-N-acetylglucosamine-enolpyruvate reductase (MurB) from Mycobacterium tuberculosis**	**Eniyan, K.**, Dharavath, S., Vijayan, R., Bajpai, U., & Gourinath, S	Biomedical Science	Biochimica et Biophysica Acta (BBA)-Proteins	2018	1.6E+07	https://doi.org/10.1016/j.bbapap.2017.11.013	https://www.sciencedirect.com/science/article/abs/pii/S1570963917302819?via%3D	https://mjl.clarivate.com:/search-results?issn=1570-9639&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
73	**Isolation and characterization of bacteriophages from India, with lytic activity against Mycobacterium tuberculosis.**	**Bajpai, U.**, Mehta, A. K., Eniyan, K., Sinha, A., Ray, A., Virdi, S., Ahmad, S.,	Biomedical Science	Canadian Journal of Microbiology	2018	0008-4166	https://doi.org/10.1139/cjm-2017-0387	https://cdnsciencepub.com/doi/10.1139/cjm-2017-0387	https://mjl.clarivate.com:/search-results?issn=0008-4166&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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84	**Isolation and characterization of bacteriophages from India, with lytic activity against Mycobacterium tuberculosis.**	**Bajpai, U.**, Mehta, A. K., Eniyan, K., Sinha, A., Ray, A., Virdi, S., Ahmad, S.,	Biomedical Science	Canadian Journal of Microbiology	2018	0008-4166	https://doi.org/10.1139/cjm-2017-0387	https://cdnsciencepub.com/doi/10.1139/cjm-2017-0387	https://mjl.clarivate.com:/search-results?issn=0008-4166&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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86	**Isolation and characterization of bacteriophages from India, with lytic activity against Mycobacterium tuberculosis.**	Bajpai, U., Mehta, A. K., **Eniyan, K.**, Sinha, A., Ray, A., Virdi, S.,	Biomedical Science	Canadian Journal of Microbiology	2018	0008-4166	https://doi.org/10.1139/cjm-2017-0387	https://cdnsciencepub.com/doi/10.1139/cjm-2017-0387	https://mjl.clarivate.com:/search-results?issn=0008-4166&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

87	**Microwave assisted synthesis of spiro heterocyclic systems: A review**	**Khanna, P.**, Khanna, L., Thomas, S. J., Asiri, A. M., & Panda, S. S.	Chemistry	Current organic chemistry	2018	1385-2728	10.2174/1385272821666170818161517	https://www.eurekaselect.com/article/85367	https://mjl.clarivate.com:/search-results?issn=1385-2728&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
88	**An analysis of replenishment model of deteriorating items with ramp-type demand and trade credit under the learning effect**	Sharma, A., Sharma, U., & **Singh, C.**	Mathematics	International Journal of Procurement Manageme	2018	1.8E+07	https://doi.org/10.1504/IJPM.2018.091668	https://www.inderscienceonline.com/doi/abs/10.1504/IJPM.2018.091668	https://www.scopus.com/sourceid/21100242236	Indexed in UGC Care List and SCOPUS
89	**Controlling room temperature ferromagnetism and band gap in ZnO nanostructured thin films by varying angle of implantation**	Hariwal, V, R., Malik, H. K., **Negi, A.**, & Kandasami, A	Physics	RSC Advances	2018	2046-2069	https://doi.org/10.1039/C7RA10615G	https://pubs.rsc.org/en/content/articlelanding/2018/RA/C7RA10615G	https://mjl.clarivate.com:/search-results?issn=2046-2069&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
90	**Emamectin Benzoate: Potential larvicide and antifeedant agent against cotton boll worm Helicoverpa armigera**	Dagar, V. S., & **Kumar, S.**	Zoology	Journal of Applied and Natural Sciences	2018	2231-5209	https://doi.org/10.31018/jans.v10i2.1738	https://journals.ansfoundation.org/index.php/jans/article/view/1738	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
91	**Emamectin Benzoate: Potential larvicide and antifeedant agent against cotton boll worm Helicoverpa armigera**	**Dagar, V. S.**, & Kumar, S.	Zoology	Journal of Applied and Natural Sciences	2018	2231-5209	https://doi.org/10.31018/jans.v10i2.1738	https://journals.ansfoundation.org/index.php/jans/article/view/1738	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
92	**Sld5 Ensures centrosomal resistance to congression forces by preserving centriolar satellites.**	Kaur, M., Devi, R., Ghosh, T., Khan, M. M., Kumar, P., Kar, P. A., **Sharma,**	Zoology	Molecular and Cellular Biology,	2018	0270-7306	https://doi.org/10.1128/MCB.00371-17	https://journals.asm.org/doi/10.1128/MCB.00371-17	https://mjl.clarivate.com:/search-results?issn=0270-7306&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
93	**The study of effect of various temperatures on the abundance of ammonia oxidizing archaea and bacteria.**	**Khangembam, C. D.**, Singh, S. P., Sharma, J. G., & Chakrabarti, R.	Zoology	The Indian Journal of Animal Science	2018	0367-8318	10.56093/ijans.v88i5.80023	https://www.researchgate.net/profile/Rina-Chakrabarti/publication/32562607	https://mjl.clarivate.com:/search-results?issn=0367-8318&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
94	**Estimating the parameter of selected uniform population under the squared log error loss function**	**Meena, K.R.**, Mohd Arshad, & Gangopadhyay, A. K.	Mathematics	Communications in Statistics-Theory and Methods	2018	1532-415X	https://doi.org/10.1080/03610926.2017.1324986	https://www.tandfonline.com/doi/abs/10.1080/03610926.2017.1324986?journalCod	https://mjl.clarivate.com/search-results?issn=0361-0926&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science

95	**Cellular and molecular basis of heavy metal induced stress in ciliates: A review**	Sripoorna, S., Abraham, J. S., Maurya, S., **Makhija, S.**, Gupta, R., &	Zoology	Current Science	2018	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/114/09/1858.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
96	**Cellular and molecular basis of heavy metal induced stress in ciliates: A review**	**Sripoorna**, S., Abraham, J. S., Maurya, S., Makhija, S., Gupta, R., &	Zoology	Current Science	2018	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/114/09/1858.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
97	**Cellular and molecular basis of heavy metal induced stress in ciliates: A review**	Sripoorna, S., **Abraham, J.** S., Maurya, S., Makhija, S., Gupta, R., &	Zoology	Current Science	2018	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/114/09/1858.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
98	**Cellular and molecular basis of heavy metal induced stress in ciliates: A review**	Sripoorna, S., Abraham, J. S., Maurya, S., Makhija, S., Gupta, R., &	Zoology	Current Science	2018	0011-3891	https://www.jstor.org/stable/26494927 / https://ww	https://www.currentscience.ac.in/Volumes/114/09/1858.pdf	https://mjl.clarivate.com:/search-results?issn=0011-3891&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
99	**Floral contrivances and specialised pollination mechanism strongly influence mixed mating in Wrightia tomentosa**	Barman, C., **Singh, V.K.**, Das, S. & Tandon, R.	Botany	Plant Biology	2018	Online ISSN: 1438-8677	https://doi.o	https://onlinelibrary.wiley.com/doi/10.1111/plb.12690	https://mjl.clarivate.com/search-results?issn=1435-8603&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
100	**Relative contribution of reproductive attributes to the density-dependent effects on fruit-set.**	**Singh VK**, C Barman, D Mohanty D & Tandon R	Botany	AoB PLANTS	2018	ISSN:2041-2851	https://doi.o	https://academic.oup.com/aobpla/article/10/2/ply019/4931735	https://www.scopus.com/sourceid/21100285035	Indexed in UGC Care List, SCOPUS and Web of Science
101	**Heteroleptic metal(II) complexes of curcumin and 2,2'-bipyridine: Synthesis, characterization, molecular modeling and preliminary**	Lal S., Joshi M. C., **Hooda,S.** & Kumar,V.	Chemistry	Rev. Roum. Chim.	2018	ISSN: 0035-3930	https://revro	https://revroum.lew.ro/wp-content/uploads/2018/04/Art%2006.pdf	https://www.scopus.com/sourceid/21508	Indexed in UGC Care List, SCOPUS and Web of Science
102	**Heteroleptic metal(II) complexes of curcumin and 2,2'-bipyridine: Synthesis, characterization, molecular modeling and preliminary**	Lal S., Joshi M. C., Hooda,S. & **Kumar,V.**	Chemistry	Rev. Roum. Chim.	2018	ISSN: 0035-3930	https://revro	https://revroum.lew.ro/wp-content/uploads/2018/04/Art%2006.pdf	https://www.scopus.com/sourceid/21508	Indexed in UGC Care List, SCOPUS and Web of Science

103	**Heteroleptic metal(II) complexes of curcumin and 2,2'-bipyridine: Synthesis, characterization, molecular modeling and preliminary**	**Lal S.**, Joshi M. C., Hooda,S. & Kumar,V.	Chemistry	Rev. Roum. Chim.	2018	ISSN: 0035-3930	https://revro	https://revroum.lew.ro/wp-content/uploads/2018/04/Art%2006.pdf	https://www.scopus.com/sourceid/21508	Indexed in UGC Care List, SCOPUS and Web of Science
104	**A highly selective sensor Cu2+ and Fe3+ ions in aqueous medium: Spectroscopic, computational and cell imaging studies.**	Lal S., Kumar S., **Hooda, S.** & Kumar P.	Chemistry	Journal of Photochemistry and Photobiology A:	2018	1010-6030	https://doi.o	https://www.sciencedirect.com/science/article/abs/pii/S1010603018305501	https://www.scopus.com/sourceid/26966	Indexed in UGC Care List and SCOPUS
105	**A highly selective sensor Cu2+ and Fe3+ ions in aqueous medium: Spectroscopic, computational and cell imaging studies.**	**Lal S.**, Kumar S., Hooda, S. & Kumar P.	Chemistry	Journal of Photochemistry and Photobiology A:	2018	1010-6030	https://doi.o	https://www.sciencedirect.com/science/article/abs/pii/S1010603018305501	https://www.scopus.com/sourceid/26966	Indexed in UGC Care List and SCOPUS
106	**Protective effects of Aporosa octandra bark extract against D-galactose induced cognitive impairment and oxidative stress in mice.**	Panda S.S., Girgis A-S., Prakash A., Khanna L., **Khanna, P.**, Shalaby El-S. M.,	Chemistry	Heliyon	2018	2405-8440(Online)	https://doi.o	https://www.cell.com/heliyon/fulltext/S2405-8440(18)34864-3?_returnURL=ht	https://www.scopus.com/sourceid/21100411756	Indexed in UGC Care List, SCOPUS and Web of Science
107	**Social Centrality using network hierarchy and community structure.**	Saxena R., **Kaur, S.**, Bhatnagar V.	Computer Science	Data Mining and Knowledge Discovery	2018	1384-5810	https://doi.o	https://link.springer.com/article/10.1007/s10618-018-0582-x#:~:text=Social%	https://mjl.clarivate.com:/search-results?issn=1384-5810&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
108	**Bandwidth Efficient Broadcast Protocols in MANETs: A Review**	**Samal, C. K.** , Choudhury R. K.	Computer Science	International Journal of Computer Sciences and	2018	2347-2693	DOI:10.2643	https://www.ijcseonline.org/pdf_paper_view.php?paper_id=1632&8-IJCSE-	UGC Listed Journal 2019, Journal No:63193 https://www.ijcseonline.org/	Indexed in UGC Care List, SCOPUS and Web of Science
109	**Structural and optical properties of electrochemically deposited ZnOnanorods by using graphene oxide and ITO as**	Chetna, Kumar, S., **Garg, A.,** Chowdhuri, A., Jain, A., & Kapoor, A.	Electronics, Physics	Materials Research Express	2018	2053-1591	DOI 10.1088/	https://iopscience.iop.org/article/10.1088/2053-1591/aad7a5	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
110	**Structural and optical properties of electrochemically deposited ZnOnanorods by using graphene oxide and ITO as**	Chetna, **Kumar, S.**, Garg, A.**,** Chowdhuri, A., Jain, A., & Kapoor, A.	Electronics, Physics	Materials Research Express	2018	2053-1591	DOI 10.1088/	https://iopscience.iop.org/article/10.1088/2053-1591/aad7a5	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

111	**Structural and optical properties of electrochemically deposited ZnOnanorods by using graphene oxide and ITO as**	Chetna, Kumar, S., Garg, A., **Chowdhuri, A.**, Jain, A., & Kapoor, A.	Electronics, Physics	Materials Research Express	2018	2053-1591	DOI 10.1088/	https://iopscience.iop.org/article/10.1088/2053-1591/aad7a5	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
112	**Comparison of water purification properties of Graphene Oxide (GO) Membranes with tuned interlayer spacings,**	Kumar, S., **Garg, A., &** Chowdhuri, A.	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/aae416	https://iopscience.iop.org/article/10.1088/2053-1591/aae416	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
113	**Comparison of water purification properties of Graphene Oxide (GO) Membranes with tuned interlayer spacings,**	Kumar, S., Garg, A., & **Chowdhuri, A.**	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/aae416	https://iopscience.iop.org/article/10.1088/2053-1591/aae416	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
114	**Comparison of water purification properties of Graphene Oxide (GO) Membranes with tuned interlayer spacings,**	**Kumar, S.**, Garg, A., & Chowdhuri, A.	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/aae416	https://iopscience.iop.org/article/10.1088/2053-1591/aae416	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
115	**Sonication Effect on Graphene Oxide (GO) Membranes for Water Purification Applications"**	Kumar, S., **Garg, A.**, & Chowdhuri, A.	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/ab1ffd	https://iopscience.iop.org/article/10.1088/2053-1591/ab1ffd#:~:text=It%20is%20n	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
116	**Sonication Effect on Graphene Oxide (GO) Membranes for Water Purification Applications"**	Kumar, S., Garg, A., & **Chowdhuri, A.**	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/ab1ffd	https://iopscience.iop.org/article/10.1088/2053-1591/ab1ffd#:~:text=It%20is%20n	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
117	**Sonication Effect on Graphene Oxide (GO) Membranes for Water Purification Applications"**	**Kumar, S.**, Garg, A., & Chowdhuri, A.	Electronics, Physics	Materials Research Express	2019	2053-1591	DOI 10.1088/2053-1591/ab1ffd	https://iopscience.iop.org/article/10.1088/2053-1591/ab1ffd#:~:text=It%20is%20n	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
118	**Circular restricted three-body problem when both the primaries are heterogeneous spheroid of three layers and infinitesimal body varies its**	Ansari, A. A., Alhussain, Z. A., & **Prasad, S. N.**	Mathematics	Journal of Astrophysics and Astronomy	2018	0973-7758	https://doi.org/10.1007/s12036-018-9540-7	https://link.springer.com/article/10.1007/s12036-018-9540-7	https://mjl.clarivate.com/search-results?issn=0250-6335&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

119	**An EOQ Model for Deteriorating Items with Selling Price Dependent Exponential Demand for Time Varying Holding and**	Verma, S. K., Mohd. Rizwanullah, & **Singh, C.**	Mathematics	International Journal of Engineering & Technology	2018	2227-524X	https://doi.o	https://www.sciencepubco.com/index.php/ijet/article/view/24294	https://www.scopus.com/sourceid/21100805731	Indexed in SCOPUS
120	**A production inventory model with selling price and stock sensitive demand under partial backlogging**	**Aarya, D. D.** & Kumar, M.	Mathematics	International Journal of Mathematics in Operational	2018	1757-5850	https://doi.o	https://www.inderscienceonline.com/doi/abs/10.1504/IJMOR.2018.090802	https://www.scopus.com/sourceid/21100202502	Indexed in UGC-Care List and SCOPUS
121	**Susceptability status of Aedes aegypti L. against different classes of insecticides in New Delhi, India to formulate mosquito**	**Samal, R. R.** & Kumar, S.	Zoology	Open Parasitology Journal	2018	1874-4214	DOI: 10.2174	https://openparasitologyjournal.com/VOLUME/6/PAGE/52/ABSTRACT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
122	**Susceptability status of Aedes aegypti L. against different classes of insecticides in New Delhi, India to formulate mosquito**	Samal, R. R. & **Kumar, S.**	Zoology	Open Parasitology Journal	2018	1874-4214	DOI: 10.2174	https://openparasitologyjournal.com/VOLUME/6/PAGE/52/ABSTRACT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
123	**Effects of Achyranthes aspera extracts on the survival and midgut histo-architecture of Aedes aegypti L. early IV instars.**	Sharma, A., **Kumar, S.,** & Tripathi, P.	Zoology	Open Parasitology Journal	2018	1874-4215	DOI: 10.2174	https://openparasitologyjournal.com/VOLUME/6/PAGE/41/FULLTEXT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
124	**Effects of Achyranthes aspera extracts on the survival and midgut histo-architecture of Aedes aegypti L. early IV instars.**	**Sharma, A.**, Kumar, S.**,** & Tripathi, P.	Zoology	Open Parasitology Journal	2018	1874-4215	DOI: 10.2174	https://openparasitologyjournal.com/VOLUME/6/PAGE/41/FULLTEXT/	https://www.scopus.com/sourceid/21100205964	Indexed in SCOPUS
125	**Growth regulatory and growth inhibitory effects of Thevetia neriifolia stem extracts on Helicoverpa armigera (Lepidoptera:**	Mishra, M.**,** Gupta, K.K., & **Kumar, S.**	Zoology	Archives of Phytopathology and Plant Protection	2018	0323-5408	https://doi.org/10.1080/03235408.2018.1521324	https://www.tandfonline.com/doi/abs/10.1080/03235408.2018.1521324?journalCod	https://mjl.clarivate.com:/search-results?issn=0323-5408&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
126	**Growth regulatory and growth inhibitory effects of Thevetia neriifolia stem extracts on Helicoverpa armigera (Lepidoptera:**	**Mishra, M.,** Gupta, K.K., & Kumar, S.	Zoology	Archives of Phytopathology and Plant Protection	2018	0323-5408	https://doi.org/10.1080/03235408.2018.1521324	https://www.tandfonline.com/doi/abs/10.1080/03235408.2018.1521324?journalCod	https://mjl.clarivate.com:/search-results?issn=0323-5408&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

127	**Modelling of Pinning-Depinning Reversal Mechanism in Ion-Irradiated Co/Al2O3 Thin Films.**	Goyal, R., Gupta, R., **Negi, A.,** Asokan, K., Kanjilal, D., Lamba, S., &	Physics	Physica Status Solidi (A) Applications And	2018	1862-6300	https://doi.o	https://onlinelibrary.wiley.com/doi/10.1002/pssa.201800141	https://mjl.clarivate.com/search-results?issn=1862-6300&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
128	**Polarization dependent charge control model for microwave performance assessment of AlGaN/GaN/AlGaN double**	Chugh, N., **Bhattacharya, M.**, Kumar, M., Deswal, S. S., & Gupta, R. S.	Electronics	Journal of Computational Electronics	2018	1569-8025	https://doi.org/10.1007/s10825-018-1190-0	https://link.springer.com/article/10.1007/s10825-018-1190-0	https://mjl.clarivate.com/search-results?issn=1569-8025&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
129	**Larvicidal activities of petroleum ether extracts of different fruit peel wastes against an Indian strain of filarial vector, *Culex***	**Shrankhla,** & Kumar, S**.**	Zoology	European Journal of Biomedical and Pharmaceut	2018	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	**PEER REVIEWED**
130	**Larvicidal activities of petroleum ether extracts of different fruit peel wastes against an Indian strain of filarial vector, *Culex***	Shrankhla, & **Kumar, S**.	Zoology	European Journal of Biomedical and Pharmaceut	2018	2349-8870	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	https://www.ejbps.com/ejbps/abstract_id/3948	**PEER REVIEWED**
131	**Role of gold and silver nanoparticles in cancer nano-medicine**	Chugh, H., Sood, D., Chandra, I., Tomar, V., **Dhawan G**.& Chandra, R.	Biomedical Science	Artificial Cells, Nanomedicine, and Biotechnolo	2018	1210-1220	DOI: 10.1080	https://pubmed.ncbi.nlm.nih.gov/29533101/	https://pubmed.ncbi.nlm.nih.gov/29533101/	**SCOPUS INDEXED**
132	**Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India**	**Gupta, *C. K;*** Singh, J. P; Chopra, P; Raj, V. B; Chowdhuri, A.	Botany, Physics, Physics	DU Journal of Undergraduate Research	2018	2395 - 2334	https://journals.du.ac.in/ugresearch/vol3_2.html	https://journals.du.ac.in/ugresearch/	https://journals.du.ac.in/ugresearch/vol3_2.html	**PEER REVIEWED**
133	**Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India**	Gupta, *C. K;* Singh, J. P; Chopra, P; **Raj, V. B;** Chowdhuri, A.	Botany, Physics, Physics	DU Journal of Undergraduate Research	2018	2395 - 2334	https://journals.du.ac.in/ugresearch/vol3_2.html	https://journals.du.ac.in/ugresearch/	https://journals.du.ac.in/ugresearch/vol3_2.html	**PEER REVIEWED**
134	**Gauging the nature and magnitude of Particulate Matter (PM) concentrations in Bengaluru, the IT capital of India**	**Gupta,** *C. K;* Singh, J. P; Chopra, P; **Raj, V. B; Chowdhuri, A.**	Botany, Physics, Physics	DU Journal of Undergraduate Research	2018	2395 - 2334	https://journals.du.ac.in/ugresearch/vol3_2.html	https://journals.du.ac.in/ugresearch/	https://journals.du.ac.in/ugresearch/vol3_2.html	**PEER REVIEWED**

135	**A concise synthesis of 2-ALKENYL-3- phenyl-4H-chromen-4-ones via novel C-C bond formation using sulfone as potential**	Khanna, L., **Khanna, P**. and Jain, S.C.	Chemistry	Ind. J. Chem	2018	2583-1321	https://www.researchgate.net/publication/326693392_A_co	https://www.researchgate.net/publication/326693392_A_concise_synthesis_of_2-	https://www.researchgate.net/publication/326693392_A_concise_synthesis_of_2-alkenyl-3-phenyl-4H-chromen-	**SCOPUS INDEXED**
136	**Geometry of the Large Magellanic Cloud using multiwavelength photometry of classical Cepheids**	Sukanta Deb, Chow-Choong Ngeow, Shashi M Kanbur, Harinder P	Physics	Monthly Notices of the Royal Astronomical Society	2018	2526–2540	https://doi.org/10.1093/mnras/sty1124	https://academic.oup.com/mnras/article/478/2/2526/4992330	https://academic.oup.com/mnras/article/478/2/2526/4992330	**SCOPUS INDEXED**
137	**Adoption of Free and Open Source Software in India,**	Ranjan Kumar, **Subhash Kumar,** Sanjay K. Tiwari	Physics	International Journal of Applied Engineering Research	2018	0973-4562	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**
138	**Adoption of Free and Open Source Software in India,**	Ranjan Kumar, Subhash Kumar, **Sanjay K. Tiwari**	Physics	International Journal of Applied Engineering Research	2018	0973-4562	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	https://www.ripublication.com/ijaer18/ijaerv13n16_44.pdf	**PEER REVIEWED**
139	**Spherical growth of nanostructures ZnO based optical sensing and photovoltaic application**	**Rakesh Kumar Sonker**, S. Sikarwar, S.R. Sabhajeet, Rahul, B.C.	Physics	Optical Materials, 83, 342-347	2018	1872-6291	https://doi.org/10.1016/j.optmat.2018.06.046	https://www.sciencedirect.com/science/article/abs/pii/S0925346718304269	https://www.sciencedirect.com/science/article/abs/pii/S0925346718304269	**SCOPUS INDEXED**
140	**Study of electrical, dielectric and EMI shielding behavior of copper metal, copper ferrite and PVDF composite**	K.K. Halder, **Rakesh Kumar Sonker**, V.K. Sachdev, Monika Tomar, Vinay	Physics	Integrated Ferroelectrics, 194 (2018) 78-85	2018	1067-8489	https://doi.org/10.1080/10584587.2018.1514879	https://www.tandfonline.com/doi/abs/10.1080/10584587.2018.1514879	https://www.tandfonline.com/doi/abs/10.1080/10584587.2018.1514879	**SCOPUS INDEXED**
141	**Zn-Doped TiO_2 Nanoparticles Employed as Room Temperature Liquefied Petroleum Gas Sensor**	S.R. Sabhajeet, **Rakesh Kumar Sonker**, B.C. Yadav	Physics	Advanced Science, Engineering and Medicine,	2018	2164-6635	https://doi.org/10.1166/asem.2018.2249	https://www.ingentaconnect.com/content/asp/asem/2018/00000010/f0020007/art0	https://www.ingentaconnect.com/content/asp/asem/2018/00000010/f0020007/art00020;jsessionid=1uc7qj3kxg	**PEER REVIEWED**
142	**Synthesis and investigation of cubical shaped barium titanate and its application as opto-electronic humidity sensor**	S. Sikarwar, **Rakesh Kumar Sonker**, A. Shukla, B.C. Yadav	Physics	J. Mater. Sci: Mater Electron., 29, 12951-12958	2018	2193-1801	https://doi.org/10.1007/s10854-018-9415-3	https://link.springer.com/article/10.1007/s10854-018-9415-3	https://link.springer.com/article/10.1007/s10854-018-9415-3	**SCOPUS INDEXED**

143	**Less toxic tin incorporated perovskite solar cell using polymer electrolyte processed in the air**	Rahul, P.K. Singh, M. Parvaz, S. Ahmed, **Rakesh Kumar Sonker**, B.	Physics	Optik, 169, 166-171	2018	1872-6291	https://doi.org/10.1016/j.ijleo.2018.05.064	https://www.sciencedirect.com/science/article/pii/S0030402618307137	https://www.sciencedirect.com/science/article/pii/S0030402618307137	**SCOPUS INDEXED**
144	**Sol-gel formed spherical nanostructured titania based liquefied petroleum gas sensor**	S. Sabhajeet, B. Yadav, **Rakesh Kumar Sonker**	Physics	AIP Conference Proceedings, 1953, 030078	2018	1551-7616	https://doi.org/10.1063/1.5032413	https://pubs.aip.org/aip/acp/article-abstract/1953/1/030078/857970/	https://pubs.aip.org/aip/acp/article-abstract/1953/1/030078/857970/Sol-gel-formed-spherical-	**SCOPUS INDEXED**
145	**ZnO nanoneedle structure based dye-sensitized solar cell utilizing solid polymer electrolyte**	**Rakesh Kumar Sonker**, Rahul, S.R. Sabhajeet	Physics	Materials Letters, 223. 133-136	2018	1872-6291	https://doi.org/10.1016/j.matlet.2018.03.199	https://www.sciencedirect.com/science/article/pii/S0167577X18305809	https://www.sciencedirect.com/science/article/pii/S0167577X18305809	**SCOPUS INDEXED**
146	**Enhancement in self-compression due to co-propagating laser pulse in plasma**	S. Kumar, **P. K. Gupta**, R. Uma and R. P. Sharma	Physics	Optics Communications	2018	1872-6291	https://doi.org/10.1016/j.optcom.2018.06.023	https://www.sciencedirect.com/science/article/pii/S0030401818305145?via%3Dihub	https://www.sciencedirect.com/science/article/pii/S0030401818305145?via%3Dihub	**SCOPUS INDEXED**
147	**Dynamics of focused femtosecond Laser Pulse during photodisruption of crystalline lens**	**P. K. Gupta**, R. K. Singh and R. P. Sharma	Physics	Physics of Plasmas	2018	1089-7674	https://doi.o	https://pubs.aip.org/aip/pop/article/25/4/043121/904528/Dynamics-of-focused-	https://pubs.aip.org/aip/pop/article/25/4/043121/904528/Dynamics-of-focused-femtosecond-laser-	**SCOPUS INDEXED**
148	**Potential of Nardostachys jatamansi extracts to manage Indian strain of Aedes aegypti: A novel approach for vector control.**	Kumar, S., **Sharma, A.** & Warikoo, R.	Zoology	Vector Biology Journal	2018	2473-4810	10.4172/2473-4810.1000129	https://www.scitechnol.com/peer-review/potential-of-nardostachys-jatamansi-	nil	**PEER REVIEWED**
149	**Potential of Nardostachys jatamansi extracts to manage Indian strain of Aedes aegypti: A novel approach for vector control.**	Kumar, S., **Sharma, A.** & Warikoo, R.	Zoology	Vector Biology Journal	2018	2473-4810	10.4172/2473-4810.1000129	https://www.scitechnol.com/peer-review/potential-of-nardostachys-jatamansi-	nil	**PEER REVIEWED**
150	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**

151	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
152	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
153	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
154	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
155	**Gesture Recognizing Smart System**	Kumari, A; Abhijeet; Sharma, A; Baliyan, A. K; Kiran; & **Kaur, R.**	Electronics	DU Journal of Undergraduate Research	2018	2395-2334	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	https://journals.du.ac.in/ugresearch/pdf-vol-3_2/J1.pdf	nil	**PEER REVIEWED**
156	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**
157	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**
158	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**

159	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**
160	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**
161	**Acrylonitrile copolymer based membrane sensor for selective detection of PB2+ ions in aqueous medium.**	Lal, S; **Hooda, S**; Kumar, A; Kumar, S; Singh, A; Singh, S; Chandra, R;	Chemistry	International Journal of Advanced Educational Research	2018	2455-6157	https://www.multidisciplinaryjournals.org/assets/archives/2	https://www.multidisciplinaryjournals.org/assets/archives/2018/vol3issue2/3-2-44-	nil	**PEER REVIEWED**
162	**Structure- guided Design and Development of Potent and Selective Dual Bromodomain 4 (BRD4)/Polo-like Kinase 1 (PLK1) Inhibitors**	Liu, S.; Yosief, H. O.; Dai, L.; Huang, H.; **Dhawan, G.;** Zhang, X.;	Biomedical Science	Journal of Medicinal Chemistry	2018	0022-2623	https://doi.org/10.1021/acs.jmedchem.8b00765	https://pubs.acs.org/doi/10.1021/acs.jmedchem.8b00765	https://mjl.clarivate.com:/search-results?issn=0022-2623&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
163	**Sequential [3+2] cycloaddition and [5+N] annulation reactions for modular synthesis of dihydrobenzoxazines,**	Muthengi, A.; Zhang, X.; **Dhawan, G.**; Zhang, W.; Corsini, F.;	Biomedical Science	Green Chemistry	2018	1463-9270	https://doi.org/10.1039/C8GC01099D	https://pubs.rsc.org/en/content/articlelanding/2018/gc/c8gc01099d	https://mjl.clarivate.com:/search-results?issn=1463-9262&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
164	**An Analysis on Recent Technological Developments in Green Chemistry: Biocatalytic Processes**	Sharma, S. P. & **Hooda, S.**	Chemistry	Journal of Advances and Scholarly Researches	2018	2230-7540	http://ipublisher.in/I/a/58228	http://ipublisher.in/I/a/58228	nil	**PEER REVIEWED**
165	**Sighting of Jamides bochus (Stoll, 1782) and Prosotas Nora (C. Felder 1860) (Insecta: Lepidoptera: Lycaenidae) From Urbanized**	**Chaudhary, R.** & **Kumar, V.**	Biomedical Science	Bionotes	2019	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://www.andcollege.du.ac.in/uploads/voiceofandc/BIONOTES.pdf	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
166	**Occurrence of subdioecy and scarcity of gender-specific markers reveal an ongoing transition to dioecy in Himalayan seabuckthorn**	**Mangla, Y.**, Das K, Bali S, Ambreen H, Raina SN, Tandon R, &	Botany	Heredity	2019	0018067X	https://doi.org/10.1038/s41437-018-0084-z	https://www.nature.com/articles/s41437-018-0084-z	https://www.scopus.com/sourceid/22235	Indexed in UGC Care List, SCOPUS and Web of Science

167	**Synchronization of fractional oder Rabinovich-Fabrikant systems using sliding mode control techniques**	Kumar, S., **Singh, C., Prasad, S. N.**, Shekhar, C., & Agarwal, R.	Mathematics	Archives of Control Sciences	2019	2300-2611	DOI:10.24425/acs.2019.129384	https://journals.pan.pl/dlibra/publication/129384/edition/112924/content	https://mjl.clarivate.com/search-results?issn=2300-2611&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
168	**Synchronization of fractional oder Rabinovich-Fabrikant systems using sliding mode control techniques**	Kumar, S., Singh, C., **Prasad, S. N.**, Shekhar, C., & Agarwal, R.	Mathematics	Archives of Control Sciences	2019	2300-2611	DOI:10.24425/acs.2019.129384	https://journals.pan.pl/dlibra/publication/129384/edition/112924/content	https://mjl.clarivate.com/search-results?issn=2300-2611&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
169	**An Optimal Policy for Deterministic Model for Time Proportional Deteriorated Inventory with Different Demand Rate Pattern**	Verma, S. K., Mohd. Rizwanullah, **& Singh, C.**	Mathematics	Journal of Advanced Research in Dynamical and Control	2019	1943-023X	DOI:10.13140/RG.2.2.25300.55682	https://www.jardcs.org/abstract.php?id=238#	https://www.scopus.com/sourceid/20500195215	Indexed in SCOPUS
170	**Influence of open educational resources on educational practices in the Global South**	**Kumar, S.**	Zoology	Nature Human Behaviour	2019	2397-3374	https://doi.org/10.1038/s41562-019-0624-4	https://www.nature.com/articles/s41562-019-0624-4	https://mjl.clarivate.com/search-results?issn=2397-3374&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
171	**Diminished Activity of Larval Midgut Transaminases and Phosphatases in Helicoverpa armigera Hübner (Lepidoptera) Induced by**	**Mishra, M.,** Gupta, K.K., & Kumar, S.	Zoology	Journal of the Lepidopterist's Society	2019	0024-0966	https://doi.org/10.18473/lepi.73i1.a4	https://bioone.org/journals/the-journal-of-the-lepidopterists-society/volume-	https://mjl.clarivate.com:/search-results?issn=0024-0966&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
172	**Diminished Activity of Larval Midgut Transaminases and Phosphatases in Helicoverpa armigera Hübner (Lepidoptera) Induced by**	Mishra, M., **Gupta, K.K.,** & Kumar, S.	Zoology	Journal of the Lepidopterist's Society	2019	0024-0966	https://doi.org/10.18473/lepi.73i1.a4	https://bioone.org/journals/the-journal-of-the-lepidopterists-society/volume-	https://mjl.clarivate.com:/search-results?issn=0024-0966&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
173	**Diminished Activity of Larval Midgut Transaminases and Phosphatases in Helicoverpa armigera Hübner (Lepidoptera) Induced by**	Mishra, M., Gupta, K.K., & **Kumar, S.**	Zoology	Journal of the Lepidopterist's Society	2019	0024-0966	https://doi.org/10.18473/lepi.73i1.a4	https://bioone.org/journals/the-journal-of-the-lepidopterists-society/volume-	https://mjl.clarivate.com:/search-results?issn=0024-0966&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
174	**Draft genome of Streptomyces sp.strain 130 and functional analysis of extracellular enzyme producing genes.**	Kumar, M., Kumar, P.**, Das, P.,** & Kapur, M.K.	Zoology	Molecular Biology Reports	2019	1573-4978	https://doi.org/10.1007/s11033-019-04960-y	https://link.springer.com/article/10.1007/s11033-019-04960-y	https://www.scopus.com/sourceid/14154	Indexed in SCOPUS

175	**Draft genome of Streptomyces sp.strain 130 and functional analysis of extracellular enzyme producing genes.**	Kumar, M., Kumar, P., Das, P., & **Kapur, M.K.**	Zoology	Molecular Biology Reports	2019	1573-4978	https://doi.org/10.1007/s11033-019-04960-y	https://link.springer.com/article/10.1007/s11033-019-04960-y	https://www.scopus.com/sourceid/14154	Indexed in SCOPUS
176	**Soil ciliates of the Indian Delhi Region: Their community characteristics with emphasis on their ecological implications as**	Abraham, J.S., Somasundaram, Dagar, J; S., Jangra, S., Kumar, A.,	Zoology, Chemistry	Saudi Journal of Biological Sciences	2019	1319-562X	https://doi.org/10.1016/j.sjbs.2019.04.013	https://www.sciencedirect.com/science/article/pii/S1319562X1930066X	https://mjl.clarivate.com/search-results?issn=1319-562X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
177	**Soil ciliates of the Indian Delhi Region: Their community characteristics with emphasis on their ecological implications as**	Abraham, J.S., Somasundaram, Dagar, J; S., Jangra, S., Kumar, A.,	Zoology, Chemistry	Saudi Journal of Biological Sciences	2019	1319-562X	https://doi.org/10.1016/j.sjbs.2019.04.013	https://www.sciencedirect.com/science/article/pii/S1319562X1930066X	https://mjl.clarivate.com/search-results?issn=1319-562X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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181	**Soil ciliates of the Indian Delhi Region: Their community characteristics with emphasis on their ecological implications as**	Abraham, J.S., Somasundaram, Dagar, J; S., Jangra, S., Kumar, A.,	Zoology, Chemistry	Saudi Journal of Biological Sciences	2019	1319-562X	https://doi.org/10.1016/j.sjbs.2019.04.013	https://www.sciencedirect.com/science/article/pii/S1319562X1930066X	https://mjl.clarivate.com/search-results?issn=1319-562X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
182	**Techniques and tools for species identification in ciliates: A review.**	**Abraham, J.S.,** Sripoorna, S., Maurya, S., Makhija, S., Gupta, R., &	Zoology	International Journal of Systematic and Evolutionar	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.0031	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

183	**Techniques and tools for species identification in ciliates: A review.**	Abraham, J.S., **Sripoorna, S.**, Maurya, S., Makhija, S., Gupta, R., &	Zoology	International Journal of Systematic and Evolutionar	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.0031	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
184	**Techniques and tools for species identification in ciliates: A review.**	Abraham, J.S., Sripoorna, S., **Maurya, S.**, Makhija, S., Gupta, R., &	Zoology	International Journal of Systematic and Evolutionar	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.0031	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
185	**Techniques and tools for species identification in ciliates: A review.**	Abraham, J.S., Sripoorna, S., Maurya, S., **Makhija, S.**, Gupta, R., &	Zoology	International Journal of Systematic and Evolutionar	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.0031	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
186	**Techniques and tools for species identification in ciliates: A review.**	Abraham, J.S., Sripoorna, S., Maurya, S., Makhija, S., Gupta, R., &	Zoology	International Journal of Systematic and Evolutionar	2019	1466-5026	https://doi.org/10.1099/ijsem.0.003176	https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.0031	https://mjl.clarivate.com/search-results?issn=1466-5026&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
187	**Ferroelectric liquid crystal nanocomposites: Recent development and future perspective.**	**Yadav, S. P.**, Yadav, K., Lahiri, J. & Parmar, A. S.	Physics	Liquid Crystal Reviews	2019	2168-0418	https://doi.org/10.1080/21680396.2019.1589400	https://www.tandfonline.com/doi/full/10.1080/21680396.2019.1589400	https://mjl.clarivate.com/search-results?issn=2168-0396&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
188	**A Novel Method of Electrochemically Growing ZnO Nanorods on Graphene Oxide as Substrate for Gas Sensing Applications".**	Chetna, Kumar, S., **Garg, A.**, Chowdhuri, A., Jain, A. & Kapoor, A.	Physics, Electronics	Material Research Express	2019	2053 -1591	DOI 10.1088/2053-1591/ab16f8	https://iopscience.iop.org/article/10.1088/2053-1591/ab16f8#:~:text=The%20pote	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
189	**A Novel Method of Electrochemically Growing ZnO Nanorods on Graphene Oxide as Substrate for Gas Sensing Applications".**	Chetna, Kumar, S., **Garg, A.**, Chowdhuri, A., Jain, A. & Kapoor, A.	Physics, Electronics	Material Research Express	2019	2053 -1591	DOI 10.1088/2053-1591/ab16f8	https://iopscience.iop.org/article/10.1088/2053-1591/ab16f8#:~:text=The%20pote	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
190	**A Novel Method of Electrochemically Growing ZnO Nanorods on Graphene Oxide as Substrate for Gas Sensing Applications".**	Chetna, Kumar, S., Garg, A., **Chowdhuri, A.**, Jain, A. & Kapoor, A.	Physics, Electronics	Material Research Express	2019	2053 -1591	DOI 10.1088/2053-1591/ab16f8	https://iopscience.iop.org/article/10.1088/2053-1591/ab16f8#:~:text=The%20pote	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

191	**Transient setting of relativistic ponderomotive non-linearity and filamentation of ultra-short laser pulses in collisionless**	Sharma, R.P., Kumar, N., Uma, R., Singh, R.K., & **Gupta, P.K.**	Physics	Laser and Particle beams	2019	0263-0346	https://doi.org/10.1017/S0263034619000454	https://www.cambridge.org/core/journals/laser-and-particle-beams/article/ab	https://mjl.clarivate.com/search-results?issn=0263-0346&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
192	**Exploitation of potential bioactive compounds from two soil derived actinomycetes, Streptomyces sp. strain 196 and RI.24**	Kumar, P., Kundu, A., Kumar, M., Solanki, R., & **Kapur, M.K.**	Zoology	Microbiological Research	2019	0944-5013	https://doi.org/10.1016/j.micres.2019.126312	https://www.sciencedirect.com/science/article/pii/S0944501319304884?via%3Dihub	https://www.scopus.com/sourceid/20267	Indexed in UGC Care List, SCOPUS and Web of Science
193	**Exploitation of potential bioactive compounds from two soil derived actinomycetes, Streptomyces sp. strain 196 and RI.24**	Kumar, P., Kundu, A., **Kumar, M.**, Solanki, R., & Kapur, M.K.	Zoology	Microbiological Research	2019	0944-5013	https://doi.org/10.1016/j.micres.2019.126312	https://www.sciencedirect.com/science/article/pii/S0944501319304884?via%3Dihub	https://www.scopus.com/sourceid/20267	Indexed in UGC Care List, SCOPUS and Web of Science
194	**Exploitation of potential bioactive compounds from two soil derived actinomycetes, Streptomyces sp. strain 196 and RI.24**	**Kumar, P.**, Kundu, A., Kumar, M., Solanki, R., & Kapur, M.K.	Zoology	Microbiological Research	2019	0944-5013	https://doi.org/10.1016/j.micres.2019.126312	https://www.sciencedirect.com/science/article/pii/S0944501319304884?via%3Dihub	https://www.scopus.com/sourceid/20267	Indexed in UGC Care List, SCOPUS and Web of Science
195	**Expression and molecular characterizationof stress-responsive genes (hsp70 and Mn-sod) and evaluation of antioxidant enzymes (CAT**	Somasundaram, S., Abraham, J.S., Maurya, S., **Toteja, R.**, Gupta, R., &	Zoology	Molecular Biology Reports	2019	0301-4851	https://doi.org/10.1007/s11033-019-04942-0	https://link.springer.com/article/10.1007/s11033-019-04942-0	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
196	**Expression and molecular characterizationof stress-responsive genes (hsp70 and Mn-sod) and evaluation of antioxidant enzymes (CAT**	Somasundaram, S., Abraham, J.S., Maurya, S., Toteja, R., Gupta, R., &	Zoology	Molecular Biology Reports	2019	0301-4851	https://doi.org/10.1007/s11033-019-04942-0	https://link.springer.com/article/10.1007/s11033-019-04942-0	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
197	**Expression and molecular characterizationof stress-responsive genes (hsp70 and Mn-sod) and evaluation of antioxidant enzymes (CAT**	Somasundaram, S., Abraham, J.S., Maurya, S., Toteja, R., Gupta, R., &	Zoology	Molecular Biology Reports	2019	0301-4851	https://doi.org/10.1007/s11033-019-04942-0	https://link.springer.com/article/10.1007/s11033-019-04942-0	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
198	**Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018**	Kamra, K., Kaur, H., Abraham, J.S., Somasundaram, S., **Makhija, S.**,	Zoology	Journal of Eukaryotic Microbiology	2019	1066-5234	https://doi.org/10.1111/jeu.12773	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12773	https://mjl.clarivate.com/search-results?issn=1066-5234&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

199	**Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018**	Kamra, K., Kaur, H., Abraham, J.S., Somasundaram, S., **Makhija, S.**,	Zoology	Journal of Eukaryotic Microbiology	2019	1066-5234	https://doi.org/10.1111/jeu.12773	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12773	https://mjl.clarivate.com/search-results?issn=1066-5234&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
200	**Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018**	Kamra, K., Kaur, H., Abraham, J.S., Somasundaram, S., **Makhija, S.**,	Zoology	Journal of Eukaryotic Microbiology	2019	1066-5234	https://doi.org/10.1111/jeu.12773	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12773	https://mjl.clarivate.com/search-results?issn=1066-5234&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
201	**Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018**	Kamra, K., Kaur, H., Abraham, J.S., Somasundaram, S., Makhija, S.,	Zoology	Journal of Eukaryotic Microbiology	2019	1066-5234	https://doi.org/10.1111/jeu.12773	https://onlinelibrary.wiley.com/doi/10.1111/jeu.12773	https://mjl.clarivate.com/search-results?issn=1066-5234&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
202	**Synthesis, DFT studies, molecular docking, antimicrobial screening and UV fluorescence studies on ct-DNA for novel Schiff bases of**	Singhal, S., **Khanna, P** & Khanna, L.	Chemistry	Heliyon	2019	5-8440(On	https://doi.org/10.1016/j.heliyon.2019.e02596	https://www.sciencedirect.com/science/article/pii/S2405844019362565	https://www.scopus.com/sourceid/21100411756	Indexed in UGC Care List, SCOPUS and Web of Science
203	**Recent Trends in the Synthesis of Benzimidazoles From o-Phenylenediamine via Nanoparticles and Green Strategies Using Transition**	Singhal, S., **Khanna, P.,** Panda, S. S., & Khanna, L.	Chemistry	Journal Of Heterocyclic Chemistry	2019	3-5193 (On	https://doi.org/10.1002/jhet.3649	https://onlinelibrary.wiley.com/doi/abs/10.1002/jhet.3649	https://www.scopus.com/sourceid/25882	Indexed in UGC Care List, SCOPUS and Web of Science
204	**Curcumin based supramolecular ensemble for optical detection of Cu2+ and Hg2+ ions**	Lal, S., Prakash, K., Khera, N., Drashya, Singh, S., Singh, A., **Hooda, S.,** &	Chemistry	Journal of Molecular Structure	2019	0022-2860	https://doi.org/10.1016/j.molstruc.2020.128091	https://www.sciencedirect.com/science/article/abs/pii/S0022286020304166#:~:text=	https://www.scopus.com/sourceid/24642	Indexed in UGC Care List, SCOPUS and Web of Science
205	**Curcumin based supramolecular ensemble for optical detection of Cu2+ and Hg2+ ions**	Lal, S., Prakash, K., Khera, N., Drashya, Singh, S., Singh, A., **Hooda, S.,** &	Chemistry	Journal of Molecular Structure	2019	0022-2860	https://doi.org/10.1016/j.molstruc.2020.128091	https://www.sciencedirect.com/science/article/abs/pii/S0022286020304166#:~:text=	https://www.scopus.com/sourceid/24642	Indexed in UGC Care List, SCOPUS and Web of Science
206	**Curcumin based supramolecular ensemble for optical detection of Cu2+ and Hg2+ ions**	Lal, S., Prakash, K., Khera, N., Drashya, Singh, S., Singh, A., **Hooda, S.,** &	Chemistry	Journal of Molecular Structure	2019	0022-2860	https://doi.org/10.1016/j.molstruc.2020.128091	https://www.sciencedirect.com/science/article/abs/pii/S0022286020304166#:~:text=	https://www.scopus.com/sourceid/24642	Indexed in UGC Care List, SCOPUS and Web of Science

207	**Curcumin based supramolecular ensemble for optical detection of Cu2+ and Hg2+ ions**	Lal, S., Prakash, K., Khera, N., **Drashya, Singh**, S., Singh, A., Hooda, S., &	Chemistry	Journal of Molecular Structure	2019	0022-2860	https://doi.org/10.1016/j.molstruc.2020.128091	https://www.sciencedirect.com/science/article/abs/pii/S0022286020304166#:~:text=	https://www.scopus.com/sourceid/24642	Indexed in UGC Care List, SCOPUS and Web of Science
208	**Repurposing of FDA-approved drugs to target MurB and MurE enzymes in Mycobacterium tuberculosis, Journal of Biomolecular**	**Rani, J.**, Silla, Y., Borah, K., Ramachandran, S. & Bajpai, U.	Biomedical Science	Journal of Biomolecular Structure and Dynamics	2019	1102, 1538	https://doi.org/10.1080/07391102.2019.1637280	https://www.tandfonline.com/doi/abs/10.1080/07391102.2019.1637280	https://mjl.clarivate.com/search-results?issn=0739-1102&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
209	**Repurposing of FDA-approved drugs to target MurB and MurE enzymes in Mycobacterium tuberculosis, Journal of Biomolecular**	Rani, J., Silla, Y., Borah, K., Ramachandran, S. & **Bajpai, U.**	Biomedical Science	Journal of Biomolecular Structure and Dynamics	2019	1102, 1538	https://doi.org/10.1080/07391102.2019.1637280	https://www.tandfonline.com/doi/abs/10.1080/07391102.2019.1637280	https://mjl.clarivate.com/search-results?issn=0739-1102&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
210	**Polydopamine –aminoglycoside nanoconjugates: Synthesis, characterization, antimicrobial evaluation and**	Singh, I., Priyam, A., Jha, D., **Dhawan, G.**, Gautam, H. K., & Kumar, P.	Biomedical Science	MATERIALS SCIENCE & ENGINEERING C-MATERIALS	2019	0191 (Elect	https://doi.org/10.1016/j.msec.2019.110284	https://www.sciencedirect.com/science/article/pii/S0928493119318946	https://www.scopus.com/sourceid/17813	Indexed in SCOPUS
211	**Polydopamine –aminoglycoside nanoconjugates: Synthesis, characterization, antimicrobial evaluation and**	Singh, I., Priyam, A., Jha, D., **Dhawan, G.**, Gautam, H. K., & Kumar, P.	Biomedical Science	MATERIALS SCIENCE & ENGINEERING C-MATERIALS	2019	0191 (Elect	https://doi.org/10.1016/j.msec.2019.110284	https://www.sciencedirect.com/science/article/pii/S0928493119318946	https://www.scopus.com/sourceid/17813	Indexed in SCOPUS
212	**Identifying similar networks using structural hierarchy**	Saxena, R., **Kaur, S.**, & Bhatnagar, V.	Computer Science	Physica A: Statistical Mechanics and its Applications	2019	0378-4371	https://doi.org/10.1016/j.physa.2019.04.265	https://www.sciencedirect.com/science/article/abs/pii/S0378437119306399	https://mjl.clarivate.com/search-results?issn=0378-4371&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
213	**The Impact Of Various Digitized Social Networking Media Through Text, Images And Videos On Language Usage**	Mishra, S., **Samal, C.K.**, Yadav, N., & Choudhury, R.K.	Computer Science	INTERNATIONAL JOURNAL OF SCIENTIFIC	2019	2277-8616	http://www.ijstr.org/final-print/oct2019/The-	http://www.ijstr.org/final-print/oct2019/The-Impact-Of-Various-Digitized-	https://www.scopus.com/sourceid/21100894501	Indexed in SCOPUS
214	**Analysis of Al0.15Ga0.85N/GaN/Al0.15Ga0.85N DH-HEMT for RF and Microwave Frequency Applications**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Semiconductors	2019	1063-7826	https://doi.org/10.1134/S1063782619130050	https://link.springer.com/article/10.1134/S1063782619130050	https://mjl.clarivate.com/search-results?issn=1063-7826&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

215	**PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS**	Ansari, A. A., **Meena, K. R.,** & Prasad, S. R.	Mathematics	Romanian Astronomical Journal	2019	1220-5168	http://www.astro.ro/~roaj/30_2/14-ansari-2015	http://www.astro.ro/~roaj/30_2/14-ansari-2015	https://mjl.clarivate.com/search-results?issn=1220-5168&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
216	**PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS**	Ansari, A. A., Meena, K. R.**,** & **Prasad, S. R.**	Mathematics	Romanian Astronomical Journal	2019	1220-5168	http://www.astro.ro/~roaj/30_2/14-ansari-2015	http://www.astro.ro/~roaj/30_2/14-ansari-2015	https://mjl.clarivate.com/search-results?issn=1220-5168&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
217	**Sheet carrier concentration and current–voltage analysis of Al0.15Ga0.85N/GaN/Al0.15Ga0.85N double**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Microsystem Technologies	2019	9467076	https://doi.org/10.1007/s00542-019-04322-5	https://link.springer.com/article/10.1007/s00542-019-04322-5	nil	**PEER REVIEWED**
218	**Cytokine-induced expression of nitric oxide synthases in Chlamydia trachomatis-infected spontaneous aborters**	Prasad, P., **Singh, N.,** Das, B., Raisuddin, S., Dudeja, M., & Rastogi, S.	Biomedical Science	Journal of Maternal-Fetal and Neonatal Medicine	2019	1476-7058	: 10.1080/14767058.2018.1465914	https://pubmed.ncbi.nlm.nih.gov/29720007/	https://mjl.clarivate.com:/search-results?issn=1476-7058&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
219	**Does tumour necrosis factor alpha-induced cyclooxygenase-2 expression lead to spontaneous abortion in *Chlamydia trachomatis* -**	**Singh N**, Prasad P, Das B, Rastogi S	Biomedical Science	Microbial Pathogenesis	2019	0882-4010	https://doi.org/10.1016/j.micpath.2020.103994	https://www.sciencedirect.com/science/article/pii/S0882401019308915?via%3Dihub	https://www.scopus.com/sourceid/22941	**SCOPUS INDEXED**
220	**Hyperoxidation of Peroxiredoxin 6 Induces Alteration from Dimeric to Oligomeric State**	Shahnaj S, **Chowhan R K**, Potshangbam A M, Kakchingtabam	Biomedical Science	Antioxidants	2019	2076-3921	10.3390/antiox8020033.	https://pubmed.ncbi.nlm.nih.gov/30717364/	https://mjl.clarivate.com:/search-results?issn=2076-3921&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
221	**Prion protein transcription is auto-regulated through dynamic interactions with G-quadruplex motifs in its own promoter**	**Pradhan, P**, Srivastava A, Singh J, Biswas B, Saini A, Siddique I, ... &	Biomedical Science	Biochimica et Biophysica Acta (BBA)-Gene	2019	1876-4320	10.1016/j.bbagrm.2019.194479.	https://pubmed.ncbi.nlm.nih.gov/31931179/	https://mjl.clarivate.com:/search-results?issn=1874-9399&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
222	**A study of software reliability on big data open source software**	**Subhash Kumar** &	Physics	International Journal of System Assurance Engineering	2019	0976-4348	https://doi.org/10.1007/s13198-019-00777-x	https://link.springer.com/article/10.1007/s13198-019-00777-x	https://mjl.clarivate.com:/search-results?issn=0975-6809&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**

223	**A Case Study on R: a powerful OSS and data analysis platform**	Ranjan Kumar, **Subhash Kumar,** Sanjay K. Tiwary	Physics	International Journal of Applied Engineering Research	2019	0973-4562	https://www.ripublication.com/ijaer19/ijaerv14n9_31.pdf	https://www.ripublication.com/ijaer19/ijaerv14n9_31.pdf	nil	**PEER REVIEWED**
224	**Dynamics of a vertically vibrating mercury drop**	T Singla, **DK Verma**, JF Tovar, A Figueroa, F Vázquez, FB Yousif	Physics	AIP Advances	2019	2158-3226	https://doi.org/10.1063/1.5088043	https://pubs.aip.org/aip/adv/article/9/4/045204/1076422/Dynamics-of-a-vertically-	https://mjl.clarivate.com:/search-results?issn=2158-3226&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
225	**Fabrication and characterization of ZnO-TiO_2-PANI (ZTP) micro/nanoballs for the detection of flammable and toxic gases**	**Rakesh Kumar Sonker,** B.C. Yadav, Vinay Gupta, Monika Tomar	Physics	Journal of Hazardous Materials	2019	1873-3336	https://doi.org/10.1016/j.jhazmat.2018.10.016	https://www.sciencedirect.com/science/article/abs/pii/S0304389418309166	https://mjl.clarivate.com:/search-results?issn=0304-3894&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
226	**Investigation of thermodynamical, dielectric and electro-optical parameters of nematic liquid crystal doped with**	T. Vimal, K. Agrahari, **Rakesh Kumar Sonker**, R. Manohar	Physics	Journal of Molecular Liquids	2019	1873-3166	https://doi.org/10.1016/j.molliq.2019.111241	https://www.sciencedirect.com/science/article/abs/pii/S0167732219309481	https://mjl.clarivate.com:/search-results?issn=0167-7322&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
227	**Synthesis and characterization of highly porous hexagonal shaped CeO_2-Gd_2O_3-CoO nanocomposite and its opto-**	S. Sikarwar, B.C. Yadav, **Rakesh Kumar Sonker**, G.I. Dzhardimalieva,	Physics	Applied Surface Science	2019	1873-5584	https://doi.org/10.1016/j.apsusc.2019.02.108	https://www.sciencedirect.com/science/article/abs/pii/S0169433219304337	https://mjl.clarivate.com:/search-results?issn=0169-4332&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
228	**Entrainment of aperiodic and periodic oscillations in the Mercury Beating Heart system using external periodic forcing**	P Kumar, P Parmananda**, DK Verma,** T Singla, I de Nicolás, J Escalona	Physics	Chaos: An Interdisciplinary Journal of Nonlinear	2019	1054-1500	https://doi.org/10.1063/1.5083179	https://pubmed.ncbi.nlm.nih.gov/31154773/	nil	**PEER REVIEWED**
229	**Recyclable Organocatalysts for One-pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone**	Liu, M.; Zhang, X.; Huang, X.; **Dhawan, G.;** Evans, J.; Kaur, M.; Jasinski, J. P.;	Biomedical Science	Eur. J. Org. Chem	2019	1099-0690	https://doi.org/10.1002/ejoc.201801480	https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/ejoc.201801480#:~	https://mjl.clarivate.com:/search-results?issn=1434-193X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
230	**Morphology of the Small Magellanic Cloud using multiwavelength photometry of classical Cepheids**	Sukanta Deb, Kerdaris Kurbah, Harinder P Singh, Shashi M Kanbur, Chow-	Physics	Monthly Notices of Royal Astronomical Society	2019	0035-8711	https://doi.org/10.1093/mnras/stz2328	https://academic.oup.com/mnras/article/489/3/3725/5553489	https://mjl.clarivate.com:/search-results?issn=0035-8711&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**

231	**Theoretical and experimental investigation on structural stability, electronic and vibrational properties of polvaniline (PANI)**	**Rakesh Kumar Sonker**, R. Shastri, B.C. Yadav	Physics	Proceedings of the Jangjeon Mathematical Society	2019	1598-7264	http://dx.doi.org/10.17777/pjms2019.22.1.129	https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE10700506	nil	**PEER REVIEWED**
232	**Structural basis of peroxidase catalytic cycle of human Prdx6**	**Chowhan, R. K.**	Biomedical Science	Scientific reports	2020	2045-2322	https://doi.org/10.1038/s41598-020-74052-6	https://www.nature.com/articles/s41598-020-74052-6#:~:text=The%2	https://mjl.clarivate.com/search-results?issn=2045-2322&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
233	**Experimental validation of influenza A virus matrix protein (M1) interaction with host cellular alpha enolase and pyruvate kinase**	**Deepshikha**	Biomedical Science	Virology	2020	0042-6822	https://doi.org/10.1016/j.virol.2020.07.019	https://www.sciencedirect.com/science/article/pii/S004268222030146X?via%3Dihub	https://mjl.clarivate.com/search-results?issn=0042-6822&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
234	**Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films**	**Dhingra, V.,** Kumar, S., Kumar, R., Garg, A., & Chowdhuri, A.	Electronics and Physics	Materials Research Express	2020	2053-1591	DOI 10.1088/2053-1591/ab9ae7	https://iopscience.iop.org/article/10.1088/2053-1591/ab9ae7#:~:text=In%20the%2	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
235	**Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films**	Dhingra, V., Kumar, S., Kumar, R**., Garg, A**., & Chowdhuri, A.	Electronics and Physics	Materials Research Express	2020	2053-1591	DOI 10.1088/2053-1591/ab9ae7	https://iopscience.iop.org/article/10.1088/2053-1591/ab9ae7#:~:text=In%20the%2	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
236	**Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films**	Dhingra, V**.,** Kumar, S., Kumar, R., Garg, A., & **Chowdhuri, A.**	Electronics and Physics	Materials Research Express	2020	2053-1591	DOI 10.1088/2053-1591/ab9ae7	https://iopscience.iop.org/article/10.1088/2053-1591/ab9ae7#:~:text=In%20the%2	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
237	**Room temperature SO_2 and H_2 gas sensing using hydrothermally grown GO–ZnO nanorod composite films**	Dhingra, V., **Kumar, S**., Kumar, R**.,** Garg, A., & Chowdhuri, A.	Electronics and Physics	Materials Research Express	2020	2053-1591	DOI 10.1088/2053-1591/ab9ae7	https://iopscience.iop.org/article/10.1088/2053-1591/ab9ae7#:~:text=In%20the%2	https://mjl.clarivate.com/search-results?issn=2053-1591&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
238	**Extraction of admittance parameters of symmetrically doped AlGaN/GaN/AlGaN DH-HEMT for microwave frequency applications.**	Chugh, N., Kumar, M., **Bhattacharya, M.,** & Gupta, R. S.	Electronics	Microsystem Technologies	2020	0946-7076	https://doi.org/10.1007/s00542-020-04805-w	https://link.springer.com/article/10.1007/s00542-020-04805-w	https://mjl.clarivate.com/search-results?issn=0946-7076&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS

239	**Synthesis of CdS nanoparticle by sol-gel method as low temperature NO_2 sensor**	**Sonker R.K.**, Yadav B.C., Gupta V., & Tomar M.	Physics	Materials Chemistry and Physics	2020	0254-0584	https://doi.org/10.1016/j.matchemphys.2019.121975	https://www.sciencedirect.com/science/article/abs/pii/S0254058419307746	https://mjl.clarivate.com/search-results?issn=0254-0584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
240	**Optimizing synthesis of Citrus limetta peel silver nanocomposites possessing larvicidal potential against dengue vector, Aedes**	Aggarwal, D., **Sharma, A.**, & Kumar, S.	Zoology	Advances in Zoology and Botany	2020	2331-5083	DOI: 10.13189/azb.2020.080103	https://www.hrpub.org/journals/article_info.php?aid=8630	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101002048&flag=Search	Indexed in UGC Care List
241	**Optimizing synthesis of Citrus limetta peel silver nanocomposites possessing larvicidal potential against dengue vector, Aedes**	Aggarwal, D., Sharma, A., & **Kumar, S.**	Zoology	Advances in Zoology and Botany	2020	2331-5083	DOI: 10.13189/azb.2020.080103	https://www.hrpub.org/journals/article_info.php?aid=8630	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101002048&flag=Search	Indexed in UGC Care List
242	**One pot synthesis of silver nano-composites from Achyranthes aspera: An eco-friendly larvicide against Aedes aegypti L.**	**Sharma, A.**, Tripathi, P., & Kumar, S.	Zoology	Asian Pacific Journal of Tropical Biomedicin	2020	2221-1691	10.4103/2221-1691.275420	https://journals.lww.com/aptb/fulltext/2020/10020/one_pot_synthesis_of_silver_nan	https://mjl.clarivate.com/search-results?issn=2221-1691&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
243	**One pot synthesis of silver nano-composites from Achyranthes aspera: An eco-friendly larvicide against Aedes aegypti L.**	Sharma, A., Tripathi, P., & **Kumar, S.**	Zoology	Asian Pacific Journal of Tropical Biomedicin	2020	2221-1691	DOI: 10.4103/2221-1691.275420	https://www.apjtb.org/article.asp?issn=2221-1691;year=2020;volume=10;issue	https://mjl.clarivate.com/search-results?issn=2221-1691&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
244	**Effect of dietary stress of emamectin benzoate on the Fitness Cost of American Bollworm, Helicoverpa armigera (Hübner, 1808).**	Dagar, V.S., **Mishra, M.**, & Kumar, S.	Zoology	International Journal of Tropical Insect Science	2020	7584 / 174	https://doi.org/10.1007/s42690-020-00168-x	https://link.springer.com/article/10.1007/s42690-020-00168-x	https://mjl.clarivate.com/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
245	**Effect of dietary stress of emamectin benzoate on the Fitness Cost of American Bollworm, Helicoverpa armigera (Hübner, 1808).**	Dagar, V.S., Mishra, M., & **Kumar, S.**	Zoology	International Journal of Tropical Insect Science	2020	7584 / 174	https://doi.org/10.1007/s42690-020-00168-x	https://link.springer.com/article/10.1007/s42690-020-00168-x	https://mjl.clarivate.com/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
246	**Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner.**	**Mishra, M.**, Sharma, A., Dagar, V.S., & Kumar, S.	Zoology	Archives of Biological Sciences	2020	4664 / 182	https://doi.org/10.2298/ABS200308021M	http://www.doiserbia.nb.rs/Article.aspx?ID=0354-46642000021M#.Y7P_8XZBzrc	https://mjl.clarivate.com/search-results?issn=0354-4664&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

247	**Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner.**	Mishra, M., **Sharma, A.**, Dagar, V.S., & Kumar, S.	Zoology	Archives of Biological Sciences	2020	4664 / 182	https://doi.org/10.2298/ABS200308021M	http://www.doiserbia.nb.rs/Article.aspx?ID=0354-46642000021M#.Y7P_8XZBzrc	https://mjl.clarivate.com/search-results?issn=0354-4664&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
248	**Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner.**	Mishra, M., Sharma, A., Dagar, V.S., & **Kumar, S.**	Zoology	Archives of Biological Sciences	2020	4664 / 182	https://doi.org/10.2298/ABS200308021M	http://www.doiserbia.nb.rs/Article.aspx?ID=0354-46642000021M#.Y7P_8XZBzrc	https://mjl.clarivate.com/search-results?issn=0354-4664&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
249	**Potential applications of extracellular enzymes from Streptomyces spp. in various industries**	Kumar, M., Kumar, P., **Das, P.**, Solanki, R., & Kapur, M.K**.**	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-01898-9	https://link.springer.com/article/10.1007/s00203-020-01898-9	https://www.scopus.com/sourceid/19623	Indexed in UGC Care List, SCOPUS and Web of Science
250	**Potential applications of extracellular enzymes from Streptomyces spp. in various industries**	Kumar, M., Kumar, P., Das, P., **Solanki, R.,** & Kapur, M.K.	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-01898-9	https://link.springer.com/article/10.1007/s00203-020-01898-9	https://www.scopus.com/sourceid/19623	Indexed in UGC Care List, SCOPUS and Web of Science
251	**Potential applications of extracellular enzymes from Streptomyces spp. in various industries**	Kumar, M., Kumar, P., Das, P., Solanki, R., & **Kapur, M.K.**	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-01898-9	https://link.springer.com/article/10.1007/s00203-020-01898-9	https://www.scopus.com/sourceid/19623	Indexed in UGC Care List, SCOPUS and Web of Science
252	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., **Sripoorna, S.**, Maurya, S., Toteja, R.,	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
253	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., Sripoorna, S., **Maurya, S.**, Toteja, R.,	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
254	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., Sripoorna, S., Maurya, S., **Toteja, R.**,	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS

255	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., Sripoorna, S., Maurya, S., **Toteja, R.**,	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
256	**Description of a new species of Tetmemena (Ciliophora, Oxytrichidae) using classical and molecular markers**	Gupta, R., Abraham, J. S., Sripoorna, S., Maurya, S., Toteja, R.,	Zoology	Journal of King Saud University-Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.03.009	https://www.sciencedirect.com/science/article/pii/S1018364720301026	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
257	**Spiro-Indole-Coumarin Hybrids: Synthesis, ADME, DFT, NBO Studies and In Silico Screening through Molecular Docking on DNA**	Khanna, L., Singhal, S., Jain, S. C., & **Khanna, P.**	Chemistry	ChemistrySelect	2020	5-6549 (On	https://doi.org/10.1002/slct.201904783	https://chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/slct.201904783	https://www.scopus.com/sourceid/21100850505	Indexed in UGC Care List, SCOPUS and Web of Science
258	**Biogenic Silver Nanoparticles: Evaluation of Their Biological and Catalytic Potential**	Sharma, B., Singh, I., Bajar, S., **Gupta, S.,** Gautam, H. & Kumar, P.	Chemistry	Indian Journal of Microbiology	2020	0046-8991	https://doi.org/10.1007/s12088-020-00889-0	https://link.springer.com/article/10.1007/s12088-020-00889-0	https://www.scopus.com/sourceid/19735	Indexed in UGC Care List, SCOPUS and Web of Science
259	**Ultrashort peptide self-assembly: Front-runners to transport drug and gene cargos.**	**Gupta, S.,** Singh, I., Sharma, A. K., & Kumar, P**.**	Chemistry	Frontiers in bioengineering and biotechnology	2020	2296-4185	https://doi.org/10.3389/fbioe.2020.00504	https://www.frontiersin.org/articles/10.3389/fbioe.2020.00504/full	https://www.scopus.com/sourceid/21100835954	Indexed in UGC Care List, SCOPUS and Web of Science
260	**Ultrashort peptide self-assembly: Front-runners to transport drug and gene cargos.**	**Gupta, S.,** Singh, I., Sharma, A. K., & Kumar, P**.**	Chemistry	Frontiers in bioengineering and biotechnology	2020	2296-4185	https://doi.org/10.3389/fbioe.2020.00504	https://www.frontiersin.org/articles/10.3389/fbioe.2020.00504/full	https://www.scopus.com/sourceid/21100835954	Indexed in UGC Care List, SCOPUS and Web of Science
261	**Adsorption of Rhodamine 6G dye on binary system of Nanoarchitectonics composite Magnetic Graphene Oxide Material**	Drashya, Lal, S., & Hooda, S.	Chemistry	Journal of Nanoscience and Nanotechnology	2020	1533-4880	https://doi.org/10.1166/jnn.2020.17442	https://www.ingentaconnect.com/content/asp/jnn/2020/00000020/00000005/art00	https://www.scopus.com/sourceid/28546	Indexed in SCOPUS
262	**Adsorption of Rhodamine 6G dye on binary system of Nanoarchitectonics composite Magnetic Graphene Oxide Material**	**Drashya**, Lal, S., & **Hooda, S.**	Chemistry	Journal of Nanoscience and Nanotechnology	2020	1533-4880	https://doi.org/10.1166/jnn.2020.17442	https://www.ingentaconnect.com/content/asp/jnn/2020/00000020/00000005/art00	https://www.scopus.com/sourceid/28546	Indexed in SCOPUS

263	**Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from**	Gautam, D., & **Hooda, S.**	Chemistry	JOURNAL OF CHEMICAL AND ENGINEERI	2020	0021-9568	https://doi.org/10.1021/acs.jced.0c00350	https://pubs.acs.org/doi/10.1021/acs.jced.0c00350	https://www.scopus.com/sourceid/24158	Indexed in UGC Care List and Web of Science
264	**Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from**	**Gautam, D.**, & Hooda, S.	Chemistry	JOURNAL OF CHEMICAL AND ENGINEERI	2020	0021-9568	https://doi.org/10.1021/acs.jced.0c00350	https://pubs.acs.org/doi/10.1021/acs.jced.0c00350	https://www.scopus.com/sourceid/24158	Indexed in UGC Care List and Web of Science
265	**Complexity Dynamics of Gumowski-Mira Map**	**Prasad S. N.,** Meena K. R., & Ansari A. A.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/06/15-	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
266	**Complexity Dynamics of Gumowski-Mira Map**	Prasad S. N**., Meena K. R.,** & Ansari A. A.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/06/15-	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
267	**Chaos Measure in autonomous LPA Model**	**Prasad S. N.,** Saha L. M., & Ansari A. A.	Mathematics	Gedrag En Organisatie review	2020	0921-5077	DOI:10.37896/GOR33.02/271	https://lemma-tijdschriften.com/gallery/goj-1864.pdf	https://mjl.clarivate.com/search-results?issn=0921-5077&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
268	**Supply chain model for expiring items following Ramp-type demand with stochastic lead time under crisp and fuzzy environment**	**Singh C.**, & Singh S. R.	Mathematics	International Journal of Fuzzy System Applications	2020	2156-177X	DOI: 10.4018/IJFSA.2020010103	https://www.igi-global.com/gateway/article/245271#pnlRecommendationForm	https://www.scopus.com/sourceid/21100301444	Indexed in UGC Care List and SCOPUS
269	**The anti-oxidant enzyme, Prdx6 might have cis-acting regulatory sequence(s).**	Shahnaj, S., Potshangbam, A.M., **Chowhan, R.K.**, Parray, Z.A.,	Biomedical Science	International Journal of Biological Macromolecules	2020	0003 (Elect	https://doi.org/10.1016/j.ijbiomac.2020.01.311	https://www.sciencedirect.com/science/article/abs/pii/S0141813019397971?via%3D	https://mjl.clarivate.com/search-results?issn=0141-8130&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
270	**Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in Mycobacterium tuberculosis**	Eniyan, K., Rani, J., Ramachandran, S., Bhat, R., Khan, I.A. &	Biomedical Science	SLAS DISCOVERY	2020	5560 (Elect	https://doi.org/10.1177/2472555219881148	https://slas-discovery.org/article/S2472-5552(22)06529-7/fulltext	https://mjl.clarivate.com/search-results?issn=2472-5552&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

271	**Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in Mycobacterium tuberculosis**	Eniyan, K., Rani, J., Ramachandran, S., Bhat, R., Khan, I.A. &	Biomedical Science	SLAS DISCOVERY	2020	5560 (Elect	https://doi.org/10.1177/2472555219881148	https://slas-discovery.org/article/S2472-5552(22)06529-7/fulltext	https://mjl.clarivate.com/search-results?issn=2472-5552&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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273	**Characterization and genome analysis of B1 sub-cluster mycobacteriophage PDRPxv**	Sinha, A., Eniyan, K., Manohar, P., Ramesh, N., & **Bajpai, U.**	Biomedical Science	Virus research	2020	7492 (Elect	https://doi.org/10.1016/j.virusres.2020.197884Get rights and	https://www.sciencedirect.com/science/article/abs/pii/S0168170219307518	https://mjl.clarivate.com/search-results?issn=0168-1702&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
274	**Characterization and genome analysis of B1 sub-cluster mycobacteriophage PDRPxv**	Sinha, A., **Eniyan, K.,** Manohar, P., Ramesh, N., & Bajpai, U.	Biomedical Science	Virus research	2020	7492 (Elect	https://doi.org/10.1016/j.virusres.2020.197884Get rights and	https://www.sciencedirect.com/science/article/abs/pii/S0168170219307518	https://mjl.clarivate.com/search-results?issn=0168-1702&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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276	**Functional characterization of the endolysins derived from mycobacteriophage PDRPxv**	Eniyan, K., Sinha, A., Ahmad, S., & **Bajpai, U.**	Biomedical Science	World journal of microbiology & biotechnolo	2020	0972 (Elect	https://doi.org/10.1007/s11274-020-02858-7	https://link.springer.com/article/10.1007/s11274-020-02858-7	https://mjl.clarivate.com/search-results?issn=0959-3993&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
277	**Functional characterization of the endolysins derived from mycobacteriophage PDRPxv**	Eniyan, K., Sinha, A., Ahmad, S., & **Bajpai, U.**	Biomedical Science	World journal of microbiology & biotechnolo	2020	0972 (Elect	https://doi.org/10.1007/s11274-020-02858-7	https://link.springer.com/article/10.1007/s11274-020-02858-7	https://mjl.clarivate.com/search-results?issn=0959-3993&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
278	**Functional characterization of the endolysins derived from mycobacteriophage PDRPxv**	Eniyan, K., Sinha, A., Ahmad, S., & **Bajpai, U.**	Biomedical Science	World journal of microbiology & biotechnolo	2020	0972 (Elect	https://doi.org/10.1007/s11274-020-02858-7	https://link.springer.com/article/10.1007/s11274-020-02858-7	https://mjl.clarivate.com/search-results?issn=0959-3993&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS

279	**Functional characterization of the endolysins derived from mycobacteriophage PDRPxv**	**Eniyan, K.**, Sinha, A., Ahmad, S., & Bajpai, U.	Biomedical Science	World journal of microbiology & biotechnolo	2020	0972 (Elect	https://doi.org/10.1007/s11274-020-02858-7	https://link.springer.com/article/10.1007/s11274-020-02858-7	https://mjl.clarivate.com/search-results?issn=0959-3993&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
280	**Estimating Parameter of the Selected Uniform Population Under the Generalized Stein Loss Function**	**Meena K. R.,** & Gangopadhyay A. K.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/sites/1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/10_R1387_AA	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
281	**Reliable Path Finding Technique for Mobile Robot**	Choudhury, R. K., and **Samal, C.K.**	Computer Science	Journal of Computer Science and Technology	2020	9000 / 186	https://www.researchgate.net/profile/Chandrakanta-	https://www.researchgate.net/profile/Chandrakanta-Samal/publicatio	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101001966&flag=Search	Indexed in UGC Care List, SCOPUS and Web of Science
282	**Android-based application for shading analysis and assessment of actual solar energy potential**	**Garg, A.,** Sharma, P., Verma, V., & Kaur, T.	Electronics	New Concepts in Solar and Thermal Radiation	2020	0277-786X	https://doi.org/10.1117/12.2570966	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11496/1149	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
283	**Android-based application for shading analysis and assessment of actual solar energy potential**	**Garg, A.,** Sharma, P., Verma, V., & Kaur, T.	Electronics	New Concepts in Solar and Thermal Radiation	2020	0277-786X	https://doi.org/10.1117/12.2570966	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11496/1149	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
284	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P.,	Electronics	Optics Education and Outreach VI (Vol. 11480,	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/1148	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
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286	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P.,	Electronics	Optics Education and Outreach VI (Vol. 11480,	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/1148	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS

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289	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P.,	Electronics	Optics Education and Outreach VI (Vol. 11480,	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/1148	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
290	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P.,	Electronics	Optics Education and Outreach VI (Vol. 11480,	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/1148	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
291	**Some fun pedagogical techniques to teach optics to students of all ages.**	**Garg, A.,** Sharma, P., Prajapat, P., Saxena, A., Pandey, P.,	Electronics	Optics Education and Outreach VI (Vol. 11480,	2020	0277-786X	https://doi.org/10.1117/12.2570964	https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11480/1148	https://www.scopus.com/sourceid/40067	Indexed in SCOPUS
292	**Trace detection of Nerve agent simulant in the fuel vapor environment using metal oxide/Surface acoustic wave E-nose**	Kumar, J., Singh, H., **Raj, V. B.,** Nimal, A. T., Gupta, V. & Singh, V. K.	Physics	Defence Science Journal	2020	379X , 2456	DOI:10.14429/dsj.70.14584	https://core.ac.uk/download/pdf/335056862.pdf	https://www.scopus.com/sourceid/21100967064#tabs=1	Indexed in UGC Care List, SCOPUS and Web of Science
293	**Green synthesis of TiO2 nanosheet by chemical method for the removal of Rhodamine B from industrial waste**	**Sonker, R.K.,** Yadav, B.C., Gupta, V. & Tomar, M.	Physics	Materials Science And Engineering B: Solid-State	2020	0921-5107	https://doi.org/10.1016/j.mseb.2020.114577Get rights and	https://www.sciencedirect.com/science/article/abs/pii/S0921510720300842	https://mjl.clarivate.com/search-results?issn=0921-5107&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
294	**An overview of the factors affecting dengue transmission in Asian region and its predictive models.**	Samal, R.R., Gupta, S. & **Kumar, S.**	Zoology	Journal of Applied and Natural Science	2020	2231-5209	https://doi.org/10.31018/jans.v12i3.2360	https://journals.ansfoundation.org/index.php/jans/article/view/2360	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS

295	**An overview of the factors affecting dengue transmission in Asian region and its predictive models.**	**Samal, R.R.**, Gupta, S. & Kumar, S.	Zoology	Journal of Applied and Natural Science	2020	2231-5209	https://doi.org/10.31018/jans.v12i3.2360	https://journals.ansfoundation.org/index.php/jans/article/view/2360	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS
296	**Comparative larvicidal efficacy of α-cypermethrin alone and α-cypermethrin/Citrus sinensis peel extract binary mixtures**	Aggarwal, D, Samal, R. R. & **Kumar, S.**	Zoology	Romanian Journal of Biology-Zoology	2020	2248-3799	https://www.researchgate.net/profile/Roopa-Samal-	https://www.researchgate.net/profile/Roopa-Samal-2/publication/34	https://mjl.clarivate.com/search-results?issn=1843-7761&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
297	**Comparative larvicidal efficacy of α-cypermethrin alone and α-cypermethrin/Citrus sinensis peel extract binary mixtures**	Aggarwal, D, **Samal, R. R.** & Kumar, S.	Zoology	Romanian Journal of Biology-Zoology	2020	2248-3799	https://www.researchgate.net/profile/Roopa-Samal-	https://www.researchgate.net/profile/Roopa-Samal-2/publication/34	https://mjl.clarivate.com/search-results?issn=1843-7761&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
298	**Reduced physiological and reproductive fitness induced by Nerium oleander leaf extracts in the cotton bollworm, Helicoverpa**	Sivakumar, A., Mishra, M., Dagar, V. & **Kumar, S.**	Zoology	Acta Ecologica Sinica	2020	1872-2032	https://doi.org/10.1016/j.chnaes.2020.12.002	https://www.sciencedirect.com/science/article/abs/pii/S187220322030233X	https://mjl.clarivate.com/search-results?issn=1000-0933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
299	**Reduced physiological and reproductive fitness induced by Nerium oleander leaf extracts in the cotton bollworm, Helicoverpa**	Sivakumar, A., Mishra, M., Dagar, V. & **Kumar, S.**	Zoology	Acta Ecologica Sinica	2020	1872-2032	https://doi.org/10.1016/j.chnaes.2020.12.002	https://www.sciencedirect.com/science/article/abs/pii/S187220322030233X	https://mjl.clarivate.com/search-results?issn=1000-0933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
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301	**Protection of surplus food from fungal spoilage using Streptomyces spp.: a green approach**	Kumar, M., Kumar, P., Das, P., Solanki, R., & **Kapur, M.K.**	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-02087-4	https://link.springer.com/article/10.1007/s00203-020-02087-4	https://mjl.clarivate.com/search-results?issn=0302-8933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
302	**Protection of surplus food from fungal spoilage using Streptomyces spp.: a green approach**	Kumar, M., Kumar, P., **Das, P.**, Solanki, R., & Kapur, M.K.	Zoology	Archives of Microbiology	2020	1432-072X	https://doi.org/10.1007/s00203-020-02087-4	https://link.springer.com/article/10.1007/s00203-020-02087-4	https://mjl.clarivate.com/search-results?issn=0302-8933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

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304	**Draft genome and secondary metabolite biosynthetic gene clusters of Streptomyces sp. strain 196.**	Kumar, P., Chauhan, A., Kumar, M., Kuanr, B.K., Solanki, R., &	Zoology	Molecular Biology Reports	2020	1573-4978	https://doi.org/10.1007/s11033-020-05731-w	https://link.springer.com/article/10.1007/s11033-020-05731-w	https://mjl.clarivate.com/search-results?issn=0301-4851&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
305	**Indicators for assessment of soil quality: a mini-review**	Maurya, S., Abraham, J. S., Somasundaram, S., **Toteja, R.,** Gupta, R., &	Zoology	Environmental Monitoring and Assessment	2020	0167-6369	https://doi.org/10.1007/s10661-020-08556-z	https://link.springer.com/article/10.1007/s10661-020-08556-z	https://mjl.clarivate.com/search-results?issn=0167-6369&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
306	**Indicators for assessment of soil quality: a mini-review**	Maurya, S., Abraham, J. S., Somasundaram, S., Toteja, R., Gupta, R., &	Zoology	Environmental Monitoring and Assessment	2020	0167-6369	https://doi.org/10.1007/s10661-020-08556-z	https://link.springer.com/article/10.1007/s10661-020-08556-z	https://mjl.clarivate.com/search-results?issn=0167-6369&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
307	**Indicators for assessment of soil quality: a mini-review**	Maurya, S., Abraham, J. S., Somasundaram, S., Toteja, R., Gupta, R., &	Zoology	Environmental Monitoring and Assessment	2020	0167-6369	https://doi.org/10.1007/s10661-020-08556-z	https://link.springer.com/article/10.1007/s10661-020-08556-z	https://mjl.clarivate.com/search-results?issn=0167-6369&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
308	**Indicators for assessment of soil quality: a mini-review**	Maurya, S., Abraham, J. S., Somasundaram, S., Toteja, R., Gupta, R., &	Zoology	Environmental Monitoring and Assessment	2020	0167-6369	https://doi.org/10.1007/s10661-020-08556-z	https://link.springer.com/article/10.1007/s10661-020-08556-z	https://mjl.clarivate.com/search-results?issn=0167-6369&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
309	**Ibuprofen-based chemosensor for efficient binding and sensing of Cu2+ ion in aqueous medium**	Lal, S., Prakash, K., Hooda, S., **Kumar V.** & Kumar, P.	Chemistry	Journal of Molecular Structure	2020	0022-2860	https://doi.org/10.1016/j.molstruc.2019.127003	https://www.sciencedirect.com/science/article/abs/pii/S0022286019311032	https://mjl.clarivate.com/search-results?issn=0022-2860	Indexed in UGC Care List, SCOPUS and Web of Science
310	**Ibuprofen-based chemosensor for efficient binding and sensing of Cu2+ ion in aqueous medium**	Lal, S., Prakash, K., **Hooda, S.,** Kumar V. & Kumar, P.	Chemistry	Journal of Molecular Structure	2020	0022-2860	https://doi.org/10.1016/j.molstruc.2019.127003	https://www.sciencedirect.com/science/article/abs/pii/S0022286019311032	https://mjl.clarivate.com/search-results?issn=0022-2860	Indexed in UGC Care List, SCOPUS and Web of Science

311	**Ibuprofen-based chemosensor for efficient binding and sensing of Cu2+ ion in aqueous medium**	Lal, S., Prakash, K., **Hooda, S.,** Kumar V. & Kumar, P.	Chemistry	Journal of Molecular Structure	2020	0022-2860	https://doi.org/10.1016/j.molstruc.2019.127003	https://www.sciencedirect.com/science/article/abs/pii/S0022286019311032	https://mjl.clarivate.com/search-results?issn=0022-2860	Indexed in UGC Care List, SCOPUS and Web of Science
312	**Fabrication of a Gold-Supported NiAlTi-LayeredDouble Hydroxide Nanocatalyst for Organic Transformations**	Rathee, G., Kohli S., Panchal, S., Singh, N., Awasthi, A., Singh, S., Singh,	Chemistry	ACS OMEGA	2020	2470-1343	https://doi.org/10.1021/acsomega.0c03250	https://pubs.acs.org/doi/full/10.1021/acsomega.0c03250	https://mjl.clarivate.com/search-results?issn=2470-1343&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
313	**Fabrication of a Gold-Supported NiAlTi-LayeredDouble Hydroxide Nanocatalyst for Organic Transformations**	Rathee, G., Kohli S., Panchal, S., Singh, N., Awasthi, A., Singh, S., Singh,	Chemistry	ACS OMEGA	2020	2470-1343	https://doi.org/10.1021/acsomega.0c03250	https://pubs.acs.org/doi/full/10.1021/acsomega.0c03250	https://mjl.clarivate.com/search-results?issn=2470-1343&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
314	**Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review**	Gautam, D., Saya, L., Malik, V., Singh, W. R., & **Hooda, S.**	Chemistry	Journal of Chemical & Engineering data	2020	9568 ,1520	https://doi.org/10.1021/acs.jced.0c00743	https://pubs.acs.org/doi/abs/10.1021/acs.jced.0c00743	https://mjl.clarivate.com/search-results?issn=0021-9568&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
315	**Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review**	Gautam, D., Saya, L., Malik, V., Singh, W. R., & **Hooda, S.**	Chemistry	Journal of Chemical & Engineering data	2020	9568 ,1520	https://doi.org/10.1021/acs.jced.0c00743	https://pubs.acs.org/doi/abs/10.1021/acs.jced.0c00743	https://mjl.clarivate.com/search-results?issn=0021-9568&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
316	**Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review**	**Gautam, D.**, Saya, L., Malik, V., Singh, W. R., & Hooda, S.	Chemistry	Journal of Chemical & Engineering data	2020	0021-9568	https://doi.org/10.1021/acs.jced.0c00743	https://pubs.acs.org/doi/abs/10.1021/acs.jced.0c00743	https://mjl.clarivate.com/search-results?issn=0021-9568&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
317	**Self Nitrogen doped carbon Arogel drived from waste Cigarette buts (Cellulose acetate) for the adsorption of BPA : Kinetics and**	Norah S., Alhokbany Naushad, M., **Kumar, V.,** Hatim, S-Al, &	Chemistry	Journal of King Saud University Science	2020	1018-3647	https://doi.org/10.1016/j.jksus.2020.09.021	https://www.sciencedirect.com/science/article/pii/S1018364720302895	https://mjl.clarivate.com/search-results?issn=1018-3647&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
318	**Design and synthesis of various 5'-Deoxy-5'-(4-Substituted-1,2,3-Triazol-1-yl)-uridine analogues as inhibitors of Mycobacterium**	Hervin V., Arora R., Rani J., Ramchandran S**., Bajpai U.,** Agrofoglio L.A.,	Biomedical Science	Molecules	2020	1420-3049	https://doi.org/10.3390/molecules25214953	https://www.mdpi.com/1420-3049/25/21/4953	https://mjl.clarivate.com/search-results?issn=1420-3049&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

319	**Design and synthesis of various 5'-Deoxy-5'-(4-Substituted-1,2,3-Triazol-1-yl)-uridine analogues as inhibitors of Mycobacterium**	Hervin V., Arora R., Rani J., Ramchandran S., **Bajpai U.,** Agrofoglio L.A.,	Biomedical Science	Molecules	2020	1420-3049	https://doi.org/10.3390/molecules25214953	https://www.mdpi.com/1420-3049/25/21/4953	https://mjl.clarivate.com/search-results?issn=1420-3049&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
320	**Design and synthesis of various 5'-Deoxy-5'-(4-Substituted-1,2,3-Triazol-1-yl)-uridine analogues as inhibitors of Mycobacterium**	Hervin V., Arora R., Rani J., Ramchandran S., **Bajpai U.,** Agrofoglio L.A.,	Biomedical Science	Molecules	2020	1420-3049	https://doi.org/10.3390/molecules25214953	https://www.mdpi.com/1420-3049/25/21/4953	https://mjl.clarivate.com/search-results?issn=1420-3049&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
321	**Neem flowers (Azadirachta indica) as an abundant source of nectar for butterflies in an urban landscape in Delhi, India**	**Chaudhary, R.**	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
322	**A comprehensive checklist of butterflies seen in Corbett Tiger Reserve, Uttarakhand, India**	**Chaudhary, R.,** Chhimwal, S., & Kumar, V.	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
323	**Oviposition by Jamides bochus (Stoll, [1782]) (Insecta: Lepidoptera: Lycaenidae) in New Delhi, India**	**Chaudhary, R.** & Kumar, V.	Biomedical Science	Bionotes	2020	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
324	**Diabetes: Perspective and challenges in modern era.**	Goel, Y., Verma, A.K., Bhatt, D., Rahmani, A.H., **Yasheshwar**, & Dev K.	Botany	Gene Reports	2020	2452-0144	https://doi.org/10.1016/j.genrep.2020.100759	https://www.sciencedirect.com/science/article/pii/S2452014420301734#:~:text=Prev	https://mjl.clarivate.com/search-results?issn=2452-0144&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
325	**Vertical Motion of the Variable Infinitesimal Mass in the Cicular Sitnikov Problem**	Ansari, A.A., **Prasad, S.N.** & Singh, C.	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/41_R1397_AA	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
326	**Vertical Motion of the Variable Infinitesimal Mass in the Cicular Sitnikov Problem**	Ansari, A.A., Prasad, S.N. & **Singh, C.**	Mathematics	Application and Applied mathematics	2020	1932-9466	https://www.pvamu.edu/aam/wp-content/uploads/1	https://www.pvamu.edu/aam/wp-content/uploads/sites/182/2020/12/41_R1397_AA	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science

327	**Generalized Elliptic Restricted Four-Body Problem with Variable Mass**	**Prasad, S. N.** & Ansari, A. A.	Mathematics	Astronomy Letters	2020	1063-7737	https://doi.org/10.1134/S1063773720040015	https://link.springer.com/article/10.1134/S1063773720040015	https://mjl.clarivate.com/search-results?issn=1063-7737&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
328	**The Motion Properties of the Variable Mass Planetoid in the Elliptical Sitnikov Problem**	Ansari, A.A., **Narain, L.** & Prasad, S.N.	Mathematics	Gedrag En Organisatie review	2020	0921-5077	DOI:10.37896/GOR33.03/436	https://drive.google.com/file/d/1IbtP1neYawuT8nEaSv8JogFZeTIHrgZ_/view	https://mjl.clarivate.com/search-results?issn=0921-5077&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
329	**The Motion Properties of the Variable Mass Planetoid in the Elliptical Sitnikov Problem**	Ansari, A.A., Narain, L. & **Prasad, S.N.**	Mathematics	Gedrag En Organisatie review	2020	0921-5077	DOI:10.37896/GOR33.03/436	https://drive.google.com/file/d/1IbtP1neYawuT8nEaSv8JogFZeTIHrgZ_/view	https://mjl.clarivate.com/search-results?issn=0921-5077&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
330	**EPQ MODEL WITH GREEN PRODUCTION, PRODUCT STEWARD SHIP AND SELLING PRICE DEPENDENT DEMAND**	Saxena, P., **Singh, C.** & Sharma, K.	Mathematics	INTERNATIONAL JOURNAL OF AGRICULTU	2020	0973-1903	DOI: 10.1007/978-981-10-5687-1_10	https://link.springer.com/chapter/10.1007/978-981-10-5687-1_10	https://mjl.clarivate.com/search-results?issn=0973-1903&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
331	**Green design and product stewardship approach for two-warehouse inventory model**	Saxena, P., **Singh, C.** & Sharma, K.	Mathematics	Indian Journal of Science and Technology	2020	0974-6846	10.17485/IJST/v13i37.290	https://indjst.org/articles/green-design-and-product-stewardship-	https://mjl.clarivate.com/search-results?issn=0974-6846&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
332	**Generalized cr3b problem with heterogeneous primary and secondary as finite straight segment**	Ansari, A.A., **Meena, K. R.** & K. Shalini	Mathematics	Application and Applied mathematics	2020	1932-9466	https://digitalcommons.pvamu.edu/cgi/viewcontent.cgi?articl	https://digitalcommons.pvamu.edu/cgi/viewcontent.cgi?article=1918&context=aam	https://mjl.clarivate.com/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
333	**A comprehensive review on potential therapeutics interventions for COVID-19.**	Chugh, H., Awasthi, A., Agarwal, Y., Gaur, R. K., **Dhawan, G.**, &	Biomedical Science	European journal of pharmacology	2020	1879-0712	https://doi.org/10.1016/j.ejphar.2020.173741	https://www.sciencedirect.com/science/article/pii/S0014299920308335	https://mjl.clarivate.com:/search-results?issn=0014-2999&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
334	**Fe3 O4 loaded chitin–A promising nano adsorbent for Reactive Blue 13 dye.**	Gautam, D., Saya, L., & **Hooda, S.**	Chemistry	Environmental Advances	2020	2666-7657	https://doi.org/10.1016/j.envadv.2020.100014	https://www.sciencedirect.com/science/article/pii/S2666765720300144?via%3Dihub	https://www.scopus.com/sourceid/21101065035	**SCOPUS INDEXED**

335	**Fe3 O4 loaded chitin–A promising nano adsorbent for Reactive Blue 13 dye.**	Gautam, D., Saya, L., & **Hooda, S.**	Chemistry	Environmental Advances	2020	2666-7657	https://doi.org/10.1016/j.envadv.2020.100014	https://www.sciencedirect.com/science/article/pii/S2666765720300144?via%3Dihub	https://www.scopus.com/sourceid/21101065035	**SCOPUS INDEXED**
336	**Fe3 O4 loaded chitin–A promising nano adsorbent for Reactive Blue 13 dye.**	Gautam, D., Saya, L., & **Hooda, S.**	Chemistry	Environmental Advances	2020	2666-7657	https://doi.org/10.1016/j.envadv.2020.100014	https://www.sciencedirect.com/science/article/pii/S2666765720300144?via%3Dihub	https://www.scopus.com/sourceid/21101065035	**SCOPUS INDEXED**
337	**Synthesis of Silver Nanoparticles by Phyllanthus emblica Plant Extract and Their Antibacterial Activity**	Meena, R. K., Meena, R., **Arya, D. K.**, Jadoun, S., Hada, R., & Kumari, R.	Chemistry	Material Science Research India	2020	0973-3469	http://dx.doi.org/10.13005/msri/170206	http://www.materialsciencejournal.org/vol17no2/synthesis-of-silver-	nil	**PEER REVIEWED**
338	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and Technical	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**
339	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and Technical	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**
340	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and Technical	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**
341	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and Technical	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**
342	**Artificial Intelligence Assisted Smart Mirror**	**Garg, A.,** Sharma, P., Verma, V., Yadav, S., & Tyagi, A.	Electronics	International Journal of Scientific and Technical	2020	2454-1532	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20	https://www.ijsta.com/papers/IJSTAV6N4Y20/IJSTAV6N4Y20_2021.pdf	nil	**PEER REVIEWED**

343	**Enhancement in NH3 sensing performance of ZnO thin-film via gamma-irradiation.**	Waikar, M. R., Raste, P. M., **Sonker, R. K.**, Gupta, V., Tomar, M.,	Physics	Journal of Alloys and Compounds	2020	1873-4669	https://doi.org/10.1016/j.jallcom.2020.154641	https://www.sciencedirect.com/science/article/abs/pii/S0925838820310045?via%3D	https://www.scopus.com/sourceid/12325	**SCOPUS INDEXED**
344	**Post-γ-irradiation effects on structural, optical and morphological properties of chemical vapour deposited MWCNTs.**	Waikar, M. R., **Sonker, R. K.**, Gupta, S., Chakarvarti, S. K., &	Physics	Materials Science in Semiconductor Processing	2020	1873-4081	https://doi.org/10.1016/j.mssp.2020.104975	https://www.sciencedirect.com/science/article/abs/pii/S1369800119323443?via%3D	https://mjl.clarivate.com:/search-results?issn=1369-8001&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
345	**Chemistry and Pharmacology of Miraculous, Echinacea purpurea L.**	**Arya, D. K**	Chemistry	Journal of Biological and Chemical Research	2020	0970-4973	https://www.jbcr.co.in/Current_Issue/Vol_37_1_Jan_Jun_202	https://www.jbcr.co.in/Current_Issue/Vol_37_1_Jan_Jun_2020/21.%20Echnesea%20P	nil	**PEER REVIEWED**
346	**Chemical Research, 37, 180-187, ISSN 0970-4973.**	Aggarwal D, Sharma A, **Kumar, S.** (2020)	Zoology	Advances in Zoology and Botany	2020		10.13189/azb.2020.080103	https://www.hrpub.org/download/20191230/AZB3-11414236.pdf	nil	**PEER REVIEWED**
347	**pH induced conformational alteration in human peroxiredoxin 6 might be responsible for its resistance against lysosomal pH or high**	**Chowhan, R. K.**	Biomedical Science	Scientific reports	2021	2045-2322	https://doi.org/10.1038/s41598-021-89093-8	https://www.nature.com/articles/s41598-021-89093-8	https://mjl.clarivate.com/search-results?issn=2045-2322&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
348	**Exploiting Emojis in Sentiment Analysis : A Survey**	**Grover, V.**	Computer Science	Journal of The Institution of Engineers	2021	2250-2114	CARE Listed Journal,Sl.No.10	https://link.springer.com/article/10.1007/s40031-021-00620-7	https://www.scopus.com/sourceid/21100831436	Indexed in UGC Care List and SCOPUS.
349	**Optimisation of dielectric spacer layer thickness in Ag nanospheres/ITO/c-Si structure for plasmonic solar cells using FDTD simulation.**	Rani, M., Kashyap, J., **Singh, U.**, & Kapoor, A.	Electronics	Materials Technology	2021	7857, 1753	https://doi.org/10.1080/10667857.2021.1940046	https://www.tandfonline.com/doi/abs/10.1080/10667857.2021.1940046	https://mjl.clarivate.com/search-results?issn=1066-7857&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
350	**Optimisation of dielectric spacer layer thickness in Ag nanospheres/ITO/c-Si structure for plasmonic solar cells using FDTD simulation.**	**Rani, M.**, Kashyap, J., Singh, U., & Kapoor, A.	Electronics	Materials Technology	2021	7857, 1753	https://doi.org/10.1080/10667857.2021.1940046	https://www.tandfonline.com/doi/abs/10.1080/10667857.2021.1940046	https://mjl.clarivate.com/search-results?issn=1066-7857&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

351	**Applicability of Field Plate in Double Channel GaN HEMT for Radio-Frequency and Power-Electronic Applications.**	Chugh, N., Kumar, M., Haldar, S., **Bhattacharya, M.,** & Gupta, R.	Electronics	Silicon	2021	1876-990X	https://doi.org/10.1007/s12633-020-00881-9	https://link.springer.com/article/10.1007/s12633-020-00881-9	https://mjl.clarivate.com/search-results?issn=1876-990X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
352	**Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)**	Aarya, S., **Kumar, P.,** Bhatia, M., Kumar, S. Sharma, J. &	Physics	Advances in Polymer Technology	2021	0730-6679	https://doi.org/10.1155/2021/7013154	https://www.hindawi.com/journals/apt/2021/7013154/	https://mjl.clarivate.com/search-results?issn=0730-6679&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
353	**Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)**	Aarya, S., Kumar, P.**, Bhatia, M.,** Kumar, S. Sharma, J. & Siddhartha	Physics	Advances in Polymer Technology	2021	0730-6679	https://doi.org/10.1155/2021/7013154	https://www.hindawi.com/journals/apt/2021/7013154/	https://mjl.clarivate.com/search-results?issn=0730-6679&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
354	**Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)**	Aarya, S., Kumar, P., Bhatia, M., Kumar, S. Sharma, J. & **Siddhartha**	Physics	Advances in Polymer Technology	2021	0730-6679	https://doi.org/10.1155/2021/7013154	https://www.hindawi.com/journals/apt/2021/7013154/	https://mjl.clarivate.com/search-results?issn=0730-6679&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
355	**Superficial Synthesis of CdS Quantum Dots for an Efficient Perovskite-Sensitized Solar Cell**	**Sonker, R. K.,** Shastri, R. & Johari, R.	Physics	Energy & Fuels	2021	0887-0624	https://doi.org/10.1021/acs.energyfuels.1c00629	https://pubs.acs.org/doi/abs/10.1021/acs.energyfuels.1c00629	https://mjl.clarivate.com/search-results?issn=0887-0624&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
356	**Influence of lufenuron on the nutrient content and detoxification enzyme expression in Aedes aegypti L. (Diptera: Culicidae)**	Kungreiliu, P., Samal, R.R., Lanbiliu, P. & **Kumar, S.**	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-021-00481-z	https://link.springer.com/article/10.1007/s42690-021-00481-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
357	**Influence of lufenuron on the nutrient content and detoxification enzyme expression in Aedes aegypti L. (Diptera: Culicidae)**	Kungreiliu, P., Samal, R.R.**, Lanbiliu, P.** & **Kumar, S.**	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-021-00481-z	https://link.springer.com/article/10.1007/s42690-021-00481-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
358	**Influence of lufenuron on the nutrient content and detoxification enzyme expression in Aedes aegypti L. (Diptera: Culicidae)**	Kungreiliu, P., **Samal, R.R.**, Lanbiliu, P. & Kumar, S.	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-021-00481-z	https://link.springer.com/article/10.1007/s42690-021-00481-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

359	**Cuticular thickness associated with insecticide resistance in Aedes aegypti**	**Samal, R.R**. & Kumar, S.	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-020-00271-z	https://link.springer.com/article/10.1007/s42690-020-00271-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
360	**Cuticular thickness associated with insecticide resistance in Aedes aegypti**	Samal, R.R. & **Kumar, S.**	Zoology	International Journal of Tropical Insect Science	2021	1742-7592	https://doi.org/10.1007/s42690-020-00271-z	https://link.springer.com/article/10.1007/s42690-020-00271-z	https://mjl.clarivate.com:/search-results?issn=1742-7584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
361	**Physiological and reproductive fitness cost in Aedes aegypti on exposure to toxic xenobiotics in New Delhi, India**	Gupta, A., **Samal, R.R**. & Kumar, S.	Zoology	Journal of Applied and Natural Science	2021	2231-5209	https://doi.org/10.31018/jans.v13i1.2470	https://journals.ansfoundation.org/index.php/jans/article/view/2470	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS
362	**Physiological and reproductive fitness cost in Aedes aegypti on exposure to toxic xenobiotics in New Delhi, India**	Gupta, A., Samal, R.R. & **Kumar, S.**	Zoology	Journal of Applied and Natural Science	2021	2231-5209	https://doi.org/10.31018/jans.v13i1.2470	https://journals.ansfoundation.org/index.php/jans/article/view/2470	https://www.scopus.com/sourceid/21101016916	Indexed in SCOPUS
363	**Proactive role of Streptomyces spp. in plant growth stimulation and management of chemical pesticides and fertilizers**	Kumar, M., Kumar, P., **Das, P**., Solanki, R., & Kapur, M.K**.**	Zoology	International Journal of Environmental Science and	2021	1735-2630	https://doi.org/10.1007/s13762-021-03473-1	https://link.springer.com/article/10.1007/s13762-021-03473-1	https://www.scopus.com/sourceid/4000148503	Indexed in SCOPUS
364	**Proactive role of Streptomyces spp. in plant growth stimulation and management of chemical pesticides and fertilizers**	Kumar, M., Kumar, P., Das, P., **Solanki, R.**, & Kapur, M.K.	Zoology	International Journal of Environmental Science and	2021	1735-2630	https://doi.org/10.1007/s13762-021-03473-1	https://link.springer.com/article/10.1007/s13762-021-03473-1	https://www.scopus.com/sourceid/4000148503	Indexed in SCOPUS
365	**Proactive role of Streptomyces spp. in plant growth stimulation and management of chemical pesticides and fertilizers**	Kumar, M., Kumar, P., Das, P., Solanki, R., & **Kapur, M.K.**	Zoology	International Journal of Environmental Science and	2021	1735-2630	https://doi.org/10.1007/s13762-021-03473-1	https://link.springer.com/article/10.1007/s13762-021-03473-1	https://www.scopus.com/sourceid/4000148503	Indexed in SCOPUS
366	**Proactive role of Streptomyces spp. in plant growth stimulation and management of chemical pesticides and fertilizers**	Kumar, M., Kumar, P., Das, P., Solanki, R., & **Kapur, M.K.**	Zoology	International Journal of Environmental Science and	2021	1735-2630	https://doi.org/10.1007/s13762-021-03473-1	https://link.springer.com/article/10.1007/s13762-021-03473-1	https://www.scopus.com/sourceid/4000148503	Indexed in SCOPUS

367	**Exploring Small Heat Shock Proteins (sHSPs) for Targeting Drug Resistance in Candida albicans and other Pathogenic Fungi.**	**Dev, R.**	Zoology	Journal of Pure and Applied Microbiology	2021	0973-7510	https://doi.org/10.22207/JPAM.15.1.42	https://pdfs.semanticscholar.org/f40d/33f7d5878e6410b4b23f2f4e53efcaf5b336.pdf	https://www.scopus.com/sourceid/11700154322	Indexed in SCOPUS
368	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora,**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., **Makhija, S.,** &	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
369	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora,**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., **Makhija, S.,** &	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
370	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora,**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., **Makhija, S.,** &	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
371	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora,**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., **Makhija, S.,** &	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
372	**Characterization of Euplotes lynni nov. spec., E. indica nov. spec. and description of E. aediculatus and E. woodruffi (Ciliophora,**	Abraham, J. S., Somasundaram, S., Maurya, S., Gupta, R., Makhija, S., &	Zoology	European Journal of Protistology	2021	0932-4739	https://doi.org/10.1016/j.ejop.2021.125779	https://www.sciencedirect.com/science/article/abs/pii/S0932473921000146	https://mjl.clarivate.com/search-results?issn=0932-4739&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
373	**Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions**	Saya, L., Malik, V., Singh, A., Singh, S., **Gambhir, G.**, Singh, W.R.,	Chemistry	Carbohydrate Polymers	2021	8617 / 1879	https://doi.org/10.1016/j.carbpol.2021.117851	https://www.sciencedirect.com/science/article/abs/pii/S0144861721002381	https://mjl.clarivate.com:/search-results?issn=0144-8617&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
374	**Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions**	Saya, L., Malik, V., Singh, A., Singh, S., Gambhir, G., Singh, W.R.,	Chemistry	Carbohydrate Polymers	2021	8617 / 1879	https://doi.org/10.1016/j.carbpol.2021.117851	https://www.sciencedirect.com/science/article/abs/pii/S0144861721002381	https://mjl.clarivate.com:/search-results?issn=0144-8617&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

375	**Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions**	Saya, L., Malik, V., Singh, A., Singh, S., Gambhir, G., Singh, W.R.,	Chemistry	Carbohydrate Polymers	2021	3617 / 1879	https://doi.org/10.1016/j.carbpol.2021.117851	https://www.sciencedirect.com/science/article/abs/pii/S0144861721002381	https://mjl.clarivate.com:/search-results?issn=0144-8617&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
376	**Recent advances in a polydopamine mediated Antimicrobial Adhesion system**	Singh, I., **Dhawan, G.**, Gupta, S. & Kumar, P.	Biomedical Sciences & Chemistry	Frontiers in Microbiology	2021	1664302X	https://doi.org/10.3389/fmicb.2020.607099	https://www.frontiersin.org/articles/10.3389/fmicb.2020.607099/full	https://mjl.clarivate.com/search-results?issn=1664-302X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
377	**Recent advances in a polydopamine mediated Antimicrobial Adhesion system**	Singh, I., Dhawan, G., **Gupta, S.** & Kumar, P.	Biomedical Sciences & Chemistry	Frontiers in Microbiology	2021	1664302X	https://doi.org/10.3389/fmicb.2020.607099	https://www.frontiersin.org/articles/10.3389/fmicb.2020.607099/full	https://mjl.clarivate.com/search-results?issn=1664-302X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
378	**Antimicrobial, radical scavenging and dye degradation potential of nontoxic biogenic silver nanoparticles using Cassia**	Singh, I., **Gupta, S.**, Gautam, H.K., Kumar, P. & Dhawan, G.	Chemistry & Biomedical Sciences	Chemical Papers	2021	7290, 0366	https://doi.org/10.1007/s11696-020-01355-3	https://link.springer.com/article/10.1007/s11696-020-01355-3	https://mjl.clarivate.com/search-results?issn=0366-6352&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
379	**Antimicrobial, radical scavenging and dye degradation potential of nontoxic biogenic silver nanoparticles using Cassia**	Singh, I., **Gupta, S.**, Gautam, H.K., Kumar, P. & Dhawan, G.	Chemistry & Biomedical Sciences	Chemical Papers	2021	7290, 0366	https://doi.org/10.1007/s11696-020-01355-3	https://link.springer.com/article/10.1007/s11696-020-01355-3	https://mjl.clarivate.com/search-results?issn=0366-6352&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
380	**Antimicrobial, radical scavenging and dye degradation potential of nontoxic biogenic silver nanoparticles using Cassia**	Singh, I., Gupta, S., Gautam, H.K., Kumar, P. & **Dhawan, G.**	Chemistry & Biomedical Sciences	Chemical Papers	2021	7290, 0366	https://doi.org/10.1007/s11696-020-01355-3	https://link.springer.com/article/10.1007/s11696-020-01355-3	https://mjl.clarivate.com/search-results?issn=0366-6352&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
381	**Application of Chiotsan in Tissue Engineering**	Deka, S.R., **Gupta, S.** & Kumar, P.	Chemistry	Trends in Carbohydrate Recearch	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=41	https://www.trendscarbo.com/getf_shoppingcart.php?id=410026856	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
382	**Mannosylated and Mannan Modified nano vector targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy**	Singh, I., **Gupta, S.**, Dhawan, G**.,** & Kumar, P	Chemistry & Biomedical Sciences	Trends in Carbohydrate Research	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=28	https://www.trendscarbo.com/getf_shoppingcart.php?id=282868652	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

383	**Mannosylated and Mannan Modified nano vector targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy**	Singh, I., Gupta, S., **Dhawan, G.,** & Kumar, P	Chemistry & Biomedical Sciences	Trends in Carbohydrate Research	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=28	https://www.trendscarbo.com/getf_shoppingcart.php?id=282868652	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
384	**Mannosylated and Mannan Modified nano vector targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy**	Singh, I., Gupta, S., **Dhawan, G.,** & Kumar, P	Chemistry & Biomedical Sciences	Trends in Carbohydrate Research	2021	0975-0304	https://www.trendscarbo.com/getf_shoppingcart.php?id=28	https://www.trendscarbo.com/getf_shoppingcart.php?id=282868652	https://mjl.clarivate.com/search-results?issn=0975-0304&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
385	**A review targeting the infection by CHIKV using computational and experimental approaches**	Kumar, D., Kumari, K., Chandra, R., Jain, P., Vodwal, L., **Gambhir, G.**	Chemistry	Journal of Biomolecular Structure and Dynamics	2021	1102 / 153	https://doi.org/10.1080/07391102.2021.1904004	https://www.tandfonline.com/doi/abs/10.1080/07391102.2021.1904004?journalCod	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
386	**Synthesis Comparative in vitro anitbacterial antioxidant and UV Flourscence study of bis indol schiff base and molecular**	Singhal, S., **Khanna, P.,** & Khanna, L.	Chemistry	Luminescence	2021	1522-7243	https://doi.org/10.1002/bio.4098	https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/10.1002/bio.4098	https://mjl.clarivate.com/search-results?issn=1522-7235&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
387	**Multitarget Diallyl Disulfides (DADS) against Aβ Aggregation: Screening through Molecular Docking with Aβ42 & ZnII-Aβ16,**	Singhal, S., Khanna, P**.,** **Misra, N.** & Khanna, L	Chemistry	ChemistrySelect	2021	2365-6549	https://doi.org/10.1002/slct.202004635	https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/slct.202004635	https://mjl.clarivate.com/search-results?issn=2365-6549&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
388	**Multitarget Diallyl Disulfides (DADS) against Aβ Aggregation: Screening through Molecular Docking with Aβ42 & ZnII-Aβ16,**	Singhal, S., **Khanna, P.,** Misra, N. & Khanna, L	Chemistry	ChemistrySelect	2021	2365-6549	https://doi.org/10.1002/slct.202004635	https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/slct.202004635	https://mjl.clarivate.com/search-results?issn=2365-6549&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
389	**Screening of compound library identifies novel inhibitors against the MurA enzyme of Escherichia coli**	Raina D., Tiwari H., Sharma S., Deepika, Chinthakindi P.K., Nargotra	Biomedical Science	Applied Microbiology and Biotechnology	2021	7598, 1432	https://doi.org/10.1007/s00253-021-11272-4	https://link.springer.com/article/10.1007/s00253-021-11272-4	https://mjl.clarivate.com/search-results?issn=0175-7598&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
390	**Screening of compound library identifies novel inhibitors against the MurA enzyme of Escherichia coli**	Raina D., Tiwari H., Sharma S., Deepika, Chinthakindi P.K., Nargotra	Biomedical Science	Applied Microbiology and Biotechnology	2021	7598, 1432	https://doi.org/10.1007/s00253-021-11272-4	https://link.springer.com/article/10.1007/s00253-021-11272-4	https://mjl.clarivate.com/search-results?issn=0175-7598&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

391	**Shelter building behaviour of Hasora chromus (Cramer, 1780) larvae (Insecta: Lepidoptera: Hesperiidae)**	**Chaudhary, R.**	Biomedical Science	Bionotes	2021	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
392	**Properties of Motion of the Infinitesimal Variable Mass Body in the Well Known Circular Restricted Three-Body Problem with**	Ansari, A.A., Alam, M., **Meena, K.R.** & Ali, A.	Mathematics	Applied Mathematics and Information Sciences	2021	0090, 2325	doi:10.18576/amis/150211	https://www.naturalspublishing.com/files/published/5m6qq3031il0qf.pdf	https://www.scopus.com/sourceid/21100197928	Indexed in SCOPUS
393	**On Estimating Scale Parameter of the Selected Pareto Population under the Generalized Stein Loss Function**	**Meena, K.R.,** Gangopadhyay, A.K., & Abdalghani, O.	Mathematics	AMERICAN JOURNAL OF MATHEMATICAL AND	2021	5324 , 2325	https://doi.org/10.1080/01966324.2021.1891999	https://www.tandfonline.com/doi/abs/10.1080/01966324.2021.1891999	https://www.scopus.com/sourceid/24650	Indexed in SCOPUS
394	**Alternative Treatment Strategies for Secondary Bacterial and Fungal Infections Associated with COVID-19**	Das, R., Kotra, K., Singh, P., Loh, B., Leptihn, S. and **Bajpai, U**	Biomedical Science	Infectious disease and therapy	2021	3229 / 219	https://doi.org/10.1007/s40121-021-00559-8	https://link.springer.com/article/10.1007/s40121-021-00559-8	https://mjl.clarivate.com:/search-results?issn=2193-8229&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
395	**Alternative Treatment Strategies for Secondary Bacterial and Fungal Infections Associated with COVID-19**	Das, R., Kotra, K., Singh, P., Loh, B., Leptihn, S. and **Bajpai, U**	Biomedical Science	Infectious disease and therapy	2021	3229 / 219	https://doi.org/10.1007/s40121-021-00559-8	https://link.springer.com/article/10.1007/s40121-021-00559-8	https://mjl.clarivate.com:/search-results?issn=2193-8229&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
396	**Alternative Treatment Strategies for Secondary Bacterial and Fungal Infections Associated with COVID-19**	Das, R., Kotra, K., Singh, P., Loh, B., Leptihn, S. and **Bajpai, U**	Biomedical Science	Infectious disease and therapy	2021	3229 / 219	https://doi.org/10.1007/s40121-021-00559-8	https://link.springer.com/article/10.1007/s40121-021-00559-8	https://mjl.clarivate.com:/search-results?issn=2193-8229&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
397	**Synthesis and characterization of nanoselenium: A step-by-step guide for undergraduate students**	**Dhawan, G.**, Singh, I., Dhawan, U., and Kumar, P	Biomedical Science	Journal of Chemical Education	2021	9584 / 193	https://doi.org/10.1021/acs.jchemed.0c01467	https://pubs.acs.org/doi/abs/10.1021/acs.jchemed.0c01467	https://mjl.clarivate.com:/search-results?issn=0021-9584&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
398	**Self-assembled biodegradable core-shell nanocomposites of amphiphilic retinoic acid-LMW bPEI conjugates exhibit**	Ahmadi, Z., Jena, H., Singh, M., **Dhawan, G.**, and Kumar, P.	Biomedical Science	Journal of Pharmaceutical Sciences	2021	0022-3549	https://doi.org/10.1016/j.xphs.2021.04.016	https://jpharmsci.org/article/S0022-3549(21)00238-0/fulltext	https://www.scopus.com/sourceid/23079	Indexed in UGC Care List, SCOPUS and Web of Science

399	**Fluorine-containing pharmaceuticals approved by the FDA in 2020: Synthesis and biological activity**	Yu, Y., Liu, A., **Dhawan, G.**, Mei, H., Zhang, W., Izawa, K., Soloshonok, V.	Biomedical Science	Chinese Chemical Letters	2021	8417 / 1878	https://doi.org/10.1016/j.cclet.2021.05.042	https://www.sciencedirect.com/science/article/abs/pii/S1001841721003557	https://mjl.clarivate.com:/search-results?issn=1001-8417&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
400	**Peroxiredoxin-6: A Guardian of Lung Pathophysiologies.**	Kumari, A., **Chowhan, R. K.**, Kakchingtabam, P., Shahnaj, S., Rahaman, H.,	Biomedical Science	Current Protein and Peptide Science	2021	2037 / 1875	DOI: 10.2174/1389203722666211109101853	https://www.eurekaselect.com/article/118761	https://mjl.clarivate.com:/search-results?issn=1389-2037&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
401	**Signaling mechanisms and biochemical pathways regulating pollen-stigma interaction, seed development and seedling**	Batla, S. C., Gogna, M., Jain, P., Singh, N., Mukherjee, S., **Kalra, G.**	Botany	Plant Signaling and Behaviour	2021	2316 / 1559	https://doi.org/10.1080/15592324.2021.1958129	https://www.tandfonline.com/doi/full/10.1080/15592324.2021.1958129	https://mjl.clarivate.com:/search-results?issn=1559-2316&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
402	**Unraveling the AM fungal community for understanding its ecosystem resilience to changed climate in agroecosystems**	Chourasiya D., Gupta M. M, **Sahni S.**,Oehl F., Agnihotri R., Buade R.,	Botany	Symbiosis	2021	5114 / 1878	https://doi.org/10.1007/s13199-021-00761-9	https://link.springer.com/article/10.1007/s13199-021-00761-9	https://mjl.clarivate.com:/search-results?issn=0334-5114&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
403	**Al_2O_3/CuI/PANInanocomposite catalyzed green synthesis of biologically active 2-substituted benzimidazole derivatives**	**Kohli, S.**, Rathee, G., Hooda, S., and Chandra, R.	Chemistry	Dalton Transactions	2021	9226 / 1477	https://doi.org/10.1039/D1DT00806D	https://pubs.rsc.org/en/content/articlelanding/2021/DT/D1DT00806D	https://mjl.clarivate.com:/search-results?issn=1477-9226&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
404	**Al_2O_3/CuI/PANInanocomposite catalyzed green synthesis of biologically active 2-substituted benzimidazole derivatives**	Kohli, S., Rathee, G., **Hooda, S.**, and Chandra, R.	Chemistry	Dalton Transactions	2021	9226 / 1477	https://doi.org/10.1039/D1DT00806D	https://pubs.rsc.org/en/content/articlelanding/2021/DT/D1DT00806D	https://mjl.clarivate.com:/search-results?issn=1477-9226&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
405	**Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti.**	Gupta, D., **Samal, R. R.**, Gautam, D., Hooda, S., and Kumar, S.	Chemistry	Journal of Applied and Natural Science	2021	0974-9411	https://doi.org/10.31018/jans.v13i4.3018	https://journals.ansfoundation.org/index.php/jans/article/view/3018	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
406	**Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti.**	Gupta, D., Samal, R. R., Gautam, D., **Hooda, S.**, and Kumar, S.	Chemistry	Journal of Applied and Natural Science	2021	0974-9411	https://doi.org/10.31018/jans.v13i4.3018	https://journals.ansfoundation.org/index.php/jans/article/view/3018	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science

407	**Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti.**	Gupta, D., Samal, R. R., Gautam, D., **Hooda, S.**, and Kumar, S.	Chemistry	Journal of Applied and Natural Science	2021	0974-9411	https://doi.org/10.31018/jans.v13i4.3018	https://journals.ansfoundation.org/index.php/jans/article/view/3018	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
408	**Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti.**	Gupta, D., Samal, R. R., Gautam, D., Hooda, S., and **Kumar, S**.	Chemistry	Journal of Applied and Natural Science	2021	0974-9411	https://doi.org/10.31018/jans.v13i4.3018	https://journals.ansfoundation.org/index.php/jans/article/view/3018	https://www.scopus.com/sourceid/21101016916	Indexed in UGC Care List, SCOPUS and Web of Science
409	**A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater**	Saya, L., Malik, V., Gautam, D., **Gambhir, G.**, Singh, W. R. and Hooda, S.	Chemistry	Science of the Total Environment	2021	9697 / 1879	https://doi.org/10.1016/j.scitotenv.2021.152529	https://www.sciencedirect.com/science/article/abs/pii/S0048969721076075?via%3D	https://mjl.clarivate.com:/search-results?issn=0048-9697&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
410	**A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater**	Saya, L., Malik, V., Gautam, D., Gambhir, G., Singh, W. R. and **Hooda, S.**	Chemistry	Science of the Total Environment	2021	9697 / 1879	https://doi.org/10.1016/j.scitotenv.2021.152529	https://www.sciencedirect.com/science/article/abs/pii/S0048969721076075?via%3D	https://mjl.clarivate.com:/search-results?issn=0048-9697&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
411	**A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater**	Saya, L., Malik, V., Gautam, D., Gambhir, G., Singh, W. R. and **Hooda, S.**	Chemistry	Science of the Total Environment	2021	9697 / 1879	https://doi.org/10.1016/j.scitotenv.2021.152529	https://www.sciencedirect.com/science/article/abs/pii/S0048969721076075?via%3D	https://mjl.clarivate.com:/search-results?issn=0048-9697&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
412	**A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater**	Saya, L., Malik, V., Gautam, D., Gambhir, G., Singh, W. R. and **Hooda, S.**	Chemistry	Science of the Total Environment	2021	9697 / 1879	https://doi.org/10.1016/j.scitotenv.2021.152529	https://www.sciencedirect.com/science/article/abs/pii/S0048969721076075?via%3D	https://mjl.clarivate.com:/search-results?issn=0048-9697&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
413	**In water" synthesis of bis (indolyl) methanes: a review**	Khanna, L., Mansi, Yadav, S., **Misra, N.**, and Khanna, P.	Chemistry	Synthetic Communications	2021	7911 / 1531	https://doi.org/10.1080/00397911.2021.1957113	https://www.tandfonline.com/doi/abs/10.1080/00397911.2021.1957113#:~:text=Bis(	https://mjl.clarivate.com:/search-results?issn=0039-7911&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
414	**In water" synthesis of bis (indolyl) methanes: a review**	Khanna, L., Mansi, Yadav, S., Misra, N., and **Khanna, P.**	Chemistry	Synthetic Communications	2021	7911 / 1531	https://doi.org/10.1080/00397911.2021.1957113	https://www.tandfonline.com/doi/abs/10.1080/00397911.2021.1957113#:~:text=Bis(	https://mjl.clarivate.com:/search-results?issn=0039-7911&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

415	**A DFT Study of Interaction of (CdSe) 3 Quantum Dots with Nucleobases.**	**Malik, P.**, and Kakkar, R	Chemistry	Advanced Materials Letters	2021	0976-3961	10.5185/amlett.2021.081653	https://aml.iaamonline.org/article_14098.html	https://www.scopus.com/sourceid/21100223579	Indexed in SCOPUS
416	**Size-dependent structural and electronic properties of stoichiometric II–VI quantum dots and gas sensing ability of CdSe quantum dots: a DFT**	Singh, J., Thareja, R., **Malik, P.**, and Kakkar, R.	Chemistry	Journal of Nanoparticle Research	2021	0764 / 157	https://doi.org/10.1007/s11051-022-05406-6	https://link.springer.com/article/10.1007/s11051-022-05406-6	https://mjl.clarivate.com:/search-results?issn=1388-0764&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
417	**Surface engineered Iridium-based magnetic photocatalyst paving a path towards visible light driven CH arylation and cyanation**	Rana, P., Gaur, R., **Kaushik, B.**, P. Rana, Yadav, S., Yadav, P., Sharma, P.,	Chemistry	Journal of Catalysis	2021	9517 / 109	https://doi.org/10.1016/j.jcat.2021.08.014	https://www.sciencedirect.com/science/article/abs/pii/S002195172100316X?via%3D	https://mjl.clarivate.com:/search-results?issn=0021-9517&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
418	**Unlocking the catalytic potency of a magnetic responsive CoFe 2 O 4/Ni-BTC MOF composite for the sustainable synthesis of tri-**	Yadav, S., Dixit, R., Sharma, S., Dutta, S., Arora, B., Rana, P., **Kaushik, B.**,	Chemistry	Materials Chemistry Frontiers	2021	2052-1537	https://doi.org/10.1039/D1QM00904D	https://pubs.rsc.org/en/content/articlelanding/2021/QM/D1QM00904D	https://mjl.clarivate.com:/search-results?issn=2052-1537&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
419	**Enhanced catalysis through structurally modified hybrid 2-D boron nitride nanosheets comprising of complexed 2-hydroxy-4-**	Rana, P., Dixit, R., Sharma, S., Dutta, S., Yadav, S., Sharma, A., **Kaushik, B.**,	Chemistry	Scientific reports	2021	2045-2322	https://doi.org/10.1038/s41598-021-03992-4	https://www.nature.com/articles/s41598-021-03992-4	https://mjl.clarivate.com:/search-results?issn=2045-2322&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
420	**Identifying Central Nodes in Directed and Weighted Networks**	**Kaur, S.**, Gupta, A., and Saxena, R.	Commerce	International Journal of Advanced Computer Science and	2021	107X / 215	DOI:10.14569/IJACSA.2021.0120810	https://thesai.org/Downloads/Volume12No8/Paper_100-Identifying_Centr	https://mjl.clarivate.com:/search-results?issn=2158-107X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
421	**Perception of youth on Digital India**	**Narang, S.,** Singhania, M., Kaur, S., and Mahajan, S.	Commerce	International Journal of Business Innovation and	2021	1751-0252	https://doi.org/10.1504/IJBIR.2021.116393	https://www.inderscienceonline.com/doi/abs/10.1504/IJBIR.2021.116393	https://www.scopus.com/sourceid/11200153572	Indexed in UGC Care List and SCOPUS
422	**Perception of youth on Digital India**	Narang, S., Singhania, M., **Kaur, S.,** and Mahajan, S.	Commerce	International Journal of Business Innovation and	2021	1751-0252	https://doi.org/10.1504/IJBIR.2021.116393	https://www.inderscienceonline.com/doi/abs/10.1504/IJBIR.2021.116393	https://www.scopus.com/sourceid/11200153572	Indexed in UGC Care List and SCOPUS

423	**Perception of youth on Digital India**	Narang, S., Singhania, M., Kaur, S., and **Mahajan, S.**	Commerce	International Journal of Business Innovation and	2021	1751-0252	https://doi.org/10.1504/IJBIR.2021.116393	https://www.inderscienceonline.com/doi/abs/10.1504/IJBIR.2021.116393	https://www.scopus.com/sourceid/11200153572	Indexed in UGC Care List and SCOPUS
424	**Intensity quantification of public opinion and emotion analysis on climate change**	Thukral, T., Varshney, A., and **Gaur, V**.	Computer Science	. International Journal of Advanced Technology	2021	2394-5443	DOI:10.19101/IJATEE.2021.874417	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2021/10/7.pdf	https://www.scopus.com/sourceid/21101023180	Indexed in UGC Care List and SCOPUS
425	**Intensity quantification of public opinion and emotion analysis on climate change**	Thukral, T., Varshney, A., and **Gaur, V**.	Computer Science	. International Journal of Advanced Technology	2021	2394-5443	DOI:10.19101/IJATEE.2021.874417	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2021/10/7.pdf	https://www.scopus.com/sourceid/21101023180	Indexed in UGC Care List and SCOPUS
426	**A smart learning assistance tool for inclusive education**	Srivastava, S., Varshney, A., Katyal, S., Kaur, R., and **Gaur, V.**	Computer Science	Journal of Intelligent and Fuzzy Systems	2021	1064-1246	https://doi.org/10.3233/JIFS-210075	https://dl.acm.org/doi/abs/10.3233/JIFS-210075	https://www.scopus.com/sourceid/23917	Indexed in UGC Care List and SCOPUS
427	**A smart learning assistance tool for inclusive education**	Srivastava, S., Varshney, A., Katyal, S., Kaur, R., and **Gaur, V.**	Computer Science	Journal of Intelligent and Fuzzy Systems	2021	1064-1246	https://doi.org/10.3233/JIFS-210075	https://dl.acm.org/doi/abs/10.3233/JIFS-210075	https://www.scopus.com/sourceid/23917	Indexed in UGC Care List and SCOPUS
428	**Varying sonication conditions to tailor surface morphology of GO thin films for enhanced gas sensing performance.**	Dhingra, V., Kumar, S., Chowdhuri, A., and **Garg, A.**	Electronics, Physics	AIP Conference Proceedings	2021	0094-243X	https://doi.org/10.1063/5.0060996	https://aip.scitation.org/doi/abs/10.1063/5.0060996	https://www.scopus.com/sourceid/26916	Indexed in UGC Care List and SCOPUS
429	**Varying sonication conditions to tailor surface morphology of GO thin films for enhanced gas sensing performance.**	**Dhingra, V.**, Kumar, S., Chowdhuri, A., and Garg, A.	Electronics, Physics	AIP Conference Proceedings	2021	0094-243X	https://doi.org/10.1063/5.0060996	https://aip.scitation.org/doi/abs/10.1063/5.0060996	https://www.scopus.com/sourceid/26916	Indexed in UGC Care List and SCOPUS
430	**Varying sonication conditions to tailor surface morphology of GO thin films for enhanced gas sensing performance.**	**Dhingra, V.**, Kumar, S., Chowdhuri, A., and Garg, A.	Electronics, Physics	AIP Conference Proceedings	2021	0094-243X	https://doi.org/10.1063/5.0060996	https://aip.scitation.org/doi/abs/10.1063/5.0060996	https://www.scopus.com/sourceid/26916	Indexed in UGC Care List and SCOPUS

431	**Varying sonication conditions to tailor surface morphology of GO thin films for enhanced gas sensing performance.**	Dhingra, V., Kumar, S., **Chowdhuri, A.**, and Garg, A.	Electronics, Physics	AIP Conference Proceedings	2021	0094-243X	https://doi.org/10.1063/5.0060996	https://aip.scitation.org/doi/abs/10.1063/5.0060996	https://www.scopus.com/sourceid/26916	Indexed in UGC Care List and SCOPUS
432	**Optimal ordering policy for deteriorating items with stock dependent demand, partial backlogging and trade credit period**	Verma, S.K., Rizwanullah, M. and **Singh, C.**	Mathematics	International Journal of Logistics Systems and	2021	1742-7967	https://doi.org/10.1504/IJLSM.2021.117709	https://www.inderscienceonline.com/doi/abs/10.1504/IJLSM.2021.117709	https://www.scopus.com/sourceid/4700151504	Indexed in UGC Care List and SCOPUS
433	**A systematic review on the eco-safe management of mosquitoes with diflubenzuron: An effective growth regulatory agent**	Sankar, M. and **Kumar, S.**	Zoology	Acta Ecologica Sinica	2021	1000-0933	https://doi.org/10.1016/j.chnaes.2021.09.019	https://www.sciencedirect.com/science/article/pii/S1872203221001244	https://mjl.clarivate.com:/search-results?issn=1000-0933&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
434	**Indigenous plants demonstrating effective antioxidant properties**	Yadav, K. S., Samal, R. R., Sahgal, A. and **Kumar, S**.	Zoology	Biology Bulletin	2021	3590 / 1608	https://doi.org/10.1134/S1062359022010162	https://link.springer.com/article/10.1134/S1062359022010162	https://mjl.clarivate.com:/search-results?issn=1062-3590&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
435	**Indigenous plants demonstrating effective antioxidant properties**	Yadav, K. S., **Samal, R. R.**, Sahgal, A. and Kumar, S.	Zoology	Biology Bulletin	2021	3590 / 1608	https://doi.org/10.1134/S1062359022010162	https://link.springer.com/article/10.1134/S1062359022010162	https://mjl.clarivate.com:/search-results?issn=1062-3590&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
436	**Formulation of Clitoriaternatea leaves-mediated silver nanoparticles to control Aedes aegypti larvae**	Lall, Y., **Samal, R. R.**, Sagar, S. K. and Kumar, S.	Zoology	Journal of Communicable Diseases	2021	5138 / 258	https://doi.org/10.24321/0019.5138.202157	https://medical.advancedresearchpublications.com/index.php/Journal-	https://mjl.clarivate.com:/search-results?issn=0019-5138&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
437	**Formulation of Clitoriaternatea leaves-mediated silver nanoparticles to control Aedes aegypti larvae**	Lall, Y., Samal, R. R., Sagar, S. K. and **Kumar, S.**	Zoology	Journal of Communicable Diseases	2021	5138 / 258	https://doi.org/10.24321/0019.5138.202157	https://medical.advancedresearchpublications.com/index.php/Journal-	https://mjl.clarivate.com:/search-results?issn=0019-5138&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
438	**In vitro and in silico anticancer potential analysis of Streptomyces sp. extract against human lung cancer cell line, A549**	**Kumar, P.**, Chauhan, A., Kumar, M., Kuanr, B. K., Kundu, A.,	Zoology	3 Biotech	2021	572X / 2190	https://doi.org/10.1007/s13205-021-02812-w	https://link.springer.com/article/10.1007/s13205-021-02812-w	https://mjl.clarivate.com:/search-results?issn=2190-572X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

439	**In vitro and in silico anticancer potential analysis of Streptomyces sp. extract against human lung cancer cell line, A549**	**Kumar, P.**, Chauhan, A., Kumar, M., Kuanr, B. K., Kundu, A.,	Zoology	3 Biotech	2021	572X / 219	https://doi.org/10.1007/s13205-021-02812-w	https://link.springer.com/article/10.1007/s13205-021-02812-w	https://mjl.clarivate.com:/search-results?issn=2190-572X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
440	**In vitro and in silico anticancer potential analysis of Streptomyces sp. extract against human lung cancer cell line, A549**	Kumar, P., Chauhan, A., Kumar, M., Kuanr, B. K., Kundu, A.,	Zoology	3 Biotech	2021	572X / 219	https://doi.org/10.1007/s13205-021-02812-w	https://link.springer.com/article/10.1007/s13205-021-02812-w	https://mjl.clarivate.com:/search-results?issn=2190-572X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
441	**Sightings of the Tailless Llineblue, Prosotasdubiosa (Insecta: Lepidoptera: Lycaenidae) in Delhi, India**	**Chaudhary, R.** and Maurya, C. B.	Biomedical Science	Bionotes	2021	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
442	**Sighting of Plain Tiger (Danaus chrysippus, Linn., 1758) form dorippus in New Delhi, India**	**Chaudhary, R.**	Biomedical Science	Bionotes	2021	0972-1800	https://www.entosocindia.org/image/catalog/bionotes/Bion	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
443	**Genera of ants associated with larvae of Plains Cupid (Chiladespandava,horsfield, 1829) Iinsecta: Lepidoptera: Lycaenidae) infesting Cycas,**	**Chaudhary, R.** and Kumar, V.	Biomedical Science	Bionotes	2021	0972-1800	https://www.entosocindia.org/image/catalog/bionotes/Bion	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
444	**Genera of ants associated with larvae of Plains Cupid (Chiladespandava,horsfield, 1829) Iinsecta: Lepidoptera: Lycaenidae) infesting Cycas,**	**Chaudhary, R.** and Kumar, V.	Biomedical Science	Bionotes	2021	0972-1800	https://www.entosocindia.org/image/catalog/bionotes/Bion	https://www.entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
445	**COVID-19 and cardiovascular disease: Clinical implications of biochemical pathways.**	Varmani, S. G., **Chowhan, R. K.**, Sharma, I., and Narang, R.	Biomedical Science	Journal of the Practice of Cardiovascular Science	2021	5414 / 245	10.4103/jpcs.jpcs_21_21	https://journals.lww.com/jpcs/fulltext/2021/07020/covid_19_and_cardiovascular_dis	https://mjl.clarivate.com:/search-results?issn=2395-5414&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science
446	**The Dynamical Study of Variable Mass Test Particle in Nonlinear Sense of Restricted 3-body Problem with Heterogeneous Primaries**	**Prasad, S. N.,** Shalini, K., and Ansari, A. A	Mathematics	Application and Applied Mathematics	2021	1932-9466	https://digitalcommons.pvamu.edu/aam/vol16/iss2/28/	https://digitalcommons.pvamu.edu/aam/vol16/iss2/28/	https://mjl.clarivate.com:/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	Indexed in Web of Science

447	**Development of Dimethylisoxazole-Attached Imidazo [1, 2-a] pyridines as Potent and Selective CBP/P300 Inhibitors.**	Muthengi, A., Wimalasena, V.K., Yosief, H.O., Bikowitz, M.J., Sigua, L.H.,	Biomedical sciences	*Journal of Medicinal Chemistry*	2021	0022-2623	https://doi.org/10.1021/acs.jmedchem.0c02232	https://pubs.acs.org/doi/10.1021/acs.jmedchem.0c02232	https://mjl.clarivate.com:/search-results?issn=0022-2623&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
448	**Ex vivo binding studies of the anti-cancer drug noscapine with human hemoglobin: a spectroscopic and molecular docking study.**	Chugh, H., Kumar, P., Kumar, N., Gaur, R. K., **Dhawan, G**., & Chandra,	Biomedical sciences	*New Journal of Chemistry*	2021	1.1E+07	https://doi.org/10.1039/D0NJ03334K	https://pubs.rsc.org/en/content/articlelanding/2021/NJ/D0NJ03334K	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
449	**Targeting unfolded protein response: a new horizon for disease control**	Khanna, M., Agrawal, N., Chandra, R., & **Dhawan, G**.	Biomedical sciences	Expert Reviews *in Molecular Medicine*	2021		https://doi.org/10.1017/erm.2021.2	https://www.cambridge.org/core/journals/expert-reviews-in-molecular-	https://mjl.clarivate.com:/search-results?issn=1462-3994&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
450	**Inclusion of environmental awareness as basic tenet of education in India for realization of sustainable practices**	**Chowdhuri, A.,** Saraswat, S. and Gupta, C. K.	Physics	Research Journal of Educational Science	2021	2321 - 0508	http://www.isca.me/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-	http://www.isca.in/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-2020-003.php	nil	**PEER REVIEWED**
451	**Inclusion of environmental awareness as basic tenet of education in India for realization of sustainable practices**	**Chowdhuri, A.,** Saraswat, S. and Gupta, C. K.	Physics	Research Journal of Educational Science	2021	2321 - 0508	http://www.isca.me/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-	http://www.isca.in/EDU_SCI/Archive/v9/i1/1.ISCA-RJEduS-2020-003.php	nil	**PEER REVIEWED**
452	**Pressure Ionization, Polarizability and Screening Constants in Confined Hydrogen Like Ions of Astrophysical Importance**	**Joshi, R.,** Kumar, P., Jha, A. K., and Kumar, T.	Physics	Journal of Atomic, Molecular, Condensed Matter and	2021	2582-8215	https://doi.org/10.26713/jamcnp.v8i2.1684	https://www.rgnpublications.com/journals/index.php/jamcnp/article/view/1684	nil	**PEER REVIEWED**
453	**Encompassing environment synthesis, characterization and photovoltaic utilization of cadmium sulphide quantum dots**	Singh, Shruti; Singh, Pramod K; Sharma,Jitender Paul; Kakroo, Sunanda;	Physics	Materials Today: Proceedings	2021	2214-7853	https://doi.org/10.1016/j.matpr.2020.04.776	https://www.sciencedirect.com/science/article/abs/pii/S2214785320334301	https://www.scopus.com/sourceid/21100370037	**Indexed in UGC Care List and SCOPUS**
454	**Reliable Time Slot Allocation Scheme among Mobile Nodes in MANET**	**C. K. Samal**	Computer science	International Journal of Computer Science Trends and	2021	2347-8578	http://www.ijcstjournal.org/volume-9/issue-5/IJCST-	http://www.ijcstjournal.org/volume-9/issue-5/IJCST-V9I5P12.pdf	nil	**PEER REVIEWED**

455	**Adverse events and breakthrough infections associated with COVID-19 vaccination in the Indian population**	Arora, G., Taneja, J., Bhardwaj, P., **Goyal, S.**, Naidu, K., Yadav, S. K.,	Biomedical Science	Jounal of Medical Virology	2022	0146-6615 / 1096-9071	.org/10.1002/	https://onlinelibrary.wiley.com/doi/10.1002/jmv.27708	https://mjl.clarivate.com:/search-results?issn=0146-6615&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
456	**Adverse events and breakthrough infections associated with COVID-19 vaccination in the Indian population**	Arora, G., Taneja, J., Bhardwaj, P., Goyal, S., Naidu, K., Yadav, S. K.,	Biomedical Science	Jounal of Medical Virology	2022	0146-6615 / 1096-9071	.org/10.1002/	https://onlinelibrary.wiley.com/doi/10.1002/jmv.27708	https://mjl.clarivate.com:/search-results?issn=0146-6615&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
457	**Association of gender, age, and comorbidities with COVID-19 infection in India**	Yadav, S., Bhardwaj, P., Gupta, P., Saluja, D., **Jetly, S.** and Taneja, J	Biomedical Science	Journal of Integrated Science and Technology	2022	2321-4635	http://pubs.iscience.in/journal/index.php/jist/article/view/14	http://pubs.iscience.in/journal/index.php/jist/article/view/1411	https://www.scopus.com/sourceid/21101065486	Indexed in SCOPUS
458	**Hesitancy and Acceptance of COVID-19 Vaccination Amidst the Second Wave of Pandemic in India: A General Population Study**	**Jetly, S.**, Bhardwaj, P., Arora, G., Saluja, D., Yadav, S. K., Naidu, K. P. and	Biomedical Science	Asia Pacific Journal of Public Health	2022	1010-5395 / 1941-2479	10.1177/1010	https://journals.sagepub.com/doi/10.1177/10105395221077062	https://mjl.clarivate.com:/search-results?issn=1010-5395&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
459	**Bioreducible polyethyleneimine core-shell nanostructures as efficient and non-toxic gene and drug delivery vectors.**	Jena, H., Ahmadi, Z., Kumar, P and **Dhawan, G**	Biomedical Science	Bioorganic and Medicinal Chemistry	2022	0968-0896 / 1464-3391	/10.1016/j.bm	https://www.sciencedirect.com/science/article/abs/pii/S0968089622002784	https://mjl.clarivate.com:/search-results?issn=0968-0896&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
460	**Exploring the role of framework mutations in enabling breadth of a cross-reactive antibody (CR3022) against the SARS-CoV-2 RBD**	Saini, S., Agarwal, M., Pradhan, A., Pareek, S., Singh, A. K., **Dhawan,**	Biomedical Science	Journal of Biomolecular Structure and Dynamics	2022	0739-1102 / 1538-0254	.1080/07391	https://www.tandfonline.com/doi/abs/10.1080/07391102.2022.2030800?journalCod	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
461	**Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites**	Malik, V., Saya, L., **Gautam, D.**, Sachdeva, S., Dheer, N., Arya, D. K., Gambhir,	Chemistry	Polymer Bulletin	2022	0170-0839 / 1436-2449	10.1007/s002	https://link.springer.com/article/10.1007/s00289-021-03991-5	https://mjl.clarivate.com:/search-results?issn=0170-0839&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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463	**Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites**	Malik, V., Saya, L., Gautam, D., Sachdeva, S., **Dheer, N.,** Arya, D. K., Gambhir,	Chemistry	Polymer Bulletin	2022	0170-0839 / 1436-2449	10.1007/s002	https://link.springer.com/article/10.1007/s00289-021-03991-5	https://mjl.clarivate.com:/search-results?issn=0170-0839&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
464	**Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites**	Malik, V., Saya, L., Gautam, D., Sachdeva, S., Dheer, N., **Arya, D. K.**, Gambhir,	Chemistry	Polymer Bulletin	2022	0170-0839 / 1436-2449	10.1007/s002	https://link.springer.com/article/10.1007/s00289-021-03991-5	https://mjl.clarivate.com:/search-results?issn=0170-0839&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
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467	**A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions**	**Gambhir, G.**, Gautam, D., Saya, L., Kumar, A., Kumar, S., Singh, A., Singh,	Chemistry	Asian Journal of Chemistry	2022	2193-5807 / 2193-5815	https://doi.org/10.14233/ajchem.2022.23701	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_3_	https://mjl.clarivate.com:/search-results?issn=2193-5807&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
468	**A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions**	Gambhir, G., Gautam, D., Saya, L., Kumar, A., Kumar, S., Singh, A., Singh,	Chemistry	Asian Journal of Chemistry	2022	2193-5807 / 2193-5815	https://doi.org/10.14233/ajchem.2022.23701	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_3_	https://mjl.clarivate.com:/search-results?issn=2193-5807&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
469	**A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions**	Gambhir, G., Gautam, D., Saya, L., Kumar, A., Kumar, S., Singh, A., Singh,	Chemistry	Asian Journal of Chemistry	2022	2193-5807 / 2193-5815	https://doi.org/10.14233/ajchem.2022.23701	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_3_	https://mjl.clarivate.com:/search-results?issn=2193-5807&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and SCOPUS
470	**A new polysaccharide-based ion-exchange resin for industrial wastewater treatment**	Bargujar, S., Gambhir, G., Raigar, M. B., Hooda, S., Arya, D. K. and **Bhatia,**	Chemistry	Polimery	2022	0032-2725	10.14314/po	http://polimery.ichp.vot.pl/index.php/p/article/view/1135	https://mjl.clarivate.com:/search-results?issn=0032-2725&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

471	**A new polysaccharide-based ion-exchange resin for industrial wastewater treatment**	Bargujar, S., **Gambhir, G.**, Raigar, M. B., Hooda, S., Arya, D. K. and Bhatia,	Chemistry	Polimery	2022	0032-2725	/10.14314/po	http://polimery.ichp.vot.pl/index.php/p/article/view/1135	https://mjl.clarivate.com:/search-results?issn=0032-2725&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
472	**A new polysaccharide-based ion-exchange resin for industrial wastewater treatment**	Bargujar, S., Gambhir, G., Raigar, M. B., **Hooda, S.**, Arya, D. K. and Bhatia,	Chemistry	Polimery	2022	0032-2725	/10.14314/po	http://polimery.ichp.vot.pl/index.php/p/article/view/1135	https://mjl.clarivate.com:/search-results?issn=0032-2725&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
473	**A new polysaccharide-based ion-exchange resin for industrial wastewater treatment**	Bargujar, S., Gambhir, G., Raigar, M. B., Hooda, S**., Arya, D. K.** and Bhatia,	Chemistry	Polimery	2022	0032-2725	/10.14314/po	http://polimery.ichp.vot.pl/index.php/p/article/view/1135	https://mjl.clarivate.com:/search-results?issn=0032-2725&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
474	**Assessment of Groundwater Suitability for Drinking and Irrigation in Gurugram Block of Gurugram district, Haryana, India.**	Laxmi, V., Hussain, J., Husain, I., Vadiya, V. K. and **Gambhir, G.**	Chemistry	Asian Journal of Chemistry	2022	0970-7077	https://doi.org/10.14233/ajchem.2022.23779	https://asianjournalofchemistry.co.in/user/journal/viewarticle.aspx?ArticleID=34_6_	https://www.scopus.com/sourceid/22703	Indexed in UGC Care List and SCOPUS
475	**A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions.**	Yadav, S., Misra, N., **Khanna, P.**, Mansi, Batra, K., and Khanna, L.	Chemistry	Polycyclic Aromatic Compounds	2022	1040-6638 / 1563-5333	https://doi.org/10.1080/10406638.2022.2056622	https://www.tandfonline.com/doi/full/10.1080/10406638.2022.2056622	https://mjl.clarivate.com:/search-results?issn=1040-6638&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
476	**A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions.**	Yadav, S., **Misra, N.**, Khanna, P., Mansi, Batra, K., and Khanna, L.	Chemistry	Polycyclic Aromatic Compounds	2022	1040-6638 / 1563-5333	https://doi.org/10.1080/10406638.2022.2056622	https://www.tandfonline.com/doi/full/10.1080/10406638.2022.2056622	https://mjl.clarivate.com:/search-results?issn=1040-6638&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
477	**Chromone functionalized pyridine chemosensor for cupric ions detection.**	Bhalla, P., Tomer, N., **Bhagat, P.**, and Malhotra, R.	Chemistry	Spectrochimica Acta Part A: Molecular and	2022	1386-1425 / 1873-3557	/10.1016/j.sa	https://www.sciencedirect.com/science/article/abs/pii/S1386142521008568?via%3D	https://mjl.clarivate.com:/search-results?issn=1386-1425&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
478	**Chromone derived effective probe for the detection of metal ion (Cu^{2+}) and chemical explosive (p-nitrotoluene).**	Tomer, N., Goel, A., Bhalla, P., **Bhagat, P.**, and Malhotra, R	Chemistry	Journal of Photochemistry and Photobiology A:	2022	1010-6030 / 1873-2666	1016/j.jphoto	https://www.sciencedirect.com/science/article/abs/pii/S1010603022000545	https://mjl.clarivate.com:/search-results?issn=1010-6030&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

479	**Wet Chemical Growth of One Dimensional ZnO Film**	Meena, P. L., Kumar, Y., Bhardwaj, P., Genwa, M., **Arya, D. K.**,	Chemistry	Rasayan Journal of Chemistry	2022	0974-1496	http://rasayanjournal.co.in/admin/php/upload/3482_pdf.pdf	http://rasayanjournal.co.in/admin/php/upload/3482_pdf.pdf	https://www.scopus.com/sourceid/19400157518	Indexed in UGC Care List and SCOPUS
480	**An in-Silico investigation for acyclovir and its derivatives to fight the COVID-19: Molecular docking, DFT calculations, ADME and td-**	Singh, M. B., Jain, P., Tomar, J., Kumar, V., Bahadur, I., **Arya, D. K.**, Sing,	Chemistry	Journal of the Indian Chemical Society	2022	0019-4522	/10.1016/j.jic	https://www.sciencedirect.com/science/article/pii/S0019452222000954	https://mjl.clarivate.com:/search-results?issn=0019-4522&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
481	**II-VI core/shell quantum dots and doping with transition metal ions as a means of tuning the magnetoelectronic**	**Malik, P.**, Thareja, R., Singh, J., and Kakkar, R.	Chemistry	Journal of Molecular Graphics and Modelling	2022	1093-3263 / 1873-4243	10.1016/j.jmg	https://www.sciencedirect.com/science/article/abs/pii/S1093326321002709	https://mjl.clarivate.com:/search-results?issn=1093-3263&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
482	**Precisely engineered type II ZnO-CuS based heterostructure: A visible light driven photocatalyst for efficient mineralization of**	**Kaushik, B.**, Yadav, S., Rana, P., Rana, P., Solanki, K., Rawat, D., and	Chemistry	Applied Surface Science	2022	0169-4332 / 1873-5584	10.1016/j.apsu	https://www.sciencedirect.com/science/article/abs/pii/S0169433222006201	https://mjl.clarivate.com:/search-results?issn=0169-4332&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
483	**Ingeniously designed Silica nanostructures as an exceptional support: Opportunities, potential challenges and future**	Sharma, R. K., **Kaushik, B.**, Yadav, S., Rana, P., Rana, P., Solanki, K., and	Chemistry	Journal of Environmental Management	2022	0301-4797 / 1095-8630	0.1016/j.jenvr	https://www.sciencedirect.com/science/article/pii/S0301479721018831#!	https://mjl.clarivate.com:/search-results?issn=0301-4797&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
484	**Magnetically separable type-II semiconductor based ZnO/MoO 3 photocatalyst: a proficient system for heteroarenes arylation and**	**Kaushik, B.**, Rana, P., Rawat, D., Solanki, K., Yadav, S., and Sharma, R. K.	Chemistry	New Journal of Chemistry	2022	1144-0546 / 1369-9261	https://doi.org/10.1039/D2NJ00906D	https://pubs.rsc.org/en/content/articlelanding/2022/nj/d2nj00906d	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
485	**An Earth-abundant cobalt based photocatalyst: visible light induced direct (het) arene C–H arylation and CO2 capture**	Rana, P., **Kaushik, B.**, Gaur, R., Dutta, S., Yadav, S., Rana, P., Solanki,	Chemistry	Dalton Transactions	2022	1477-9226 / 1477-9234	https://doi.org/10.1039/D1DT03625D	https://pubs.rsc.org/en/content/articlelanding/2022/DT/D1DT03625D	https://mjl.clarivate.com:/search-results?issn=1477-9226&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
486	**Magnetic Boron Nitride Nanosheets Decorated with Cobalt Nanoparticles as Catalyst for the Synthesis of 3, 4-Dihydropyrimidin-2 (1 H)-**	Rana, P., Dixit, R., Sharma, S., Dutta, S., Yadav, S., Arora, B., **B. Kaushik**, Rana,	Chemistry	ACS Applied Nano Materials	2022	2574-0970	g/10.1021/acs	https://pubs.acs.org/doi/10.1021/acsanm.1c04438	https://mjl.clarivate.com:/search-results?issn=2574-0970&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

487	**Unravelling the catalytic potential of a magnetic CoFe 2 O 4/Cu–ABDC MOF composite in the sustainable synthesis of 2 H-indazole**	Yadav, S., Dixit, R., Sharma, S., Dutta, S., Arora, B., Rana, P., **Kaushik, B.**,	Chemistry	New Journal of Chemistry	2022	1144-0546 / 1369-9261	https://doi.org/10.1039/D2NJ01490D	https://pubs.rsc.org/en/content/articlelanding/2022/nj/d2nj01490d/unauth	https://mjl.clarivate.com:/search-results?issn=1144-0546&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
488	**Functionalized MCM-41: Versatile Catalysts for Organic Transformations**	Pasricha, S., Gahlot, P., **Mittal, K.**, Rai, D., Avasthi, N., Kaur, H., and	Chemistry	ChemistrySelect	2022	2365-6549	https://doi.org/10.1002/slct.202103674	https://chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/slct.202103674	https://mjl.clarivate.com:/search-results?issn=2365-6549&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
489	**Coupling Fear and Contagion for Modeling Epidemic Dynamics**	Jain K., Bhatnagar V, Prasad S. and **Kaur S.**	Commerce	IEEE Transactions on Network Science and	2022	2327-4697	09/TNSE.202	https://ieeexplore.ieee.org/document/9813421	https://mjl.clarivate.com:/search-results?issn=2327-4697&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
490	**Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body**	Ansari, A. A., **Narain, L.,** Prasad, S. N., and Alam, M.	Mathematics	Italian Journal of Pure and Applied Mathematics	2022	1126-8042 / 2239-0227	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-Narain-Prasad-Alam.pdf	https://mjl.clarivate.com:/search-results?issn=1126-8042&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
491	**Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body**	Ansari, A. A., Narain, L**.,** **Prasad, S. N.**, and Alam, M.	Mathematics	Italian Journal of Pure and Applied Mathematics	2022	1126-8042 / 2239-0227	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-	https://ijpam.uniud.it/online_issue/202247/15%20Ansari-Narain-Prasad-Alam.pdf	https://mjl.clarivate.com:/search-results?issn=1126-8042&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
492	**Study and prediction of prostate cancer using fuzzy inference system**	Boadh, R., **Aarya, D. D.**, Dahiya, M., Rathee, S., Kumar, A., Jain,	Mathematics	Materials Today: Proceedings	2022	2214-7853	10.1016/j.ma	https://www.sciencedirect.com/science/article/pii/S2214785322000669#:~:text=It%2	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS
493	**Selling price, time dependent demand and variable holding cost inventory model with two storage facilities.**	**Aarya, D. D.**, Rajoria, Y. K., Gupta, N., Raghav, Y. S., Rathee, R.,	Mathematics	Materials Today: Proceedings	2022	2214-7854	10.1016/j.ma	https://www.sciencedirect.com/science/article/pii/S2214785322001390	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS
494	**Two Ware-Houses Fuzzy Inventory Model For Deteriorating Items With Ramp Type Demand And Shortages**	Sethi, G., Yadav, A.S. and **Singh, C.**	Mathematics	Journal of Management Information and	2022	1524-7252	0.5120/19994	https://www.abacademies.org/articles/two-warehouses-fuzzy-inventory-	https://www.scopus.com/sourceid/21100805732	Indexed in UGC Care List and SCOPUS

495	**Smart materials for cardiovascular devices**	**Bhatia M.**, Bhatia S. and Siddhartha.	Physics	Materials Today: Proceedings	2022	2214-7853	10.1016/j.ma	https://www.sciencedirect.com/science/article/pii/S2214785322001237	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS
496	**Smart materials for cardiovascular devices**	Bhatia M., Bhatia S. and **Siddhartha.**	Physics	Materials Today: Proceedings	2022	2214-7853	10.1016/j.ma	https://www.sciencedirect.com/science/article/pii/S2214785322001237	https://www.scopus.com/sourceid/21100370037	Indexed in UGC Care List and SCOPUS
497	**Studies on Energy Storage properties of BFO/WO3 bilayer thin film capacitor.**	Lamichhane, S., Sharma, S., Tomar, M., and **Chowdhuri, A**	Physics	Energy Storage	2022	2578-4862	i.org/10.1002	https://onlinelibrary.wiley.com/doi/abs/10.1002/est2.342	https://mjl.clarivate.com:/search-results?issn=2578-4862&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
498	**Double quantum ionization cross-sections for more general exponential cosine screened coulomb potential**	**Joshi, R.**	Physics	Spectroscopy Letters	2022	0038-7010 / 1532-2289	https://doi.org/10.1080/00387010.2022.2088559	https://www.tandfonline.com/doi/full/10.1080/00387010.2022.2088559	https://mjl.clarivate.com:/search-results?issn=0038-7010&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
499	**Micrometre double-quantum ionization of Rydberg hydrogen using linearly and circularly polarized light**	**Joshi, R.**	Physics	The European Physical Journal D	2022	1434-6060 / 1434-6079	https://doi.org/10.1140/epjd/s10053-022-00366-x	https://link.springer.com/article/10.1140/epjd/s10053-022-00366-x	https://mjl.clarivate.com:/search-results?issn=1434-6060&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
500	**High harmonic generation spectra for lithium embedded in plasma environment**	**Joshi, R.**	Physics	Spectroscopy Letters	2022	0038-7010 / 1532-2289	https://doi.org/10.1080/00387010.2022.2046104	https://www.tandfonline.com/doi/full/10.1080/00387010.2022.2046104	https://mjl.clarivate.com:/search-results?issn=0038-7010&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
501	**A numerical evaluation of Shannon entropy for modified Hulthen potential**	Dabas, S., and **Joshi, R.**	Physics	The European Physical Journal D	2022	1434-6060 / 1434-6079	https://doi.org/10.1140/epjd/s10053-022-00421-7	https://link.springer.com/article/10.1140/epjd/s10053-022-00421-7	https://mjl.clarivate.com:/search-results?issn=1434-6060&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
502	**Favourable tuning of optical absorbance, bandgap and surface roughness of ZnO thin films by C ion implantation at the critical**	Hariwal, R. V., Malik, H. K., **Negi, A.**, and Asokan, K.	Physics	Applied Surface Science Advances	2022	2666-5239	0.1016/j.apsa	https://www.sciencedirect.com/science/article/pii/S2666523921001355	https://mjl.clarivate.com:/search-results?issn=2666-5239&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science

503	**Unravelling impacts of C ion implantations at polar angles in the physical properties of ZnO nanostructured thin films**	Hariwal, R. V., Malik, H. K., **Negi, A.**, and Asokan, K.	Physics	Materials Letters	2022	0167-577X / 1873-4979	10.1016/j.mat	https://www.sciencedirect.com/science/article/abs/pii/S0167577X2101898X	https://mjl.clarivate.com:/search-results?issn=0167-577X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
504	**Spatiotemporal nonlinear evolution of the laser pulse and turbulence generation in laser produced plasmas.**	Singh, I., **Gupta, P. K.**, Uma, R. and Sharma, R. P.	Physics	Physics of Plasmas	2022	1070-664X / 1089-7674	.org/10.1063/	https://aip.scitation.org/doi/abs/10.1063/5.0085724	https://mjl.clarivate.com:/search-results?issn=1070-664X&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
505	**Effect of Ag doping on structural, morphological and optical properties of CdO nanostructured thin films.**	Khan Z. R., Alshammari A. S., Shkir Md., Bouzidi M., Mohamed M.,	Physics	Physica B: Condensed Matter	2022	0921-4526 / 1873-2135	10.1016/j.phy	https://www.sciencedirect.com/science/article/abs/pii/S0921452622001016	https://mjl.clarivate.com:/search-results?issn=0921-4526&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
506	**Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, Aedes aegypti L**	**Samal, R. R.**, Panmei, K., Lanbiliu, P. and Kumar, S	Zoology	Bulletin of Entomological Research	2022	0007-4853 / 1475-2670	doi:10.1017/S0007485321001140	https://www.cambridge.org/core/journals/bulletin-of-entomological-research/article/r	https://mjl.clarivate.com:/search-results?issn=0007-4853&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
507	**Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, Aedes aegypti L**	Samal, R. R., Panmei, K., **Lanbiliu, P**. and Kumar, S	Zoology	Bulletin of Entomological Research	2022	0007-4853 / 1475-2670	doi:10.1017/S0007485321001140	https://www.cambridge.org/core/journals/bulletin-of-entomological-research/article/r	https://mjl.clarivate.com:/search-results?issn=0007-4853&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
508	**Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, Aedes aegypti L**	Samal, R. R., Panmei, K., Lanbiliu, P. and **Kumar, S**	Zoology	Bulletin of Entomological Research	2022	0007-4853 / 1475-2670	doi:10.1017/S0007485321001140	https://www.cambridge.org/core/journals/bulletin-of-entomological-research/article/r	https://mjl.clarivate.com:/search-results?issn=0007-4853&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
509	**Attractive sugar bait formulation for development of Attractive Toxic Sugar Bait for control of Aedes aegypti (Linnaeus).**	**Kumar, S.** Sharma, A. Samal, R. R., Kumar, M., Verma, V.,	Zoology	Journal of Tropical Medicine	2022	1687-9686 / 1687-9694	rg/10.1155/2	https://www.hindawi.com/journals/jtm/2022/2977454/	https://mjl.clarivate.com:/search-results?issn=1687-9686&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
510	**Attractive sugar bait formulation for development of Attractive Toxic Sugar Bait for control of Aedes aegypti (Linnaeus).**	Kumar, S. Sharma, A. Samal, R. R., Kumar, M., Verma, V.,	Zoology	Journal of Tropical Medicine	2022	1687-9686 / 1687-9694	rg/10.1155/2	https://www.hindawi.com/journals/jtm/2022/2977454/	https://mjl.clarivate.com:/search-results?issn=1687-9686&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

511	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in**	Somasundaram, S., Abraham, J. S., Maurya, **S., Toteja, R.**, Gupta, R., and	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s106	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
512	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in**	Somasundaram, S., Abraham, J. S., Maurya, **S.,** Toteja, R., Gupta, R., and	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s106	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
513	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in**	Somasundaram, S., Abraham, J. S., Maurya, **S.,** Toteja, R., Gupta, R., and	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s106	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
514	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in**	Somasundaram, S., Abraham, J. S., Maurya, **S.,** Toteja, R., Gupta, R., and	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s106	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
515	**Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in**	Somasundaram, S., Abraham, J. S., Maurya, **S.,** Toteja, R., Gupta, R., and	Zoology	Ecotoxicology	2022	0963-9292 / 1573-3017	10.1007/s106	https://link.springer.com/article/10.1007/s10646-021-02518-y	https://mjl.clarivate.com:/search-results?issn=0963-9292&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
516	**Microbial Journey: Mount Everest to Mars**	Sood, U., Dhingra, G. G., Anand, S., Hira, P., Kumar, R., Kaur, J., Verma,	Zoology	Indian Journal of Microbiology	2022	0046-8991 / 0973-7715	10.1007/s120	https://link.springer.com/article/10.1007/s12088-022-01029-6	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
517	**Microbial Journey: Mount Everest to Mars**	Sood, U., Dhingra, G. G., Anand, S., Hira, P., Kumar, R., Kaur, J., Verma,	Zoology	Indian Journal of Microbiology	2022	0046-8991 / 0973-7715	10.1007/s120	https://link.springer.com/article/10.1007/s12088-022-01029-6	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
518	**Microbial Journey: Mount Everest to Mars**	Sood, U., Dhingra, G. G., Anand, S., Hira, P., Kumar, R., Kaur, J., Verma,	Zoology	Indian Journal of Microbiology	2022	0046-8991 / 0973-7715	10.1007/s120	https://link.springer.com/article/10.1007/s12088-022-01029-6	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

519	**Microbial Journey: Mount Everest to Mars**	Sood, U., Dhingra, G. G., Anand, S., Hira, P., Kumar, R., Kaur, J., Verma,	Zoology	Indian Journal of Microbiology	2022	0046-8991 / 0973-7715	10.1007/s120	https://link.springer.com/article/10.1007/s12088-022-01029-6	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
520	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
521	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
522	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
523	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
524	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
525	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science
526	**A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the**	Maurya, S., Abraham, J. S., Somasundaram, S., Dagar, J., Gupta, R.,	Zoology	Eurasian Soil Science	2022	1064-2293 / 1556-195X	10.1134/S106	https://link.springer.com/article/10.1134/S1064229322080117	https://mjl.clarivate.com:/search-results?issn=1064-2293&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List, SCOPUS and Web of Science

527	**The Role of Nanotechnology in Antiviral Regime: An Overview**	Singh, R., **Gupta, S.** and Kumar, P.	Chemistry	Nano Life	2022	1793-9844 / 1793-9852	10.1142/S179	https://www.worldscientific.com/doi/abs/10.1142/S1793984421300119	https://mjl.clarivate.com:/search-results?issn=1793-9844&hide_exact_match_fl=true&utm_sourc	Indexed in UGC Care List and Web of Science
528	**Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi**	Rani, J.; Bhargav, A.; Seth, S.; Datta, M.; **Bajpai, U.**; Ramachnadran,	Biomedical Sciences	J Biosci 47:69.	2022	5991 / 097	https://doi.org/10.1007/s12038-022-00309-z	ias.ac.in/article/fulltext/jbsc/047/0069	https://mjl.clarivate.com:/search-results?issn=0250-5991&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
529	**Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi**	Rani, J.; Bhargav, A.; Seth, S.; Datta, M.; **Bajpai, U.**; Ramachnadran,	Biomedical Sciences	J Biosci 47:69.	2022	5991 / 097	https://doi.org/10.1007/s12038-022-00309-z	ias.ac.in/article/fulltext/jbsc/047/0069	https://mjl.clarivate.com:/search-results?issn=0250-5991&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
530	**Pharmacological Manipulation of UPR: Potential Antiviral Strategy Against Chikungunya Virus.**	Agrawal, N.; Saini, S.; Khanna, M.**; Dhawan, G.;** Dhawan, U.	Biomedical Sciences	Indian Journal of Microbiology	2022	0255-0857 / 1998-3646	https://doi.org/10.1007/s12088-022-01046-5	https://pubmed.ncbi.nlm.nih.gov/36458214/	https://mjl.clarivate.com:/search-results?issn=0046-8991&hide_exact_match_fl=true&utm_sourc	**Indexed in UGC Care List, SCOPUS and Web of Science**
531	**Realizing the New Reality: Machine Learning Curbing Antimicrobial Resistance in Cutibacterium acnes.**	Gupta, R.**; Dhawan, G.;** Kumar, B.; Gautam, H. K.	Biomedical Sciences	Research Journal of Biotechnology, 17, 165-170.	2022	2588-9834 / 2588-9842	https://doi.org/10.25303/1712rjbt1650170	–	https://mjl.clarivate.com:/search-results?issn=2278-4535&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
532	**Upsurge in biomedical waste due to COVID-19 in India: A statistical correlation, challenges and recommendations.**	**Khosla, R.;** Jha, A.; Dua, S.; Vermani, S. G.; Rajput, N.; Pani, B.	Biomedical Sciences	Frontiers in Environmental Science	2022	2296-665X	https://doi.org/10.3389/fenvs.2022.1022098	https://www.readcube.com/articles/10.3389/fenvs.2022.1022098	https://mjl.clarivate.com:/search-results?issn=2296-665X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
533	**Evaluation of stigma receptivity and its properties in Helianthus annuus L. (Asteraceae).**	Sharma, B.**; Kalra, G.;** Verma, H.	Botany	Vegetos	2022	0970-4078	https://doi.org/10.1007/s42535-022-00419-x	https://link.springer.com/article/10.1007/s42535-022-00419-x	https://www.scopus.com/sourceid/19400157312	**SCOPUS INDEXED**
534	**Hydrotrope assisted green synthesis of dicoumarols and in silico and in vitro antibacterial, antioxidant and xanthine oxidase inhibition**	Mansi**, Khanna, P.;** Gupta, D.; Yadav, S.; Khanna, L.	Chemistry	Journal of Biomolecular structure and dynamics,	2022	1102 / 153	https://doi.org/10.1080/07391102.2022.2145368	https://pubmed.ncbi.nlm.nih.gov/36373290/	https://mjl.clarivate.com:/search-results?issn=0739-1102&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**

535	**An understanding of coronavirus and exploring the molecular dynamics simulations to find promising candidates against the Mpro**	Singh, M. B.; Sharma, R.; Kumar, D.**; Khanna, P.;** Mansi; Khanna,	Chemistry	Journal of Infection and Public Health, 15, 1326–1349	2022	)341 / 187	https://doi.org/10.1016/j.jiph.2022.10.013	https://pubmed.ncbi.nlm.nih.gov/36288640/	https://mjl.clarivate.com:/search-results?issn=1876-0341&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
536	**UHPLC Analysis of Polycyclic aromatic hydrocarbons (PAH) compounds from the soil by QuEChERS AOAC method from Manesar industrial**	Singh, N.; Rani, P.; Tandon, N.**; Arya, D. K.;** Mahato, A.	Chemistry	J Microbiol Biotech Food Sci, 12(2) e5861.	2022	1338-5178	https://doi.org/10.55251/jmbfs.5861	https://office2.jmbfs.org/index.php/JMBFS/article/view/5861/3282	https://mjl.clarivate.com:/search-results?issn=1338-5178&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
537	**Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles.**	Pasricha, S.**; Mittal, K.;** Gahlot, P.; Kaur, H.; Avasthi, N.; Shweta	Chemistry	Journal of the Iranian Chemical Society, 19:4035–40	2022	1735-207X / 1735-2428	https://doi.org/10.1007/s13738-022-02603-x	https://link.springer.com/article/10.1007/s13738-022-02603-x	https://mjl.clarivate.com:/search-results?issn=1735-207X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
538	**Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles.**	Pasricha, S.**; Mittal, K.;** Gahlot, P.; Kaur, H.; Avasthi, N.; Shweta	Chemistry	Journal of the Iranian Chemical Society, 19:4035–40	2022	1735-207X / 1735-2428	https://doi.org/10.1007/s13738-022-02603-x	https://link.springer.com/article/10.1007/s13738-022-02603-x	https://mjl.clarivate.com:/search-results?issn=1735-207X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
539	**Entropy for item inclination in sub-community based recommender system.**	Ahuja, H.; Narang, S,**; Kaur, S.**; Saxena, R.	Electronics	International Journal of Advanced Technology and	2022	2215-0986	http://dx.doi.org/10.19101/IJATEE.2021.875768	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2022/8/4.pdf	https://mjl.clarivate.com:/search-results?issn=2215-0986&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
540	**Entropy for item inclination in sub-community based recommender system.**	Ahuja, H.; Narang, S,**; Kaur, S.**; Saxena, R.	Electronics	International Journal of Advanced Technology and	2022	2215-0986	http://dx.doi.org/10.19101/IJATEE.2021.875768	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2022/8/4.pdf	https://mjl.clarivate.com:/search-results?issn=2215-0986&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
541	**Entropy for item inclination in sub-community based recommender system.**	Ahuja, H.; Narang, S,**; Kaur, S.**; Saxena, R.	Electronics	International Journal of Advanced Technology and	2022	2215-0986	http://dx.doi.org/10.19101/IJATEE.2021.875768	https://www.accentsjournals.org/PaperDirectory/Journal/IJATEE/2022/8/4.pdf	https://mjl.clarivate.com:/search-results?issn=2215-0986&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
542	**Evaluation of Cost benefit Analysis using One-R Supervised Machine Learning Algorithm for Healthcare, https://doi.org/10.14754/nq.**	Kavitha, S,**;** Prasad, N.S.**; Samal, C. K.;** Hanumanthappa, H.	Computer Science	Neuro Quantology, 20(9) 6610-6615,	2022	1303 5150	https://doi.org/10.14754/nq.2022.20.9.NQ44773	https://www.neuroquantology.com/open-access/Evaluation+of+Cost+benefi		**SCOPUS INDEXED**

543	**Mildly reduced graphene oxide membranes for water purification applications.**	Kumar, S.; Garg, A.; **Chowdhuri, A.**	Physics	Nano Express 3, 045003.	2022	2632-959X	https://doi.org/10.1088/2632-959X/aca7d6	https://iopscience.iop.org/article/10.1088/2632-959X/aca7d6/pdf	https://mjl.clarivate.com:/search-results?issn=2632-959X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
544	**Mildly reduced graphene oxide membranes for water purification applications.**	Kumar, S.; Garg, A.; **Chowdhuri, A.**	Physics	Nano Express 3, 045003.	2022	2632-959X	https://doi.org/10.1088/2632-959X/aca7d6	https://iopscience.iop.org/article/10.1088/2632-959X/aca7d6/pdf	https://mjl.clarivate.com:/search-results?issn=2632-959X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
545	**Mildly reduced graphene oxide membranes for water purification applications.**	Kumar, S.; Garg, A.; **Chowdhuri, A.**	Physics	Nano Express 3, 045003.	2022	2632-959X	https://doi.org/10.1088/2632-959X/aca7d6	https://iopscience.iop.org/article/10.1088/2632-959X/aca7d6/pdf	https://mjl.clarivate.com:/search-results?issn=2632-959X&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
546	**An Inclusive Science Laboratory for Visually Impaired Students.**	**Ghai, G.;** Raj, R.; Kaur, R.	Electronics	Journal of Engineering Education Transformations, 36(2),	2022	73, eISSN 2	https://doi.org/10.16920/jeet/2022/v36i2/22157	file:///C:/Users/praga/Downloads/JEET_v36i2_October_2022%20-88-101.pdf	https://www.scopus.com/sourceid/21100890669	**SCOPUS INDEXED**
547	**An Inclusive Science Laboratory for Visually Impaired Students.**	Ghai, G.; Raj, R.**; Kaur, R.**	Electronics	Journal of Engineering Education Transformations, 36(2),	2022	73, eISSN 2	https://doi.org/10.16920/jeet/2022/v36i2/22157	https://journaleet.in/articles/an-inclusive-science-laboratory-for-visually-impaired-	https://www.scopus.com/sourceid/21100890669	**SCOPUS INDEXED**
548	**Flexible inventory system of imperfect production under deterioration and inflation.**	Sharma, A.**;** **Singh, C.;** Verma, P.; Malik, A. K.	Mathematics	Yugoslav Journal of Operations Research, 32(4), 515-	2022	0354-0243	https://doi.org/10.2298/YJOR220318025S	file:///C:/Users/praga/Downloads/FLEXIBLE_INVENTORY_SYSTEM_OF_IMPERFECT_PR	https://www.scopus.com/sourceid/23492	**SCOPUS INDEXED**
549	**Perturbed Robe's problem with charged bodies.**	Ansari, A. A.; Sahdev, S. K.; Kellil, R.**; Prasad, S. N.**	Mathematics	Romanian Astron. J. , 32(2), 83–94.	2022	5168 / 228	http://www.astro.ro/~roaj/32_2/2022_02_01.pdf	http://www.astro.ro/~roaj/32_2/2022_02_01.pdf	https://mjl.clarivate.com:/search-results?issn=1220-5168&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
550	**Behaviour of a variable mass infinitesimal body in the CR3BP with heterogeneous primary and finite straight segment secondary.**	Ansari, A. A.**;** **Yadav, B.**	Mathematics	Romanian Astron. J. 32(2), 113–125	2022	5168 / 228	https://ui.adsabs.harvard.edu/abs/2022RoAJ...32..113A/abstr	https://ui.adsabs.harvard.edu/abs/2022RoAJ...32..113A/abstract	https://mjl.clarivate.com:/search-results?issn=1220-5168&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**

551	**Effects of Mass Variation in the Collinear Perturbed Moulton-Copenhagen Configuration.**	Ansari, A. A.; **Yadav, B.**	Mathematics	International Journal of Analysis and Applications	2022	2291-8639	https://doi.org/10.28924/2291-8639-20-2022-44	https://etamaths.com/index.php/ijaa/article/view/2619	https://mjl.clarivate.com:/search-results?issn=2291-8639&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**
552	**The Implementation of the Pentagonal Fuzzy Number toward the Solution of the Fuzzy Inventory Model with Ramp Demand Function and**	**Arya, D. D.;** Prakash, S.; Boadh, R.; Chauhan, A.; Rajoria, Y. K.	Mathematics	Neuroquantology, 20(17), 115-124.	2022	13035150	https://doi.org/10.14704/Nq.2022.20.17.Nq88017	https://www.researchgate.net/publication/365712215_The_Implementation_of_the_	_	**PEER REVIEWED**
553	**Optimal strategy for remanufacturing system of sustainable products with trade credit under uncertain scenario.**	Poswal, P.; Chauhan, A.; **Arya, D. D.**; Boadh, R.; Rajoria, Y. K.;	Mathematics	Materials Today: Proceedings, 69(2), 165-173.	2022	2214-7853	https://doi.org/10.1016/j.matpr.2022.08.303	https://www.sciencedirect.com/science/article/abs/pii/S2214785322054803	https://www.scopus.com/sourceid/21100370037	**Indexed in UGC Care List and SCOPUS**
554	**Space Dependent Study of Fast Neutron Spectra and Tritium Production Rate in a Fusion Reactor Blanket of Li_2O.**	**Bhatia, M .;** Gupta, S.	Physics	Indian Journal of Pure & Applied Physics, 60,	2022	0019-5596	https://www.doi.org/10.56042/ijpap.v60i10.65064	https://nopr.niscpr.res.in/bitstream/123456789/60669/1/IJPAP%2060%2810%29%2	https://www.scopus.com/sourceid/28036	**SCOPUS INDEXED**
555	**Effect of variation in glancing angle deposition on resistive switching property of WO3 thin films for RRAM devices.**	Lamichhane, S.; Sharma, S.; Tomar, M.; **Chowdhuri, A.**	Physics	J. Appl. Phys. 132, 134102.	2022	0021-8979	https://doi.org/10.1063/5.0103236	https://pubs.aip.org/aip/jap/article-abstract/132/13/134102/2837530	https://www.scopus.com/sourceid/28132	**SCOPUS INDEXED**
556	**Ensemble-based unsupervised machine learning method for membership determination of open clusters using**	Deb, S.; Baruah, A.**; Kumar S.**	Physics	MNRAS 515, 4685–4701.	2022	0035-8711 / 1365-2966	https://doi.org/10.1093/mnras/stac2116	https://academic.oup.com/mnras/article-abstract/515/4/4685/6653107?re	https://mjl.clarivate.com:/search-results?issn=0035-8711&hide_exact_match_fl=true&utm_sourc	**Web of Science**
557	**Two-photon Bound to Bound Transitions under Strong Screening Potential.**	**Joshi, R.**	Physics	hy. J. Plus, 13	2022	2190-5444	https://doi.org/10.1140/epjp/s13360-022-03224-2	https://link.springer.com/article/10.1140/epjp/s13360-022-03224-2	https://mjl.clarivate.com:/search-results?issn=2190-5444&hide_exact_match_fl=true&utm_sourc	**Web of Science**
558	**Theoretical analysis of relativistic energy corrections, partition function and thermodynamic properties of spherically**	**Joshi, R.;** Goyal, A.; Kumar, P.; Mohan, M.	Physics	Eur. Phy. J. D, 76:149.	2022	1434-6060 / 1434-6079	https://doi.org/10.1140/epjd/s10053-022-00484-6	https://link.springer.com/article/10.1140/epjd/s10053-022-00484-6	https://mjl.clarivate.com:/search-results?issn=1434-6060&hide_exact_match_fl=true&utm_sourc	**SCOPUS INDEXED**

559	**A novel RP-HPLC method for quantification of cholinesterase activity in human blood: An application for assessing**	Sinha, S. N.; Ungarala, R.; Kumar, D.; Sangaraju, R.; **Kumar, S.**	Zoology	PLoS ONE 17(12): e0279287.	2022	1932-6203	https://doi.org/10.1371/journal.pone.0279287	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9803206/pdf/pone.0279287.pdf	https://mjl.clarivate.com:/search-results?issn=1932-6203&hide_exact_match_fl=true&utm_sourc	**Web of Science**
560	**Morphological and physiological changes induced by Achyranthes aspera-mediated silver nanocomposites in Aedes**	**Sharma, A.;** Mishra, M.; Dagar, V. S.; Kumar, S.	Zoology	Front. Physiol. 13:1031285.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.1031285	https://www.frontiersin.org/articles/10.3389/fphys.2022.1031285/full#:~:text=The%	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
561	**Morphological and physiological changes induced by Achyranthes aspera-mediated silver nanocomposites in Aedes**	Sharma, A.**;** **Mishra, M.;** Dagar, V. S.; Kumar, S.	Zoology	Front. Physiol. 13:1031285.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.1031285	https://www.frontiersin.org/articles/10.3389/fphys.2022.1031285/full#:~:text=The%	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
562	**Morphological and physiological changes induced by Achyranthes aspera-mediated silver nanocomposites in Aedes**	Sharma, A.; Mishra, M.; Dagar, V. S.**;** **Kumar, S.**	Zoology	Front. Physiol. 13:1031285.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.1031285	https://www.frontiersin.org/articles/10.3389/fphys.2022.1031285/full#:~:text=The%	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
563	**Morphological and physiological changes induced by Achyranthes aspera-mediated silver nanocomposites in Aedes**	Sharma, A.; Mishra, M.; Dagar, V. S.**;** **Kumar, S.**	Zoology	Front. Physiol. 13:1031285.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.1031285	https://www.frontiersin.org/articles/10.3389/fphys.2022.1031285/full#:~:text=The%	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
564	**Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the Helicoverpa armigera Hübner gut enzymes.**	**Mishra, M.;** Sharma, A.; Dagar, V.S.; Kumar, S.	Zoology	Journal of the Entomological Research	2022	2651-3579	https://doi.org/10.51963/jers.v24i2.2276	https://www.entomol.org/journal/index.php/JERS/article/view/2276	https://mjl.clarivate.com:/search-results?issn=2651-3579&hide_exact_match_fl=true&utm_sourc	**Web of Science**
565	**Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the Helicoverpa armigera Hübner gut enzymes.**	Mishra, M.**;** **Sharma, A.;** Dagar, V.S.; Kumar, S.	Zoology	Journal of the Entomological Research	2022	2651-3579	https://doi.org/10.51963/jers.v24i2.2276	https://www.entomol.org/journal/index.php/JERS/article/view/2276	https://mjl.clarivate.com:/search-results?issn=2651-3579&hide_exact_match_fl=true&utm_sourc	**Web of Science**
566	**Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the Helicoverpa armigera Hübner gut enzymes.**	Mishra, M.; Sharma, A.; Dagar, V.S.; **Kumar, S.**	Zoology	Journal of the Entomological Research	2022	2651-3579	https://doi.org/10.51963/jers.v24i2.2276	https://www.entomol.org/journal/index.php/JERS/article/view/2276	https://mjl.clarivate.com:/search-results?issn=2651-3579&hide_exact_match_fl=true&utm_sourc	**Web of Science**

567	**Docking-based virtual screening ascertaining β-sitosterol-induced alterations in the Helicoverpa armigera Hübner gut enzymes.**	Mishra, M.; Sharma, A.; Dagar, V.S.; **Kumar, S.**	Zoology	Journal of the Entomological Research	2022	2651-3579	https://doi.org/10.51963/jers.v24i2.2276	https://www.entomol.org/journal/index.php/JERS/article/view/2276	https://mjl.clarivate.com:/search-results?issn=2651-3579&hide_exact_match_fl=true&utm_sourc	**Web of Science**
568	**An overview on non-Apis bees vis-à-vis the exploration of integrated taxonomic approach (Hymenoptera: Apoidea).**	Falswal, J.; Dey, D.; **Kumar, S.**	Zoology	Fragmenta entomologica, 54 (2): 233–246	2022	0429-288X / 2284-4880	DOI: 10.13133/2284-4880/703	https://www.researchgate.net/publication/366325617_An_overview_on_non-	https://mjl.clarivate.com:/search-results?issn=0429-288X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
569	**Metabolic detoxification and ace-1 target site mutations associated with acetamiprid resistance in Aedes aegypti L.**	Samal, R. R.; Panmei, K.; Lanbiliu, P.; **Kumar, S.**	Zoology	Front. Physiol. 13:988907.	2022	1664-042X	https://doi.org/10.3389/fphys.2022.988907	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9468370/pdf/fphys-13-988907.pdf	https://mjl.clarivate.com:/search-results?issn=1664-042X&hide_exact_match_fl=true&utm_sourc	**Web of Science**
570	**Evidence of breeding of Jamides Bochus (Stoll, [1782]) (Insecta: Lepidoptera: Lycaenidae) in New Delhi, India**	**Chaudhary, R.;** Kumar, V.	Biomedical Science	Bionotes, 24, 252-253.	2022	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	**Web of Science**
571	**Sighting of Ruddy Meadow Skimmer Neurothemis Intermedia (Rambur 1842) (Insecta: Odonata:Libellulidae) in New**	**Chaudhary, R.**	Biomedical Science	Bionotes, 24, 254-256	2022	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	**Web of Science**
572	**Ovipositing record of Tailless Lineblue Prosotas Dubiosa , (Semper |1897|) (Insecta: Lepidoptera : Lycaenidae) from the vicinity of Delhi**	**Chaudhary, R.**	Biomedical Science	Bionotes, 24, 260-261	2022	0972-1800	https://entosocindia.org/image/catalog/bionotes/Bionotes%2	https://entosocindia.org/image/catalog/bionotes/Bionotes%20pdf%20papers/Vol.%20	https://mjl.clarivate.com:/search-results?issn=0972-1800&hide_exact_match_fl=true&utm_sourc	**Web of Science**
573	**Arbuscular mycorrhizal fungi and host plant relationship with respect to heavy metal remediation of soil.**	Gulati. S.; **Narang, A.;** Shukla, A.; Katyal, R.; Mathur, R.; Kaur,	Botany	Kavaka, 58(3), 61-74	2022	0379-5179	https://www.doi.org/10.36460/Kavaka/58/3/2022/61-74	https://www.researchgate.net/publication/365431747_Arbuscular_Mycorrhizal_Fun	_	**UGC CARE**
574	**Arbuscular mycorrhizal fungi and host plant relationship with respect to heavy metal remediation of soil.**	Gulati. S.; **Narang, A.;** Shukla, A.; Katyal, R.; Mathur, R.; Kaur,	Botany	Kavaka, 58(3), 61-74	2022	0379-5179	https://www.doi.org/10.36460/Kavaka/58/3/2022/61-74	https://www.researchgate.net/publication/365431747_Arbuscular_Mycorrhizal_Fun	_	**UGC CARE**

575	**Hydrothermally Fabricated Bio-nanocomposite of Guar gum as a Promising Adsorbent for Reactive Green 19 Dye from**	Saya, L.; **Hooda, S.;** Singh, R. W.	Chemistry	International journal of innovative research in technology,	2022	2349-6002	https://ijirt.org/master/publishedpaper/IJIRT157412_PAPER.	https://ijirt.org/master/publishedpaper/IJIRT157412_PAPER.pdf	https://mjl.clarivate.com:/search-results?issn=1996-6814&hide_exact_match_fl=true&utm_sourc	**PEER REVIEWED**
576	**Hydrothermally Fabricated Bio-nanocomposite of Guar gum as a Promising Adsorbent for Reactive Green 19 Dye from**	Saya, L.; **Hooda, S.;** Singh, R. W.	Chemistry	International journal of innovative research in technology,	2022	2349-6002	https://ijirt.org/master/publishedpaper/IJIRT157412_PAPER.	https://ijirt.org/master/publishedpaper/IJIRT157412_PAPER.pdf	https://mjl.clarivate.com:/search-results?issn=1996-6814&hide_exact_match_fl=true&utm_sourc	**PEER REVIEWED**
577	**Bibliometric Analysis of Peer-Reviewed Literature on Stress Factors Affecting Agricultural Productivity.**	Sisodia, R.; **Sharma, R.**	Botany	Current Agriculture Research Journal, 10(3), 170-	2022	2347-4688	http://dx.doi.org/10.12944/CARJ.10.3.02	https://www.agriculturejournal.org/volume10number3/bibliometric-analysis-of-peer-	_	**UGC CARE**
578	**Impact of Covid-19 on Corporate Social Responsibility: A Study of Indian IT Sector.**	**Goel, S. K,**; Jain, S.	Commerce	Journal of Commerce and Management, 9(2), 101-	2022	2347-4440	https://doi.org/10.17492/jpi.manthan.v9i2.922206	https://www.indianjournals.com/ijor.aspx?target=ijor:mjcm&volume=9&issue=2&artic	_	**PEER REVIEWED**
579	**Phool: Journey from waste to wealth**	**Kaur, S.;** Bhagat, H.; Kaur, P.N	Commerce	Arthavaan, 5, 65-74.	2022	2455-0353	https://www.bharaticollege.du.ac.in/images/media/IM-6509-	_	_	**PEER REVIEWED**
580	**Phool: Journey from waste to wealth**	**Kaur, S.;** Bhagat, H.; Kaur, P.N	Commerce	Arthavaan, 5, 65-74.	2022	2455-0353	https://www.bharaticollege.du.ac.in/images/media/IM-6509-	_	_	**PEER REVIEWED**
581	**Phool: Journey from waste to wealth**	**Kaur, S.;** Bhagat, H.; Kaur, P.N	Commerce	Arthavaan, 5, 65-74.	2022	2455-0353	https://www.bharaticollege.du.ac.in/images/media/IM-6509-	_	_	**PEER REVIEWED**
582	**A Simulation-based Approach to Evaluate and Regulate the Reputation Score of a Software Agent in E-Market.**	Kochhar, S. K.; Soni, A.; Srivastava, S.; **Gaur, V.**	Computer Science	International Journal of Next-Generation Computing,	2022	0976-5034	https://doi.org/10.47164/ijngc.v13i3.788	https://ijngc.perpetualinnovation.net/index.php/ijngc/article/view/788	_	**PEER REVIEWED**

583	**Study the Effect of Modified Newtonian Force on the Restricted 3-body Configuration in Non-Linear Sense.**	Singh B.; Kumari, S.; **Prasad, S. N.**	Mathematics	Applications and Applied Mathematics: An Internation	2022	1932-9466	https://digitalcommons.pvamu.edu/aam/vol17/iss2/10/	https://digitalcommons.pvamu.edu/aam/vol17/iss2/10/	https://mjl.clarivate.com:/search-results?issn=1932-9466&hide_exact_match_fl=true&utm_sourc	**Web of Science**
584	**Measuring complexity and chaos in three species food chain system with the Beddington-Deangelis functional response.**	**Prasad, S. N.;** Saha, L. M.; Ansari, A. A.	Mathematics	Bulletin of the Allahabad mathematical society,	2022	0273-0979 / 1088-9485				**PEER REVIEWED**
585	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population.**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; Chauhan, B.;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
586	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population,**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; **Chauhan, B.**;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
587	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population,**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; **Chauhan, B.**;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
588	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population,**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; **Chauhan, B.**;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
589	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population,**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; **Chauhan, B.**;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
590	**Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population,**	Sneha, S.; Pranav; Shivam; Neha, R.; Vashishtha, K.; **Chauhan, B.**;	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.082	https://www.researchgate.net/publication/365233609_Post_COVID-19_Long_Term_E	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**

591	**Re-characterization of Potential Zoonotic Trematode Parasite Parasitizing Intestine of Snakehead Fish, (Channa**	Chauhan, B.; **Misra, M.;** Sharma, B.	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.059	https://www.researchgate.net/publication/364126895_Re-characterization_	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
592	**Re-characterization of Potential Zoonotic Trematode Parasite Parasitizing Intestine of Snakehead Fish, (Channa**	Chauhan, B.; Misra, M.; **Sharma, B.**	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.059	https://www.researchgate.net/publication/364126895_Re-characterization_	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
593	**Impact of Climatic Change on Respiratory Health.**	Jain, R.; Aryama, P.; **Chauhan, B.;** Misra, M.; Saxena, T.	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.115	https://www.researchgate.net/publication/366684164_Impact_of_climatic_change_o	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
594	**Impact of Climatic Change on Respiratory Health.**	Jain, R.; Aryama, P.; Chauhan, B.; **Misra, M.;** Saxena, T.	Zoology	International Journal of Zoological Investigations, 8(2),	2022	2454-3055	https://doi.org/10.33745/ijzi.2022.v08i02.115	https://www.researchgate.net/publication/366684164_Impact_of_climatic_change_o	https://mjl.clarivate.com:/search-results?issn=2454-3055&hide_exact_match_fl=true&utm_sourc	**Web of Science**
595	**PCR primer design for mitochondrial cox-1 gene from Clinostomum complanatum towards diagnosis.**	**Misra, M.;** Chauhan, B.; Km, D.; Madhuri, A,; Sharma, B.	Zoology	Bioinformation 18(9), 831-833.	2022	0973-2063	https://doi.org/10.6026/97320630018831	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10326325/pdf/97320630018831.pdf	_	**PEER REVIEWED**
596	**PCR primer design for mitochondrial cox-1 gene from Clinostomum complanatum towards diagnosis.**	Misra, M.; **Chauhan, B.**; Km, D.; Madhuri, A,; Sharma, B.	Zoology	Bioinformation 18(9), 831-833.	2022	0973-2063	https://doi.org/10.6026/97320630018831	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10326325/pdf/97320630018831.pdf	_	**PEER REVIEWED**
597	**A Literature Review on Reckless and Hazardous Contraceptive Practices used since Primeval Times.**	**Chauhan, B.; Misra, M.;**	Zoology	Indian Journal of Natural Sciences, 13, 44976-	2022	0976-0997	https://www.researchgate.net/publication/362540479_A_Lit	https://www.researchgate.net/publication/362540479_A_Literature_Review_on_Rec	https://mjl.clarivate.com:/search-results?issn=0976-0997&hide_exact_match_fl=true&utm_sourc	**Web of Science**
598	**A Literature Review on Reckless and Hazardous Contraceptive Practices used since Primeval Times,**	Chauhan, B.; **Misra, M.;**	Zoology	Indian Journal of Natural Sciences, 13, 44976-	2022	0976-0997	https://www.researchgate.net/publication/362540479_A_Lit	https://www.researchgate.net/publication/362540479_A_Literature_Review_on_Rec	https://mjl.clarivate.com:/search-results?issn=0976-0997&hide_exact_match_fl=true&utm_sourc	**Web of Science**

599	**Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior**	**Chauhan, B.;** Baweja, V.; Misra, M.;	Zoology	Indian Journal of Natural Sciences, 13, 48415-	2022	0976-0997	https://www.researchgate.net/publication/364310786_Role	https://www.researchgate.net/publication/364310786_Role_of_A_Evolutionary_Cons	https://mjl.clarivate.com:/search-results?issn=0976-0997&hide_exact_match_fl=true&utm_sourc	**Web of Science**
600	**Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior**	Chauhan, B.; Baweja, V.**;** **Misra, M.;**	Zoology	Indian Journal of Natural Sciences, 13, 48415-	2022	0976-0997	https://www.researchgate.net/publication/364310786_Role	https://www.researchgate.net/publication/364310786_Role_of_A_Evolutionary_Cons	https://mjl.clarivate.com:/search-results?issn=0976-0997&hide_exact_match_fl=true&utm_sourc	**Web of Science**
601	**Monkeypox: Endemic to Epidemic A review of the current scenario of Monkeypox disease outbreak.**	Thakur, M.; **Bhardwaj, S.**; Singh, J.	Zoology	International Journal for Research Trends and	2022	2456-3315	https://ijrti.org/papers/IJRTI2206295.pdf	https://ijrti.org/papers/IJRTI2206295.pdf	https://mjl.clarivate.com:/search-results?issn=2386-4303&hide_exact_match_fl=true&utm_sourc	**Web of Science**
602	**In vitro micropropagation of *Acacia holosericea* a. cunn. ex g. don through cotyledons.**	**Narang, A.**	Botany	Intl. J. Multidisc. Edu. Res, 11(7), 70-75	2022	2277-7881	http://ijmer.in.doi./2022/11.01.135	http://s3-ap-southeast-1.amazonaws.com/ijmer/pdf/volume11/volume11-	_	**PEER REVIEWED**
603	**Axenic propagation of a woody legume - Prosopis cineraria (L.) Duce through cotyledonary node explants**	**Narang, A**. and Shukla, A.	Botany	Intl. J. Multidisc. Edu. Res, 11(2), 16-21	2022	2277-7881	http://ijmer.in.doi./2022/11.02.03	http://s3-ap-southeast-1.amazonaws.com/ijmer/pdf/volume11/volume11-	_	**PEER REVIEWED**
604	**Synthesis, Characterization and Application of Novel Guar Gum-N,N-Dimethylaniline Resin for Waste Water Treatment.**	Raigar, M. B.**,** **Hooda, S.,** and Bargujar, S.	Chemistry	International Journal of Recent Scientific Research,	2022	0976-3031	0.24327/IJRS	https://www.recentscientific.com/sites/default/files/17775-A-2021.pdf	_	**PEER REVIEWED**
605	**Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior: An Empirical Analysis.**	Singh, A. K.**,** **Goel, S. K.,** Shrivastav, R. K., and Chahar, K.	Commerce	Arthshastra Indian Journal of Economics and	2022	2278 - 181	10.17010/aij	https://indianjournalofeconomicsandresearch.com/index.php/aijer/article/view/168	_	**PEER REVIEWED**
606	**Antibiotic Resistance: A Global Health Crisis**	Solanki, R., Anand, S., Anand, M., Kumar, P., Kumar, M. and	Zoology	Biosphere, 1: 1-70, Pg 3-11.	2022					**PEER REVIEWED**

607	**Antibiotic Resistance: A Global Health Crisis**	Solanki, R., Anand, S., Anand, M., Kumar, P., Kumar, M. and	Zoology	Biosphere, 1: 1-70, Pg 3-11.	2022					**PEER REVIEWED**
608	**Antibiotic Resistance: A Global Health Crisis**	Solanki, R., Anand, S., Anand, M., Kumar, P., Kumar, M. and	Zoology	Biosphere, 1: 1-70, Pg 3-11.	2022					**PEER REVIEWED**
609	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**
610	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**
611	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**
612	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**
613	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**
614	**Role of abiotic and biotic components in remediating environmental pollutants: A review**	Somasundaram, S., Dagar, J., Abraham, J. S., Maurya, S., Sandeep,	Zoology	Microsphere, 1: 1-70, Pg 49-60	2022	2583-5327	10.59118/SDBZ7071	https://www.researchgate.net/publication/369178502_Role_of_abiotic_and_biotic_c	_	**PEER REVIEWED**

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Issue 16, 2017

From the journal:
Green Chemistry

One-pot and catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates †

Xiaofeng Zhang,[a] Gagan Dhawan,[ab] Alex Muthengi,[a] Shuai Liu,[a] Wei Wang,[c] Marc Legris[a] and Wei Zhang *[a]

Author affiliations

Abstract

A method for the catalyst-free synthesis of pyrroloquinolinediones and quinolinedicarboxylates is developed through a one-pot synthesis involving denitrogenation of azide, benzisoxazole formation, aza-Diels–Alder cycloaddition, and dehydrative aromatization. Only stoichiometric amounts of N_2 and H_2O are produced as by-products. A comprehensive green chemistry metrics analysis indicated that this method is much more efficient and greener than two reported methods for the synthesis of pyrroloquinolinediones.

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A robust replenishment model for deteriorating items considering ramp-type demand and inflation under fuzzy environment

Archana Sharma, Usha Sharma and Chaman Singh

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ABOUT

Abstract

Supply chain performance directly depends on demand pattern, inventory management and control strategies of organisations apart from other supply chain activities. Effective replenishment policy can increase the performance of logistics and supply chain activities and customer satisfaction. Optimal inventory model can also reduce overall replenishment cost and improve financial performance of the organisation. This study focuses on developing a replenishment model for deteriorating products with ramp-type demand rate under the consideration of inflation and partial backlogging. The nature of the demand function is a piecewise exponential function. The proposed model is developed under fuzzy environment, which can easily handle uncertainty and impreciseness associated with parameters. The illustrative numerical example has given in crisp as well as in fuzzy sense to demonstrate the solution procedure for the proposed approach. Sensitivity analysis is also performed to check the robustness of the proposed model.

Keywords

supply chain, inventory model, ramp-type demand rate, inflation, partial backlogging, fuzzy

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Supply Chain Model with Two Storage Facility for Stock Dependent Demand Incorporating Learning and Inflationary Effect under Crisp and Fuzzy Environment

Chaman Singh, Shiv R. Singh

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Abstract

In this paper, a supply chain model with power form stock-dependent demand rate is developed, incorporating the effect of learning and inflationary environment. In order to bring their research closer to reality, all the cost parameters involved in the model are considered fuzzy in nature. The demand rate is assumed to be a polynomial form of current inventory level in Own-warehouse. To display the items, retailer has one warehouse of finite capacity, treated as own warehouse (OW) and may hire another warehouse of large capacity, treated as rented warehouse (RW) to storage the excess inventory. Learning effect is incorporated on retailer's selling price, purchasing cost, part of holding cost, deterioration cost and ordering cost. Proposed model is illustrated with some numerical example along with sensitivity analysis of parameters.

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Acta Ecologica Sinica
Volume 38, Issue 5, October 2018, Pages 325-328

Inhibition of gut proteases and development of dengue vector, *Aedes aegypti* by *Allium sativum* protease inhibitor

Tooba Naz Shamsi [a], Romana Parveen [a], Afaque Ahmad [b], Roopa Rani Samal [c], Sarita Kumar [c], Sadaf Fatima [a]

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Abstract

The paper describes the bio efficacy of a protease inhibitor; isolated from *Allium sativum* '*garlic*' (ASPI); against Aedes aegypti mosquito, a well-known transmitter of dengue and Chikungunya. The purification of protease inhibitor from *Allium sativum* '*garlic*' (ASPI) was carried out by ammonium sulfate precipitation followed by Fast Protein Liquid Chromatography using akta DEAE-Cellulose column. The protein fraction demonstrating trypsin inhibitory activity was further evaluated for its insecticidal activity using gut protease inhibition assay and larvicidal assay. ASPI is an inhibitor of porcine trypsin (IC_{50} of 650.726 μg/mL) and has molecular weight of ~15 kDa determined by SDS PAGE similar to other inhibitors of the Kunitz-type family (14–26 kDa). ASPI demonstrated 50% reduced activity of *Ae. aegypti* midgut proteases and showed a dose-dependent acute toxicity on *Ae. aegypti* 3rd instars exhibiting LC_{50} value of ~50.827 μg/mL. After ten days of larval exposure ASPI resulted in a 24-h delay of larval development and ~72% mortality at 61.5 μg/mL. These results suggest that ASPI may serve as potent insecticida

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Assessment of *Achyranthes aspera* induced toxicity and molecular analysis of RAPD-PCR profiles of larval genomic DNA of *Aedes aegypti* L. (Diptera: Culicidae)

Aarti Sharma, Sarita Kumar & Pushplata Tripathi

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Abstract

Current studies investigated the anti-mosquito potential of *Achyranthes aspera* against the dengue vector, *Aedes aegypti*. The stems and leaves of *A. aspera* were extracted in hexane and evaluated for their toxicity against early fourth instars of *A. aegypti*. The larvicidal efficacy of the extract was validated as per WHO protocol. The mortality counts were made after 24 h and LC values were calculated at different levels. The adverse impact of extracts was also explored on the larval genomic DNA. The larvae were exposed to extracts at LC_{50} levels and the alterations in *g*-DNA was evaluated through RAPD-PCR technique using three random primers; MA-09, MA-12 and MA-26. Our investigations ascertained the larvicidal efficacy of both the leaf and stem extracts of *A. aspera* resulting in respective LC_{50} values of 0.068 and 0.082 mg/mL. The extracts also caused variable genotoxic effects with significant changes in the RAPD profiles. The results showed appreciable modifications in larval *g*-DNA with loss of certain bands and gain of unique bands with 82.35% DNA polymorphism. These alterations suggest the probable DNA damage and mutations in the larval *g*-DNA caused by certain phytocomponents which could be the possible reason of larval mortality. Our studies evidenced the anti-mosquito potential of *A. aspera* extracts against *A. aegypti* causing appreciable larval mortality and significant changes in *g*-DNA. The *A. aspera* extracts are suggested as efficient and eco-friendly control agent against *A. aegypti*, yet further investigations are needed to identify the bioactive constituent and ascertain its effectiveness in the field conditions.

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A facile and rapid method for green synthesis of *Achyranthes aspera* stem extract-mediated silver nano-composites with cidal potential against *Aedes aegypti* L.

Aarti Sharma [a], Sarita Kumar [b], Pushplata Tripathi [a]

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Abstract

Aedes aegypti L. is the primary vector associated with transmission of globally concerned diseases; Zika, yellow fever, dengue and Chikungunya. Present study investigates an efficient, alternative and comparative approach for mosquito control which is safe to environment and non-target organisms. The silver nano-composites (AgNCs) were synthesized from the aqueous stem extract of *Achyranthes aspera* (AASE) using different concentration of aqueous silver nitrate ($AgNO_3$). The synthesis was tracked by UV-vis spectrophotometer and particle size analyser (DLS). The evaluation of their larvicidal potential against early fourth instars of *Ae. aegypti* showed significant potency, the toxicity increasing with the concentration of silver nitrate. The 24, 48 and 72 h bioassays resulted in respective LC_{50} values of 26.693, 1.113 and 0.610 μg/mL (3 mM AASE-$AgNO_3$) 9.119, 0.420 and 0.407 μg/mL (4 mM AASE-$AgNO_3$) and that of 4.283, 0.3 and 0.248 μg/mL (5 mM AASE-$AgNO_3$). Keeping in view the significantly high larvicidal efficiency at lower concentration of silver nitrate, the 4 mM nano-composites were selected over 5 mM composites for further biophysical characterization carried out by X-ray Diffraction (XRD), Fourier transform infrared spectrometer (FTIR), Scanning electron microscopy (SEM), Energy dispersive X-ray (EDX) spectroscopy and Transmission electron microscopy (TEM). SEM and TEM confirmed the synthesis of spherical poly-dispersed AgNCs with average size ranging from 1–30 nm. Characterization through XRD showed the crystalline face-centered-cubic (fcc) structure of AgNCs with the highest intense peak obtained at 2θ value of 31.82°. FT-IR data suggests complex nature of AgNCs showing clearly defined peaks in different ranges. The present investigations recommend AgNCs of *A. aspera* stems as a low-cost and eco-friendly alternative to chemical insecticides for mosquito control.

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Aarti Sharma [a], Sarita Kumar [b], Pushplata Tripathi [a]

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Abstract

Aedes aegypti L. is the primary vector associated with transmission of globally concerned diseases; Zika, yellow fever, dengue and Chikungunya. Present study investigates an efficient, alternative and comparative approach for mosquito control which is safe to environment and non-target organisms. The silver nano-composites (AgNCs) were synthesized from the aqueous stem extract of *Achyranthes aspera* (AASE) using different concentration of aqueous silver nitrate ($AgNO_3$). The synthesis was tracked by UV-vis spectrophotometer and particle size analyser (DLS). The evaluation of their larvicidal potential against early fourth instars of *Ae. aegypti* showed significant potency, the toxicity increasing with the concentration of silver nitrate. The 24, 48 and 72 h bioassays resulted in respective LC_{50} values of 26.693, 1.113 and 0.610 μg/mL (3 mM AASE-$AgNO_3$) 9.119, 0.420 and 0.407 μg/mL (4 mM AASE-$AgNO_3$) and that of 4.283, 0.3 and 0.248 μg/mL (5 mM AASE-$AgNO_3$). Keeping in view the significantly high larvicidal efficiency at lower concentration of silver nitrate, the 4 mM nano-composites were selected over 5 mM composites for further biophysical characterization carried out by X-ray Diffraction (XRD), Fourier transform infrared spectrometer (FTIR), Scanning electron microscopy (SEM), Energy dispersive X-ray (EDX) spectroscopy and Transmission electron microscopy (TEM). SEM and TEM confirmed the synthesis of spherical poly-dispersed AgNCs with average size ranging from 1–30 nm. Characterization through XRD showed the crystalline face-centered-cubic (fcc) structure of AgNCs with the highest intense peak obtained at 2θ value of 31.82°. FT-IR data suggests complex nature of AgNCs showing clearly defined peaks in different ranges. The present investigations recommend AgNCs of *A. aspera* stems as a low-cost and eco-friendly alternative to chemical insecticides for mosquito control.

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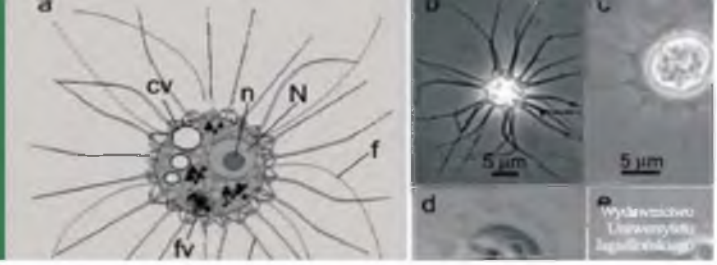

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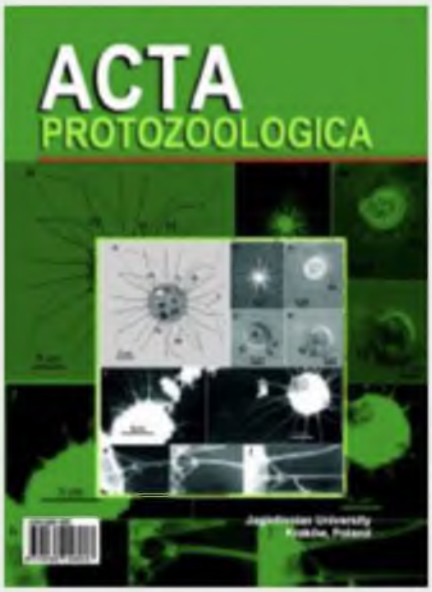

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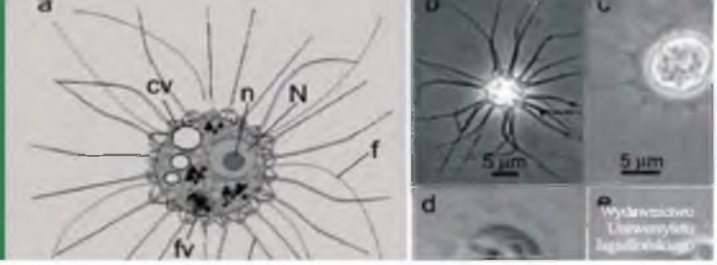

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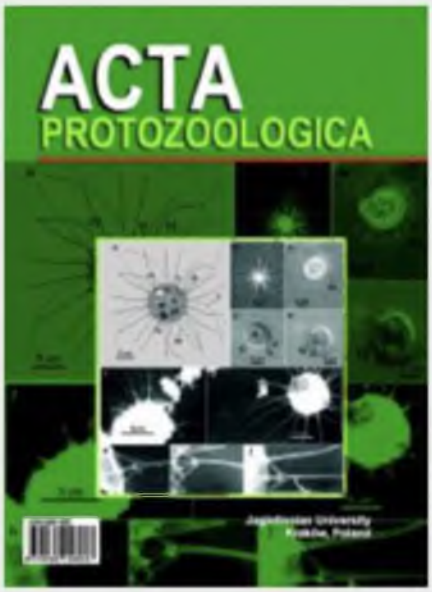

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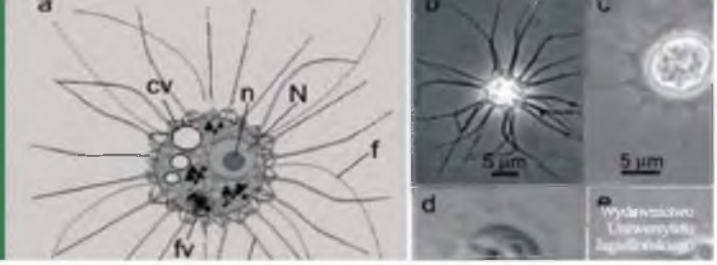

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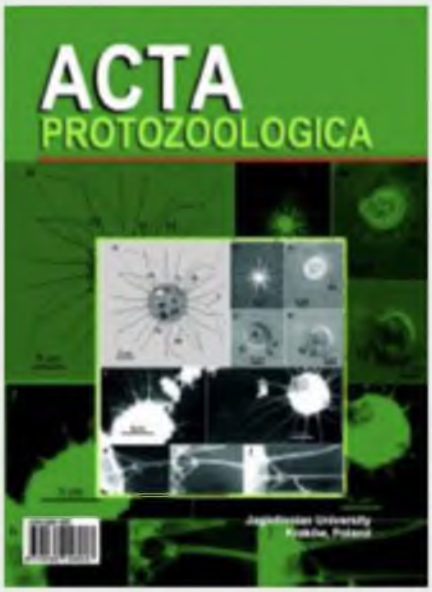

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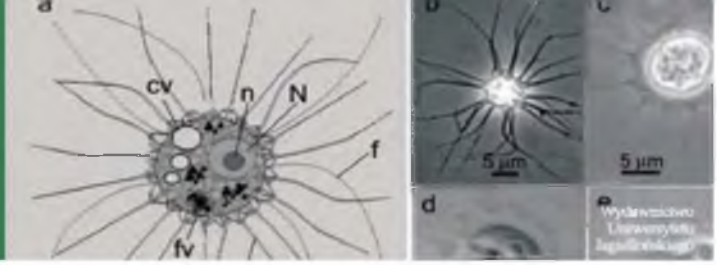

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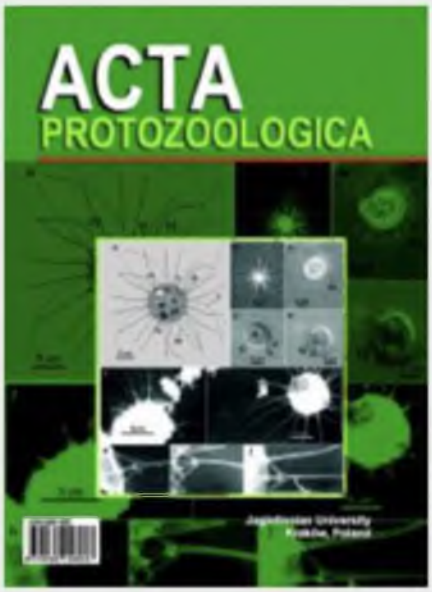

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HAYATI Journal of Biosciences
Volume 24, Issue 4, October 2017, Pages 215-220

Original Research Article

Diversity and Abundance of Ammonia-Oxidizing Bacteria and Archaea in a Freshwater Recirculating Aquaculture System

Cherita Devi Khangembam [1], Jai Gopal Sharma [2], Rina Chakrabarti [1]

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Abstract

The role of ammonia-oxidizing bacteria and archaea was evaluated using *amoA* gene in a freshwater recirculating system. Broken earthen pot pieces (BEP) were used as filter bed material. Five archaeal and four bacterial operational taxonomic units were retrieved from *amoA* genes. Shannon-Weiner and Simpson indices were higher in archaeal *amoA* sequence compared with the bacteria. Subtype diversity ratio and subtype diversity variance were 0.522 and 0.008, respectively, for archaea and 0.403 and 0.015, respectively, for bacteria. In archaea, 50% *amoA* sequences showed 99%–100% similarity with the known sequences of ammonia monooxygenase subunit A of uncultured archaeon clones and thaumarchaeote. In bacteria, 84% sequences showed 99% similarity with *amoA* sequences of different uncultured bacterial clone and Nitrosomonadaceae. Absolute quantification showed that the abundance of archaea was 12-fold higher compared with bacteria. In this recirculating system, ammonia-oxidizing archaea and bacteria played a major role; BEP supported the growth of these ammonia-oxidizing microorganisms.

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Beyond the "Code": A Guide to the Description and Documentation of Biodiversity in Ciliated Protists (Alveolata, Ciliophora)

Alan Warren, David J. Patterson, Micah Dunthorn, John C. Clamp, Undine E.M. Achilles-Day, Erna Aescht, Saleh A. Al-Farraj, Saleh Al-Quraishy, Khaled Al-Rasheid, Martin Carr, John G. Day ... See all authors

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Abstract

Recent advances in molecular technology have revolutionized research on all aspects of the biology of organisms, including ciliates, and created unprecedented opportunities for pursuing a more integrative approach to investigations of biodiversity. However, this goal is complicated by large gaps and inconsistencies that still exist in the foundation of basic information about biodiversity of ciliates. The present paper reviews issues relating to the taxonomy of ciliates and presents specific recommendations for best practice in the observation and documentation of their biodiversity. This effort stems from a workshop that explored ways to implement six Grand Challenges proposed by the International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC). As part of its commitment to strengthening the knowledge base that supports research on biodiversity of ciliates, the IRCN-BC proposes to populate *The Ciliate Guide*, an online database, with biodiversity-related data and metadata to create a resource that will facilitate accurate taxonomic identifications and promote sharing of data.

THE nomenclature of ciliates and other heterotrophic protists (sensu Adl et al. 2012) is governed by the International Code of Zoological Nomenclature ("the Code") that provides rules for naming taxa up to the level of family (ICZN 1999). The Code regulates nomenclatural issues, and it also establishes minimal standards for documenting newly described species. These are deliberately general and suited more to the study of animals than protists. In particular, the rule to deposit type specimens in permanently curated repositories (ICZN 1999, Art. 16.4.2 and Art. 75.3.7) has, over time, generated a database of material that not only has fixed names but also has formed the nucleus of large museum collections. These collections provide a wealth of information about the variability and biogeography of species and represent a potential source of DNA for investigations of molecular phylogenetics.

For ciliates and many other protists, the logistical difficulties imposed by their small size meant there was no convention for depositing type specimens until the latter part of the 20th century, when deposition of permanently stained preparations or other physical specimens (e.g. on SEM stubs) began to be required as type material for taxonomic descriptions or redescriptions. In addition, new methods of visualizing morphology and sequencing genes have been introduced over the last several decades, but there are no formal standards for application of these methods to taxonomic identifications or descriptions of ciliates, despite recent recommendations (Aescht 2001, 2008; Foissner 2002; ICZN 1999; Lynn and Simpson

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Assessment of heavy metal toxicity in four species of freshwater ciliates (Spirotrichea: Ciliophora) from Delhi, India

Jeeva Susan Abraham[1], S. Sripoorna[1], Ashish Choudhary[1], Ravi Toteja[1], Renu Gupta[2], Seema Makhija[1,*] and Alan Warren[3]

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[2]Maitreyi College, University of Delhi, Delhi 110 021, India
[3]Department of Life Sciences, Natural History Museum, London, SW7 5BD, UK

In vitro **laboratory experiments were conducted to determine the toxicity (per cent survival and LC_{50}) of essential and non-essential heavy metals (cadmium, copper, nickel, lead and zinc) in four spirotrich ciliates: *Euplotes* sp., *Notohymena* sp., *Pseudourostyla* sp. and *Tetmemena* sp. isolated from three different freshwater ecosystems in the Delhi region, India. The toxicity of the heavy metals was found to vary among the different ciliates. Copper was most toxic (24 h-LC_{50} value ranged between 0.125 and 0.74 mg/l) and zinc was least toxic (24 h LC_{50} value ranged between 46.98 and 144.32 mg/l) to each of the ciliates. Of the four ciliates, *Notohymena* sp. had the highest tolerance limit to three heavy metals (Cu, Cd and Pb) out of the five tested. This study shows the high potentiality of using freshwater ciliates for monitoring the intensity and potency of ecological damage caused by heavy metals in aquatic ecosystems.**

Keywords: Ciliates, freshwater, heavy metals, toxicity.

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*For correspondence (e-mail: seemamakhija@andc.du.ac.in)

Toxicity of various heavy metals can be studied using ciliated protists[8–10]. These eukaryotic microorganisms are found in a variety of trophic niches, have generation time of 3–7 h and many are easy to culture *in vitro*[11]. Ciliates share a higher degree of functional and genetic similarities with humans than bacteria or yeast (microbial eukaryotic model organism)[12–14]. All these properties make them suitable candidates both for eco-toxicological studies and for monitoring water quality[15–17].

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Materials and methods

Study area

Delhi is located in northern India. It is bordered by the states of Haryana to the north, west and south, and Uttar Pradesh (UP) to the east. Prominent features of the geography of Delhi include the floodplains of River Yamuna. In the present study three sites were selected in different ecological regions of Delhi.

Site 1: Okhla Bird Sanctuary (28.5700°N, 77.3023°E): This is a bird sanctuary at the Okhla Barrage over the Yamuna. The site is located at the point where the river exits Delhi and enters UP. The most prominent feature of the sanctuary is the large lake created by a dam over the

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Site 1: Okhla Bird Sanctuary (28.5700°N, 77.3023°E): This is a bird sanctuary at the Okhla Barrage over the Yamuna. The site is located at the point where the river exits Delhi and enters UP. The most prominent feature of the sanctuary is the large lake created by a dam over the

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In vitro **laboratory experiments were conducted to determine the toxicity (per cent survival and LC_{50}) of essential and non-essential heavy metals (cadmium, copper, nickel, lead and zinc) in four spirotrich ciliates: *Euplotes* sp., *Notohymena* sp., *Pseudourostyla* sp. and *Tetmemena* sp. isolated from three different freshwater ecosystems in the Delhi region, India. The toxicity of the heavy metals was found to vary among the different ciliates. Copper was most toxic (24 h-LC_{50} value ranged between 0.125 and 0.74 mg/l) and zinc was least toxic (24 h LC_{50} value ranged between 46.98 and 144.32 mg/l) to each of the ciliates. Of the four ciliates, *Notohymena* sp. had the highest tolerance limit to three heavy metals (Cu, Cd and Pb) out of the five tested. This study shows the high potentiality of using freshwater ciliates for monitoring the intensity and potency of ecological damage caused by heavy metals in aquatic ecosystems.**

Keywords: Ciliates, freshwater, heavy metals, toxicity.

THERE is a global increase in the concentration of heavy metals in the environment mainly due to anthropogenic activities and India is no exception to this[1]. Although some heavy metals are essential micronutrients, all may be toxic if present in sufficiently high concentration in a bioavailable form, mainly as a result of metabolic interference and mutagenesis. The presence of heavy metals in aquatic environments is a major concern because of their threat to plant and animal life, thus disturbing the natural ecological balance[2]. Many freshwater ecosystems, including lakes, ponds, rivers and reservoirs are exposed to heavy metal contamination from a range of sources, primarily wastewater discharges from industry and households[3,4]. Most of the heavy metals have a long half-life and cannot be degraded, but may instead bio-accumulate throughout the food chain leading to physiological stress causing ecological disturbance[5–7].

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Toxicity of various heavy metals can be studied using ciliated protists[8–10]. These eukaryotic microorganisms are found in a variety of trophic niches, have generation time of 3–7 h and many are easy to culture *in vitro*[11]. Ciliates share a higher degree of functional and genetic similarities with humans than bacteria or yeast (microbial eukaryotic model organism)[12–14]. All these properties make them suitable candidates both for eco-toxicological studies and for monitoring water quality[15–17].

In the present study, we assess the toxicity of essential (Cu and Zn) and non-essential (Cd, Ni and Pb) heavy metals on ciliated protists isolated from three different freshwater ecosystems (river, lake and pond) in the Delhi region, India. The diversity of free-living ciliates in the study sites was observed for a period of one year. The most frequently encountered ciliate species were from four genera, namely *Euplotes*, *Notohymena*, *Pseudourostyla* and *Tetmemena* (Figure 1) and all were easily cultured under laboratory conditions. Toxicity assays were carried out *in vitro* in order to determine the sensitivity and survival of *Euplotes* sp., *Notohymena* sp., *Pseudourostyla* sp. and *Tetmemena* sp. to different doses of heavy metals.

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Heavy metals increase reactive oxygen species (ROS) production and eventually induce oxidative stress in both aquatic and terrestrial organisms[1-6]. Heavy metals with redox activity (Fe, Cu) are directly involved in ROS production by Fenton/Haber-Weiss reaction or by autoxidation. Also, metals with non-redox activity (Cd, Zn, Hg) can produce ROS indirectly by blocking the cellular antioxidant defenses[7,8]. ROS (such as superoxide radicals, hydrogen peroxides and hydroxyl ions) are involved in various pathological processes including lipid peroxidation[9,10]. These radicals cause much of the tissue damage resulting from inflammation and can eventually induce cell death by apoptosis/ necrosis[10,11]. Cells under oxidative stress show various dysfunctions due to significant changes caused by ROS on proteins, DNA and cellular lipids[2,11]. Various anti-oxidant enzymes (such as superoxide dismutase, ascorbate peroxidase, catalase glutathione peroxidase and peroxiredoxin) are known to be involved in ROS detoxification (Fig. 1) and in protecting the cells from oxidative stress[7,12].

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Superoxide dismutase (SOD), which gets activated in response to oxidative stress at first, plays a major role in catalyzing the dismutation of superoxide anion ($O_2^{\cdot-}$) into O_2 and H_2O_2[13,14]. SOD exists in several isoforms including cytosolic copper-zinc SOD (SOD-1), mitochondrial manganese SOD (SOD-2)[15] and extracellular/chloroplast iron SOD (SOD-3)[14,16].

A major hydrogen peroxide (H_2O_2) detoxifying system in the cells is ascorbate-glutathione cycle, where ascorbate peroxidase (APx) plays a key role in catalyzing H_2O_2 into H_2O using ascorbate as a specific electron donor[12]. GSH is a tripeptide (L-γ-glutamyl-L-cysteinylglycine) synthesized in two consecutive steps catalyzed by γ-glutamyl-cysteine synthase and glutathione synthetase[17]. GSH also acts as substrate for glutathione peroxidase (GPx) to catalyze hydrogen peroxide[7]. Changes in these antioxidant enzymes including ASC-GSH cycle enzymes have been observed in various organisms exposed to different abiotic stress including heavy metals. Overexpression of any of these enzymes by a particular organism has shown higher resistance to the abiotic stress as compared to the organisms under-expressing these enzymes[18,19]. Studies on heavy metal induced oxidative stress and generation of ROS have

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Int. Res. J. Environment Sci., **Volume 6, Issue (2),** Pages 14-18, February,22 **(2017)**

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Distinct detection of liquor ammonia by ZnO/SAW sensor: Study of complete sensing mechanism

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Abstract

ZnO/SAW sensor was reported to give distinct response towards liquor ammonia. To study the complete mechanism, ZnO thin films (40 nm) were deposited using rf sputtering in different reactive gas composition of argon and oxygen. The increase in oxygen content (30–100%) during film growth leads to decrease in the value of stress and bond energy. The individual contribution of different SAW sensing mechanisms such as mass loading, elastic effects and acousto-electric interaction, was evaluated and analyzed to understand the distinct response for liquor ammonia. It was found that mass loading seems to get affected by the presence of stress whereas elastic loading was affected by the crystallite size and bond energy (Zn—O) in ZnO thin films.

Sensitivity Enhancement Studies of SAW Vapor Sensor by Oscillator Tuning Using Varactor Diode

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Metrics

Abstract:

This paper reports the designing of surface acoustic wave (SAW) oscillator with varactor diode (or varicap) as a part of tuning element. A practical way to enhance sensitivity of SAW sensor oscillator is performed by tuning capacitance using varicap. The varactor diode is placed at three different locations of the oscillator circuit to realize three different configurations. The change in frequency with applied voltage to varactor diode is studied for all three configurations. Sensitivity study for the three configurations is carried out with di-methyl methyl phosphonate vapor. The sensitivity, stability, and noise of each configuration are analyzed. Using varicap, about six times enhancement in sensitivity (~1.15 kHz/ppm) could be achieved. A simple and additive electronic method of tuning is utilized to improve sensitivity as compared with other methods that involve major changes in the sensor.

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Alterations in the Reactive Oxygen Species in Peripheral Blood of Chronic Myeloid Leukaemia Patients from Northern India

Sunita Jetly,[1] Neha Verma,[2] Kumar Naidu,[3] Muneeb Ahmad Faiq,[4] Tulika Seth,[5] and Daman Saluja[6]

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Abstract

Go to: ▸

Introduction

There is a significant difference in the Reactive Oxygen Species (ROS) levels of Chronic Myeloid Leukaemia (CML) patients before and during treatment with Tyrosine Kinase Inhibitors (TKIs). This is because high ROS levels support oncogenic phenotype of CML by inducing proliferation pathway and accumulation of further genetic mutations. Often the measurement is done on WBC or serum for ascertaining one type of ROS species, but measurement of global ROS in fresh whole blood will give more accurate estimation of ROS.

Article Details

An Analysis upon Various Strategies for Redesign and Direct Evolution of Enzyme Engineering | *Original Article*

— Sudha Vipin Sharma*, Sunita Hooda, in *Journal of Advances in Science and Technology* | *Science & Technology*

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ABSTRACT

Enzymes are biocatalysts evolved in nature to achieve the speed and coordination of nearly all the chemical reactions that define cellular metabolism necessary to develop and maintain life. The application of biocatalysis is growing rapidly, since enzymes offer potential for many exciting applications in industry. The advent of whole genome sequencing projects enabled new approaches for biocatalyst development, based on specialised methods for enzyme heterologous expression and engineering. The engineering of enzymes with altered activity, specificity and stability, using sitedirected mutagenesis and directed evolution techniques are now well established.

The use of enzymes in industrial applications has been recognised for providing clean processes with minimal impact on the environment. Enzyme engineering is undergoing the most profound and exciting transformation in its history. It promises unprecedented expansion in the scope and applicat[illegible]f modified or improved enzymes with desired physi[illegible]l catalytic properties. Two complementary strategies are cu[illegible]ly available: rational redesign and directed evolution. Although

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Comparative study of Removal of Cu and Pb from Aqueous Solution by using Rice Husk Ash as an Adsorbent

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Abstract:- The adsorption efficiency of Rice husk ash powder for the removal of Cu and Pb was studied as Rice husk ash consist of silica , alumina , mangnesium oxide , calcium oxide etc. The research is a batch scale experiment using different amount of adsorbent in solution with five different concentrations (5, 10, 15, 45,100 mg/L) of both metals and in mixed combination. About 92% to 100% Cu removal achieved by using 0.5 to 1.5 g adsorbent for solution having concentration of 5 and 10 mg/L of Cu. Two main things comes out by the above study, first, the adsorption efficiency depends on the amount of adsorbent as the adsorption efficiency of Pb was increased from 80% to 100% in the same solution (5mg/L). it was also found that adsorption efficiency decreased about 2.5 % and 5.8% of Cu and Pb to mixed metal solution, which clearly indicates that the presence of more metals in the solution will decrease the adsorption efficiency.

I. INTRODUCTION

The release of industrial effluents containing heavy metals to the river water causes several adverse effects. Water is essential to all forms of life and makes up 50-96 % of the weight of all plants and animals. It is also a vital resource for agriculture, manufacturing and other human activities. In urban areas, the careless disposal of industrial effluents and other wastes in rivers & lakes may contribute greatly to the poor quality of river water [1-4]. African countries and Asian countries experiencing rapid industrial growth and this are making environmental conservation a difficult task[5] . Heavy metals are dangerous environmental pollutants due to their toxicity and strong tendency to concentrate in environment and in food chains[6-7] . The source of environmental pollution with heavy metals is mainly industry, i.e. metallurgical, electroplating, metal finishing industries, tanneries, chemical manufacturing, mine drainage and battery manufacturing [8]. Considerable research been carried out over the last decade on the protection against plant and animal life degradation. Several big cities contribute to increase this problem, as they are sources of industrial effluents. In order to reduce the environmental pollution, a number of studies been considered to minimize the problems caused by the commonly employed treatment of metal bearing effluents [9-10]. Removal of metals from wastewater achieved principally by the application of several processes such as adsorption[6], sedimentation[11], electrochemical processes[12], ion exchange[13] ,cementation[14], coagulation/flocculation[15] , filtration and membrane processes[16] Chemical precipitation and solvent extraction[17-18] . Adsorption is the one of the important procedure for the removal of heavy metals from the environment because of strong affinity and high loading capacity. Moradabad also known as Brass City of India situated at a distance of 167 km from the national capital, New Delhi (NH 24), on the bank of river Ramganga and located at 28.830 N 780 E. It has an average elevation of 186 meters (610 feet) above sea level. The city has seen rapid industrialization during last few decades. The city is full of brass and steel industries. Most of these industries are in unorganized sector and thus have unplanned growth leaving to high degree of air, water and soil pollution[19-20] . The most of the industries are dumping their effluents in Ram Ganga River pass from the heart of the city. A large number of small-scale manufacturing units of brass been also situated in the heart of the city. As Copper, Zinc & Lead and its compounds used in brass industries, the continued intake of copper and lead by humans leads to severe diseases like mucosal irritation, depression and most dangerous lung cancer. Therefore, there is a considerable need to treat industrial effluents containing such heavy metals prior to discharge to protect public health. The metal needs to be removed from industrial effluents before discharge into the environment to minimize any impact on plant, animal and human beings. In the present study, adsorption potential of low cost adsorbent (Rice husk ash) towards Cu and Pb has been examined.

II. MATERIAL AND METHODS:

Adsorbents The RHA from Amrit Vanaspati Company Ltd Punjab, India. It was washed with distilled water until the pH was constant, dried in an oven at 105°C for 24 h. It was cooled in incubator and determined its size distribution by USA Standard Sieve (≤125, 125-250, 250-500 μm). The size distribution results are shown in Table 1. Thus, studied particle size was 250-500 μm. Preparation of Modified Rice Husk Ash

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Developing a Low Cost Activated Carbon from Agricultural Waste for the Removal of Heavy Metal from Contaminated Water

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Abstract

Rice husk ash is find out from the burning of agricultural waste material in paper industry due to it abundantly available in rice-producing countries. Activated carbon of rice husk (ACRH) was used to remove Cr(VI) from waste water. In this study we also use of the Batch process for study of the effect activated carbon of rice husk for Cr(VI) removal from aqueous solutions. In this paper we also studies of pH effect, contact time, adsorbent dose were examined. The removal decreased from 86.2 to 44.2% by increasing the Cr(VI) concentration from 1.5 to 5.0 mg/l. Removal, however, decreased from 80.0 to 42.2% by increasing the adsorbent particle size from 50 μm to 150 μm. The adsorbed dose of Cr(VI) tend to increase with the increase of pH. It has been found that low cost and high capabilities of the ACRH make it potentially attractive adsorbent for the removal of Cr (VI) from wastewater.

Keywords: Removal; Rice Husk ; Adsorption ; pH; water; Activated Carbon of rice husk etc.

INTRODUCTION

Chromium is an important heavy metal, and it is generally used in leather industry, electroplating, metal processing and paint and pigment. Removal of heavy metals by adsorption is an turn up field of research [5], Activated carbon is an effective adsorbent

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Sportsmen's energy package *Cordyceps sinensis*: Medicinal importance and responsible phytochemical constituents

AUTHOR(S): Yogesh Chandra Joshi, Mukesh Chandra Joshi, Vivek Chopra, Rakesh Kumar Joshi, Rajni Kant Sharma and Vikrant Kumar

ABSTRACT:

Yarsagumba (*Cordyceps sinensis*) is one of the world rarest fungal species that parasites on the body of a caterpillar of a moth and found underground of alpine grass at high altitude. The *Cordyceps sinensis* is known as "summer plant and winter insect" or "*half*-caterpillar-*half*-mushroom". This fungus used for various medicinal purposes, caring diseases and specially used as a food product in China and south Asian countries. It contains various biologically active pharmacophores which helps to maintain the health and body. Reports say that, the regular use of *Cordyceps*, is very useful for sportsperson to maintain their body balance, endurance, strength, and to make healthy body weight etc. On the basis of scientific and manmade facts, we tried to summarise, why *Cordyceps* is recommended to sport person as a physical booster. It contains various bioactive pharmacophores including essential oil, which are medicinally important. Thus body always looks for such type of dietary supplements.

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Online Signature Verification: A Review

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Abstract: *In past few decades Online Signature Verification have been employed in many applications such as security control, banking, law enforcement etc. A number of techniques have been proposed in the realization of reliable signature verification system such as Dynamic Time Wrapping (DTW), Hidden Markov Model (HMM), Support Vector Machine (SVM) and Neural Networks (NN)In this paper we have presented a review of research carried out in recent field of online signature verification and made a qualitative analysis of these state-of-the-art approaches.*
Keywords: *Signatures, Verification, fraudulence, feature Extraction, training, Forgery*

I. Introduction

Biometrics is the utilization of physiological traits (face, iris, and fingerprint) or behavioral traits (signature, voice) for the verification of an individual identity. Biometric based authentication system is a trustable alternative to the password-based security systems as it is relatively hard to be forgotten, stolen, or guessed.

Signature being a behavioural biometric it is mainly used in the banks to verify the checks and accounts. Unlike physiological biometrics, it is fraught with problem of change over a time and it is not difficult to forge. One of the main challenges in signature verification is related to the signature variability. While signatures from the same user show considerable differences between different captures (high intra-class variability), skilled forgers can perform signatures with high resemblance to the user's signature (low intra- class variability). Signature verification aims at using such properties for making reliable authentication. However the wide spread acceptance of the signature by the public makes it more suitable for certain lower-security authentication needs. However, signature verification is a challenging task due to practical constraints. For instance, MasterCard estimates a $450 million loss each year due to credit card fraud, likewise some billions of dollars being lost because of fraudulent encashment of checks. Reliable automatic signature verification could be a proper solution to reduce such losses since handwritten signatures are already involved in the credit card transactions and bank checks encashment.

1.1 The Signature Verification Modes

There are two modes to the signature verification depending on how the signatures are collected from a user.

Offline (static) Signature Verification: In this mode data is acquired by scanning handwritten signatures which are then processed as static images. The verification is based on these static signature images. This mode is useful in automatic verification of signatures obtained from bank checks and other paper documents.

Online (dynamic) Signature Verification: In this mode the signatures are captured by social hardware (e.g. smart pens or pressure sensitive tablets) which is capable of measuring dynamic properties of a signature in addition to the shape, while shape is the only information in offline signatures. Dynamic information (e.g. pen pressure) makes the signature more unique and more difficult to forge.

Applications of online signature verification include identity verification in payments using a credit card; authorization of computer users for accessing sensitive data or programs, authentication of individuals for accessing physical devices or buildings, and protection of small personal devices from unauthorized usage.

Online signature verification is more robust, reliable and accurate than offline signature verification as its dynamic properties make the process of forging an online signature more difficult. Therefore online signature has become an attractive biometric method as it facilitates the authentication of the internet transactions and contracts (e-commerce, e-banking, e-business, e-contract).

Need

Signature is a special characteristic of any person. By the help of signature we can identify the person. In today day to day life as we talk about the verification of any person, we normally verify them by two ways firstly by face and secondly by signature. In banking or security system the person is normally verified by his or her signature. Hence we can say that the signature is alternate way to identify the person. In most of the organizations, the signature is normally verified by their experts by matching old signature's samples.

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Comparative Analysis on Path Planning Algorithm's on Mobile Robot in Image Processing

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[2] Computer Science, ANDC,Delhi University,New Delhi, India

Abstract:- *This paper presents an analysis on different path planning algorithms for mobile robot in static environment. It investigates three well known path panning algorithms and compared their performance on the basis of their working parameters and the computation time to find the solution. It also finds the shortest distance for the static environment and compared the computational distance from start to goal point at different levels for all the three algorithms. It has been tested at different shape of the image and computational time and length for all the three algorithms and verified. Image processing places an important role in the field of mobile robot navigation. There are different methods are used for navigation. In this paper, we reviewed around 23 papers are briefly described the amount of existence of the work for each motion planning approach. This paper includes a comparative study using C++ based approach on mobile robot with respect to image processing. Showing how the behavior and activity of the research paper has taken a change towards the navigation processes which controls navigation using NFT , A*and D*Lite algorithms. It has been seen that many times the researchers use image processing technique for obstacle avoidance or it use singles from gesture control or it takes the help of smart phone with sensor to find the obstacle to reach the destination. Finally some open areas and challenging topics are discussed. There are many different algorithms developed for the path planning by researchers in the field of robotics, water based resources, navigation and internet based games. The algorithms used in this field is A*, D* Lite and NFT (neighbour finding technique). Here we compared three algorithms and established a comparison path based approach to differentiate both the algorithms. We used a grid search technique using A* algorithm and quad tree approach using neighbour finding technique algorithm and also we used a DDA algorithm to optimize the NFT based path planning approach and compared.*

Keywords: *Path Planning, Algorithms, Grid search, Quad Tree, NFT (Neighbour finding technique), D*Lite, Digital Differential Analyzer (DDA).*

I. INTRODUCTION

The field shortest path planning is closely related to robotics where as the algorithms used here applied in different fields as per the requirement. Planning mobile robot is a challenging task for mobile robot navigation and also researchers provided different approaches for the shortest path planning strategies in the field of mobile robot games and many more applications. Each plan has its own advantage and disadvantage the basic goal is to reach the robot from source to destination. Here we used grid search and quad tree based path planning method for path planning with the help of A* algorithm[3,16] , Neighbour finding method[6,7] and D* Lite[8] to verify the difference in their approach .Here we have presented a real image presented in the form of square picture shape and represented at different part of the block as shown in the fig1 (a, b, c).The boundary is taken as (80,80) and (400,500).In this paper we planned for robots for different algorithms. First we represent the image as a square of different size then embedded these different size images in the (80,80) and (400,500) screen size. After the design is proposed all used algorithms introduced and applied on the image to find the shortest path. These all are it are simulated and the result is compared.

II. THE APPROCH

The quadtree initially come up with [4] , It is an approach where the complete tree is represented as a square and the square is divided in to four sub branches of equal size ad shown in fig 1(a) as row1 and coum1(R1C1) and row1colum2(R1C2) and also the tree form in a said form that each node has four different quadrants as shown in fig 1(b,c) While dividing the [6] image into four quadrants each node has four sons each node represented with(R1C1,R1C2,R2C1,R2C2).

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IMPACT OF DDA OPTIMIZATION ON MOBILE ROBOT PATH PLANNING FOR MIXED IMAGE IN IMAGE PROCESSING

Rama Kanta Choudhury, Chandra Kanta Samal

ABSTRACT

Existing problem solving in the day to day environment requires computational intelligence. Path planning is one of the most important technologies in the navigation of the mobile robot, which should meet the optimization and real-time requests. The objective of the paper is to present a noble approach to find the efficient and effective path planning for mobile robot. Here first the image is located on the graph and then a quadtree is formed, according to the working space image with respect to the obstacle image. Then the NFT algorithm is used to obtain the shortest path from the start point to the goal point in the graph. Finally the DDA optimization algorithm is adopted to get the optimal path. Aiming at the shortcoming of the DDA algorithm which is easily plunging into the local minimum, DDA algorithm with NFT is put forward. The results of the simulation demonstrate the effectiveness of the proposed method, which can meet the real-time requests of the mobile robot's navigation. Here we have taken two different types of images, one square shape and other is mixed image of different shapes like triangle and circle. The working space is tested and result is verified using NFT Algorithm with DDA optimization.

KEYWORDS

DDA, Grid search, Quadtreee, NFT (Neighbour finding technique)

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Target Assignment in Robotics and its Distance Optimality Using DDA Optimization in Image Processing

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Keywords: DDA, Grid search, Quadtree, NFT (Neighbour finding technique)

ABSTRACT

Many difficult problems solving require computational intelligence. One of the major directions in artificial intelligence consists in the development of efficient computational intelligence algorithms, evolutionary algorithms, and neural networks. Some systems operate in isolation or cooperate with each other, some optimized techniques are used to resolve the mobile path planning, DDA is one of them. The behavior could emerge an intelligence called systems intelligence, and intelligence of a system. The shortest path planning approach and its optimization for the mobile robot in a static and dynamic environment are the major tasks in the field of Robotics. In the present day environment finding collision-free, the shortest path is the fundamental issue in the path planning. In the mobile robot, the processing time and reaching time is very important. The path time is to be reduced so that the complexity is reduced. During the process, it is found that few algorithms have its own advantages and disadvantages. Here we presented a DDA optimization technique for optimization.

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Mobile Robot Path Planning Approach: A Review

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Abstract

The shortest path planning approach and it's optimization for mobile robot in static and dynamic environment is the major task in the field of Robotics. In the present day environment finding collision free shortest path is the fundamental issue in the path planning. We have reviewed 100 papers on path finding technique in static and dynamic environment. Path planning in static environment is easy as compared to dynamic environment as in dynamic environment the obstacles are moving. Whereas optimizing the path is difficult in the static environment as well as in the dynamic environment. As per the timing is concerned, the path time is to be reduced so that the complexity is reduced. During the review process it is found that few algorithms have its own advantages and disadvantages as presented. Also a comparative study of different path planning techniques for static and dynamic environment is provided in this paper. The main focus in this review is to find the shortest path efficiently and effectively.

Keywords: *Path Planning, Algorithms, Grid search, Quad Tree, NFT (Neighbour finding technique), D*Lite*

1. Introduction

The survey is distributed into different sections as per our requirement, the main aim of this survey is to find the shortest path from source to destination with known and unknown environment in the presence of obstacles or when the obstacles come on the way. Mobile robots are authorized to move automatically from one point to other to reach their destination. They choose their own path to reach their destination without any hindrance with their preplanned path [1]. This paper provides a review of such papers based on their way to reach the target with the specified algorithms. Here we have reviewed many approaches and implemented. Efficient path planning approach is very important for mobile robot to follow the path. Here the main approach of the review is to find the different algorithms used and approached to find the shortest path from source to destination. Here the configuration of the robot is described by number of obstacles based on their position and sense of direction of the robot in the 2D and 3D environment [2]. A clear idea of planning and computing of collision free path is presented with given points with different algorithms. While reviewing papers we found that in mobile robot navigation, researchers used many algorithms out of which are A*, D* and D*Lite algorithm with grid search and quad tree methods [2][3][4][10][12][13]. ***The task of moving robots in mapped environments is a step by step approach; planning of the paths, optimal by certain criteria and controlling the robot to execute the planned paths. In this path planning, the task of finding a collision free path is to lead a robot from the initial configuration to the goal configuration among a set of obstacles. Generally, obstacles are modeled as polygons. The initial and the goal configurations are described by the***

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Architecture Based on Environmental Monitoring System using ZigBee Wireless Sensor Networks

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New Raipur, Chhattisgarh, India,

Abstract

Wireless Ad hoc sensor nodes are playing an important role in wireless data transmission infrastructure in various environmental monitoring systems. Due to its compact size and energy efficient structure these nodes can be successfully deployed in wireless Ad hoc infrastructure. Recent developments wireless sensor technologies have provided the environmental management systems with capabilities of real time remote environmental monitoring system. We propose system architecture for wireless sensor networks and a database model for handling and storing sensor data stream in real time. The ZigBee wireless sensor networks is useful especially in monitoring or detecting possible natural disasters and reporting on it almost at real-time. A web based application developed to enable remote online access to wireless sensor network data with interactive data retrieval and visualization functionalities. The advantage of modular architecture is minimizing the software upgrade down time and enables hardware reusability.

Keywords:- ZigBee Network, Wireless Sensor Network, Disaster, Modular Architecture, Database Model.

1. Introduction

A Wireless sensor network (WSN) is a self configured and infrastructure less wireless networks. It consists of a number of sensors nodes (few tens to thousands) working together to monitor a region to obtain data about the environment. There are two types of WSNs: structured and unstructured. Unstructured WSN contains dense collection of sensor nodes and often deployed in ad-hoc manner in the field. In an ad-hoc deployment, sensor nodes can be dropped from a plane and randomly into the target area. In structured WSN on the other hand, all or some of the sensor nodes are deployed in a pre-determined locations. Structured network has fewer nodes and can be deployed with lower network maintenance and management costs.

A wireless sensor network (WSN) to monitor physical or environmental conditions such as temperature, sound, pressure, vibration, pollutants and to cooperatively pass their data through the network to a main location, where the data can be observed and analyzed . Wireless sensor networks have application of fields such as climate control, environmental monitoring, military surveillance, structural health monitoring, medical diagnostics, disaster management and emergency response [4]. The sensor nodes can communicate among themselves using radio signals and they have limited processing speed, storage capacity and communication bandwidth. The ZigBee Wireless Networks based on the IEEE Standard 802.15.4 as specifications, this wireless sensor networks (WSN) consists of light-weight, low power and small size sensor nodes (SNs). They have ability to monitor, calculate and communicate wirelessly. A set of applications require simple wireless connectivity, relaxed throughput, very low power, short distance and inexpensive hardware e.g. Industrial, Agricultural, Vehicular, Residential, Medical etc. Global climate change and atmospheric warming is increasing the occurrence of extreme climate phenomenon with increasing severity, both in context of human living as well as economic losses.

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Low Power Consumption in ZigBee Wireless Networks: A Survey

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Abstract

The ZigBee technology is an IEEE 802.15.4 standard for data communications dealing with business and consumer devices. The ZigBee standard provides network, security and application support services operating on top of the IEEE 802.15.4 Medium Access Control (MAC) and Physical Layer wireless standard. ZigBee is a low-cost, low-power, wireless mesh networking standard. The low cost allows the technology to be widely deployed in wireless control and monitoring applications, the low power-usage allows longer life with smaller batteries, and the mesh networking which promises high reliability and larger range. In industry ZigBee is being used for next generation automated manufacturing, with small transmitters in every device on the floor, allowing for communication between devices to a central computer. This new level communication technology permits finely-tuned remote monitoring and manipulation.

Keywords:- *ZigBee, MAC, Wireless mesh networking, High reliability, Communication technology etc.*

I INTRODUCTION

The ZigBee technology is the wireless mesh networking standard created for connecting sensors, instrumentation and control systems. This is based on the IEEE 802.15.4 Standard and used in Wireless Personal Area Networks (WPANs) for high level communication. This technology is created by the ZigBee Alliance. Wireless sensor networks (WSN) consists of light-weight, low power and small size sensor nodes (SNs) [3]. They have ability to monitor, calculate and communicate wirelessly. The ZigBee Alliance organized as an independent, neutral and non profit corporation in 2002, it is open and global and any one can join and participate, membership is global. An organization with a mission to define reliable, cost effective, low-power, wirelessly networked, monitoring and control products based on an open global standard. Alliance provides interoperability, certification testing, and branding [15].

IEEE 802.15.4 is a standard which specifies the physical layer and media access control for low-rate wireless personal area networks (LR-WPANs). It is maintained by the IEEE 802.15 working group, which defined it in 2003 [3]. IEEE standard 802.15.4 as specifications for low-data-rate wireless connectivity with fixed, portable, and moving devices with no battery or very limited battery consumption requirements typically operating in the personal operating space (POS) of 10m [15]. It is foreseen that, depending on the application, a longer range at a lower data rate. The ZigBee wireless networks targets the application domain of low power, low duty cycle and low data rate requirement devices. Figure-1 below shows the example of a ZigBee networks. The ZigBee Networks, Coordinators are the most capable of the three node types. There is exactly one coordinator in each network and it is the device that establishes the network originally. It is able to store information about the network with including security keys. Routers act as intermediate nodes, relaying data from other devices.

Table-1: ZigBee 802.15.4 standard specifications

Parameter	Range
Transmission Range(meters)	1-100
Battery Life (days)	100-1,000
Network Size(# of nodes)	>64,000
Throughput(kb/s)	20-250

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THE WHITE WOMAN'S GAZE

The nineteenth century was, perhaps, the greatest period of travel writing. Under Queen Victoria, Britain became the greatest power in the world with political and economic control over her colonies spread all over the globe, from Asia to Africa and the Caribbean Islands. Many British travellers and missionaries went to the colonies to take up what Kipling called the "White Man's Burden" – to "civilize" the "barbaric" races of Asia and Africa. Kipling urged them to take on the responsibility of ruling the Empire in his poems:

Take up the White Man's Burden –
Send forth the best ye breed –
Go, bind your son's in exile
To serve your captive's need:
To wait in heavy harness
On fluttered folk and wild –
Your new-caught, sullen peoples,
Half-devil and half-child.

- The White Man's Burden, 1899

These were Englishmen who saw the East "as an inferior, degenerate, erotic place which requires the guiding light of Western civilization" (Laishram 27). The East offered them a chance to escape boredom, failure and poverty in England. India and the East also offered an opportunity to secure wealth and adventure, prestige and identity. Ram Chandra Prasad, in his work on early English travellers to India, differentiates between the attitudes of the early travellers and the ones who came later: "The European travellers of the fifteenth and sixteenth centuries continued to approach India in a mood of child-like wonder, without the least sense of racial superiority. Until

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Society and Sex Work in *The Autobiography of a Sex Worker* by Nalini Jameela

Manoj Kumar Garg, M.A., M.Phil.

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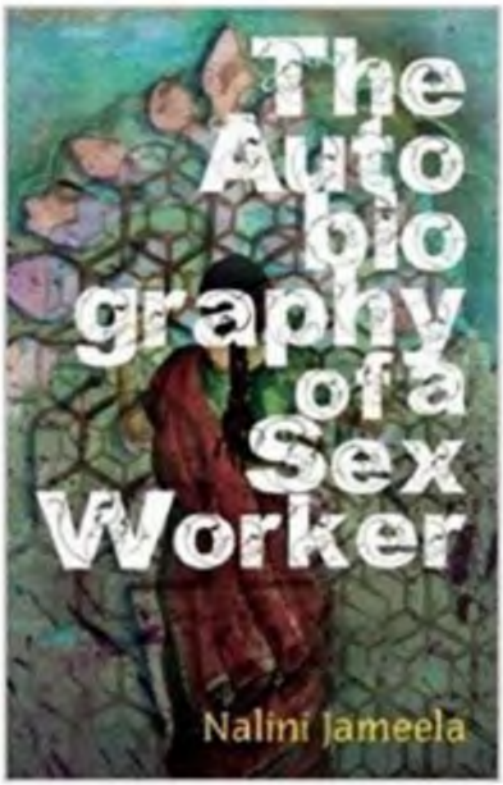

Abstract

Sex workers are part of society but they are looked down upon as outcast in Indian society. They are exploited, insulted and humiliated. Even female sex workers are not taken as women rather taken as mere sex objects. Nalini Jameela portrays their plight through her biography *The Autobiography of a Sex Worker*. She herself has worked as a sex worker. She doesn't condemn the sex work rather takes it as a profession. This paper studies the problems faced by the sex workers, dual standards of society, and resilience of the sex workers.

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Adoption of Free and Open Source Software in India

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Abstract

The significance and robustness of Free and Open Source Software (FOSS) are now well known at stages of development as well as deployment. It's natural to assume that the products of FOSS to be deployed as a preference over the commercially available propriety software. However, proprietary software not only exists but is also thriving. The present paper looks into the aspect of adoption of FOSS, with special emphasis to India. The two natural arena for adoption- Governance and Academia are chosen for study. The policy initiatives, frameworks and challenges in the implementation of FOSS in these two areas are discussed, while giving instances of its successful adoption. The study also discusses in brief the adoption of FOSS in business enterprise, where its adoption is dynamic and accelerated. Several challenges in adoption of FOSS over propriety software are also pointed out.

Keywords: Adoption, FOSS, Proprietary software

INTRODUCTION

The Free and Open Source Software (FOSS) movement attained prominence in the 1980s, primarily to unshackle the restrictions imposed on the use of copy righted software, now known as CSS (Closed Source Software). Today, although one may not be aware, FOSS is actually providing for the computational requirements for a large spectrum of products and services which make the modern, technologically intensive digital life possible. Most of the smart phones (android based), servers and portals, ATMs, supercomputers, databases etc around the world are FOSS driven. In India, two humongous citizen-specific projects – Aadhar's online infrastructure and the railway booking website utilizes the Linux servers. The FOSS provides a myriad of advantages over the CSS at all stages – development, distribution and research, which have been extensively mentioned in the literature [1-5]. Given the intrinsic freedom of usage, customization, propagation and the relative cost effectiveness which all products of FOSS offers, the adoption of FOSS by a country like India could have been a natural and prudent choice as the nation endevours to upscale the use of IT (information technologies) in its pursuit of digital governance. In this context, one may be betting on India becoming the global FOSS hub. It's evident to expect that the India is a fertile ground for the nurturing of a strong and mature FOSS ecosystem. A FOSS ecosystem comprises of a multitude of stakeholders – government, academic institutions like schools and colleges, FOSS solution providers and the FOSS community. Moreover, in India there is no dearth of business opportunities for providing IT solutions to enterprise. This is because India is only next to China in having the largest base of Internet users, notwithstanding the fact that 80 per cent of its population still needs to go online. When this is seen in the background of the availability in the last two decades of large number of reliable and robust FOSS products, which provides solutions for all domains, wherein the CSS have hitherto provided the services (Refer Table 1) the above expectation is certainly not misplaced.

So, where does India stand on the adoption of free software? The adoption of FOSS in India, until now can be described as patchy and sporadic, without a concerted push to adopt FOSS in the daily computational needs of various spheres viz., Governance, academia and business enterprise. However, it must be mentioned here that although the growth of FOSS in India has witnessed a faster rate than the past, the FOSS ecosystem is far from the threshold level of maturity. This has resulted into a narrow user base for FOSS in India. The government's efforts for FOSS adoption have been varied. While some efforts are subtle, voluntary and staggered, some migrations to FOSS have been hard and coercive. In most cases, migration to FOSS are justified from the perspectives of cost and security and its salient features of being participative, egalitarian and democratic is not emphasized sufficiently. While the goal of making India a global hub for FOSS is laudable, it becomes necessary to examine the extent of adoption and the associated challenges in the migration to FOSS for the computational needs of the digital society which we envisage in India. The present paper surveys the extent of adoption of FOSS in the three major areas of the Indian society i.e., Governance, academia and business enterprise. The study also attempts to identify the impediments in each of these spheres which are inhibiting the development of a supportive and mature ecosystem around FOSS which can harness FOSS to its full potential.

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Adoption of Free and Open Source Software in India

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Abstract

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Keywords: Adoption, FOSS, Proprietary software

INTRODUCTION

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ARTICLE NAVIGATION

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Nanosecond laser-cluster interactions at $10^9 - 10^{12}$ $\mathrm{W/cm^2}$

Rohtash Singh; V. K. Tripathi; R. K. Vatsa; D. Das

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An analytical model and a numerical code are developed to study the evolution of multiple charge states of ions by irradiating clusters of atoms of a high atomic number (e.g., Xe) by $1.06\ \mu\mathrm{m}$ and $0.53\ \mu\mathrm{m}$ nanosecond laser pulses of an intensity in the range of $10^9 - 10^{12}\ \mathrm{W/cm^2}$. The laser turns clusters into plasma nanoballs. Initially, the momentum randomizing collisions of electrons are with neutrals, but soon these are taken over by collisions with ions. The ionization of an ion to the next higher state of ionization is taken to be caused by an energetic free electron impact, and the rates of impact ionization are suitably modelled by having an inverse exponential dependence of ionizing collision frequency on the ratio of ionization potential to electron temperature. Cluster expansion led adiabatic cooling is a major limiting mechanism on electron temperature. In the intensity range considered, ionization states up to 7 are expected with nanosecond pulses. Another possible mechanism, filamentation of the laser, has also been considered to account for the observation of higher charged states. However, filamentation is seen to be insufficient to cause substantial local enhancement in the intensity to affect electron heating rates.

Topics

Adiabatic process, Lasers, Ions and properties, Chemical

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Laser and Particle Beams

Article contents

Abstract
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Pulse-compression and self-focusing of Gaussian laser pulses in plasma having relativistic–ponderomotive nonlinearity

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S. Kumar, P.K. Gupta, R.K. Singh, S. Sharma, R. Uma and R.P. Sharma

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Abstract

The mathematical model for the propagation of intense laser pulse in a plasma having Gaussian profile is investigated. The model has been formulated considering that the relativistic–ponderomotive nonlinearity dominates over other nonlinearities in the plasma. Model equation for self-compression and self-focusing properties of the laser pulse has been set up and solved by both semi-analytical and numerical methods. The result indicates that due to the effect of group velocity dispersion, diffraction of the laser pulse and the nonlinearity of medium, the pulse width parameter as well as beam width parameter of pulse gets focused at a different normalized distance, and hence the normalized intensity is also deferred at those points. Numerical simulation shows an oscillatory behavior of intensity during propagation in the plasma either having minimum beam radius (r_0) or having minimum pulse duration (t_0) depending on the normalized distance.

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Detection of liquefied petroleum gas below lowest explosion limit (LEL) using nanostructured hexagonal strontium ferrite thin film

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ABSTRACT

The nano crystalline hexagonal strontium ferrite nanoparticles $SrFe_{12}O_{19}$ were synthesized successfully by chemical co-precipitation method. Thin films of strontium ferrite were prepared on glass substrate and characterized by various techniques such as XRD, SEM, TEM, EDS, UV-spectroscopy and FTIR. XRD pattern revealed the phase transformation of M-type hexa-ferrite with the minimum crystallite size of 18 nm. Uniform macroporous surface structure of the film was exposed by SEM images. Existence of iron, strontium and oxygen in the material was confirmed by EDX. Optical characterization of the material was done by UV-Spectroscopy and band gap was found as 3.2 eV. The liquefied petroleum gas (LPG) sensing behavior of strontium ferrite film was investigated at room temperature. The variations in electrical resistance of the film were measured with the exposure of LPG with respect to time as a function of concentration (0.5–5 vol.%) of LPG. The maximum value of sensitivity for these films was found 7 and maximum sensor response was 602.23.

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1. Introduction

Surface to volume ratio and quantum confinement elucidate to nanostructure of materials. Ferrites are basically a class of materials which contains iron oxides having fascinating magnetic and electric properties [1]. These are prepared by sintering various transition metal oxides along with the alkaline earth metal oxide. Development of new class of ferrites, and studies on improvements in their properties began in early 90's. On the basis of technological application, magnets are distinguished as soft magnetic materials and hard magnetic materials [2]. Soft magnetic materials are those magnetic materials whose domains shift when magnetic field is applied and hard magnetic materials are those with less mobility of domain wall. Magnetized hard ferrites possess hexagonal structure with high value of magnetization and magnetocrystalline anisotropy so these are termed as M phase ferrites, with M as Ba, Sr or Pb [3,4]. $SrO-Fe_2O_3$ binary system has few ternary oxides including $SrFe_{12}O_{19}$, $SrFe_2O_4$, $Sr_2Fe_2O_5$ and $Sr_3Fe_2O_6$. Among these, $SrFe_{12}O_{19}$ has attracted the attention of most of the researchers due to its vast area of applications beside a stable characteristicsand having high electrical resistivity. Strontium ferrite contains strontium and iron where strontium is S block element belonging to group 2 period 5 with $5s^2$ electronic configuration and iron belonging to d-block element group 8 period 4 with electronic configuration $3d^6 4s^2$ [5]. Crystal structure of M-phase ferrite is complex but can be described as hexagonal with unique axis. $SrFe_{12}O_{19}$ posses 64 ions per unit cell along with 11 different symmerty sites. Oxygen atoms are closely packed at interstitial position with Sr and Fe in ten layers along with the C-axis. The iron atoms are positioned at five different crystallographic sites 2a, 2b, 4f, 4k and 12k. Among them 12k, 4k, 2a are on octahedral site, 4f on tetrahedral site and 2b forming trigonal bipyramid surrounding by five oxygen atoms. Strontium ferrite is used for LPG sensing because of relatively high resistance and special magnetic resonance properties for adsorption. In strontium ferrite, there are large interstitial sites which interact with the oxygen molecules in comparison to other ferrites. The dielectric properties of strontium ferrite shed light on the charge carriers which are responsible for charge transport phenomenon. These ferrites can be prepared by different methods viz. as chemical co-precipitation, sol-gel, ball milling, solid state reaction and reverse micelle process [6–10].

Kanagesan et al. prepared the strontium ferrite nano powder by sol-gel method and carried out investigation on the crystalline $SrFe_{12}O_{19}$ powder using XRD. The average particle size was found to be 80–100 nm and its thermal analysis revealed its endothermic and exothermic reaction peaks [11]. T.T.V. Nga et al. investigated

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Growth and characterization of sol–gel processed rectangular shaped nanostructured ferric oxide thin film followed by humidity and gas sensing

B. C. Yadav, K. S. Chauhan, S. Singh, R. K. Sonker, S. Sikarwar & R. Kumar

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Abstract

In the present work nanostructured ferric oxide has been synthesized using sol–gel method. Thin films of ferric oxide were fabricated via spin coating process. The surface of the thin film was scanned by scanning electron microscope that exhibited the surface morphology of ferric oxide nanostructures. The material was also characterized by XRD, Acoustic particle sizer and FTIR. All the particles distributed on the surface have some spaces among them known as pores. These pores serve as adsorption sites for moisture and other gases. EDX confirmed the elements forming the ferric oxide in pure form. The particle size of the ferric oxide was estimated as ~12.2 nm. The pore size of the film was ~50 nm i.e., nature is mesoporous. Annealing effect on the surface morphology was also observed. Humidity sensing, electrical as well as optical of the prepared film was carried out. The results showed the suitability of material for the development of humidity sensors. Variations in resistance with the exposure of LPG were recorded and found that resistance of film increases with the increasing exposure time and concentration of gas. The maximum sensing response of the sensor was recorded as 3.26 for 1000 ppm at room temperature. The response and recovery times of the sensor were found to be ~12 and 9 min, respectively.

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Development of Fe_2O_3–PANI nanocomposite thin film based sensor for NO_2 detection

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Fe2o3–PANI nanocomposite thin film
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ABSTRACT

The iron oxide-polyaniline (α-Fe_2O_3–PANI) films were prepared by spin coating method on various corning glass substrates over Pt inter-digital electrodes (IDEs). The prepared film was characterised using XRD, SEM, AFM, UV-vis and FTIR. Also, it was employed for NO_2 sensing. The nanostructured α-Fe_2O_3–PANI film showed a high sensing response ~2.29×10^2 towards 20 ppm of NO_2 gas. Besides giving the higher sensing response towards NO_2 gas, α-Fe_2O_3–PANI sensor structure was found to be highly selective and exhibited the poor gas sensing response towards other interfering gases including e.g. Acetone, IPA, NH_3, LPG and CO_2. The investigated sensor can be used for the detection of NO_2 at the industrial level.

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1. Introduction

Among the nanosized metal oxides that have been the focus of research due to their potential application in electronic devices, maghemite (<alpha>-Fe_2O_3) has attained prominence due to its magnetic, photocatalytic and electrochemical properties [1–4]. The electrical resistance of semiconductor oxides, such as SnO_2, ZnO, TiO_2 and Fe_2O_3, has a strong dependence on the concentration of surrounding gases. Therefore, oxides are commercially designed as chemical sensors to detect the toxic gases [5–10]. With this intention, several methods of preparation of ferric oxides such as co-precipitation, microemulsion, pulsed wire discharge and hydrothermal processes are employed in order to obtain nanostructured powder [11–13]. The sol-gel process has a unique advantage of producing large-surface-area films at low cost, which is useful to enhance the gas sensitivity [14].

Polyaniline (PANI) as a typical conducting polymer has received a great deal of attention recently [15,16]. With regard to the background, using a composite carrier composed of PANI and ferric oxide nanoparticles could combine the excellent properties of ferric oxide and polyaniline, in addition, a synergistic effect might play a role in enhancing the properties of nanocomposite catalysts. They have unique electronic properties due to the π-conjugation present in their backbones and display improved characteristics over conventional sensors based on nanometal oxides. As NO_2 is a toxic and dangerous gas even at very low concentration ($\geq$20 ppm), therefore, there is an urgent need for a reliable and robust gas sensor for the detection of NO_2 [17].

In the present investigation, PANI/α-Fe_2O_3 nanocomposite thin film has been prepared on the corning glass substrate via chemical polymerization method and tested for the electrical response of the thin film to NO_2 gas at room temperature.

2. Experimental

2.1. Synthesis of nanostructures

In this experiment, 0.1 M of iron nitrate ($Fe(NO_3)_3 \cdot 9H_2O$, Aldrich 98% purity) was used as a precursor solution, 0.1 M of monohydrate citric acid solution as legend molecules and 150 ml distilled water as the solvent. The prepared ferric nitrate solution was added to the citric acid solution dropwise with vigorous stirring. The obtained solution was then heated to a temperature from 70 °C to 120 °C, with vigorous stirring until the gel was formed. Such prepared precursor was used to fabricate the thin films on various corning glass substrates over Pt-IDE using spin coating process [18].

For the formation of the powder, the gel was precipitated by adding NH_4OH dropwise. The powder was then dried at 80 °C for 4 h and the crushed powder was annealed at 500 °C for 2 h Fig. 1(a) shows the flow chart of the growth of PANI [19].

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Preparation of PANI doped TiO_2 nanocomposite thin film and its relevance as room temperature liquefied petroleum gas sensor

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Abstract Present work reports the utility of PANI doped titanium dioxide thin film prepared by spin coating technique as LPG sensing. Optical properties were studied using UV–Vis absorption spectroscopy and FTIR spectroscopy. The surface morphology and structure of synthesized material were characterized by SEM and XRD analysis, respectively. The structural analysis confirmed the formation of TiO_2–PANI having an average crystallite size 21 nm. Variations in the resistance with exposure of LPG to the sensing element were observed. Sensor response (S) as a function of time was calculated and its maximum value was found as 2.37 towards 2000 ppm of LPG, response time of the sensor was 2 min. The sensor was quite sensitive to LPG and results were found reproducible.

1 Introduction

Liquefied petroleum gas (LPG) contains the hydrocarbons, majority propane, and butane. The lower explosive limit (LEL) as specified by National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) standards for chemical hazards is average 20,000 ppm by volume 2.0% in air. The permissible exposure limit (PEL) for LPG as specified by NIOSH and OSHA standards is 1000 ppm [1]. The various kinds of materials are used for the detection of reducing LPG gas [2]. Among them, semiconducting metal oxides such as titania (TiO_2) [3], tin dioxide [4], copper ferrite [5] and zinc oxide [6] have been studied extensively. TiO_2 as an n-type semiconducting metal oxide with two distinct phases; anatase and rutile, has been used for a broad range of LPG gas sensing [3, 4]. PANI has been prepared by oxidation of the aniline or anilinium salts e.g. aniline hydrochloride or aniline sulphate, in aqueous acidic ambient [7]. It is a p-type semiconducting material [8] and has specific redox nature, controllable conductivity, and considerable thermal stability [9, 10].

In this work, for the first time, TiO_2–PANI nanocomposite thin film was prepared on a corning glass substrate and employed as LPG sensor.

2 Experimental

Titanium tetrachloride ($TiCl_4$), propanol, deionized water (DI), ethanol, aniline, HCl, ammonium persulphate (APS) and ammonium hydroxide used for the sensor preparation were purchased from Sigma Aldrich Chemical Co. with 99.99% purity. 500 ml distilled water was dissolved with 50 ml HCl followed by 8.33 ml Aniline. After vigorous stirring in ice bath, it was indexed as part (I). 18.924 gm APS was mixed in 331 ml distilled water and after vigorous stirring the solution was indexed as part (II). Now Part I was added with part II followed by vigorous stirring for 2 h. A colour less filtrate was obtained. After drying it at 40–50 °C for 4–5 h, emeraldine salt of PANI was prepared. Later it was washed with NaOH and filtered. Filtrate was

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Volume 77, August 2017, Pages 276-281

Development of Fe_2O_3–PANI nanocomposite thin film based sensor for NO_2 detection

Rakesh K. Sonker [a b], B.C. Yadav [a]

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Abstract

The iron oxide-polyaniline (α-Fe_2O_3–PANI) films were prepared by spin coating method on various corning glass substrates over Pt inter-digital electrodes (IDEs). The prepared film was characterised using XRD, SEM, AFM, UV-vis and FTIR. Also, it was employed for NO_2 sensing. The nanostructured α-Fe_2O_3–PANI film showed a high sensing response ~2.29×10^2 towards 20 ppm of NO_2 gas. Besides giving the higher sensing response towards NO_2 gas, α-Fe_2O_3–PANI sensor structure was found to be highly selective and exhibited the poor gas sensing response towards other interfering gases including *e.g.* Acetone, IPA, NH_3, LPG and CO_2. The investigated sensor can be used for the detection of NO_2 at the industrial level.

Laser and Particle Beams

Article contents

Abstract

References

Self-compression of two co-propagating laser pulse having relativistic nonlinearity in plasma

Published online by Cambridge University Press: **20 November 2017**

S. Kumar, P. K. Gupta, R. K. Singh, R. Uma and R. P. Sharma

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Abstract

The study proposes a semi-analytical model for the pulse compression of two co-propagating intense laser beams having Gaussian intensity profile in the temporal domain. The high power laser beams create the relativistic nonlinearity during propagation in plasma, which leads to the modification of the refractive index profile. The co-propagating laser beams get self- compressed by virtue of group velocity dispersion and induced nonlinearity. The induced nonlinearity in the plasma broadens the frequency spectrum of the pulse via self-phase modulation, turn to shorter the pulse duration and enhancement of laser beam intensity. The nonlinear Schrodinger equations were set up for co-propagating laser beams in plasmas and have been solved in Matlab by considering paraxial approximation. The propagation characteristics of both laser beams inside plasma are divided into three regions through the critical divider curve, which has been plotted between pulse width τ_{01} and laser beam power P_{01}. Based on the preferred value of critical parameters, these regions are oscillatory compression, oscillatory broadening, and steady broadening. In findings, it is observed that the compression of the laser beam depends on the combined intensity of both beams, plasma density, and initial pulse width.

Keywords

Characteristic beam propagation | Relativistic laser-plasma interaction | Self-compression

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Volume 381, Issue 29, 5 August 2017, Pages 2337-2343

Partially synchronized states in an ensemble of chemo-mechanical oscillators

Pawan Kumar, Dinesh Kumar Verma, P. Parmananda

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Highlights

- Collective dynamics of coupled chemo-mechanical oscillators are studied experimentally.
- Two different coupling scenarios are entertained.
- For both the coupling scenarios, the collective dynamics exhibit partially synchronized states.

Abstract

Partially synchronized (clustered) states are defined as coexisting coherent (synchronized) and incoherent (unsynchronized) domains in an ensemble of interacting oscillators. We report these clustered states in experiments involving an ensemble of sixteen mercury beating heart (MBH) oscillators. These oscillators interact via resistors and are subjected to two different network schemes: 1) All to all and 2) Nonlocal. For the all to all network, the coupling strengths were inhomogeneously distributed, whereas for the nonlocal network scenario, each oscillator was coupled, with an identical coupling strength, with four of its nearest neighbors in either direction. For both of these network schemes, partially synchronized states results into grouping of these oscillators, wherein some oscillators are synchronized and rest are unsynchronized. For all to all network, the partially synchronized states are observed, for

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Impact of Ocimum Basilicum Leaf Essential Oil on The Survival and Behaviour of An Indian Strain of Dengue Vector, Aedes aegypti (L.)

Sarita Kumar*, Radhika Warikoo, Monika Mishra, Roopa R Samal, Shrankhla, Kungreiliu Panmei, Vinay S Dagar and Aarti Sharma

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Abstract

PSEUDOMONAS AERUGINOSA: ISOLATION, CHARACTERIZATION AND EVALUATION OF LARVICIDAL EFFICACY AGAINST AEDES AEGYPTI L.

Rajiv Kumar Shukla, Dr. Sarita Kumar* and Pushplata Tripathi

ABSTRACT

The present study investigates the bioactivity of Pseudomonas aeruginosa against the fourth instar larvae of Aedes aegypti. The bacterium was isolated from the soil samples collected from various parts of Delhi and characterized based on their biochemical and morphological characters. The identification of bacterium was carried out with the help of MALDI-TOF MS Biotyper which confirmed the bacterium as Pseudomonas aeruginosa. The mosquitocidal potential of the isolated bacteria was evaluated against early fourth instars of dengue vector, Aedes aegypti maintained in the laboratory under controlled conditions of 28 ± 1 °C and 80 ± 5 % RH with a photoperiod of 14h daylight/10h darkness. The bioassay was performed in accordance with the protocol described by World Health Organization which proved the significant larvicidal efficacy of Pseudomonas aeruginosa against early fourth instars of Ae. aegypti. The larval exposure to bacterial formulation for 24 h resulted in the respective LC50 and LC90 values of 5.58 and 12.80 mg/mL. The present study concludes that non-pathogenic bacteria present in the natural environment can be used as potential bio-control agents against the larvae of Aedes aegypti. Further studies are needed to identify the bioactive extracellular and intracellular metabolites of bacteria effective against dengue vector larvae.

Keywords: Pseudomonas aeruginosa, Aedes aegypti, larvicidal, MALDI-TOF.

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BIOPROSPECTING XYLANASE ENZYMES FROM DIVERSE ECOLOGICAL HABITATS

Payal Das[1], Prateek Kumar[1], Munendra Kumar[1], Renu Solanki[2] and Monisha Khanna Kapur[1]

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ABSTRACT

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Purification and molecular characterization of chitinases from soil actinomycetes

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African Journal of Microbiology Research

Full Length Research Paper

Purification and molecular characterization of chitinases from soil actinomycetes

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Crystal structure of UDP-*N*-acetylglucosamine-enolpyruvate reductase (MurB) from *Mycobacterium tuberculosis*☆

Kandasamy Eniyan[a,1], Sudhaker Dharavath[b,1], Ramachandran Vijayan[b], Urmi Bajpai[a,*], Samudrala Gourinath[b,**]

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ABSTRACT

The biosynthesis of UDP-*N*-acetylmuramic acid (UDP-MurNAc) by reduction of UDP-*N*-acetylglucosamine-enolpyruvate (UDP-GlcNAc-EP) in an NADPH and FAD-dependent reaction in bacteria is one of the key steps in peptidoglycan biosynthesis catalyzed by UDP-*N*-acetylglucosamine-enolpyruvate reductase (MurB). Here, we present the crystal structure of *Mycobacterium tuberculosis* MurB (MtbMurB) with FAD as the prosthetic group at 2.0 Å resolution. There are six molecules in asymmetric unit in the form of dimers. Each protomer can be subdivided into three domains and the prosthetic group, FAD is bound in the active site between domain I and domain II. Comparison of MtbMurB structure with the structures of the *Escherichia coli* MurB (in complex with UDP-GlcNAc-EP) and *Pseudomonas aeruginosa* MurB (in complex with NADPH) showed all three structures share similar domain architecture and residues in the active site. The nicotinamide and the enol pyruvyl moieties are well aligned upon superimposition, both positioned in suitable position for hydride transfer to and from FAD. The comparison studies and MD simulations demonstrate that the two lobes of domain-III become more flexible. The substrates (NADPH and UDP-GlcNAc-EP) binding responsible for open conformation of MurB, suggesting that NADPH and UDP-GlcNAc-EP interactions are conformationally stable. Our findings provide a detail mechanism about the closed to open state by binding of NADPH and UDP-GlcNAc-EP induces the conformational changes of MurB structure that may trigger the MurB catalytic reaction.

1. Introduction

The growth of multidrug-resistant *Mycobacterium tuberculosis* (Mtb) has become an increasing global problem due to acquired resistance to the first and second line drugs [1]. To address the issues of multidrug resistance, discovering drugs with novel modes of action, targeting enzymes deemed specific and essential for the cell wall biogenesis in Mtb recommends a valid approach. Peptidoglycan represents vital constituent of the cell wall in most prokaryotic organisms which provides osmotic stability and defines the size and shape of bacterial cells [2]. Efforts have been made in recent years to study the importance of these enzymes in the peptidoglycan biosynthetic pathway with the hope that novel enzyme inhibitors might be found for these essential targets [3–5].

The cytoplasmic biosynthetic pathway leading to formation of peptidoglycan units involves six enzymes [6,7]. First, UDP-GlcNAc enolpyruvyl transferase, MurA catalyzes the formation of UDP-GlcNAc enolpyruvate by transferring enolpyruvate (UDP-GlcNAc-EP) from phosphoenolpyruvate followed by UDP-GlcNAc enolpyruvate reductase (EC:1.3.1.98, MurB) reaction which catalyzes the reduction of UDP-GlcNAc-EP to form UDP-*N*-acetylmuramic acid (UDP-MurNAc). Then a series of Mur ligases (MurC-F) catalyze the sequential addition L-Alanine, D-Glutamic acid, meso-diaminopimelic and the dipeptide D-Alanine-D-Alanine to UDP-MurNAc, to form the final UDP-MurNAc-pentapeptide. MurB enzyme is essential for the viability of bacterial cells [7] and the absence of a homologue in eukaryotic cells makes MurB

Abbreviations: UDP-GlcNAc-EP, UDP-*N*-acetylglucosamine-enolpyruvate; UDP-MurNAc, UDP-*N*-acetylmuramic acid; FAD, Flavin Adenine Dinucleotide; NADPH, Nicotinamide Adenine Dinucleotide Phosphate; MtbMurB, *Mycobacterium tuberculosis* UDP-*N*-acetylglucosamine-enolpyruvate reductase; EcMurB, *Escherichia coli* UDP-*N*-acetylglucosamine-enolpyruvate reductase; PaMurB, *Pseudomonas aeruginosa* UDP-*N*-acetylglucosamine-enolpyruvate reductase

☆ Databases: The atomic coordinates and structure factors have been deposited in the Protein Data Bank, www.pdb.org (PDB ID code 5JZX).

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Publication: Canadian Journal of Microbiology • 15 March 2018 • https://doi.org/10.1139/cjm-2017-0387

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Abstract

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Publication: Canadian Journal of Microbiology • 15 March 2018 • https://doi.org/10.1139/cjm-2017-0387

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Abstract

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Review Article

Microwave Assisted Synthesis of Spiro Heterocyclic Systems: A Review

Author(s): Pankaj Khanna, Leena Khanna, Sean J. Thomas, Abdullah M. Asiri and Siva S. Panda*

Volume 22, Issue 1, 2018

Page: [67 - 84] **Pages:** 18

DOI: 10.2174/1385272821666170818161517

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Abstract

Background: Microwave irradiation has emerged as a useful synthetic strategy for chemists and drug developers due to enhanced yields, regioselectivity, and faster reaction times. One area of importance in its practice has been the design of spiro compounds, which possess great interest on account of their natural occurrence and medicinal capabilities. The increasingly large number of these scaffolds and unlimited amount of methodologies utilized in their preparation have made them good candidates for the microwave assisted approach.

Conclusion: Therefore, this review emphasizes the use of microwave irradiation in the synthesis of spiro heterocyclic compounds.

Keywords: Spiro compounds, heterocycles, microwave, green synthesis.

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An analysis of replenishment model of deteriorating items with ramp-type demand and trade credit under the learning effect

Archana Sharma, Usha Sharma and Chaman Singh

Published Online: May 13, 2018 · pp 313-342 · https://doi.org/10.1504/IJPM.2018.091668

ABOUT

Abstract

Effective management and control strategies are prerequisites in order to optimise inventory related decisions. Robust replenishment model can reduce overall inventory cost and increase financial surplus for the organisation. Adoption of trade credit strategy for deteriorating items provides economic benefits to the retailer (buyer) in settling the account for the fixed period and boosts the sales of the organisation. Therefore, in this proposed model trade credit is introduced and demands pattern follows ramp-type which is quadratic function of time for decaying items. Shortages are allowed and partially backlogged where the backlogging rate is dependent of waiting time. The inflation factor is also considered to propose realistic environment. Additionally, this study also considered the cost components which are followed by learning curve to improve the total inventory cost with strategic scheduling. Finally, the model is analysed through numerical examples and the sensitivity analysis is performed to test the robustness of the model.

Keywords

ramp-type demand, partial backlogging, learning effect, trade credit, inflation

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From the journal:
RSC Advances

Controlling room temperature ferromagnetism and band gap in ZnO nanostructured thin films by varying angle of implantation

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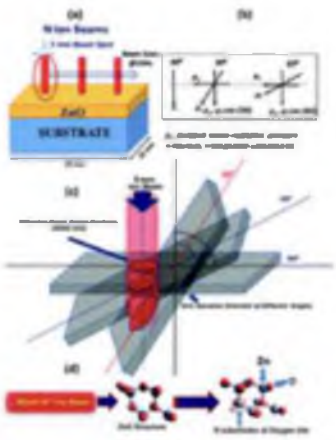
Rajesh V. Hariwal, [*a] Hitendra K. Malik, [b] Ambika Negi [c] and Asokan Kandasami [a]

Author affiliations

Abstract

The defects in the host lattice play a major role in tuning the surface roughness, optical band gap and the room temperature ferromagnetism (RTFM) of ZnO thin films. Herein, we report a novel approach to tailor the band gap and RTFM of a ZnO nanostructure by varying the angle of implantation of 60 keV N ions keeping the ion fluence of 1×10^{16} ions per cm^2 and the beam size of 3 mm constant. The implantation was performed by changing the thin films' orientations at 30°, 60° and 90° with respect to the incident beams. Remarkably, an enhancement of ~6 times in RTFM, tuning in band gap from 3.27 to 3.21 eV and ~60% reduction in surface roughness were noticed when the ion implantation was done at 60° to the normal. This novel technique may be suitable for tuning the physical properties of nanostructures for their application in the spintronics, semiconductor and solar cell industries.



Emamectin benzoate: Potential larvicide and antifeedant agent against cotton Boll worm Helicoverpa armigera (Lepidoptera: Noctuidae)

PDF

Published Jun 1, 2018

DOI https://doi.org/10.31018/jans.v10i2.1738

Vinay Singh Dagar
Department of Zoology, Acharya Narendra Dev College (University of Delhi), Govindpuri, New Delhi, India
Sarita Kumar
Department of Zoology, Acharya Narendra Dev College (University of Delhi), Govindpuri, New Delhi, India

Abstract

Helicoverpa armigera, a global polyphagous pest, attacks a wide variety of crops causing huge agricultural loss. Overuse of conventional insecticides for *Helicoverpa* control has made *Helicoverpa* resistant to insecticides leading to more severe attacks on crops diverting interest of researchers to explore alternate control agents. Present study investigates the cidal and antifeedant potential of Emamectin benzoate; a semi-synthetic avermectin derived from the soil actinomycetes, *Streptomyces avermitilis;* against early IV instars of *H. armigera*. Larvae were fed on the castor leaf discs (3.5 cm diameter) dipped in different concentrations of Emamectin benzoate; ranging from 0.05 µg/mL-1.5 µg/mL. The leaf disc areas were measured pre-and post-larval feeding to estimate the antifeedant potential of compound. The effect of feeding was also assessed on the survival of larvae by scoring the larval mortality till 96 h. Our investigations showed significant larvicidal potential of Emamectin benzoate against *H. armigera* revealing respective LC_{50} values of 0.26 µg/mL, 0.095 µg/mL, 0.043 µg/mL and 0.027 µg/mL after 24, 48, 72 and 96 h feeding. Furthermore, a remarkable decrease of 93.59% was observed in larval feeding potential indicating significant antifeedant efficacy of Emamectin benzoate. A strong correlation between antifeedant index and the Emamectin benzoate concentration resulted in 1.48-fold index reduction with a decrease in concentration. Our results demonstrated efficacy of Emamectin benzoate as an effectual larvicidal and antifeedant agent against *H. armigera*. Employing selective insecticide can tackle issues of pest resistance and pest resurgence after ascertaining in the fields as *Helicoverpa* control agent and negating impact on non-target organisms.

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Study of effect of various temperatures on the abundance of ammonia oxidizing archaea and bacteria

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https://doi.org/10.56093/ijans.v88i5.80023

Keywords: Ammonia, amoA gene, Archaea, Bacteria, Recirculating system, Temperature

Abstract

Temperature plays significant role in the oxidation of ammonia in filtration units of recirculating aquaculture system. The impact of temperature on the abundance of ammonia oxidizing archaea and bacteria, and the expression of ammonia oxidizing gene (amoA) at specific temperature was evaluated. The broken earthen pot pieces used as filter bed materials of recirculating system, showing the presence of microorganisms were introduced in glass containers (5 pieces/5l) filled with synthetic wastewater and exposed to four different temperatures of 10, 20, 30 and 40°C for 40 days. The ammonia oxidation rate was minimum at 10°C. In 20, 30 and 40°C treatments, 99% ammonia was reduced on day-18, 8 and 18, respectively compared to the initial day. Fresh ammonium chloride (2 mM) was added twice to maintain the ammonia concentration in all treatments, except 10°C one. Nitrite-N level was < 1 mg/l at 10°C. The level was highest on day-22 at 20° and 40°C and on day-12 at 30°C. The nitrification was 10 days delayed at 20°C and 40°C compared to 30°C treatment. Concentration of nitrate-N was lowest at 10°C. Highest concentration of nitrate-N was observed on day-40 at 20°C and 40°C and day-26 at 30°C. Highest copy number of bacterial amoA was recorded at 30°C (2.59×107) followed by 20°C (4.08×106), 40°C (1.45×106) and 10°C (5.664×103). Archaeal amoA was highest at 30°C (7.47×103) followed by 40°C (2.98×102) and 20°C (46.8) treatments. Hence it may be concluded that 30°C temperature was optimum for the efficient and faster oxidation of ammonia in the present recirculating system.

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Sripoorna Somasundaram, Jeeva Susan Abraham, Swati Maurya, Seema Makhija, Renu Gupta, Ravi Toteja

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Cellular and molecular basis of heavy metal-induced stress in ciliates

Sripoorna Somasundaram, Jeeva Susan Abraham, Swati Maurya, Seema Makhija, Renu Gupta, Ravi Toteja

Current Science, Vol. 114, No. 9 (10 May 2018), pp. 1858-1865 (8 pages)

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Plant Biology / Volume 20, Issue 3 / p. 546-554

Research Paper

Floral contrivances and specialised pollination mechanism strongly influence mixed mating in *Wrightia tomentosa* (Apocynaceae)

C. Barman, V. K. Singh, S. Das, R. Tandon

First published: 13 January 2018
https://doi.org/10.1111/plb.12690
Citations: 9

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Abstract

- Reproductive success of a plant species is largely influenced by the outcome of mating pattern in a population. It is believed that a significantly larger proportion of animal-pollinated plants have evolved a mixed-mating strategy, the extent of which may vary among species. It is thus pertinent to investigate the key contributors to mating success, especially to identify the reproductive constraints in depauperate populations of threatened plant species.
- We examined the contribution of floral architecture, pollination mechanism and breeding system on the extent of outcrossing rate in a near-threatened tree species, *Wrightia tomentosa*. The breeding system was ascertained from controlled pollination experiments. In order to determine outcrossing rate, 60 open-pollinated progeny were analysed using an AFLP markers.
- Although the trees are self-compatible, herkogamy and compartmentalisation of pollen and nectar in different chambers of the floral tube effectively prevent spontaneous autogamy. Pollination is achieved through specialised interaction with moths. Differential foraging behaviour of settling moths and hawkmoths leads to different proportions of geitonogamous and xenogamous pollen on the stigma. However, most open-pollinated progeny were the result of xenogamy (outcrossing rate, tm = 0.68).
- The study shows that floral contrivances and pollination system have a strong influence on mating pattern. The differential foraging behaviour of the pollinators causes deposition of a mixture of self- and cross-pollen to produce a mixed brood. Inbreeding depression and geitonogamy appear to play a significant role in sustaining mixed mating in this species.

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JOURNAL ARTICLE

Relative contribution of reproductive attributes to the density-dependent effects on fruit-set

Vineet Kumar Singh, Chandan Barman, Divya Mohanty, Rajesh Tandon

AoB PLANTS, Volume 10, Issue 2, April 2018, ply019, https://doi.org/10.1093/aobpla/ply019
Published: 13 March 2018 **Article history**

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Abstract

Reproductive success of a plant species can be affected by the distribution pattern of its conspecifics in a small population. Besides the low mate availability, the dynamics of breeding system and pollination mechanism may also contribute to low fruit-set in such populations. We examined the relative contribution of these reproductive attributes on fruit-set across the contrasting distribution pattern (denser vs. sparser plots) in two isolated natural populations of a near-threatened tree species, *Anogeissus sericea* var. *nummularia*. Although flowers in the species are of generalist type, the narrow stigmatic surface appears to impose a requirement for a specialist pollinator. Pollination in the tree species is mediated only by the flies. The trees exhibit partial selfing and suffer from strong inbreeding depression at the early life-history stages of the selfed progeny. We recorded significant difference between the denser and sparser plots in terms of inflorescence visits per tree, and the number of trees covered in a bout by the pollinators. Moreover, tree density showed a strong positive correlation with fruit-set. Besides the requirement of having proximity among the conspecifics to facilitate pollinator movement, pollen quality also seemed to be a crucial attribute in the reproductive success of the tree species. It is inferred that the mating pattern and fecundity of plants in small and isolated populations are significantly influenced by the extent of sexual incompatibility and magnitude of their dependence on pollinators.

Keywords: Inbreeding depression, myophily, partial self-compatibility, reproductive biology

Subject: Plant-Animal Interactions, Reproductive Biology

Issue Section: Research article

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Rev. Roum. Chim., **2018**, *63*(4), 299-307

HETEROLEPTIC METAL(II) COMPLEXES OF CURCUMIN AND 2,2'-BIPYRIDINE: SYNTHESIS, CHARACTERIZATION, MOLECULAR MODELING AND PRELIMINARY ANTIMICROBIAL INVESTIGATION

Shyam LAL,[a] Mukesh Chandra JOSHI[b], Sunita HOODA[a] and Vikrant KUMAR[a]*

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Received September 18, 2017

Three mononuclear metal complexes [(curcu)M(bpy)]Cl **1-3** of nickel[II] **(1)**, copper[II] **(2)** and zinc[II] **(3)** derived from curcumin (curcu) and 2,2'-bipyridine (bpy) have been isolated and characterized by analytical and spectral methods, *viz.* elemental analyses, molar conductance, magnetic susceptibility measurements, mass spectrometry, IR, UV-visible spectrometry and molecular modeling studies. IR spectral frequencies exhibited curcumin and 2,2'-bipyridine both behave as bidentate ligand and coordinate to metal ion through the carbonyl oxygen and nitrogen atoms respectively. All the complexes showed molar conductance corresponding to 1:1 electrolytic nature. Ni^{II} and Cu^{II} complexes were confirmed possessing square planar geometry however Zn^{II}, tetrahedral. Metal complexes along with curcumin and 2,2'-bipyridine were examined against the opportunistic pathogens. The results obtained indicate that metal complexes have reasonable antimicrobial potential.

INTRODUCTION

Naturally occurring phenolic pigment, Curcumin; chemically, [1,7-bis(4-hydroxyl-3-methoxyphenyl)-1,6-heptadiene-3,5-dione] is a major component of the Curcuma species. It is obtained from the rhizome of *Curcuma longa* Linn.[1] which is commonly used as a yellow coloring and flavoring agent in foods. Recent studies have shown that curcumin possesses a specific property of binding to metals and as a multipotent agent for combating to potent biological as well as pharmacological activities.[2-8] Thus, for the past decade curcumin as a ligand has been the subject of great interest in modern coordination chemistry.[9-12] Curcumin has a specific chemical motif, a bis-α,β-unsaturated-β-diketone which exhibits keto-enol tautomerism (**Figure 1**). The virtue of coordination property of curcumin leads to tailoring a rational drug design including a number of metal complexes and scavenge the active free-radicals which makes it a more potent bioactive agent *viz.* as antimicrobial agent, anticarcinogenic, antialzheimer, used in catalysis, radiodiagnostic and several other applications.[13-17] Research analysis postulates that the biological properties of curcumin are significantly enhanced upon coordination with metal ion.[18-19] On the other hand, heterocyclic compounds such as pyridine, phenanthroline, bipyridine, and their respective derivatives etc. have been shown extended biological activities when coordinated with metal ion.[20-21] Various enzymes, vitamins, proteins and other life regulating biomolecules, most of which consist of N- and/or O- containing heteroatoms which are the key of chelation with transition metal ions.

Thus, specific biological and pharmacological role of curcumin, bypiridine and various role of transition metal ions in daily life, could have made

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Journal of Photochemistry and Photobiology A: Chemistry
Volume 364, 1 September 2018, Pages 811-818

A highly selective sensor for Cu^{2+} and Fe^{3+} ions in aqueous medium: Spectroscopic, computational and cell imaging studies

Shyam Lal [a], Satish Kumar [b], Sunita Hooda [a], Pramod Kumar [c]

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Abstract

A rationally designed chemosensor L1 (2-(2-amino-4,5-dihydrothiazol-4-yl)-5,5-dimethylcyclohexane-1,3-dione) is capable for the detection of biologically important Cu^{2+} and Fe^{3+} ions. The observable change in absorbance and emission in HEPES buffer solution and binding parameters display notable sensing ability of Cu^{2+} and Fe^{3+} ions. From Job's plot and ESI-MS spectra, 1:1 stoichiometric complexation with Cu^{2+} and Fe^{3+} ions have been established. The chemosensor was also utilized to develop logic gate by reversibility cycles for Fe^{3+} ion by EDTA. In addition, complex formation between the receptor and Cu^{2+}/Fe^{3+} ion was investigated by spectroscopically and computational studies. The cell imaging study indicated that L1 is highly efficient for the detection of Fe^{3+} ion in live cells. The simple synthetic route, multi-stimuli response, regenerative action and solution visualization of the proposed chemosensor potentially make it as excellent sensor for real samples.

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RESEARCH ARTICLE VOLUME 4, ISSUE 11, E00951, NOVEMBER 2018

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Protective effects of *Aporosa octandra* bark extract against D-galactose induced cognitive impairment and oxidative stress in mice

Siva S. Panda • Adel S. Girgis • Atish Prakash • ... ElSayed M. Shalaby • Nehmedo G. Fawzy • Subhash C. Jain • Show all authors

Open Access • Published: November 30, 2018 • DOI: https://doi.org/10.1016/j.heliyon.2018.e00951 •

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Abstract

Aporosa octandra (Buch.-Ham. ex D.Don) Vickery is a native species of India. Different parts of the plant are used for the medicinal purpose by the tribal peoples of south-eastern part of India. However, the biological properties of *A. octandra* have not been studied well. The extracts obtained from the bark of *A. octandra* were evaluated to determine their protective effect on cognitive impairment and oxidative stress in mice induced by D-galactose using the standard protocol. Different dosages of extract **AOE-4** (100, 200, and 300 mg/kg, p.o.) were administered to mice, which were previously treated for six weeks with D-galactose (100 mg/kg s.c.). The D-galactose-induced mice showed significantly impaired cognitive behavior, i.e., oxidative defense, compared to the sham group. Six weeks of treatment with *A. octandra* extract **AOE-4** (100, 200 and 300 mg/kg, p.o.) considerably improved the cognitive behavior and oxidative impairment of mice compared to the control alone (D-galactose). For the phytochemical investigation, the bark of *A. octandra* was successively extracted with dichloromethane and methanol. The chemical constituents of *A. octandra* were isolated by multiple column chromatography and characterized by different spectral analyses. (*R*)-Coclaurine (**AO-5**), an alkaloid, was isolated along with two other compounds from the **AOE-4** extract; three more compounds were also isolated from the **AOE-1** extract of the bark of *A. octandra*. All the compounds were isolated for the first time from the bark of *A. octandra*, and their structures were established by detailed spectral studies. The structure of compound **AO-5** was also investigated and confirmed by X-ray diffraction and DFT studies. This study highlights the protective effect of *A. octandra* bark extract against D-galactose-induced biochemically dysfunction in mice. (*R*)-Coclaurine (**AO-5**) was isolated as one of the major components of *A. octandra* bark from **AOE-4** extract; [illegible] compound could be further evaluated for the development of new potential

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Rakhi Saxena, Sharanjit Kaur & Vasudha Bhatnagar

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Abstract

Several centrality measures have been formulated to quantify the notion of 'importance' of actors in social networks. Current measures scrutinize either local or global connectivity of the nodes and have been found to be inadequate for social networks. Ignoring hierarchy and community structure, which are inherent in all human social networks, is the primary cause of this inadequacy. Positional hierarchy and embeddedness of an actor in the community are intuitively crucial determinants of his importance. The theory of social capital asserts that an actor's importance is derived from his position in network hierarchy as well as from the potential to mobilize resources through intra-community (bonding) and inter-community (bridging) ties. Inspired by this idea, we propose a novel centrality measure social centrality (SC) for actors in social networks. Our measure accounts for—(1) an individual's propensity to socialize, and (2) his connections within and outside the community. These two factors are suitably aggregated to produce social centrality score. Comparative analysis of SC measure with classical and recent centrality measures using large public networks shows that it consistently produces more realistic ranking of nodes. The inference is based on the available ground truth for each tested networks. Extensive analysis of rankings delivered by SC measure and mapping with known facts in well-studied networks justifies its effectiveness in diverse social networks. Scalability evaluation of SC measure justifies its efficacy for real-world large networks.

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Bandwidth Efficient Broadcast Protocols in MANETs: A Review

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PAPER

Structural and optical properties of electrochemically deposited ZnO nanorods by using graphene oxide and ITO as substrate material: a comparative study

Chetna[1], Shani Kumar[1,2], A Garg[2], A Chowdhuri[3], A Jain[4] and A Kapoor[1]

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Materials Research Express, Volume 5, Number 9

Citation Chetna *et al* 2018 *Mater. Res. Express* 5 095024

DOI 10.1088/2053-1591/aad7a5

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Abstract

The present work reports the comparative study of structural and optical properties of ZnO Nanorods grown on Graphene Oxide (GO) and ITO. For this purpose, GO has been successfully synthesized via Hummer's method while electrochemical method has been used for the synthesis of ZnO nanorods. The structural and optical properties of the as-grown samples were studied using FESEM, EDX, XRD, FTIR and Raman spectroscopy. An improvement in density of ZnO nanorods with hexagonal structure is indicated by the FESEM micrographs. XRD analysis confirms that crystal structure of ZnO nanorods is not significantly disturbed by GO, in addition a reduction in lattice strain has been observed for the samples grown on GO. Raman and FTIR spectroscopy has also been performed to probe the structural integration of ZnO crystal structure and the results are in consensus with that of XRD analysis. The study indicates the potential application of GO as substrate material for ZnO nanorods based devices.

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PAPER

Comparison of water purification properties of Graphene Oxide (GO) membranes with tuned interlayer spacings

Shani Kumar[1,3], Amit Garg[1] and Arijit Chowdhuri[2]

Published 10 October 2018 • © 2018 IOP Publishing Ltd

Materials Research Express, Volume 6, Number 1

Citation Shani Kumar *et al* 2019 *Mater. Res. Express* **6** 015604

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Abstract

Worldwide researchers are actively engaged in developing materials that exhibit efficient water filtration and advanced contaminant separation properties. Graphene oxide (GO) is one such material that possesses well-defined nanosized pores. Literature reports indicate the advantageous property of GO nanosheets to be properly spaced and stacked into membranes allowing high speed water flow (low frictional) inside. Although precise sieving of ions and molecules is reported using GO membranes but tuning of interlayer spacing by varying the oxidation state during synthesis is yet to be investigated. In the current study three different GO samples have been synthesized by Hummer's method with different degrees of oxidation. XRD analysis is seen to confirm the decrease in interlayer spacing from 0.838 to 0.782 nm as processing temperature (in the last stage) is increased from 50 to 95 °C leading to different degree of oxidation. Water flux is noted to decrease for the GO membrane developed at higher temperature due to reduction in interlayer spacing. It is also observed that temperature of synthesis directly affects the degree of oxidation which in turn influences water purification application ability of the GO membranes. Membrane prepared at 95 °C is seen to exhibit highest dye rejection whilst it returns lowest pure water flux.

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Worldwide researchers are actively engaged in developing materials that exhibit efficient water filtration and advanced contaminant separation properties. Graphene oxide (GO) is one such material that possesses well-defined nanosized pores. Literature reports indicate the advantageous property of GO nanosheets to be properly spaced and stacked into membranes allowing high speed water flow (low frictional) inside. Although precise sieving of ions and molecules is reported using GO membranes but tuning of interlayer spacing by varying the oxidation state during synthesis is yet to be investigated. In the current study three different GO samples have been synthesized by Hummer's method with different degrees of oxidation. XRD analysis is seen to confirm the decrease in interlayer spacing from 0.838 to 0.782 nm as processing temperature (in the last stage) is increased from 50 to 95 °C leading to different degree of oxidation. Water flux is noted to decrease for the GO membrane developed at higher temperature due to reduction in interlayer spacing. It is also observed that temperature of synthesis directly affects the degree of oxidation which in turn influences water purification application ability of the GO membranes. Membrane prepared at 95 °C is seen to exhibit highest dye rejection whilst it returns lowest pure water flux.

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Comparison of water purification properties of Graphene Oxide (GO) membranes with tuned interlayer spacings

Shani Kumar[1,3], Amit Garg[1] and Arijit Chowdhuri[2]

Published 10 October 2018 • © 2018 IOP Publishing Ltd

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Sonication effect on graphene oxide (GO) membranes for water purification applications

Shani Kumar[1,3], Amit Garg[1] and Arijit Chowdhuri[2]

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Recent literature indicates the use of graphene oxide (GO), derived from 2D material graphene as being the active material in membranes for water purification and desalination applications, mainly because of it exhibiting unique properties including high mechanical strength, excellent chemical stability, strong hydrophilicity, and excellent anti-fouling properties (Dreyer *et al* 2010 *Chem. Soc. Rev.* **39** 228, Dikin *et al* 2007 *Nature* **448** 457 and Koinuma *et al* 2012 *J. Phys. Chem. C* **116** 19822). In the current study, graphene oxide has been synthesized using well established Hummer's method and thereafter utilized as membranes on porous PVDF (polyvinylidene fluoride) support for water purification applications. The effect of sonication time (5 to 60 min) during preparation of graphene oxide membrane has been investigated vis-à-vis water purification abilities of the developed membranes. Related characterizations like dynamic light scattering (DLS), Raman

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Circular restricted three-body problem when both the primaries are heterogeneous spheroid of three layers and infinitesimal body varies its mass

Abdullah A. Ansari, Ziyad Ali Alhussain & Sada Nand Prasad

Journal of Astrophysics and Astronomy **39**, Article number: 57 (2018) | Cite this article

129 Accesses | **12** Citations | Metrics

Abstract

The circular restricted three-body problem, where two primaries are taken as heterogeneous oblate spheroid with three layers of different densities and infinitesimal body varies its mass according to the Jeans law, has been studied. The system of equations of motion have been evaluated by using the Jeans law and hence the Jacobi integral has been determined. With the help of system of equations of motion, we have plotted the equilibrium points in different planes (in-plane and out-of planes), zero velocity curves, regions of possible motion, surfaces (zero-velocity surfaces with projections and Poincaré surfaces of section) and the basins of convergence with the variation of mass parameter. Finally, we have examined the stability of the equilibrium points with the help of Meshcherskii space–time inverse transformation of the above said model and revealed that all the equilibrium points are unstable.

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An EOQ Model for Deteriorating Items with Selling Price Dependent Exponential Demand for Time Varying Holding and Deterioration Costs

AUTHORS

Sachin Kumar Verma

Mohd. Rizwanullah

Chaman Singh

DOI: https://doi.org/10.14419/ijet.v7i4.41.24294

PUBLISHED: 2018-12-19

Keywords: Deteriorating items, price and time dependent demand, shortages and time varying holding cost, Lead time.

ABSTRACT Research investigation of the past few decades shown that the researchers developed economic order quantity (EOQ) model for perishable items under constant deterioration and constant demand. Though, in actual practice it is not true. This paper involved a representation of an inventory control model, in which perishable items has been taken with a price as well as an exponential dependent demand. The measured items in the model are deteriorating in nature based on time dependent deterioration rate. In the earlier studies the holding cost often treated as a constant, which is not suited to the most of the practical life situations. In real practical situation some kind of items treat holding cost is a function of time, which is increase as the time increases. In this paper, a model is developed which included the time dependent linear holding cost. We have achieved the estimated optimal solution under the given assumption according to the situation. A numerical example is presented to demonstrate the model and the sensitivity analysis of various parameters is approved out for the validation of the proposed method.

REFERENCES

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A production inventory model with selling price and stock sensitive demand under partial backlogging

Deo Datta Aarya and Mukesh Kumar

Published Online: March 29, 2018 • pp 350-363 • https://doi.org/10.1504/IJMOR.2018.090802

ABOUT

Abstract

In the proposed paper we develop an inventory model for instantaneous deteriorating items with multi variate function of demand rate. Generally, we observe that the demand for any product depends on so many factors, out of which the available stock and selling price are the main factors. So in this paper we have assumed that the demand rate is a function of stock and selling price. The production rate is taken as a function of demand rate. The shortages are allowed and it is assumed that the occurring shortages will be backlogged for which the backlogging rate is a function of waiting time. The numerical example and sensitivity exploration with respect to various parameters are also cited to illustrate the study.

Keywords

inventory, shortages and partial backlogging, multi variate demand rate, deterioration rate, production

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RESEARCH ARTICLE

Susceptibility Status of *Aedes aegypti* L. Against Different Classes of Insecticides in New Delhi, India to Formulate Mosquito Control Strategy in Fields

Roopa Rani Samal, Sarita Kumar*
Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalkaji, Govindpuri, New Delhi 110019, India

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Effects of *Achyranthes aspera* Extracts on the Survival and Midgut Histo-architecture of *Aedes aegypti* L. Early IV Instars

Aarti Sharma[1], **Sarita Kumar**[2, *], **Pushplata Tripathi**[1]

[1] School of Sciences, Indira Gandhi National Open University, Maidan Garhi, New Delhi 110068, India

[2] Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalka Ji, India

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Original Paper

Modelling of Pinning-Depinning Reversal Mechanism in Ion-Irradiated Co/Al_2O_3 Thin Films

Rajan Goyal, Rekha Gupta, Ambika Negi, Kandasami Asokan, Dinakar Kanjilal, Subhalakshmi Lamba, Subramanian Annapoorni

First published: 12 June 2018
https://doi.org/10.1002/pssa.201800141
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Abstract

Present study reports the pinning–depinning mechanism in Co embedded Al_2O_3 matrix subjected to Ar^+ ion irradiations. Angular variation studies of the scaled coercivity are carried out and a comparison to existing theoretical models indicates that the dominant reversal mechanism is due to pinning. The origin of pinning is attributed to the displacement of Co atoms from their lattice sites, as a result of ion bombardment. The Monte Carlo simulations suggest that the observed magnetic behavior is well explained by pinning induced strain anisotropy in the system.

Conflict of Interest

The authors declare no conflict of interest.

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Published: 21 May 2018

Polarization dependent charge control model for microwave performance assessment of AlGaN/GaN/AlGaN double heterostructure HEMTs

Nisha Chugh, Monika Bhattacharya, Manoj Kumar, S. S. Deswal & R. S. Gupta

Journal of Computational Electronics **17**, 1229–1240 (2018) | Cite this article

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Abstract

An accurate polarization dependent charge control-based analytical model is proposed for microwave performance assessment of $Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N$ double heterostructure high electron mobility transistors (DH-HEMTs) in terms of current, transconductance, gate capacitances and cutoff frequency. An analytical expression correlating the sheet carrier concentration in the two 2DEGs formed at the upper and lower heterointerfaces of a DH-HEMT is obtained. AlGaN/GaN/AlGaN DH-HEMTs are found to exhibit superior RF performance as compared to its single heterostructure counterpart in terms of higher drain current, improved transconductance, higher gate capacitance and higher unity-gain cutoff frequency. This improvement in the DH-HEMT is mainly attributed to the formation of two 2DEGs (at top and the bottom heterointerface) as compared to the single 2DEG in a SH-HEMT. The variation of drain current with drain voltage and with gate voltage of AlGaN/GaN SH-HEMTs and AlGaN/GaN/AlGaN DH-HEMTs is obtained analytically and found to agree reasonably well with that obtained using ATLAS 2D device simulation, thereby validating the proposed model.

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Abstract

LARVICIDAL ACTIVITIES OF PETROLEUM ETHER EXTRACTS OF DIFFERENT FRUIT PEEL WASTES AGAINST AN INDIAN STRAIN OF FILARIAL VECTOR, CULEX QUINQUEFASCIATUS SAY (DIPTERA: CULICIDAE)

Shrankhla and Sarita Kumar*

ABSTRACT

Objective: The larvicidal activity of the petroleum ether extracts of different fruit peels was assessed against the early fourth instar of Culex quinquefasciatus (Cx. quinquefasciatus). Methods: Petroleum ether extracts of peels of six common fruits were prepared and evaluated against early fourth instar larvae of Cx. quinquefasciatus using WHO standard procedure. The results were statistically analyzed to explore the most efficient extract. Results: Out of the six extracts, the Citrus sinensis and Mangifera indica peel extracts were found the most effective. Other tested fruit peel extracts resulted in 10-80% larval mortality after 24 to 48 hours of exposure. The larvicidal bioassays with C. sinensis resulted in LC50 and LC90 values were 31.345 ppm and 75.313 ppm, respectively as compared to high LC50 and LC 90 values of 195.97 ppm and 633.05 ppm obtained with M. indica. Conclusions: The petroleum ether extract of C. sinensis peels was found as the most effective extract against early fourth instar of Cx. quinquefasciatus amongst the other tested fruit peel extracts. Further investigations are needed to identify the bioactive component and formulate control strategies.

Keywords: Citrus sinensis, Culex quinquefasciatus, Fruit peels, Larvicidal potential, Mangifera indica.

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Role of gold and silver nanoparticles in cancer nano-medicine

Heerak Chugh [1], Damini Sood [1], Ishita Chandra [1], Vartika Tomar [1], Gagan Dhawan [2], Ramesh Chandra [1 3]

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PMID: 29533101
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Abstract

Development of nanoparticles (NPs) as a part of cancer therapeutics has given rise to a new field of research - cancer nanomedicine. In comparison to traditional anti-cancer drugs, NPs provide a targeted approach which prevents undesirable effects. In this communication, we have reviewed the role of gold and silver NPs (AgNPs) in the cancer nanomedicine. The preparation of gold NPs (AuNPs) and AgNPs can be grouped into three categories - physical, chemical and biological. Among the three approaches, the biological approach is growing and receiving more attention due to its safe and effective production. In this review, we have discussed important methods for synthesis of gold and AgNPs followed by techniques employed in characterization of their physicochemical properties, such as UV-visible spectroscopy, electron microscopy (TEM and SEM) and size and surface analysis (DLS). The mechanism of formation of these NPs in an aqueous medium through various stages - reduction, nucleation and growth has also been reviewed briefly. Finally, we conclude our review with the application of these NPs as anti-cancer agents and numerous mechanisms by which they render cancer cell toxicity.

Keywords: Nanoparticles; cancer; cancer nanomedicine; gold

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The Delhi University Journal of Undergraduate Research and Innovation, a peer-reviewed, open access, e-journal with an ISSN: 2395-2334, an initiative of University of Delhi and the first of its kind for reporting quality research at the undergraduate level in India. It has been instrumental in encouraging young minds to develop creative as well as analytical thinking abilities and inculcating a research culture at the undergraduate level. The Journal provides an apt platform for reporting significant findings of research at the undergraduate level for both college teachers

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Charu K. Gupta, Jatinder Pal Singh, Priya Chopra, V. Bhasker Raj and Arijit Chowdhuri

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Article

A concise synthesis of 2-alkenyl-3-phenyl-4H-chromen-4-ones via novel C-C bond formation using sulfone as potential intermediate

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JOURNAL ARTICLE

Geometry of the Large Magellanic Cloud using multiwavelength photometry of classical Cepheids

Sukanta Deb, Chow-Choong Ngeow, Shashi M Kanbur, Harinder P Singh, Daniel Wysocki, Subhash Kumar

Monthly Notices of the Royal Astronomical Society, Volume 478, Issue 2, August 2018, Pages 2526–2540, https://doi.org/10.1093/mnras/sty1124

Published: 03 May 2018 **Article history** ▾

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ABSTRACT

We determine the geometrical and viewing angle parameters of the Large Magellanic Cloud (LMC) using the Leavitt law based on a sample of more than 3500 common classical Cepheids (FU and FO) in optical (V, I), near-infrared (JHK_s), and mid-infrared ([3.6] μm and [4.5] μm) photometric bands. Statistical reddening and distance modulus free from the effect of reddening to each of the individual Cepheids are obtained using the simultaneous multiband fit to the apparent distance moduli from the analysis of the resulting Leavitt laws in these seven photometric bands. A reddening map of the LMC obtained from the analysis shows good agreement with the other maps available in the literature. Extinction-free distance measurements along with the information of the equatorial coordinates (α, δ) for individual stars are used to obtain the corresponding Cartesian coordinates with respect to the plane of the sky. By fitting a plane solution of the form $z = f(x, y)$ to the observed three-dimensional distribution, the following viewing angle parameters of the LMC are obtained: inclination angle $i = 25.^\circ 110 \pm 0.^\circ 365$, and position angle of line of nodes $\theta_{\rm lon} = 154.^\circ 702 \pm 1.^\circ 378$. On the other hand, modelling the observed three-dimensional distribution of the Cepheids as a triaxial ellipsoid, the following values of the geometrical axes ratios of the LMC are obtained: 1.000 ± 0.003: 1.151 ± 0.003: 1.890 ± 0.014 with the viewing angle parameters: inclination angle of $i = 11.^\circ 920 \pm 0.^\circ 315$ with respect to the longest axis from the line of sight and position angle of line of nodes $\theta_{\rm lon} = 128.^\circ 871 \pm 0.^\circ 569$. The position angles are measured eastwards from north.

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Adoption of Free and Open Source Software in India

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Abstract

The significance and robustness of Free and Open Source Software (FOSS) are now well known at stages of development as well as deployment. It's natural to assume that the products of FOSS to be deployed as a preference over the commercially available propriety software. However, proprietary software not only exists but is also thriving. The present paper looks into the aspect of adoption of FOSS, with special emphasis to India. The two natural arena for adoption- Governance and Academia are chosen for study. The policy initiatives, frameworks and challenges in the implementation of FOSS in these two areas are discussed, while giving instances of its successful adoption. The study also discusses in brief the adoption of FOSS in business enterprise, where its adoption is dynamic and accelerated. Several challenges in adoption of FOSS over propriety software are also pointed out.

Keywords: Adoption, FOSS, Proprietary software

INTRODUCTION

The Free and Open Source Software (FOSS) movement attained prominence in the 1980s, primarily to unshackle the restrictions imposed on the use of copy righted software, now known as CSS (Closed Source Software). Today, although one may not be aware, FOSS is actually providing for the computational requirements for a large spectrum of products and services which make the modern, technologically intensive digital life possible. Most of the smart phones (android based), servers and portals, ATMs, supercomputers, databases etc around the world are FOSS driven. In India, two humongous citizen-specific projects – Aadhar's online infrastructure and the railway booking website utilizes the Linux servers. The FOSS provides a myriad of advantages over the CSS at all stages – development, distribution and research, which have been extensively mentioned in the literature [1-5]. Given the intrinsic freedom of usage, customization, propagation and the relative cost effectiveness which all products of FOSS offers, the adoption of FOSS by a country like India could have been a natural and prudent choice as the nation endevours to upscale the use of IT (information technologies) in its pursuit of digital governance. In this context, one may be betting on India becoming the global FOSS hub. It's evident to expect that the India is a fertile ground for the nurturing of a strong and mature FOSS ecosystem. A FOSS ecosystem comprises of a multitude of stakeholders – government, academic institutions like schools and colleges, FOSS solution providers and the FOSS community. Moreover, in India there is no dearth of business opportunities for providing IT solutions to enterprise. This is because India is only next to China in having the largest base of Internet users, notwithstanding the fact that 80 per cent of its population still needs to go online. When this is seen in the background of the availability in the last two decades of large number of reliable and robust FOSS products, which provides solutions for all domains, wherein the CSS have hitherto provided the services (Refer Table 1) the above expectation is certainly not misplaced.

So, where does India stand on the adoption of free software? The adoption of FOSS in India, until now can be described as patchy and sporadic, without a concerted push to adopt FOSS in the daily computational needs of various spheres viz., Governance, academia and business enterprise. However, it must be mentioned here that although the growth of FOSS in India has witnessed a faster rate than the past, the FOSS ecosystem is far from the threshold level of maturity. This has resulted into a narrow user base for FOSS in India. The government's efforts for FOSS adoption have been varied. While some efforts are subtle, voluntary and staggered, some migrations to FOSS have been hard and coercive. In most cases, migration to FOSS are justified from the perspectives of cost and security and its salient features of being participative, egalitarian and democratic is not emphasized sufficiently. While the goal of making India a global hub for FOSS is laudable, it becomes necessary to examine the extent of adoption and the associated challenges in the migration to FOSS for the computational needs of the digital society which we envisage in India. The present paper surveys the extent of adoption of FOSS in the three major areas of the Indian society i.e., Governance, academia and business enterprise. The study also attempts to identify the impediments in each of these spheres which are inhibiting the development of a supportive and mature ecosystem around FOSS which can harness FOSS to its full potential.

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Optical Materials
Volume 83, September 2018, Pages 342-347

Spherical growth of nanostructures ZnO based optical sensing and photovoltaic application

Rakesh K. Sonker [a], S. Sikarwar [b], S.R. Sabhajeet [b], Rahul [c], B.C. Yadav [b]

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Abstract

The present paper reports deviation in the intensity of light transmitted through the film of ZnO spherical nanostructure (SNSs) with the exposure of humidity at room temperature. For this purpose, the precursor of ZnO SNSs was prepared and used for coating thin film on borosilicate substrates. The efficient dye-sensitized solar cells (DSSCs) are promisingly low-cost molecular solar cell devices. ZnO SNSs are promising materials used to use to create photoanodes for DSSCs. The film was then investigated using SEM, HR-TEM, XRD and UV–visible transmittance techniques. Further, it was employed as transmission based optical humidity sensor, the maximum sensitivity of which was found a ~ 1.81 μW/%RH with response and recovery time of 36 s and 124 s respectively. The sensor showed ~97% reproducible results. The fabricated ZnO SPSs based DSSC shows a short circuit current density (J_{sc}) of 3 mA/cm^2, open circuit voltage (V_{oc}) of 0.62 V and efficiency (η) of 1.3% at one sun condition.

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Section G: Tunable Dielectrics for RF and High Frequency Devices

Study of electrical, dielectric and EMI shielding behavior of copper metal, copper ferrite and PVDF composite

Krishna Kamal Halder, Rakesh K. Sonker, V. K. Sachdev, Monika Tomar & Vinay Gupta

Pages 80-87 | Received 10 Dec 2017, Accepted 16 Jul 2018, Published online: 16 Apr 2019

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Published: 05 June 2018

Synthesis and investigation of cubical shaped barium titanate and its application as opto-electronic humidity sensor

Samiksha Sikarwar, Rakesh K. Sonker, Anuj Shukla & B. C. Yadav

Journal of Materials Science: Materials in Electronics **29**, 12951–12958 (2018) | Cite this article

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Abstract

In the current scenario, nanoscience and nanotechnology are playing a vital role in the upliftment of the quality of human life. The quantum confinement effect that arises at the nano-dimensional particles, changes the properties of the material in a drastic way. The present paper reports the successful synthesis of $BaTiO_3$ using rotary evaporator and fabrication of sensing elements by deposition of films on flat borosilicate glass substrates using 2-methoxy ethanol and homogeneous precursor in the ratio of 1:4, 2:4, 3:4 and 4:4. These films were then annealed at 650 °C and characterized through various techniques. Morphological investigation as obtained from SEM reported the cubical clusters and the dimensionality of these clusters, decreases with increase in the concentration of 2-methoxy ethanol. An optical investigation done through UV–Vis spectrum showed the absorbance in the UV range and Tauc plot estimated the optical band gaps of 3.842, 3.854, 3.864 and 3.872 eV for the respective films. Structural information as obtained from XRD of the film having 2-methoxy ethanol and homogeneous precursor in the ratio of 4:4 gave minimum crystallite size of ~ 18 nm. Further, these films were employed as opto-electronic humidity sensor where the maximum sensitivity of the sensing elements was found as 2.15, 2.79, 3.28 and 3.67 μW/%RH respectively. Thus as the concentration of 2-methoxy ethanol in the solution increases, the properties of the material increases and hence the humidity sensing potency also increases.

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Optik

Volume 169, September 2018, Pages 166-171

Original research article

Less toxic tin incorporated perovskite solar cell using polymer electrolyte processed in the air

Rahul [a b], Pramod K. Singh [b], M. Parvaz [a], Sultan Ahmed [a], Rakesh K. Sonker [c], B. Bhattacharya [b], Zishan H. Khan [a]

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Abstract

Perovskite sensitizer materials based solar cell (PSSC) is freshly seemed as warm topic because very soon they achieve higher efficiency (~20%) at incident light intensity 100 mw/cm^2 (1 sun condition). This paper deals the fabrication, characterization as well as application of perovskite material. Perovskite material i.e. $MASnCl_3$(CH_3NH_3SnCl3) was composed by coordinate statement of equimolar convergence of CH_3NH_3Cl and tin $SnCl_2$ in DMF arrangement. It was extra portrayed utilizing different characterization methods like X-Ray diffraction (XRD), UV–vis ingestion spectroscopy and Scanning electron microscope (SEM). PSSC has been fabricated utilizing methyl ammonium tri-tin chloride ($CH_3NH_3SnCl_3$) perovskite and polyethylene oxide (PEO) solid polymer electrolyte(SPE)sandwiched between perovskite working electrode (WE) and platinum counter electrode (CE) and its implementation at room condition has been accounted for in this paper. The fabricated PSSC demonstrates a short out current density (Jsc) of 1.8 mA/cm^2, Voc of 0.48 V, fill factor of 0.68 and efficiency (η) of 0.60% at one sun condition.

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ARTICLE NAVIGATION

RESEARCH ARTICLE | MAY 08 2018

Sol-gel formed spherical nanostructured titania based liquefied petroleum gas sensor

S. R. Sabhajeet; B. C. Yadav; Rakesh K. Sonker

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+ Author & Article Information

AIP Conference Proceedings 1953, 030078 (2018)
https://doi.org/10.1063/1.5032413

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The present work reports the preparation of Titania(TiO_2) thin film by sol-gel technique and its Liquefied Petroleum Gas (LPG) sensing. TiO_2 exists in numerous phases possessing different structural properties like amorphous, anatase or anatase/rutile mixed phases. The structural analysis confirmed the formation of TiO_2 having an average crystallite size 21 nm. SEM showed the regular and porous surface morphology. The band gap of the material was found as 3.65 eV. This film was employed for LPG sensing and variations in resistance with exposure of LPG were observed. Sensor response (S) as a function of time was calculated and its maximum value was found as 2.8 for 4% vol. of LPG with a response and recovery times of 240 sec and 248 sec respectively.

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Materials Letters

Volume 223, 15 July 2018, Pages 133-136

ZnO nanoneedle structure based dye-sensitized solar cell utilizing solid polymer electrolyte

Rakesh K. Sonker [a], Rahul [b], S.R. Sabhajeet [c]

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Abstract

Developing new technologies that could lead to alternatives to the traditional silicon-based solar panels and to efficiently light the world in the future, is critically important because of limited natural petroleum resources. Dye-sensitized solar cells (DSSCs) are promisingly efficient and clean hybrid, organic–inorganic, low-cost molecular solar cell devices. Because of their unique, multifunctional properties, zinc oxide (ZnO) nanostructures are promising materials to use to create photoanodes for DSSCs. ZnO was one of the first metal oxides which used in dye-sensitized solar cells. It exhibits a unique combination of potentially interesting properties such as high bulk electron mobility and probably the richest variety of nanostructures based on a very wide range of synthesis routes. The fabricated ZnO nanoneedle based DSSCs shows a short circuit current density (J_{sc}) of 20 mA/cm^2, open circuit voltage (V_{oc}) of 0.48 V, fill factor (FF) of 0.44 and efficiency (η) of 4.2% at one sun condition.

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Optics Communications
Volume 427, 15 November 2018, Pages 37-43

Enhancement in self-compression due to co-propagating laser pulse in plasma

Sintu Kumar, Pradeep Kumar Gupta, R. Uma, R.P. Sharma

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Abstract

The study proposes enhancement in self-compression of the laser pulse with relativistic nonlinearity in a plasma. It is presented that, a low-intensity laser pulse can tune the pulse duration and peak intensity of the high-intensity laser pulse. The coupled modified nonlinear Schrodinger equations (MNLS) have been established for both laser pulses in plasma. The enhancement in compression of the high-intensity laser pulse is solved by numerical methods. The nonlinearity of plasma, self-phase modulation (SPM), and group velocity dispersion (GVD) compress the laser pulse to the extremely short duration high peak intensity laser pulse. As a result, it is observed that the compression of the high-intensity laser pulse is highly sensitive to the combined intensity of both laser pulses, plasma density and even a small walkoff between two pulses can affect the high-intensity laser pulse compression.

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ARTICLE NAVIGATION

RESEARCH ARTICLE | APRIL 26 2018

Dynamics of focused femtosecond laser pulse during photodisruption of crystalline lens

Pradeep Kumar Gupta ; Ram Kishor Singh; R. P. Sharma

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+ Author & Article Information

Physics of Plasmas 25, 043121 (2018)
https://doi.org/10.1063/1.5025006 Article history

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Propagation of laser pulses of femtosecond time duration (focused through a focusing lens inside the crystalline lens) has been investigated in this paper. Transverse beam diffraction, group velocity dispersion, **graded refractive index** structure of the crystalline lens, self-focusing, and photodisruption in which plasma is formed due to the high intensity of laser pulses through multiphoton ionization have been taken into account. The model equations are the modified nonlinear Schrödinger equation along with a rate equation that takes care of plasma generation. A close analysis of model equations suggests that the femtosecond laser pulse duration is critical to the breakdown in the lens. Our numerical simulations reveal that the combined effect of self-focusing and multiphoton ionization provides the breakdown threshold. During the focusing of femtosecond laser pulses, additional spatial pulse splitting arises along with temporal splitting. This splitting of laser pulses arises on account of self-focusing, laser induced breakdown, and group velocity distribution, which modifies the shape of laser pulses. The importance of the present study in cavitation bubble generation to improve the elasticity of the

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Potential of Nardostachys jatamansi Extracts to Manage Indian Strain of Aedes aegypti: A Novel Approach for Vector Control

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DU Journal of Undergraduate Research and Innovation
Volume 3, Issue 2, pp 01-11

Gesture Recognizing Smart System

Amrita Kumari, Abhijeet, Aman Sharma, Ankit Kumar Baliyan, Kiran, Ravneet Kaur

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ABSTRACT

For differently abled people like deaf or dumb, communication is a challenge. They make use of sign language which is not easily understandable by others and hence poses severe challenges and inconveniences for them in carrying out their day to day task. This work attempts to bridge the communication gap by designing a device that can convert the user's sign language gestures to visual form. The primary focus of the work is to design a portable, intelligent, smart, and cost-effective system using flex sensors and accelerometer which identifies the extensive hand movements of the differently abled person while communicating using sign language and in effect can facilitate him/her in communicating with others. The portable device can capture the user's sign language gestures, convert it to text and outputs the translated text to PC serial monitor, which can easily be understood and can also be converted to voice to be heard by the normal audience. The work also encompasses the design of mobile application for further assistance to differently abled persons.

Keywords: Arduino, Flex Sensors, Gesture Recognition, Sign Language

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Gesture Recognizing Smart System

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ABSTRACT

For differently abled people like deaf or dumb, communication is a challenge. They make use of sign language which is not easily understandable by others and hence poses severe challenges and inconveniences for them in carrying out their day to day task. This work attempts to bridge the communication gap by designing a device that can convert the user's sign language gestures to visual form. The primary focus of the work is to design a portable, intelligent, smart, and cost-effective system using flex sensors and accelerometer which identifies the extensive hand movements of the differently abled person while communicating using sign language and in effect can facilitate him/her in communicating with others. The portable device can capture the user's sign language gestures, convert it to text and outputs the translated text to PC serial monitor, which can easily be understood and can also be converted to voice to be heard by the normal audience. The work also encompasses the design of mobile application for further assistance to differently abled persons.

Keywords: Arduino, Flex Sensors, Gesture Recognition, Sign Language

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Gesture Recognizing Smart System

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Keywords: styrene, acrylonitrile, copolymer, ion selective electrode, potentiometric sensor

Introduction

A large number of heavy metals and their compounds are found in the industrial waste and responsible for the environmental pollution. The major sources of lead wastes are lead battery effluent, paint and leather industry. World Health Organization (WHO) [1] has recognized an action level of 10 ppb (µg/L) for lead in drinking water. Therefore, reliable and convenient determination of lead (II) ion is significantly important and emergent in monitoring human health effects and the environment. Lead is a strong poison and tends to

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Structure-Guided Design and Development of Potent and Selective Dual Bromodomain 4 (BRD4)/Polo-like Kinase 1 (PLK1) Inhibitors

Shuai Liu, Hailemichael O. Yosief, Lingling Dai, He Huang, Gagan Dhawan, Xiaofeng Zhang, Alex M. Muthengi, Justin Roberts, Dennis L. Buckley, Jennifer A. Perry, Lei Wu, James E. Bradner*, Jun Qi*, and Wei Zhang*

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Journal of Medicinal Chemistry

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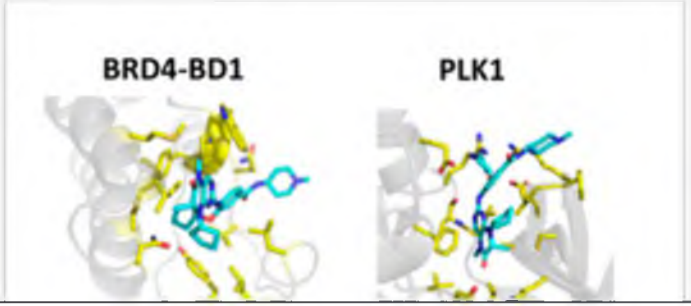
SUBJECTS: Alkyls, Inhibition, Inhibitors,

Abstract

The simultaneous inhibition of polo-like kinase 1 (PLK1) and BRD4 bromodomain by a single molecule could lead to the development of an effective therapeutic strategy for a variety of diseases in which PLK1 and BRD4 are implicated. Compound **23** has been found to be a potent dual kinase–bromodomain inhibitor (BRD4-BD1 IC_{50} = 28 nM, PLK1 IC_{50} = 40 nM). Compound **6** was found to be the most selective PLK1 inhibitor over BRD4 in our series (BRD4-BD1 IC_{50} = 2579 nM, PLK1 IC_{50} = 9.9 nM). Molecular docking studies with **23** and BRD4-BD1/PLK1 as well as with **6** corroborate the biochemical assay results.



Issue 13, 2018

From the journal:
Green Chemistry

Sequential (3 + 2) cycloaddition and (5 + *n*) annulation for modular synthesis of dihydrobenzoxazines, tetrahydrobenzoxazepines and tetrahydrobenzoxazocines†

Check for updates

Alex Muthengi,[a] Xiaofeng Zhang,[a] Gagan Dhawan,[b] Wensheng Zhang,[c] Francesca Corsini[a] and Wei Zhang *[a]

Author affiliations

Abstract

A two-step method for the (3 + 2) cycloaddition of azomethine ylides followed by a double S_N2 substitution-based (5 + *n*) annulation is introduced for the modular synthesis of dihydrobenzoxazine, tetrahydrobenzoxazepine and tetrahydrobenzoxazocine derivatives. After a quick water wash without further purification, the (3 + 2) cycloaddition intermediates were used for the (5 + *n*) annulation to afford products. Green chemistry metrics analysis of the

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Authors:
Sudha Vipin Sharma*, Sunita Hooda,

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An Analysis on Recent Technological Developments in Green Chemistry: Biocatalytic Processes | *Original Article*

— Sudha Vipin Sharma*, Sunita Hooda, in *Journal of Advances and Scholarly Researches in Allied Education* | *Multidisciplinary Academic Research*

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ABSTRACT

Enzymes are the most capable catalysts, offering considerably more focused processes contrasted with chemical catalysts. The quantity of modern applications for enzymes has detonated as of late, principally inferable from advances in protein building innovation and environmental and monetary necessities. In this, we audit late advancement in protein biocatalysis, and talk about the patterns and procedures that are prompting more extensive mechanical compound applications. The difficulties and openings in creating biocatalytic processes are additionally talked about. Enzymes as mechanical biocatalysts offer various points of interest over conventional chemical processes as for supportability and process proficiency. Protein catalysis has been scaled up for business processes in the pharmaceutical, nourishment and refreshment enterprises, albeit further upgrades in dependability and biocatalyst usefulness are required for ideal biocatalytic processes in the vitality area for biofuel creation and in gaseous petrol change. The specialized hindrances related with the execution of immobilized enzymes recommend that a multidisciplinary approach is fundamental for the improvement of immobilized biocatalysts relevant in such modern scale processes. In particular, the cover of specialized aptitude in catalyst immobilization, protein and process designing will characterize the up and coming age of immobilized biocatalysts and the effective scale-up of their initiated processes. This audit talks about how biocatalysis has been effectively conveyed, how protein immobilization can enhance modern processes, and in addition centers around the investigation devices basic for the multi-scale execution of compound immobilization for expanded item yield at most extreme market gainfulness and least calculated weight on the environment and client.

KEYWORDS

BIONOTES Vol. 21 (1) Mar., 2019

SIGHTINGS OF *JAMIDES BOCHUS* (STOLL, [1782]) AND *PROSOTAS NORA* (C. FELDER, 1860) (INSECTA: LEPIDOPTERA: LYCAENIDAE) FROM URBANIZED PARTS OF NEW DELHI, INDIA

RAJESH CHAUDHARY* & VINESH KUMAR

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The population of Delhi has increased seventy fold during the last century, with concurrent expansion of urban or concretized landscape (Anonymous, 1912; Anonymous, 2011). Presently, the urbanized portion of Delhi is dotted with numerous parks and gardens harbouring domesticated flora. An evident effect of urbanization of a geographical area is change in the species composition of plants and animals, and, in fact, urbanization introduces novel ecosystems (Lepczyk *et al.*, 2017; Donahue & Lambert, 2015). Insects such as butterflies, which require larval host plants for their survival and are sensitive to the effect of urbanization, can act as an indicator of biodiversity in urban settings (Clark *et al.*, 2007; Fontaine *et al.*, 2016; Dennis *et al.*,

The first partial list of butterflies of Delhi was prepared by Longstaff (1912), mentioning 21 species. An elaborate list of 62 butterflies was made by Jandu (1942, 1943) and Donahue (1967) listed 77 species of butterflies. The list was expanded to include 86 species by Larsen (2002). Recently, a checklist of 115 species of butterflies seen in Delhi was published by Biswas *et al.* (2017). The increase in the butterfly count over time, as evident from these lists, could be the effects of gradual changes in the pattern of floral diversity and habitat due to horticultural practices and urbanization. Alternatively, it may merely be the result of increased observation.

Here, we report the recent sightings of two species of butterflies, *Jamides bochus* (Dark Cerulean) and *Prosotas nora*

Article | Published: 04 May 2018

Occurrence of subdioecy and scarcity of gender-specific markers reveal an ongoing transition to dioecy in Himalayan seabuckthorn (*Hippophae rhamnoides* ssp. *turkestanica*)

Yash Mangla, Kamal Das, Sapinder Bali, Heena Ambreen, Soom Nath Raina, Rajesh Tandon & Shailendra Goel

Heredity **122**, 120–132 (2019) | Cite this article

889 Accesses | **6** Citations | **2** Altmetric | Metrics

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Sections | Figures | References

Abstract

Introduction

Materials and methods

Results

Discussion

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Acknowledgements

Author information

Ethics declarations

Abstract

Dioecy and the dynamics of its evolution are intensely investigated aspects of plant reproduction. Seabuckthorn (*Hippophae rhamnoides* ssp. *turkestanica*) is an alpine shrub growing wild in certain parts of western Himalaya. The previous studies have reported heteromorphic sex chromosomes in the species and yet marker-based studies indicate high

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Archives of Control Sciences
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Synchronization of fractional order Rabinovich-Fabrikant systems using sliding mode control techniques

SANJAY KUMAR, CHAMAN SINGH, SADA NAND PRASAD,
CHANDRA SHEKHAR and RAJIV AGGARWAL

In this research article, we present the concepts of fractional-order dynamical systems and synchronization methodologies of fractional order chaotic dynamical systems using slide mode control techniques. We have analysed the different phase portraits and time-series graphs of fractional order Rabinovich-Fabrikant systems. We have obtained that the lowest dimension of Rabinovich-Fabrikant system is 2.85 through utilization of the fractional calculus and computational simulation. Bifurcation diagrams and Lyapunov exponents of fractional order Rabinovich-Fabrikant system to justify the chaos in the systems. Synchronization of two identical fractional-order chaotic Rabinovich-Fabrikant systems are achieved using sliding mode control methodology.

Key words: fractional-order chaotic system, chaos synchronization, Rabinovich-Fabrikant system, Lyapunov exponents

1. Introduction

Chaos, an inevitable phenomenon is the part of nonlinear systems. It is highly sensitive to the initial conditions. This sensitivity is popularly known as the butterfly effect [1]. Since Pecora and Carroll established the concept of chaos synchronization with different initial conditions, it (chaos synchronization) has been received much attention in the field of research. Synchronization of two or more than two chaotic dynamical systems is one of most important applications of chaos. Last several decades, chaos synchronization has been become the research

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SANJAY KUMAR, CHAMAN SINGH, SADA NAND PRASAD,
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In this research article, we present the concepts of fractional-order dynamical systems and synchronization methodologies of fractional order chaotic dynamical systems using slide mode control techniques. We have analysed the different phase portraits and time-series graphs of fractional order Rabinovich-Fabrikant systems. We have obtained that the lowest dimension of Rabinovich-Fabrikant system is 2.85 through utilization of the fractional calculus and computational simulation. Bifurcation diagrams and Lyapunov exponents of fractional order Rabinovich-Fabrikant system to justify the chaos in the systems. Synchronization of two identical fractional-order chaotic Rabinovich-Fabrikant systems are achieved using sliding mode control methodology.

Key words: fractional-order chaotic system, chaos synchronization, Rabinovich-Fabrikant system, Lyapunov exponents

1. Introduction

Chaos, an inevitable phenomenon is the part of nonlinear systems. It is highly sensitive to the initial conditions. This sensitivity is popularly known as the butterfly effect [1]. Since Pecora and Carroll established the concept of chaos synchronization with different initial conditions, it (chaos synchronization) has

An Optimal Policy for Deterministic Model for Time Proportional Deteriorated Inventory with Different Demand Rate Pattern

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Chaman Singh, Assistant Professor, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, Delhi, India.

Abstract--- In this paper, we have formulated an economic order quantity inventory model for a deteriorating item having a twofold deterministic demand rate. The Constant demand rate in the first part of the cycle and the exponential demand rate in the second part of the cycle has been taken. We also considered deterioration rate is time sensitive in nature and Shortages are not the part of this model. A complete solution procedure is provided to demonstrate the proposed model. Also, a numerical example and sensitivity analysis of various unknown parameters illustrated in this model.

Keywords---Constant and Time Dependent Exponential Demand Rate, Deteriorating Items, EOQ, Time Proportional Deterioration Rate.

I. Introduction

In today's competitive world, Mostly business organizations trying to stress on inventory management and their problems, which occurred frequently. It is known that every business organization showing their interest to obtain economic order quantity (EOQ), through which minimized total average inventory cost can be achieved. During the last couple of decades, it has been observed that, many researches working in the direction to control and maintain the inventory in the better and efficient way. In real practical life situation, decay or deterioration of normal talk in now days. Vegetables, fruits, foods are some example of some items having deterioration in nature. As the time increases, deteriorating items keep losing their original value with regard the quantities and qualitative aspect. Therefore, Ignorance of deteriorating factors while analyzing the model leads to harmful results. So it is an unavoidable factor, which should be given attention during the optimization inventory problems Sharma, A. et.al [24] [25] suggested the inventory model in which different demand rate has been taken with a different time interval. Commercial based lot size model for price sensitive dependent demand.

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Open educational resources enable the effective use and sharing of knowledge with those who have been denied an education due to economic or social circumstances. Sarita Kumar outlines how open educational resources can benefit education systems across the Global South by opening up an entire generation to new ideas, technologies and advancements.

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Author Affiliations +

The J. of the Lepidopterists' Society, 73(1):23-33 (2019). https://doi.org/10.18473/lepi.73i1.a4

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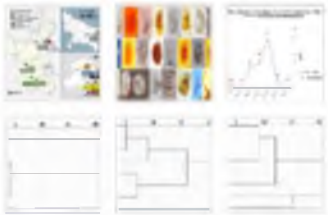

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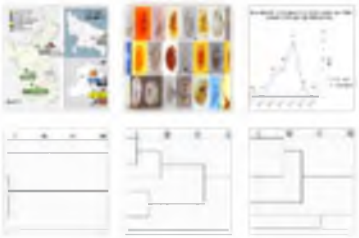

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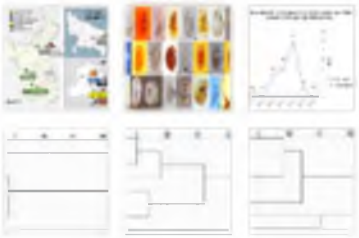

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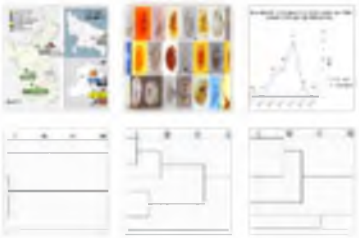

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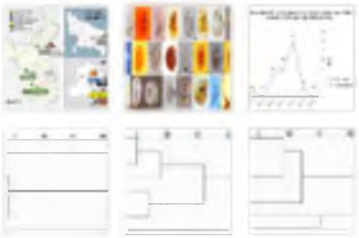

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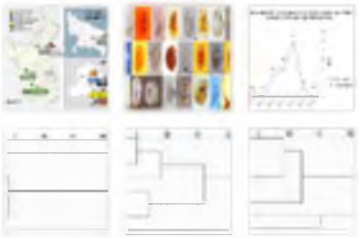

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Jeeva Susan Abraham [a], S. Sripoorna [a], Jyoti Dagar [a], Shiv Jangra [a], Anit Kumar [a], Khushi Yadav [a], Simran Singh [a], Anusha Goyal [a], Swati Maurya [a], Geetu Gambhir [a], Ravi Toteja [a], Renu Gupta [b], Dileep K. Singh [c], Hamed A. El-Serehy [d e], Fahad A. Al-Misned [d], Saleh A. Al-Farraj [d], Khaled A. Al-Rasheid [d], Saleh A. Maodaa [d], Seema Makhija [a]

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Abstract

The present investigation aims to study the diversity of ciliates from different habitats in and around Delhi, India, and the correlation of this diversity with soil quality (agricultural lands (site 1 and 2), dump yards (site 3 and 4), sewage treatment plant (site 5), residential land (site 6), landfill (site 7) and barren land (site 8)). Various physicochemical parameters of the different soil samples were studied and analysed for soil texture, interstitial water, pH, conductivity, total organic carbon, total organic matter, total nitrogen and phosphorous content, using standard protocols. Seventeen ciliate taxa belonging to four classes, seven orders, ten families, and 17 genera were recorded, with the maximum number of species (eleven) belonging to the class Spirotrichea. Ciliate diversity was highest at sites 5 and 6 and lowest at sites 1 and 2. *Spathidium* sp. was the dominant species in the conditioned land (site 8), while the ciliate *Colpoda* sp. was present in all the sites examined, showing the highest population density in the sewage treatment plant site (site 5). Statistical analysis showed that ciliate diversity was

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Satya Prakash Yadav, Kanchan Yadav, Jayeeta Lahiri & Avanish Singh Parmar

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1. Introduction
2. Brief overview of liquid crystals
3. Dispersion of nanoparticles in liquid crystals
4. Application and promise of FLC nanocomposite systems
5. Effect of nanomaterials dispersion on the various properties of ferroelectric liquid crystals
6. Conclusion and future perspectives
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ABSTRACT

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In recent years, dispersion of nanomaterials in liquid crystal media has attracted a great deal of attention for their applications in various fields and basic understanding. In this regard, nanocomposites of ferroelectric liquid crystals hold a great promise for technological advancement in displays, sensors, development of hybrid materials for optical applications and others. With the emphasis on the properties of ferroelectric liquid crystals, this paper presents a summarizing overview with critical comments on the progress made in last one decade in understanding the influence of nanoparticles on the ferroelectric liquid crystals. The dispersion of nanoparticles in liquid crystal (host material) significantly influences its properties, thereby making the dispersed material more promising for potential applications.

KEYWORDS: Liquid crystals | ferroelectric liquid crystals | nanocomposites | memory effect

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Over the last few years, much interest has been shown to the study of ferroelectric liquid crystals (FLCs) dispersed with nanomaterials (nanoparticles (NPs), nanorods (NRs), quantum dots (QDs), etc.) of various shapes and sizes because these nanocomposites hold a great promise for the scientific advancement and technological breakthroughs in the applications of LC-based devices [1–18]. The FLCs based devices have been found to be more advantageous over the nematic liquid crystals (NLCs) based devices in terms of

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Abstract

The potential of electrochemically deposited ZnO nanorods using graphene oxide (GO) coated inter digital electrode (IDE) as substrate material for gas sensing applications has been reported. For this purpose, GO solution was synthesized via Hummer's method and coated over IDE of aluminium fabricated on the glass plate. Later ZnO nanorods were deposited on it using electrochemical method. For the structural, morphological and elemental analysis, as-grown nanorods were characterized by

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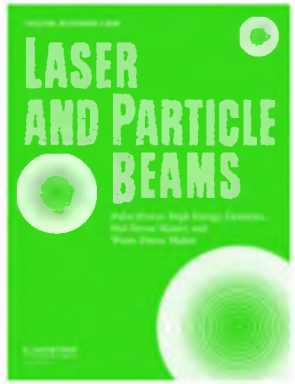

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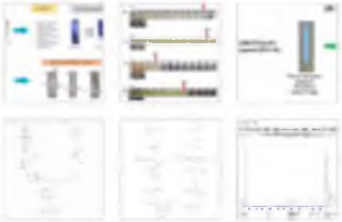

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Abstract

Due to emergence of drug resistant pathogens, nearly all available medicines are becoming ineffective against these life threatening pathogens so there is dire need for the discovery of compounds having unique modes of action. During our previous studies, actinomycetes designated as 196 and RI.24 were isolated, screened for bioactive compounds production and characterized using 16S rRNA gene sequencing. Colony 196 was identified as strain of *Streptomyces albolongus* (100% sequence similarity) and RI.24 as strain of *Streptomyces enissocaesilis* (100% sequence similarity). In current study, potential bioactive compounds produced by these strains were characterized. Cold extraction method was applied for taking out of bioactive compounds from actinomycetes. Minimum inhibitory concentration (MIC) determination of compounds from these strains showed activity nearly in the range of commercial antibiotics (strain 196 0.0075 mg/ml, RI.24 0.25 mg/ml and chloramphenicol 0.0075 mg/ml, ampicillin 0.025 mg/ml). Structural elucidation of these compounds was carried out using spectroscopic techniques of LC–MS/MS and ^{1}H NMR. Compounds K-252-C-Aglycone, indolocarbazole alkaloid, decoyinine, cycloheximide were detected from strain 196

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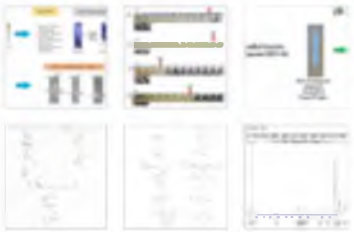

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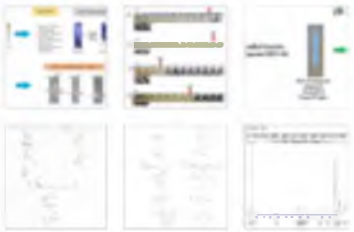

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Abstract

Response of heavy metals namely cadmium (Cd) and copper (Cu) on the expression of stress responsive genes in the fresh water ciliate, *Tetmemena* sp. (single cell eukaryote) was studied. Stress responsive genes include heat shock protein genes and genes involved in antioxidant defence system. Quantitative real time PCR (qRT-PCR) was employed to evaluate the effects of Cd and Cu on the expression of cytosolic *hsp70* and *Mn-sod* genes. Increase in the expression of these genes was observed after exposure with the heavy metals. The macronuclear cytosolic *hsp70* and *Mn-sod* (*SOD2*) genes were also sequenced and characterized using various bioinformatics tools. In antioxidant defence system, the superoxide dismutase (SOD) family is a first line antioxidant enzyme group involved in catalysing reactive oxygen species (ROS) to hydrogen peroxide and molecular oxygen. Influence of Cd and Cu on the activity of SOD has already been reported by our group. Therefore, the enzymatic activities of antioxidant enzymes, catalase (CAT) and glutathione peroxidase (GPx) were studied in the presence of Cd and Cu and there was significant increase in activity of these enzymes in concentration dependent manner. This study suggests that cytosolic *hsp70*, *Mn-sod* and the antioxidant enzymes such as CAT and GPx can be used as effective molecular biomarkers for heavy metal

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Expression and molecular characterization of stress-responsive genes (*hsp70* and *Mn-sod*) and evaluation of antioxidant enzymes (CAT and GPx) in heavy metal exposed freshwater ciliate, *Tetmemena* sp.

Sripoorna Somasundaram, Jeeva Susan Abraham, Swati Maurya, Ravi Toteja, Renu Gupta & Seema Makhija

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Symposium Report: International Symposium on Ciliate Biology, India Habitat Centre, New Delhi, India, 04–06 April 2018

Komal Kamra, Harpreet Kaur, Shashi, Jeeva Susan Abraham, Sripoorna Somasundaram, Seema Makhija, Ravi Toteja, Alan Warren, Renu Gupta

First published: 05 November 2019 | https://doi.org/10.1111/jeu.12773 | Citations: 1

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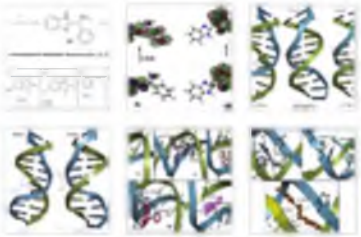

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Research Article

Synthesis, DFT studies, molecular docking, antimicrobial screening and UV fluorescence studies on ct-DNA for novel Schiff bases of 2-(1-aminobenzyl) benzimidazole

Sugandha Singhal [a], Pankaj Khanna [b], Leena Khanna [a]

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Abstract

Novel Schiff bases (SBs) were synthesized by condensation of 2-(1-Amino benzyl) benzimidazole with heterocyclic and aromatic carbonyl compounds. The structural characterization was done using ^{1}H, ^{13}C NMR, FTIR and ES-MS spectroscopic techniques. The *in silico* pharmacokinetics showed that nearly all compounds obeyed Lipinski rule of 5 with low toxicity and metabolic stability. The global reactivity descriptors were calculated using DFT approach. The molecular docking result of SBs with ct-DNA suggested interaction *via* groove binding mode. The antibacterial activity was tested against *S.aureus* and *E.coli*, indicated significant inhibition than reference drug. The compound **4d** gave best results at 50 μg ml^{-1} concentrations. UV/Vis and Fluorescence spectroscopy tools were used to evaluate ct-DNA binding ability of compounds **4a–e** through hypochromic shift. The steady state fluorescence predicted a moderate binding constant of 1.12×10^{4} for **4d**, indicative of non-intercalative mode.

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Volume 56, Issue 10
October 2019
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REVIEW

Recent Trends in the Synthesis of Benzimidazoles From *o*-Phenylenediamine *via* Nanoparticles and Green Strategies Using Transition Metal Catalysts

Sugandha Singhal, Pankaj Khanna, Siva S. Panda, Leena Khanna

First published: 27 October 2019 https://doi.org/10.1002/jhet.3649 | Citations: 10

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Abstract

Benzimidazole is a heterocyclic moiety of immense importance as it acts as a primary "biolinker" in diverse synthetic routes to obtain bioactive compounds. Substituted benzimidazoles are known to possess a varied range of pharmacological applications, namely, anti-cancer, anti-diabetic, anti-inflammatory, and antiviral like anti-HIV and anti-fungal. A number of reviews covering the important aspects of benzimidazoles such as pharmacological activities, SAR studies, and well-known methods of synthesis have appeared in the literature. However, green synthetic methods particularly using transition metal (TM) catalysts and their nanoparticles, although being more viable and extensively applied by researchers in the present scenario, have not been exclusively and expansively reviewed. Besides this, the vital precursors required for knitting the skeleton of benzimidazole are mainly *o*-aryldiamines. The conventional synthesis generally involved the condensation of these diamines with carbonyl/carboxylic acid derivatives either *via* high temperature heating or *via* adding strong acids, mostly resulting in poor yields or mixtures. However, recent trends are replacing these conditions by mild and green conditions through TM catalysts. Therefore, the current review emphasizes on the recent trends adopted in the synthesis of benzimidazoles using condensation reaction of *o*-phenylenediamines and various aldehydes/ester/amide/alcohols with TM in a catalytic role in nanoform and under environmentally benign green conditions.

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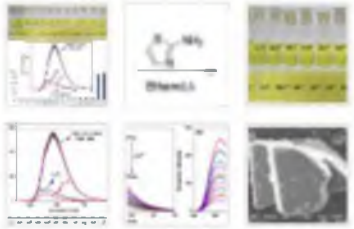

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Volume 1211, 5 July 2020, 128091

Curcumin based supramolecular ensemble for optical detection of Cu^{2+} and Hg^{2+} ions

Shyam Lal [a], Kunal Prakash [b], Nainy Khera [a], Drashya [a], Snigdha Singh [c], Aarushi Singh [c], Sunita Hooda [a], Ramesh Chandra [c]

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Highlights

- Curcumin based fluorescent probe **L1** has selective ability towards Hg^{2+} and Cu^{2+} ion in aqueous solution.
- "Real eye" evaluation of Hg^{2+} and Cu^{2+} ions was observed through paper strips.
- Supramolecular ensembing of Hg^{2+} and Cu^{2+} was confirmed through SEM, PXRD and TD-DFT methods.
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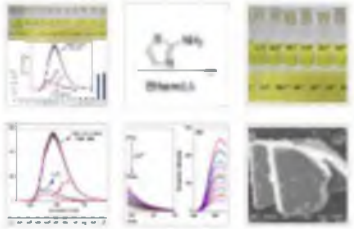

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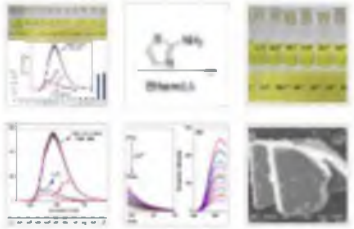

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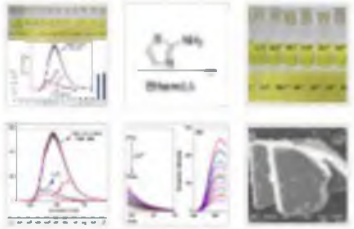

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- Curcumin based fluorescent probe **L1** has selective ability towards Hg^{2+} and Cu^{2+} ion in aqueous solution.
- "Real eye" evaluation of Hg^{2+} and Cu^{2+} ions was observed through paper strips.
- Supramolecular ensembing of Hg^{2+} and Cu^{2+} was confirmed through SEM, PXRD and TD-DFT methods.
- **L1** acts as smart, rapid, efficient and reusable optical probe for Hg^{2+} and Cu^{2+} ions.

Abstract

A novel curcumin based molecular probe **L1** was synthesized using 2-aminothiazole through covalent linkage. The structure of the probe **L1** was characterized by UV–Vis, Fluorescence, SEM, PXRD and other related spectroscopic techniques. The molecular

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Abstract

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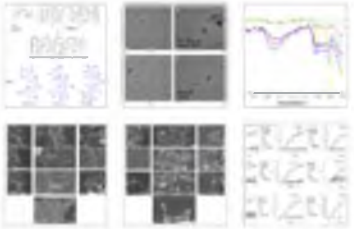

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Polydopamine –aminoglycoside nanoconjugates: Synthesis, characterization, antimicrobial evaluation and cytocompatibility

Indu Singh [a c 1], Ayushi Priyam [b 1], Diksha Jha [a], Gagan Dhawan [c], Hemant K. Gautam [a], P. Kumar [b]

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Highlights

- Polydopamine nanoparticles have been synthesized by oxidative self-polymerization.
- Aminoglycoside-conjugation yielded nanoconjugates.
- These exhibited excellent antimicrobial activity with high cyto-compatibility.
- Nanoconjugates also showed activity against resistant pathogens.

Abstract

Development of nanoparticle- and self-assembled nanomaterial-based therapeutics has become a rapidly growing area in the field of nanotechnology. One of the natural compounds, dopamine, presents as a neurotransmitter in the human brain serving as a messenger and deals with the behavioural responses, has provided an ideal platform

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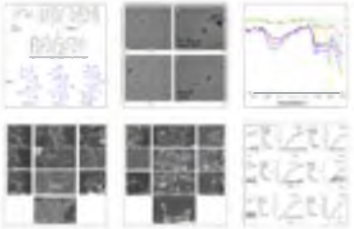

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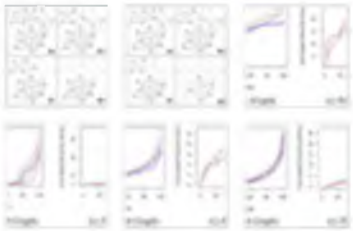

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Rakhi Saxena [a], Sharanjit Kaur [b], Vasudha Bhatnagar [c]

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Abstract

Comparing structural similarities among complex networks is an important task in several scientific and social science applications. Existing techniques for quantifying network similarity range from network-centric methods that consider *global* network topology to node-centric methods that consider *local* node-level sub-structures.

In this paper, we address the research gap between computationally expensive network-centric approaches and myopic node-centric network comparison methods by introducing a novel approach to quantify network similarity based on hierarchical graph decomposition. The approach adequately captures both global and local topology and is motivated by the observation that networks from diverse domains such as physical, chemical, biological and social systems exhibit an inherent structural hierarchy that emerges from local dyadic and triadic interactions. The proposed algorithm, *N*etwork *S*imilarity via graph *D*ecomposition (*NSD*), extracts network signatures from hierarchical decomposition of networks and uses Canberra distance to quantify the similarity between signatures. We use two well-known graph decomposition methods to expose network hierarchy resulting in two variations of NSD. We find that our approach groups similar networks better than competing algorithms. Experimentation using 40 real-world networks, 15 massive networks, and 30 large synthetic networks establishes that the proposed methodology is effective, scalable, sensitive and applicable to wide variety of networks.

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The Impact Of Various Digitized Social Networking Media Through Text, Images And Videos On Language Usage

Sampurnananda Mishra, Chandra Kanta Samal, Navneet Yadav, Rama Kanta Choudhury

Abstract: The catalytic effect of social media on the diurnal course of people of the world has ushered in a new era of globalization. With the teeming multitudes of social media sites offering a universal user-friendly application in multifarious platforms has turned out to be a hunting ground for scholars and researchers from diverse fields. More so, their impact has been conspicuous among the language expounders and educators of today. The world has gone digital with the help of incredible tools of social media where people carry out global business and qualitative services. All the transactions , negotiations and deliberations happen through language conversation as a result of which language teaching and learning have become an indispensible part of social media. The language trainers introduce and execute various tools of social media which devises unique and novel ways of interaction transcending the local boundaries of the school. The notable social networking sites like Facebook, WhatsApp, Aadmodo Linkden, Me too etc equip educators to enhance their instructional skills. These widespread social networking sites offer a plentitude of openings for language educators to sharpen their digital, multi-literacy, linguistic and empirical skills. This paper probes into the theoretical bedrock of social networking in language learning and its effectiveness inside the classroom vis-a-vis the present pedagogy followed by different communities of the world. Further it intends to illuminate the fundamental issues and considerations while using social networking sites in a language classroom.

Keywords: Psycholinguistic approaches, Teeming multitudes, Multifarious platforms, Social networking , World wide web, IOT, Neural network.

1. INTRODUCTION

Information technology is playing a pivotal role in the use of technology in teaching and learning. Social networking has become the prime medium through which creation and transmission of information takes place. Social networking is in a state of flux and constant evolution. In order to facilitate learning and its quality, it has introduced and integrated new technologies like machine learning neural lays and neural network and IOT (Internent of things) to create a universal appeal among the world population irrespective of diversity of language and culture. There are a plethora of organized and unorganized tools which work together to enhance the quality of education. These tools facilitate, provide, engage and aid the process of teaching - learning. Social media can be compartmentalized into seven interconnected categories. (1) social networks (e.g., Facebook, LinkedIn); (2) bookmarking sites (e.g., Delicious, StumbleUpon); (3) social news (e.g., Digg. Reddit); (4) media sharing (e.g.,

1.1 Approaches to Social Networks

Theories on latest technology refer to the development and exploration of tools aimed at examining the plausible advantages in the field they are to be used. The studies are often received with a pinch of salt as they lack proper theoretical and practical framework. But it is an undeniable fact that they initiate the educators to the L2 contexts. These studies also suggest that the new tools would bring about a revolution in the traditional mind set of the existing classrooms. As far as social networking is concerned these tools are employed for learning a language and other social purposes. Studies by Stevenson and Liu, Blyth, prove to be utilitarian for the educators of language and open up avenues for further research.

1.2 Psycholinguistic Approaches

Psycholinguistic approaches to language learning aims at the significance of social interaction and getting noticed. There is a

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Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

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A charge control based analytical model is followed to study the impact of donor-layer doping and gate-length on microwave frequency performance of AlGaN/GaN/AlGaN double heterostructure high electron mobility transistor (DH-HEMT). DH-HEMT is observed to be more sensitive to gate-length and doping variation as compared to single heterostructure high electron mobility transistor (SH-HEMT). The effect of gate-length and doping on various performance parameters, i.e., transconductance, drain conductance, cut-off frequency and maximum oscillation frequency has been analysed. The results so obtained are compared with simulation results and are found to be in good agreement.

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PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS

ABDULLAH A. ANSARI[1], K. R. MEENA[2], SADA NAND PRASAD[2]

[1] *International Center for Advanced Interdisciplinary Research (ICAIR), Sangam Vihar, New Delhi, India,Email: icairndin@gmail.com*
[2] *Department of Mathematics, Acharya Narendra Dev College, University of Delhi, New Delhi, India*

Abstract. Six-body configuration is investigated with the effects of oblateness, variable mass as well as Coriolis and centrifugal forces, where four equal bodies are placed at the vertices of a square and fifth body is placed at the center of the circle on which the previous four bodies are moving. All five bodies are considered as oblate in shapes where first four bodies have same oblateness while fifth body has different oblateness. There is the sixth smallest body which varies its mass according to Jeans law. The system is also affected with small perturbations in the Coriolis and centrifugal forces. By considering these effects and using the Jeans law as well as Meshcherskii space time transformations, the system of equations of motion for the smallest body is determined. The Jacobian integral and mean motion are also admitted from this system. Further the equilibrium points, motion for forbidden regions and attracting regions are illustrated under the effects of above said parameters. Here twelve equilibrium points are exists out of which four equilibrium points are collinear, four points are on the perpendicular axis and rest four points are in four quadrants separately. Finally, the stability of these equilibrium points are examined by using Meshcherskii space time inverse transformations and found them unstable.

Key words: Perturbed six-body configuration – Coriolis and centrifugal forces – Oblateness – Attracting regions.

PERTURBED SIX-BODY CONFIGURATION WITH VARIABLE MASS

ABDULLAH A. ANSARI[1], K. R. MEENA[2], SADA NAND PRASAD[2]

[1] *International Center for Advanced Interdisciplinary Research (ICAIR), Sangam Vihar, New Delhi, India,Email: icairndin@gmail.com*
[2] *Department of Mathematics, Acharya Narendra Dev College, University of Delhi, New Delhi, India*

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Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

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An analytical approach incorporating traps (donor type) in the AlGaN layer at the top and bottom heterointerface is proposed to determine threshold voltage (V_{th}), net sheet carrier concentration (n_s) and drain current in $Al_{0.15}Ga_{0.85}N/GaN/Al_{0.15}Ga_{0.85}N$ double-heterostructure (DH) high electron mobility transistor (HEMT). Generation of carriers in the 2DEG due to detrapping of these donor traps have been thoroughly studied in the present analysis. Due to traps in the upper and lower AlGaN layer, two 2DEG channels formed, such that n_s in a DH-HEMT is nearly twice as compared to that obtained in single heterostructure (SH). Due to increased 2DEG density, drain current is more in DH-HEMT as compared to SH-HEMT. The effect of incorporation of these donor traps on V_{th}, n_s and drain current of DH-HEMT as compared to SH-HEMT has been studied. The effect of Al mole fraction, AlGaN layer thickness, mobility, trap concentration and temperature on drain current of DH-HEMT as compared to SH-HEMT has also been studied. The analysis has been performed

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Cytokine-induced expression of nitric oxide synthases in *Chlamydia trachomatis*- infected spontaneous aborters

Priya Prasad [1], Namita Singh [1], Banashree Das [2], Sheikh Raisuddin [3], Mridu Dudeja [4], Sangita Rastogi [1]

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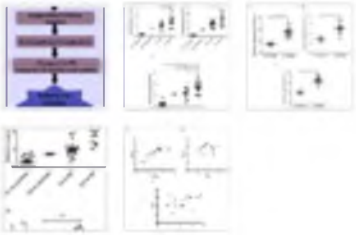

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Microbial Pathogenesis
Volume 142, May 2020, 103994

Does tumour necrosis factor alpha-induced cyclooxygenase-2 expression lead to spontaneous abortion in *Chlamydia trachomatis*-infected women

Namita Singh [a], Priya Prasad [a], Banashree Das [b], Sangita Rastogi [a]

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Highlights

- Study revealed effect of proinflammatory cytokines on *C. trachomatis*-positive SA.
- Increased expression of TNF-α, IFN-γ, IL-8 in ECT of *C. trachomatis*-positive SA.
- TNF-α, IFN-γ and IL-8 expression was significantly higher in RSA *versus* SSA.
- TNF-α and COX-2 were positively correlated with each other in infected aborters.
- Aberration in TNF-α and IFN-γ can induce COX-2 leading to immunopathogenesis of SA.

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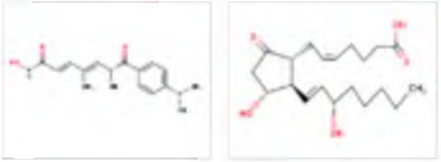

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doi: 10.1016/j.bbagrm.2019.194479. Epub 2020 Jan 10.

Prion protein transcription is auto-regulated through dynamic interactions with G-quadruplex motifs in its own promoter

Prashant Pradhan [1], Ankit Srivastava [1], Jasdeep Singh [1], Banhi Biswas [1], Akanksha Saini [1], Ibrar Siddique [2], Pooja Kumari [3], Mohd Asim Khan [4], Akhilesh Mishra [1], Pramod Kumar Yadav [1], Shivani Kumar [1], Neel Sarovar Bhavesh [3], Prasanna Venkatraman [5], Perumal Vivekanandan [6], Bishwajit Kundu [7]

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A study of software reliability on big data open source software

Ranjan Kumar, Subhash Kumar & Sanjay K. Tiwari

International Journal of System Assurance Engineering and Management **10**, 242–250 (2019) | Cite this article

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Abstract

With the increasing use of Open Source Software (OSS) in high speed networking, parallel processing and distributed computing, OSS has emerged as mainstream in the last decade and is now being broadly accepted even by the traditional proprietary software development companies. The major advantages of OSS over traditional software development are less development cost, availability of source code, quality and security. Software reliability—an important attribute of software quality, is defined as the probability that a software will operate free of failures or breakdown for a specified time under specified conditions (IEEE Std. 1633-2016). Investigation of Software reliability with the help of software reliability

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International Journal of Applied Engineering Research ISSN 0973-4562 Volume 14, Number 9 (2019) pp. 2260-2269
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A Case Study on R: a powerful OSS and data analysis platform

Ranjan Kumar[1], Subhash Kumar[2], Sanjay K. Tiwary[3]

Abstract

R, an open source software, has emerged as a powerful tool for statistical computing and data visualization. It is also the favoured programming language for data science in the last decade. Its open source platform has allowed a tremendous growth in its community which has contributed R packages independently. Number of R packages has grown exponentially in the last five years. This paper undertakes a case study of R wherein the popularity of R and its development paradigm is explored, while studying salient features of its organization structure. Statistical inferences are drawn with respect to organization structure by performing statistical analysis of the available data on commits in R. The bug management system - a very important attribute of software quality is probed further while carrying out statistical analysis of the bug data of R. This supports the rigorous protocol of bug management system for OSS in general and R in particular.

Keywords: Commits, Bug management system, Data science, Software quality, Visualisation

1. INTRODUCTION

In recent times effective modeling, statistics, predictive analysis, data visualizations and powerful analytics is being harnessed by data scientists and leaders in making decisions and policies in a multitude of fields ranging from broad societal mapping, online marketing trends to the development of Gentleman released this software as free open-source software in 1995 [2]. Presently, the "Comprehensive R Archive Network" (CRAN) is the core of an increasingly growing R community [3] and it serves as the central repository for all resource materials related to R, including packages of functions, tutorials and discussion forums. The official public structure for the R Community is under the aegis of the R Foundation - a not for profit organization with a prestigious list of members and supporters. R is registered under GNU (General Public License). R is a programming language used by statisticians, data scientist and anybody who need to perform statistical analysis of data and process useful information from data using various mechanisms, such as classification, regression and text analysis. Currently, R has 782K lines of code which has increased from 82K lines of codes in 1997(about 35% C, 31% FORTRAN and 20% R) [4]. Changes in the code to base R are an exclusive domain of the core team members of R. Till now a total of twenty five members of R-core have contributed to R, Currently R-core has twenty members.

1.1 Characteristics of R

R is a programming language wherein data analysis is carried out by writing functions and scripts. However R is an easy language to learn. R is characterized by an extensive set of library functions which can implement not only mathematical but techniques of other disciplines like graphical, classification,

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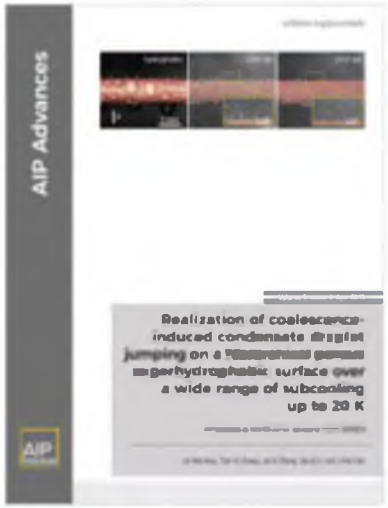

RESEARCH ARTICLE | APRIL 03 2019

Dynamics of a vertically vibrating mercury drop

Tanu Singla; Dinesh Kumar Verma; Josué Flores Tovar; A. Figueroa ; Federico Vázquez; Farook Bashir Yousif ; M. Rivera

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AIP Advances 9, 045204 (2019)

https://doi.org/10.1063/1.5088043 Article history

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The dynamics of vertically vibrating liquid drops has been studied by several researchers and different phenomena have been reported. In the present work, we report experimental results for some interesting phenomena that can be observed in a liquid drop subjected to vertical vibrations.

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Journal of Hazardous Materials

Volume 370, 15 May 2019, Pages 126-137

Fabrication and characterization of ZnO-TiO_2-PANI (ZTP) micro/nanoballs for the detection of flammable and toxic gases

Rakesh K. Sonker [a b], B.C. Yadav [b], Vinay Gupta [a], Monika Tomar [c]

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Abstract

The present paper reports the in-situ chemical polymerization of nanocomposites thin film composed by titanium dioxide (TiO_2), zinc oxide (ZnO) and polyaniline (PANI). It was found that nanocomposites sensor is highly selective and shows response to low concentration. To improve the sensing response characteristics of ZT thin film, PANI is incorporated. Thin film based LPG sensor of ZnO-TiO_2-PANI composite was fabricated by spin coating of ZnO-TiO_2 nanoparticles doped with PANI over inter digital electrodes (IDEs). The thin film was characterized by using XRD, SEM, TEM, UV–vis, BET and FTIR. It was also tested for gas sensing properties of LPG/NO_2 which are well known flammable and toxic gases. The measured response for ZnO-TiO_2-PANI based sensor was 87 for 2000 ppm of LPG and 412 for 20 ppm of NO_2 at room temperature towards other testing gases together with Acetone, IPA, NH_3 and CO_2.

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Journal of Molecular Liquids

Volume 290, 15 September 2019, 111241

Investigation of thermodynamical, dielectric and electro-optical parameters of nematic liquid crystal doped with polyaniline and silver nanoparticles

Tripti Vimal [a], Kaushlendra Agrahari [a], Rakesh Kumar Sonker [b], Rajiv Manohar [a]

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Abstract

In the present investigation, thermo-dynamical, dielectric & electro-optical characterization of a neamtic liquid crystal (NLC) and its mixtures with polyaniline (PANI) & silver nanoparticles (Ag NPs) have been carried out. To visualize the combined effect of polyaniline and silver nanoparticles, a polyaniline/silver nanocomposite has been prepared. Equal concentration of polyaniline, silver nanoparticles & polyaniline/silver nanocomposite has been taken and doped into the pure NLC material. A comparison of various LC parameters of pure NLC material and its mixtures with different dopant has also been done. Thermodynamical study suggests that the presence of polymer and nanoparticles duo in LC can tune the order parameter of LC material.

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Applied Surface Science

Volume 479, 15 June 2019, Pages 326-333

Full length article

Synthesis and characterization of highly porous hexagonal shaped CeO_2-Gd_2O_3-CoO nanocomposite and its opto-electronic humidity sensing

Samiksha Sikarwar [a], B.C. Yadav [a], Rakesh K. Sonker [b], G.I. Dzhardimalieva [c], Jeevitesh K. Rajput [d]

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https://doi.org/10.1016/j.apsusc.2019.02.108

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Abstract

The present paper reports the synthesis and fabrication of CeO_2-Gd_2O_3-CoO nanocomposite films using metal carboxylates as precursors. The refractive index of the film was found as 1.445538. The crystallinity was confirmed from XRD and the minimum crystallite size calculated was 9 nm. TEM analysis showed the hexagonal crystals where the minimum dimension was obtained as 6 nm. The dimensionality was further confirmed by Particle Size Analyzer. The film was then examined using SEM which revealed highly porous nature of the material. UV–Vis spectrophotometer found the absorption of the film taking place in UV region and the optical band-gap as determined

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Chaos. 2019 May;29(5):053112. doi: 10.1063/1.5083179.

Entrainment of aperiodic and periodic oscillations in the Mercury Beating Heart system using external periodic forcing

Pawan Kumar [1], P Parmananda [1], Dinesh Kumar Verma [2], Tanu Singla [2], Iram de Nicolás [2], J Escalona [2], M Rivera [2]

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PMID: 31154773 DOI: 10.1063/1.5083179

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We report experimental results indicating entrainment of aperiodic and periodic oscillatory dynamics

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Volume 2019, Issue 1
January 10, 2019
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Full Paper

Recyclable Organocatalyst for One-Pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone Spirooxindoles

Miao Liu, Xiaofeng Zhang, Xin Huang, Gagan Dhawan, Jason Evans, Manpreet Kaur, Jerry P. Jasinski, Wei Zhang

First published: 04 October 2018 | https://doi.org/10.1002/ejoc.201801480 | Citations: 11

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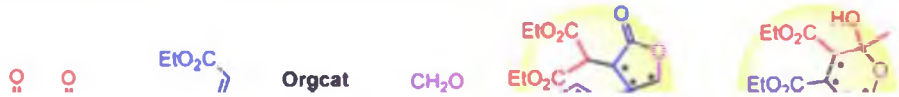
Recyclable fluorous bifunctional organocatalyst-promoted one-pot Michael/aldol/cyclization sequence affords asymmetric dihydrofuranone or tetrahydropyranone spirooxindoles in 39–82 % yields with 3:1 to 6:1 *dr* and up to 99 % *ee* for the major diastereomers



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Volume 489, Issue 3
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JOURNAL ARTICLE

Morphology of the Small Magellanic Cloud using multiwavelength photometry of classical Cepheids

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Sukanta Deb ✉, Kerdaris Kurbah, Harinder P Singh, Shashi M Kanbur, Chow-Choong Ngeow, Biman J Medhi, Subhash Kumar

Monthly Notices of the Royal Astronomical Society, Volume 489, Issue 3, November 2019, Pages 3725–3738, https://doi.org/10.1093/mnras/stz2328

Published: 22 August 2019 **Article history** ▾

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ABSTRACT

This is the second of a series related to the study of geometry of the Magellanic Clouds based on multiwavelength photometry of classical Cepheids. In this paper we determine the geometrical and viewing angle parameters of the Small Magellanic Cloud (SMC) using the Leavitt law for classical Cepheids with/without a break in the law at a certain period as reported in the literature.

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Theoretical and experimental investigation on structural stability, electronic and vibrational properties of polyaniline (PANI)

저널정보

장전수학회

Proceedings of the Jangjeon Mathematical Society | 학술저널

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2019.1 | 129 - 139 (11page)

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Article | Open Access | Published: 15 October 2020

Structural basis of peroxidase catalytic cycle of human Prdx6

Rimpy Kaur Chowhan, Hamidur Rahaman & Laishram Rajendrakumar Singh

Scientific Reports **10**, Article number: 17416 (2020) | Cite this article

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Abstract

Peroxiredoxin 6 (Prdx6) is a ubiquitously expressed antioxidant non-selenium glutathione peroxidase that is known to play a major role in various physiological and pathological processes. It belongs to the family of peroxidases (referred to as Peroxiredoxins, Prdx's) that work independently of any prosthetic groups or co-factors, and instead utilize a peroxidatic thiol residue for peroxide reduction. Mammalian Prdx's are classified according to the number of Cys implicated in their catalytic activity by the formation of either inter-molecular (typical 2-Cys, Prdx1–4) or intra-molecular (atypical 2-Cys, Prdx5) disulfide bond, or non-covalent

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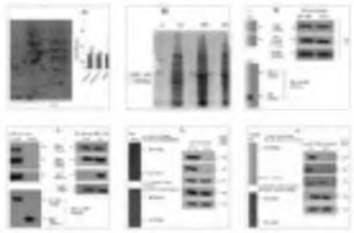

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Volume 549, October 2020, Pages 59-67

Experimental validation of influenza A virus matrix protein (M1) interaction with host cellular alpha enolase and pyruvate kinase

Shruti Mishra [1], Priya Goyal [1], Deepshikha Kumar, Rajan Chaudhari, Maitreyi S. Rajala

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https://doi.org/10.1016/j.virol.2020.07.019

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Abstract

Influenza A virus, a respiratory pathogen manipulates various host cellular processes to establish a successful infection in a host. We had reported earlier the interaction of influenza A virus nucleoprotein with host glycolytic enzymes; alpha enolase and pyruvate kinase in A549cells. Matrix protein (M1), another multifunctional protein encoded by genome segment 7 forms the inner layer of the virion and interacts with the ribonucleoprotein complex. Nucleoprotein and matrix protein, major structural components of the virion together contribute to the stability of the capsid. Thus, we have investigated the interaction of viral matrix protein with host glycolytic enzymes; alpha enolase and pyruvate kinase. Results had demonstrated differential expression of these two glycolytic enzymes in response to matrix protein and their interaction with matrix protein by *in vitro* binding, co-immunoprecipitation and co-localization studies. Our results confirmed that viral matrix protein interacts with host glycolytic enzymes in association with viral nucleoprotein.

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Vishal Dhingra[1,3], Shani Kumar[1,3], Ravi Kumar[4], Amit Garg[1] and Arijit Chowdhuri[2]

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Materials Research Express, Volume 7, Number 6

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Abstract

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Extraction of admittance parameters of symmetrically doped AlGaN/GaN/AlGaN DH-HEMT for microwave frequency applications

Nisha Chugh, Manoj Kumar, Monika Bhattacharya & R. S. Gupta

Microsystem Technologies **27**, 4065–4072 (2021) | Cite this article

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Abstract

An analytical model for determining intrinsic short-circuit admittance (Y) parameters of AlGaN/GaN/AlGaN Double Heterostructure (DH) High Electron Mobility Transistor (HEMT) is presented. These Y parameters obtained in terms of the various small signal equivalent circuit parameters are in turn used to evaluate the enhanced microwave performance of the DH-HEMT in terms of various parameters including Unilateral Power Gain and maximum oscillation frequency. The cut-off frequency has been evaluated from short circuit current gain. The cut-off frequency (f_T) and maximum oscillation frequency (f_{max}) exhibited for DH-HEMT is 125 GHz and 215 GHz which is comparatively improved as obtained in Single

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Synthesis of CdS nanoparticle by sol-gel method as low temperature NO_2 sensor

Rakesh K. Sonker [a b], B.C. Yadav [b], Vinay Gupta [a], Monika Tomar [c]

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Abstract

In the present work, NO_2 gas sensor based on Cadmium sulfide (CdS) nanostructures were prepared by using the chemical route technique. CdS thin films of different thickness were prepared by spin coating technique with different speed (1000, 2000 and 3000 rpm). Prepared thin films were characterized by techniques, such as X-ray diffraction (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Fourier Transform Infrared spectroscopy (FT-IR) and Ultraviolet–Visible spectroscopy (UV–Vis), which offered the information about the chemical structure and morphology of CdS thin film. Gas sensing measurements for detecting

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Optimizing Synthesis of Citrus limetta Peel Silver Nanocomposites Possessing Larvicidal Potential against Dengue Vector, Aedes aegypti L.

Devina Aggarwal [1], Aarti Sharma [2], Sarita Kumar [3,*]

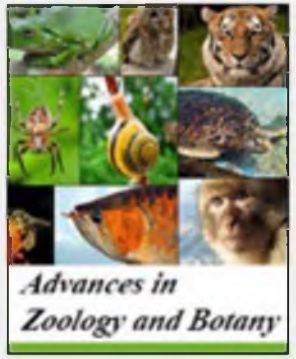
[1] Department of Science, Modern School, New Delhi, India

[2] Department of Life Sciences (SOS), Indira Gandhi National Open University, New Delhi, India

[3] Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

ABSTRACT

Aedes aegypti L. is the major vector accountable for the spread of several diseases of medical importance. The control strategies primarily relying on chemical insecticides have caused negative impact on our environment and human health. Thus, current study employed Citrus limetta peel extracts (CLPE) against larvae of Ae. aegypti. Silver nanocomposites (AgNCs) from CLPE were synthesised and the process of synthesis was optimized by varying temperature; volume and concentration of silver nitrate



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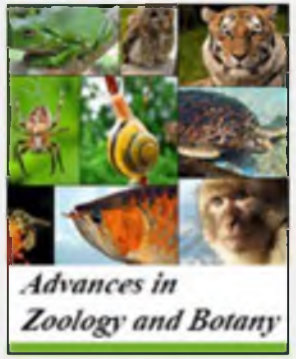

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An eco-friendly larvicide against *Aedes aegypti* L.

Sharma, Aarti[1]; Tripathi, Pushplata[1]; Kumar, Sarita[2]

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Asian Pacific Journal of Tropical Biomedicine 10(2):p 54-64, February 2020. | *DOI:* 10.4103/2221-1691.275420

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Effect of dietary stress of emamectin benzoate on the fitness cost of American bollworm, *Helicoverpa armigera* (Hübner, 1808)

Vinay Singh Dagar, Monika Mishra & Sarita Kumar

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Present study assessed the effect of Emamectin benzoate (EMB) on the survival, growth and nutrition efficiency of *Helicoverpa armigera*. Dietary EMB exhibited a significant systemic toxicity in *H. armigera* larvae resulting in LD_{50} and LD_{90} value of 0.092 µg/mL and 0.156 µg/mL, respectively. Feeding with 0.05–0.2 µg/mL EMB caused 10–100% larval mortality in a dose-dependent manner. Feeding the IV instars of *H. armigera* with 0.1–1.6 µg/mL EMB-incorporated diet deterred feeding significantly. Substantial deterrent effects of EMB with lower LD_{50} values indicate the noteworthy systemic toxicity of EMB on the *H. armigera* larvae. Both choice and no-choice bioassay with dietary EMB showed a distinct preference of

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Effects of β-sitosterol on growth, development and midgut enzymes of Helicoverpa armigera Hübner

Mishra Monika *(Department of Zoology, Acharya Narendra Dev College (University of Delhi), Kalkaji, New Delhi, India)*
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Helicoverpa armigera is a global agricultural pest of serious concern. Continued use of chemical insecticides as control measures has raised grave health and environment concerns, necessitating a search for botanicals as safe alternatives. The current study investigates the effects of β-sitosterol, a bioactive phytocomponent in Thevetia neriifolia, on the growth and development, as well as on midgut enzymes of H. armigera. Dietary β-sitosterol produced dose-dependent systemic toxicity and growth inhibitory effects in H. armigera; the most significant effects were obtained with 10 μg/mL dietary β-sitosterol. Higher prepupal and pupal mortality in comparison to larval mortality and a comparatively greater reduction in average weight gained by later instars point to cumulative effects of β-sitosterol. The delayed effects were ascertained by the 82.05%-57.89% reduction in adult emergence in comparison to 95.02% emergence in controls. Dose-dependent effects of β-sitosterol were observed as significantly decreased enzyme activities of alanine aminotransaminase (ALT), aspartate aminotransaminase (AST) and alkaline phosphatase (ALP) in the larval midgut. Suppression of enzyme activity was obtained in the order ALT>AST>ALP. Impaired activity of gut enzymes possibly lowered the energy reserves and affected nutrient transport through the gut epithelium, affecting the growth and development of H. armigera. Our study points to a promising use of β-sitosterol against H. armigera, although further examination and field studies are needed to ascertain its possible use in control programs.

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Volume 32, Issue 4, June 2020, Pages 2316-2328

Original article

Description of a new species of *Tetmemena* (Ciliophora, Oxytrichidae) using classical and molecular markers

Renu Gupta [a], Jeeva Susan Abraham [b], S. Sripoorna [b], Swati Maurya [b], Ravi Toteja [b], Seema Makhija [b], Fahad A. Al-Misned [c], Hamed A. El-Serehy [c]

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Abstract

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Spiro-Indole-Coumarin Hybrids: Synthesis, ADME, DFT, NBO Studies and In Silico Screening through Molecular Docking on DNA G-Quadruplex

Dr. Leena Khanna, Sugandha Singhal, Prof. Dr. Subhash C. Jain, Dr. Pankaj Khanna

First published: 19 March 2020 | https://doi.org/10.1002/slct.201904783 | Citations: 9

Graphical Abstract

Six new hybrids, spiro[indol-indazole-thiazolidine]-dione-coumarin hybrids (10a-c) and spiro[indol-pyrazole-thiazolidine]-dione-coumarin hybrids (12a-c), were synthesized successfully *via* hitherto unknown Schiff bases. These compounds were virtually screened for their drug likeliness, toxicity and docking interactions with DNA G-quadruplex (compared with library of known compounds). The Density Functional Theory (DFT) electronic reactivity descriptors, depicted their high chemical reactivity and the Molecular Electrostatic Potential (MEP) and contour plots described their potential active sites. Further, the detailed Natural bond order (NBO) analysis of these hybrids suggested

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Abstract

The biogenic tailoring of silver nanoparticles using plant extract is becoming an attractive approach in the current scenario. *Manilkara zapota* (MZ) is well known for its antibacterial, hepato-protective, anti-inflammatory, anti-tussive, anti-fungal, anti-tumour, and free radical scavenging potential. Its plants extract is a rich source of secondary metabolites. Nowadays, silver nanoparticles (AgNPs) have been advocated for a variety of biomedical applications. In present work, silver nanoparticles have been synthesized using an aqueous extract of MZ, physicochemically characterized and finally evaluated for antimicrobial effects, catalytic reduction/degradation of organic dyes and cytotoxicity. The nanosized AgNPs (~ 84 nm) were found to possess prominent antibacterial potential against gram positive and gram negative

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Ultrashort Peptide Self-Assembly: Front-Runners to Transport Drug and Gene Cargos

Seema Gupta[1*] Indu Singh[1,2] Ashwani K. Sharma[2*] Pradeep Kumar[2*]

[1] Chemistry Department, Acharya Narendra Dev College, University of Delhi, New Delhi, India
[2] Nucleic Acids Research Laboratory, CSIR-Institute of Genomics and Integrative Biology, New Delhi, India

The translational therapies to promote interaction between cell and signal come with stringent eligibility criteria. The chemically defined, hierarchically organized, and simpler yet blessed with robust intermolecular association, the peptides, are privileged to make the cut-off for sensing the cell-signal for biologics delivery and tissue engineering. The signature service and insoluble network formation of the peptide self-assemblies as hydrogels have drawn a spell of research activity among the scientists all around the globe in the past decades. The therapeutic peptide market players are anticipating promising growth opportunities due to the ample technological advancements in this field. The presence of the other organic moieties, enzyme substrates and well-established protecting groups like Fmoc and Boc etc., bring the best of both worlds. Since the large sequences of peptides severely limit the purification and their isolation, this article reviews the account of last 5

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Adsorption of Rhodamine 6G Dye on Binary System of Nanoarchitectonics Composite Magnetic Graphene Oxide Material

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Magnetic Graphene Oxide nanocomposite prepared by the co-precipitation method based on concept of nanoarchitectonics. In co-precipitation method, Graphene oxide converts into Magnetic graphene oxide nanocomposite with uniform deposition of Fe_3O_4 nano particles on the surface of Graphene oxide. Field Emission Scanning Electron Microscopy spectroscopy technique reveals the size (~2.5 nm) and uniformity of Fe_3O_4 nano particles on Graphene oxide surface. The other properties characterized by Scanning electron microscopy, Raman spectroscopy, X-ray powder diffraction, X-ray photoelectron spectroscopy and vibrating-sample magnetometer. For Adsorption process, time, temperature, dose of adsorbent, initial concentration of dye solution and pH factors are optimize for Rhodamine 6G dye. Kinetic data expressed by Pseudo first order model and Pseudo second order model. Langmuir, Freundlich and Temkin isotherms used to evaluate the adsorption isotherm of Rhodamine 6G onto the surface of Magnetic graphene oxide nanocomposite and thermodynamic parameters tell us about the nature of reaction.

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Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from Aqueous Solutions

Drashya Gautam and Sunita Hooda*

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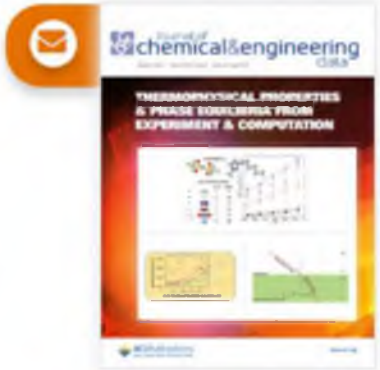

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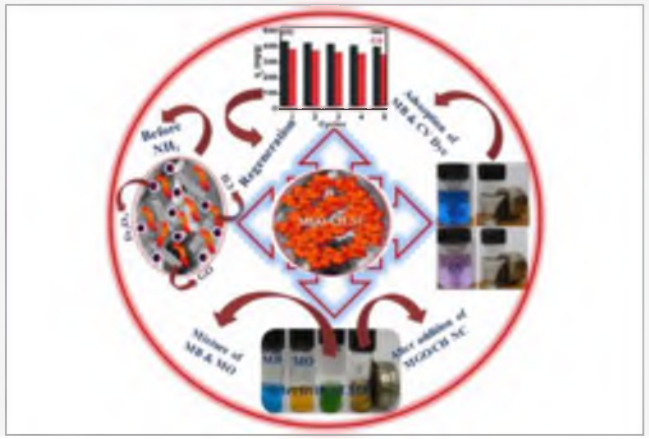
Abstract

The present study is focused on the synthesis of prominent magnetic graphene oxide/chitin nanocomposites, which behaves as an adsorbent for organic dyes under visible light. The nanocomposites were characterized using physicochemical techniques such as X-ray diffraction, Fourier transform infrared spectroscopy, Raman spectroscopy, vibrating-sample magnetometer, scanning electron microscopy, and transmission electron microscopy. A band gap energy of 2.01 eV was evaluated from Tauc and Davis−Mott plots. Batch adsorption studies were performed on crystal violet and methylene blue dyes with varying parameters such as time, pH, concentration, dosage, and temperature, which resulted to excellent adsorption activities of 403.78 mg/g for crystal violet and 332.61 mg/g for methylene blue. The as-synthesized nanocomposite showed excellent recovery capability, retaining its adsorption efficiency even after nine cycles of regeneration. The adsorption equilibrium data fitted well into the pseudo-second-order model and Langmuir isotherm model, while the spontaneity and exothermic nature of the adsorption phenomenon are demonstrated by thermodynamic studies. A comparative adsorption study results to a selective adsorption of cationic dyes over anionic ones, which goes in conformity with the high negative value of zeta potential obtained at



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Magnetic Graphene Oxide/Chitin Nanocomposites for Efficient Adsorption of Methylene Blue and Crystal Violet from Aqueous Solutions

Drashya Gautam and Sunita Hooda*

Cite this: *J. Chem. Eng. Data* 2020, 65, 8, 4052−4062
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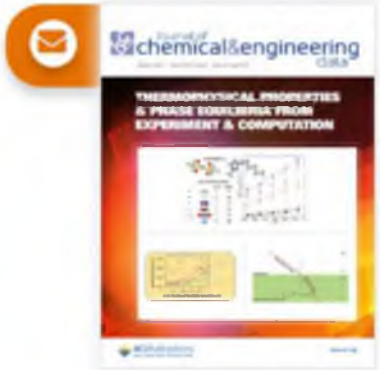

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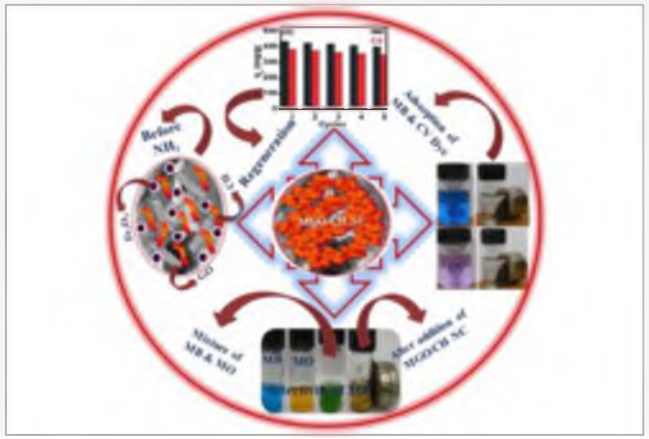

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Complexity Dynamics of Gumowski-Mira Map

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Abstract

In the context of nonlinear dynamics, interesting dynamic behavior of Gumowski-Mira Map has been noted under various feasible circumstances. Evolutionary phenomena are discussed through the study of bifurcation analysis leading to period-doubling and chaos. The appearance of chaos in the method is identified by plotting Lyapunov characteristic exponents (LCE) and Topological Entropy within certain parameter range. Dynamic Lyapunov Indicator (DLI) has been procured for further identification of regular and chaotic motions of the Gumowski-Mira Map. The numerical results through the indicator DLI clearly demonstrate the behavior of our map. The correlation dimension has been calculated numerically for the dimension of the chaotic attractor.

Keywords: Bifurcation; Chaos indicators; Topological entropy; Correlation dimension

MSC 2010 No.: 37G15, 37D45

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MSC 2010 No.: 37G15, 37D45

CHAOS MEASURE IN AUTONOMOUS LPA MODEL

Sada Nand Prasad[1], L. M. Saha[2] and Abdulah A. Ansari[3,*]

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*. Corresponding Author

June 20, 2020

Abstract

The discrete autonomous LPA model of dynamical systems investigated for regular and chaotic evolutions under different feasible conditions in the framework of nonlinear dynamics. Evolutionary phenomena discussed through bifurcation analysis leading to chaos. As part of chaos measure, numerical calculations performed to obtain Lyapunov characteristic exponents (LCE), Topological Entropy, correlation dimension etc. The results obtained by numerical calculations are demonstrated through various graphics. Chaotic evolutions discussed at critical set of parameters, which reveals very significant results. Correlation dimension, which provides dimensionality of an attractor (Strange/Chaotic), obtained numerically by the use of certain statistical method.

Keywords: Autonomous LPA model, Bifurcation, Lyapunov Characteristic Exponents, Topological Entropy, Correlation Dimension.

1 Introduction

Mathematical models expressing real phenomena are mostly nonlinear in nature. Their evolutionary dynamical behavior often shows properties like unpredictability and chaos attracting researchers obtaining interesting results [4; 5; 24]. The model on population dynamics and ecology are frequently used models and most considerable problems in dynamical systems. Investigators generally prefer to use difference equation while describing mathematical models in context of biological models. Numerous articles have appeared on such models after publication of articles by R. May [17; 18] with reasonable assumption of evolution processes of population in concerned. Such studies generate quite interesting results.

Many nonlinear systems exhibit chaos in some parameter space but in some cases within the system because of the interaction among different agents, complexity character also visible during evolution. Unpredictable motion is thus a mix phenomenon of chaos and complexity. Presence of complexity is responsible of coexistence of multiple attractors, bistability, intermittency, cascading effects, exhibit of hysteresis properties, and some more properties. [3; 6; 9; 26]. Chaotic evolution measured by positivity of Lyapunov exponents, (LCEs), whereas its negative value signifies the system is regular. [2; 8; 13]. Complexity measured by increase of topological entropy; more increase in topological entropy signifies the system is more complex. [7; 14; 15; 21; 22; 27].

Evolution in insects considered metamorphosis since big changes observed during their growth and development. Insect evolution passes through four clearly different stages: egg, larvae, pupae and adult. Class of such insects listed as butterflies, moths, beetles, flies, bees, wasps, and ants. Changing from one stage to another an insect has to molt its skin and each time it emerge larger and of different form until it reaches the adult stage. [10]. Some

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Supply Chain Model for Expiring Items Following Ramp-Type Demand With Stochastic Lead Time Under Crisp and Fuzzy Environment

Chaman Singh, S.R. Singh

Source Title: International Journal of Fuzzy System Applications (IJFSA) 9(1)
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Abstract

Supply chain models with deteriorating items, season pattern demand, expiration and uncertain lead time, though common in practice; had received little attention from researchers. In this article, the authors proposed a collaborative system with ramp type seasonal pattern demand rate for expiring items with supplier's random lead time under crisp and fuzzy environment considering the effect of inflation and time value of money. For the seasonal kind of items, demand rate follows the combination of increasing-steady-decreasing demand patterns. A supplier's lead time is a stochastic function of his managing cost; thus, the extra costs incurred on the retailer due to the uncertainty in lead time in terms of shortages costs and lost sales costs are owed by the supplier. Numerical examples are cited to illustrate the results and its significant features. Finally, to study the effect of change of parameters sensitivity analysis is presented and necessary observations are made.

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1. Introduction

In the existing literature, most of the inventory/supply chain model was developed considering three types of demand rates: (i) constant demand rate; (ii) linearly positive/negative demand rate; and (iii) exponentially increasing/decreasing demand rate. However, demand for a commodity cannot increase/decrease continuously over time. It is observed that demand for seasonal products like fruits and the fashionable products over the entire time horizon is three folded. At the beginning of the season demand increases more rapidly, as the time passes, it becomes steady in the middle of the season and decreases more rapidly towards the end of the season and becomes asymptotic. The term "ramp type" is used to represent such kind of demand pattern. In the existing inventory and supply chain models, after the development of classical economic ordering quantity model by Wilson (1934) under the assumption of constant demand rate, researchers extensively studied several aspects of inventory and supply chain modeling by assuming time-dependent demand rate. The assumption of constant demand rate is usually valid in the mature stage of a product's life cycle. In the growth and/or end-stage life cycle, demand rate may well be approximated by a time-dependent function. Resh et al. (1976) were the first who developed a model with linearly time-varying demand. Hill (1995) first resolved the indiscipline of time-dependent demand pattern by considering the demand

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The anti-oxidant enzyme, Prdx6 might have *cis-acting* regulatory sequence(s)

Sharifun Shahnaj [a], Angamba Meetei Potshangbam [a], Rimpy Kaur Chowhan [b], Zahoor Ahmad Parray [c], Pushpa Kakchingtabam [a], Anju Kumari [b], Asimul Islam [c], Aslam Khan [d], Laishram Rajendrakumar Singh [b], Hamidur Rahaman [a]

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Abstract

Peroxiredoxin 6 (Prdx6) is a ubiquitously expressed 1-cysteine Peroxiredoxin found throughout all phyla. In mammals, under different physiological conditions, it has evolved from a peroxidase to a multifunctional enzyme. Among the mammalian Prdx6's, human and rat Prdx6's are the most extensively studied. Our study revealed that human and rat Prdx6's exhibit differences in their peroxidase activity. These two Prdx6's have only 8% difference in their primary sequence (with 19 amino acids) with no apparent

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Screening of Antitubercular Compound Library Identifies Inhibitors of Mur Enzymes in *Mycobacterium tuberculosis*

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Abstract

The rapid rise in the emergence of multidrug-resistant (MDR) and extensively drug-resistant (XDR) strains of *Mycobacterium tuberculosis* (Mtb) mandates the discovery of novel tuberculosis (TB) drugs. Mur enzymes, which are identified as essential proteins in Mtb and catalyze the cytoplasmic steps in the peptidoglycan biosynthetic pathway, are considered potential drug targets. However, none of the clinical drugs have yet been developed against these enzymes. Hence, the aim of this study was to identify novel inhibitors of Mur enzymes in *Mycobacterium tuberculosis*. We screened an antitubercular compound library of 684 compounds, using MurB and MurE enzymes of the Mtb Mur pathway as drug targets. For experimental validation, the top hits obtained on in silico screening were screened in vitro, using Mtb Mur enzyme-specific assays. In all, seven compounds were found to show greater than 50% inhibition, with the highest inhibition observed at 77%, and the IC_{50} for these compounds was found to be in the range of 28–50 μM. Compound 5175112 showed the lowest IC_{50} (28.69 ± 1.17 μM), and on the basis of (1) the binding affinity, (2) the stability of interaction noted on

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Abstract

The rapid rise in the emergence of multidrug-resistant (MDR) and extensively drug-resistant (XDR) strains of *Mycobacterium tuberculosis* (Mtb) mandates the discovery of novel tuberculosis (TB) drugs. Mur enzymes, which are identified as essential proteins in Mtb and catalyze the cytoplasmic steps in the peptidoglycan biosynthetic pathway, are considered potential drug targets. However, none of the clinical drugs have yet been developed against these enzymes. Hence, the aim of this study was to identify novel inhibitors of Mur enzymes in *Mycobacterium tuberculosis*. We screened an antitubercular compound library of 684 compounds, using MurB and MurE enzymes of the Mtb Mur pathway as drug targets. For experimental validation, the top hits obtained on in silico screening were screened in vitro, using Mtb Mur enzyme-specific assays. In all, seven compounds were found to show greater than 50% inhibition, with the highest inhibition observed at 77%, and the IC_{50} for these compounds was found to be in the range of 28–50 μM. Compound 5175112 showed the lowest IC_{50} (28.69 ± 1.17 μM), and on the basis of (1) the binding affinity, (2) the stability of interaction noted on

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Avni Sinha [a 1], Kandasamy Eniyan [a b 1], Prasanth Manohar [b], Nachimuthu Ramesh [b], Urmi Bajpai [a]

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Highlights

- A mycobacteriophage PDRPxv was isolated from soil sample using *Mycobacterium smegmatis* as host.
- Mycobacteriophage PDRPxv belongs to the *Siphoviridae* family.
- The complete genome sequence of mycobacteriophage PDRPxv was determined.

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Estimating Parameter of the Selected Uniform Population Under the Generalized Stein Loss Function

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Abstract

This paper deals with the problem of estimating scale parameter of the selected uniform population when sample sizes are unequal. The loss has been measured by the generalized Stein loss (GSL) function. The uniformly minimum risk unbiased (UMRU) estimator is derived, and the natural estimators are also constructed under the GSL function. One of the natural estimators is proved to be the generalized Bayes estimator with respect to a noninformative prior. For $k = 2$, we obtained a sufficient condition for an inadmissibility result and demonstrate that the natural estimator and UMRU estimator are inadmissible. A simulation investigation is also carried out for the performance of the risk functions of various competing estimators. Finally, this article represents a conclusion of our study.

Keywords: Generalized Stein loss (GSL) function; Uniform distributions; Inadmissibility; UMRU estimator; Natural estimators; Selection rule; Entropy loss function

MSC 2010 No.: 62E10, 62M90, 60G70, 60E05, 62E10, 62E15

Reliable Path Finding Technique for Mobile Robot

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Abstract - Path planning techniques of mobile robot (Automated Vehicle) is discussed in this paper. Though different researchers had proposed different path planning strategies, each plan has its own advantages and disadvantages. The goal of the research work is to develop an algorithm to find out an optimal path from source to destination along with the obstacles. The path planning algorithm not only minimizes the risk of collision but also reduces the planning time and creates a reliable path to reach the desired destination avoiding obstacles. The proposed algorithm is implemented to get the reliable path and compared with that of the existing algorithm to find the optimized path. The new approach is able to minimize the risk of collisions and travelling time with the help of different parameters and simulation software. It is proved through experimental results that the performance of the proposed algorithm is improves considerably and works efficiently when the shape and size of the image changes. It also turns closely at the corners of the obstacles and also reduces the number of steps without affecting the steps and corners. Time and space complexity analysis for this algorithm is experimentally tested and implemented.

Keywords: NFT, Path planning, Time Complexity, Space Complexity, DDA Optimization, Adj*.

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1. INTRODUCTION

Path planning of a mobile robot is to determine a collision-free path from a starting point to a goal point optimizing a performance criterion such as distance, time or energy (distance being the most commonly adopted criterion). Based on the availability of information about environment, there are two categories of path planning algorithms, namely off-line and on-line. Path planning of robots in environments where complete information about static obstacles and trajectory of moving obstacles are known in evolutionary approaches of path planning of mobile robots are discussed. Review shows that optimization algorithms are computationally more efficient and hence are increasingly used in tandem with classic approaches [5].

The path planning algorithm contains various methods with different optimization techniques for optimization. The path planning algorithm developed for various platforms depends on the condition whether it is static or dynamic. Mobile robots are expected to work in many places such as factories, offices and so on. Nowadays, autonomous mobile robots are used in the

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Amit Garg, Prince Sharma, Vivek Verma, Tarunpreet Kaur

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The excessive utilisation of conventional energy sources has highlighted a complicated energy crisis due to high dependency and depletion of non-renewable resources; along with the inefficiency to cope up with the pressing requirements of the economy. Shifting to alternative, replenishable forms of energy and developing technology for the same, will fulfil the current energy needs and complement the national security. Solar energy can be productively exercised to meet the current energy requirements. Shading analysis is one of the most critical steps essential to any successful installation of a solar energy system. In photovoltaics, it is important to analyze shading caused by surrounding objects and/or vegetation. In special cases like analysis

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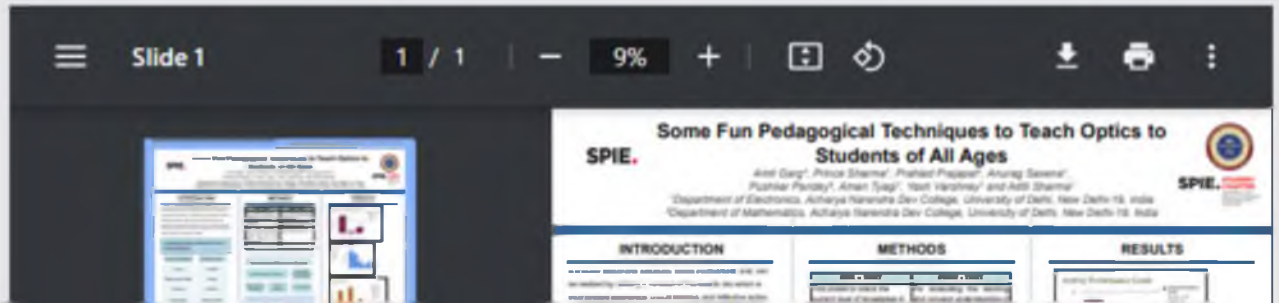

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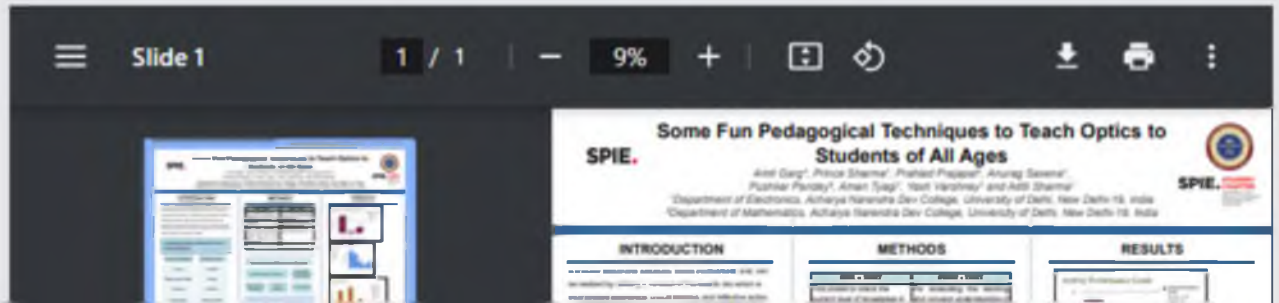

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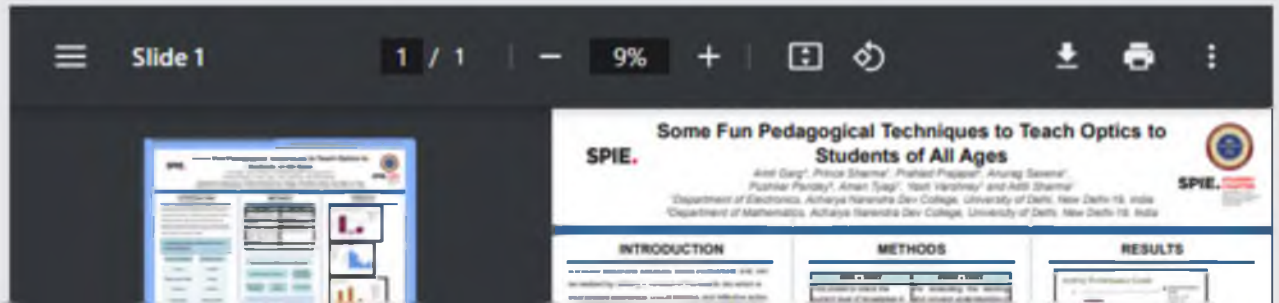

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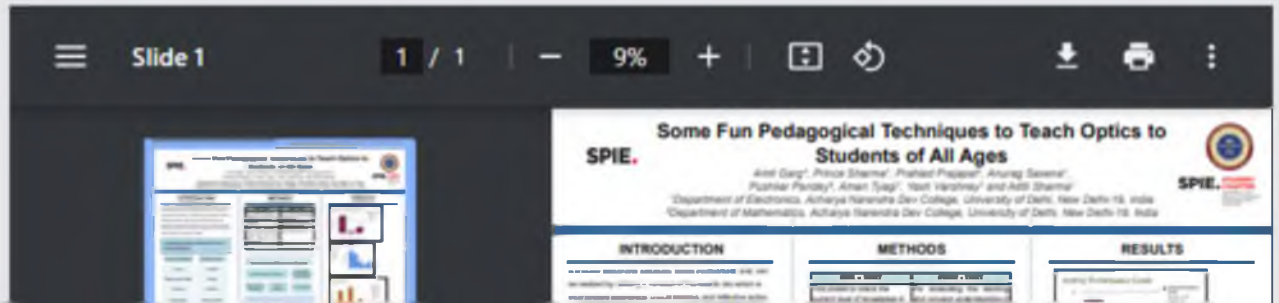

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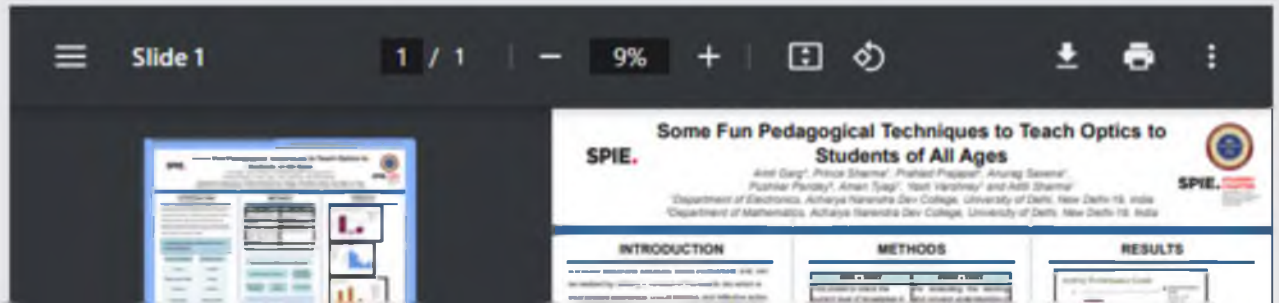

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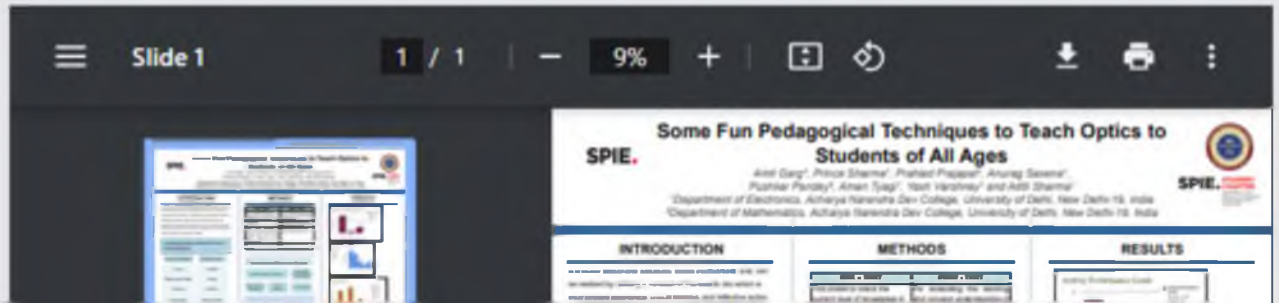

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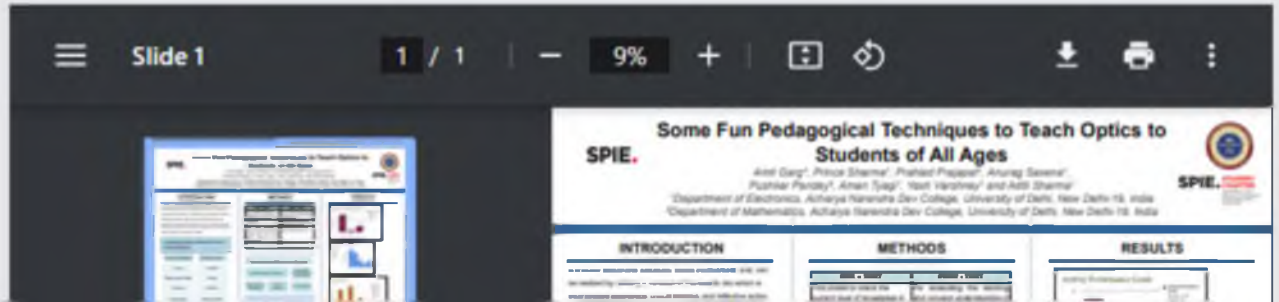

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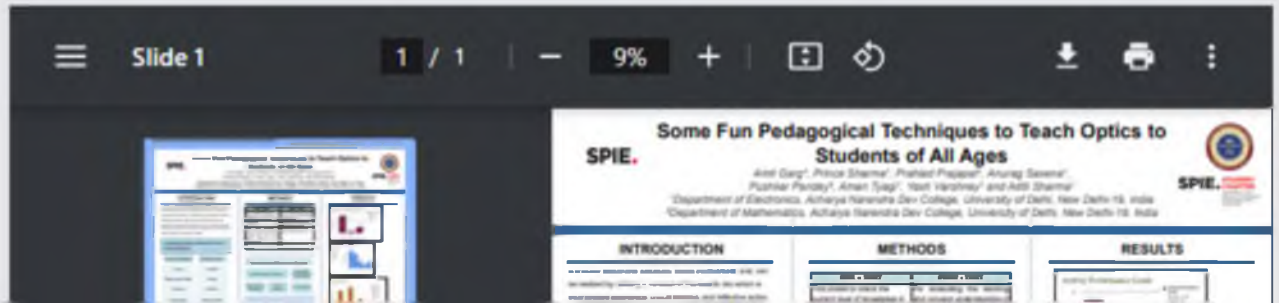

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Trace Detection of Nerve Agent Simulant in the Fuel Vapour Environment using Metal Oxide/Surface Acoustic Wave E-Nose

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ABSTRACT

Nerve agents are often used at the military warfront, where diesel is a very common interferant. In the present work, a group of surface acoustic wave (SAW) sensors, called E-Nose with dissimilar sensing layers is developed for the recognition of the mixture of diesel and dimethyl methylphosphonate (DMMP) vapors. The exposure of DMMP and diesel vapors is kept at ppb and ppm levels respectively. Varied response patterns of DMMP and diesel vapors were obtained by SAW E-nose. Principal component analysis (PCA) has been used to extract features from the response curves of SAW sensors. Artificial Neural Network pattern recognition has been implemented to identify the precise detection of DMMP vapors in the binary mixture of DMMP and diesel. The effect of pre-processing (using PCA) the raw data before feeding it to artificial neural network is also studied.

Keywords: E-nose; Metal oxide; Sensor

1. INTRODUCTION

Today chemical attack is one of the biggest threats for us. Nerve agents (Sarin, Soman) are the deadliest and widely used class of chemical warfare agents, employed several times during a war[1]. Sensors employed for their detection must take care of the interferants also. Since the accuracy level required in the detection of warfare agents is very high, special technologies are required to minimize the possibility of false alarms. Nerve agents are mostly used at warfronts, where diesel is the major source of interferant. Diesel is used in tanks, trucks, generators, starting compressors for jet engines[2]. Therefore, sensor systems should be capable of detecting nerve agents in the presence of such interferants.

Presently, there exist various sensing techniques like IR deposition, lack of long-term stability, metal oxide sensing layers have also been tried[5-10].

The use of a single sensor is generally not sufficient to detect a particular vapour in a mixture. Hence an E-nose (an array of sensors) is essentially required. The sensing data of E-nose along with suitable pattern recognition technique (PCA, ANN etc.) allows correct recognition of target vapours[11]. In literature, SAW E-nose has been employed for the recognition of various target vapours[12-15]. Joo[13], *et al.* fabricated an array of polymer- coated SAW sensors for the recognition of simulant vapours but individual vapours were tested and the neural network algorithm was not implemented for precise prediction. Matatagui[9], *et al.* implemented Principal Component Analysis and neural network on the SAW response of few simulants,

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Materials Science and Engineering: B

Volume 258, August 2020, 114577

Green synthesis of TiO_2 nanosheet by chemical method for the removal of Rhodamin B from industrial waste

Rakesh K. Sonker [a b], Gaurav Hitkari [c], S.R. Sabhajeet [d], S. Sikarwar [d], Rahul [e], Sandhya Singh [c]

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Abstract

In this research article, the photocatalytic decolourization of rhodamin B by the newly green synthesized TiO_2 nanostructure material has been investigated to consider as effective catalyst for the decontamination of wastewater. The crystal structure and particle size measurement of green synthesized TiO_2 was appraised by X-ray diffraction (XRD). The morphological, structure and particle size distribution was study by SEM and

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An overview of factors affecting dengue transmission in Asian region and its predictive models

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Published Sep 15, 2020

DOI https://doi.org/10.31018/jans.v12i3.2360

Roopa Rani Samal
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India.
Saiesha Gupta
The Benenden School (TBS), Kent, United Kingdom.
Sarita Kumar
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India.

Abstract

Among various mosquito-borne diseases, dengue is one of the most prevalent and quickly spreading diseases primarily transmitted by *Aedes aegypti* and *Aedes albopictus*. This review discusses the dengue epidemics in Asian countries with a focus on India and recognizes various climatic, socio-economic, and demographic factors and their complex interaction, involved in dengue expansion. The impact of climatic factors, such as temperature, moisture, and precipitation has been elucidated on the mosquito breeding and disease outbreaks; demonstrating a linear correlation of ambient temperature and humidity with dengue transmission, in contrast with the uncertain association of rainfall. Multifarious empirical models have been developed for estimating the climatic effects on dengue and are used as a baseline to assess the impact on future infections. However, the spatiotemporal distribution of dengue cases can only be predicted best using dynamic modelling

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COMPARATIVE LARVICIDAL EFFICACY OF α-CYPERMETHRIN ALONE AND α-CYPERMETHRIN/*CITRUS SINENSIS* PEEL EXTRACT BINARY MIXTURES AGAINST *AEDES AEGYPTI* L.

DEVINA AGGARWAL, ROOPA RANI SAMAL, SARITA KUMAR*

Aedes aegypti is a widely spread disease vector of great concern throughout the world. With continuous rise in cases of Zika, dengue and Chikungunya worldwide, control of *Ae. aegypti* has become a prime concern. The present study investigated the larvicidal effects of individual and various combinations of *Citrus sinensis* hexane peel extract and a synthetic pyrethroid, alpha-cypermethrin against *Ae. aegypti*. Larvicidal bioassays were performed using WHO protocol with minor modifications. The investigated compounds were found effective individually as well in binary mixtures indicating the efficient synergism. Hexane extract of *Citrus sinensis* peels assayed against *Aedes aegypti* larvae resulted in LC_{50} of 46.53 ppm after exposure for 24 h, while alpha-cypermethrin treatment resulted in LC_{50} value of 0.0063 ppm. The binary mixtures of both the compounds in 1:1, 1:5 and 1:10 ratios also showed significant larvicidal potential. The 1:1 mixture was found most effective with co-toxicity coefficient and synergistic factor as 23.456 and 3.865, respectively, for the LC_{50} at 24h. The binary mixtures showed synergism as well as additive effects in all the ratios tested except 1:5 ratio for LC_{90} at 48h which showed inconsequential antagonistic effect. Results showed decreased synergistic effects with increase in the citrus extract proportion in the binary mixtures. We suggest that phytoextract/cypermethrin mixtures can be more operative than insecticide/phytoextract alone, and can be used as a good ecofriendly approach in vector control programs. Such mixtures could reduce the costs, reduce insecticide dose, and regulate insecticide resistance as part of integrated vector management.

Keywords: *Citrus sinensis*, *Aedes aegypti*, synergism, additive, antagonism, binary mixtures.

INTRODUCTION

Mosquito-borne diseases are the major cause of concern worldwide, especially in tropical countries. Different mosquito vectors, *Aedes*, *Culex* and *Anopheles* transmit a range of disease pathogens causing dengue, Chikungunya, malaria, filariasis and Zika, etc. Though, different species of mosquitoes are playing havoc at global level, yet since last decade, outbreak of *Aedes*-borne diseases has taken a

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Volume 42, Issue 3, June 2022, Pages 156-161

Reduced physiological and reproductive fitness induced by *Nerium oleander* leaf extracts in the cotton bollworm, *Helicoverpa armigera* (Lepidoptera: Noctuidae)

Aadhya Sivakumar [a], Monika Mishra [b], Vinay Singh Dagar [b], Sarita Kumar [b]

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Abstract

Helicoverpa armigera is one of the most devastating, cosmopolitan, polyphagous and multivoltine pests of agricultural crops. The growing side-effects of synthetic insecticides used to control agricultural pests, have amplified demand for the relatively safe and biodegradable compounds which offer benefits over synthetic chemical insecticides. Hence, the current study investigates the effects of Nerium oleander methanol leaf

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Protection of surplus food from fungal spoilage using *Streptomyces* spp.: a green approach

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Abstract

Consortia of *Streptomyces* spp. (colonies 169, 194, 165 and 130) used in this study are an efficient producer of secondary metabolites like chitinases and antifungal compounds, which may help in the protection of surplus food from spoilage. Qualitative screening for chitinase production and taxonomy of these colonies were undertaken in our previous studies. In the current study, GC–MS analysis of extract produced from the consortia of *Streptomyces* strains was done for the identification of antifungal compounds. Treatment of surplus food with activated consortia of *Streptomyces* spp. has protected powdered food for a month, whereas fresh food (unpowdered) was preserved for two days. A control sample of surplus food (untreated) was kept to check the contamination, which resulted in the growth of three fungi

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Draft genome and secondary metabolite biosynthetic gene clusters of *Streptomyces* sp. strain 196

Prateek Kumar, Anjali Chauhan, Munendra Kumar, Bijoy K. Kuanr, Renu Solanki & Monisha Khanna Kapur

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Abstract

Emergence of MDR 'superbugs' inflamed a severe sense of urgency amongst scientists aiming at the discovery of novel potential drug molecules. Bacteria of the genus *Streptomyces* are really worth investigating for their immense potential to produce natural compounds of pharmaceutical importance. In the present study, the genome of *Streptomyces* sp. strain 196 was sequenced, studied and secondary metabolite biosynthetic gene clusters (smBGCs) were detected. FAME analysis was used for taxonomic validation of strain 196. Genome of strain 196 was sequenced using the Illumina NextSeq system which has resulted in a draft genome of 7.4 Mb. Rapid annotation using subsystem technology (RAST) results revealed the presence of

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Ibuprofen-based chemosensor for efficient binding and sensing of Cu^{2+} ion in aqueous medium

Shyam Lal [a], Kunal Prakash [b], Sunita Hooda [a], Vikrant Kumar [a], Pramod Kumar [c]

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Abstract

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Garima Rathee, Sahil Kohli, Sagar Panchal, Nidhi Singh, Amardeep Awasthi, Snigdha Singh, Aarushi Singh, Sunita Hooda*, and Ramesh Chandra*

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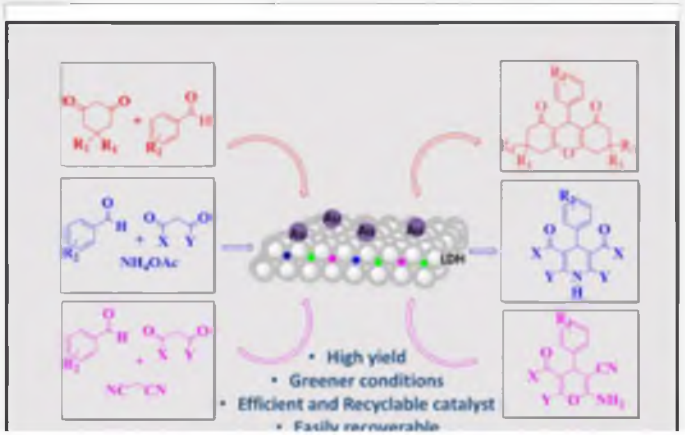
SUBJECTS: Catalysts, Catalytic reactions, Ethanol, Inorganic compounds, Reaction products

Abstract

This work is mainly focused on the synthesis of an efficient and reusable heterogeneous Au/NiAlTi layered double hydroxide (LDH) nanocatalyst and its applications in the preparation of biologically important xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives. NiAlTi LDH was designed hydrothermally and then gold was supported over the surface of LDH by using ion-exchange and $NaBH_4$ reduction methods. The synthesized nanocatalyst was physicochemically characterized by X-ray diffractrometry, Fourier-transform infrared spectroscopy, thermogravimetric analysis, scanning electron microscopy, and transmission electron microscopy (TEM). The TEM images confirmed the support of gold nanoparticles over the surface of LDH with a size distribution of 7−9 nm. The well-characterized nanocatalyst was tested for the synthesis of biologically important xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives. The advantages obtained were excellent yields in a lesser reaction time. Stability and reusability were also accessed; the catalyst was stable even after five cycles. High catalytic efficiency, easy fabrication, and recycling ability of Au/NiAlTi LDH make it a potential catalyst for the synthesis of xanthene, 1,4-dihydropyridine, polyhydroquinoline, and 4*H*-pyran derivatives.



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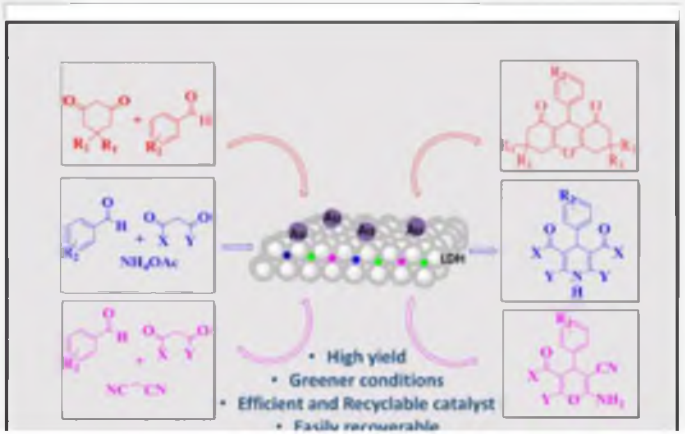

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Natural Polysaccharide Based Graphene Oxide Nanocomposites for Removal of Dyes from Wastewater: A Review

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SUBJECTS: Adsorption, Carbohydrates, Dyes and pigments, Oxides, Two dimensional materials

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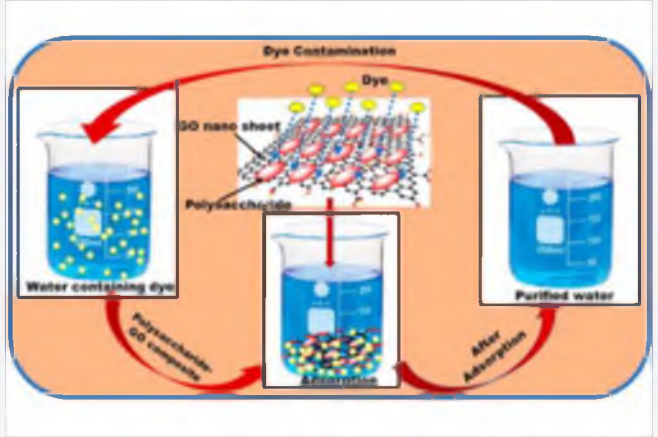

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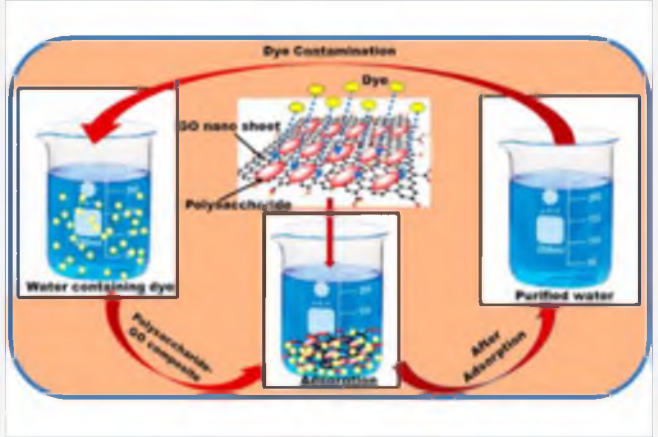

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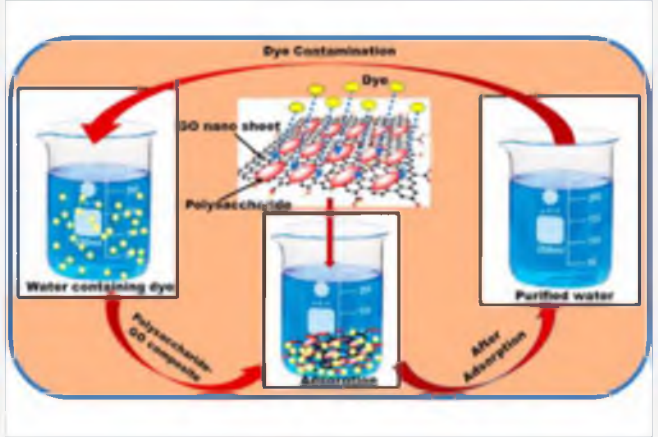

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2. Experimental

3. Results and discussion

4. Conclusion

Declaration of Competing Interest

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Appendix A. Supplementary data

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Volume 32, Issue 8, December 2020, Pages 3351-3358

Original article

Self-nitrogen doped carbons aerogel derived from waste cigarette butts (cellulose acetate) for the adsorption of BPA: Kinetics and adsorption mechanisms

Norah S. Alhokbany [a], Mu Naushad [a b], Vikrant Kumar [c], Saad Al hatim [a], Saad M. Alshehri [a], Tansir Ahamad [a]

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Design and Synthesis of Various 5′-Deoxy-5′-(4-Substituted-1,2,3-Triazol-1-yl)-Uridine Analogues as Inhibitors of *Mycobacterium tuberculosis* Mur Ligases

by Vincent Hervin [1], Ritu Arora [2], Jyoti Rani [2,3], Srinivasan Ramchandran [3], Urmi Bajpai [2], Luigi A. Agrofoglio [1,*] and Vincent Roy [1,*]

[1] Institute of Organic and Analytical Chemistry, CNRS UMR 7311, Universite d'Orléans, Rue de Chartres, CEDEX 2, 45067 Orleans, France

[2] Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, New Delhi 110019, India

[3] G N Ramachandran Knowledge of Centre, Council of Scientific and Industrial Research-Institute of Genomics and Integrative Biology (CSIR-IGIB), Room No. 130, Mathura Road, New Delhi 110025, India

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Received: 14 September 2020 / Revised: 17 October 2020 / Accepted: 19 October 2020 / Published: 26 October 2020

(This article belongs to the Special Issue **Nucleosides – Nucleotides – Oligonucleotides**)

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Abstract

The synthesis of hitherto unknown 5′-deoxy-5′-(4-substituted-1,2,3-triazol-1-yl)-uridine and its evaluation, through an one-pot screening assay, against MurA-F enzymes involved in *Mycobacterium tuberculosis* (Mtb), are described. Starting from UDP-*N*-acetylmuramic acid (UDP-MurNAc), the natural substrate involved in the peptidoglycan biosynthesis, our strategy was to substitute the diphosphate group of UDP-MurNAc by a 1,2,3-triazolo spacer under copper-catalyzed azide-alkyne cycloaddition conditions. The structure-activity relationship was discussed and among the 23 novel compounds developed, *N*-acetylglucosamine analogues **11c** and **11e** emerged as the best inhibitors against the Mtb MurA-F enzymes reconstruction pathway with an inhibitory effect of 56% and 50%, respectively, at 100 μM. Both compounds are selective inhibitors of Mtb MurE, the molecular docking and molecular dynamic simulation suggesting that **11c** and **11e** are occupying the active site of Mtb MurE ligase.

Keywords: Mur ligase; nucleoside analogues; copper-catalyzed azide-alkyne cycloaddition; antibacterial

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NEEM FLOWERS (*AZADIRACHTA INDICA*) AS AN ABUNDANT SOURCE OF NECTAR FOR BUTTERFLIES IN AN URBAN LANDSCAPE IN DELHI, INDIA

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rajeshchaudhary@andc.du.ac.in

Reviewer: Peter Smetacek

Abstract

Most butterflies feed on floral nectar. The ability of butterflies to access nectar deep within a flower depends on the length of their proboscis. Adequate nutrition is known to maintain the reproductive potential of butterflies. In an urban context, lacking adequate parks and gardens, there is always a need of flowers that can provide nectar to butterflies. In this situation, avenue trees, bearing flowers with nectar accessible to a wide range of butterflies, could help maintain a reasonably diverse butterfly population. The Neem tree, *Azadirachta indica*, is planted along roads and in parks in urban areas of Delhi. Its small flowers were found to attract several species of butterflies belonging to all five major families present in Delhi. It is suggested that trees such as *Azadirachta indica* and other nectar trees, if planted as avenue trees, may help in the conservation of butterflies in an urban landscape.

Key words: Flowering tree, Food plant, Butterfly, Urban Landscape

Introduction

Butterflies are liquid-feeding insects; they acquire food by sucking through their long tubular proboscis (Krenn, 2010). Adult butterflies can be broadly categorised into two feeding guilds: nectar feeding (feeding on floral nectar) and non-nectar feeding (acquiring nutrition from decaying fruit, sap, honey dew, etc.). The feeding habits are associated with certain modifications in the microstructure of the proboscis, particularly at the tip (Krenn *et al.*, 2001, Molleman *et al.*, 2005; Krenn, 2010; Lehnert, *et al.*, 2016). A vast majority of butterflies feed on floral nectar (Krenn, 2010). The profitability of feeding on floral nectar depends in part on the depth of the corolla-tube (or the depth at which nectar is seated in flowers); the amount of nectar, proboscis length and wing load (Corbet, 2000; Tiple *et al.*, 2009). The shorter proboscis of small butterflies limits them from using flowers with deep seated nectar (May, 1992). Butterflies with a longer proboscis however, can harvest nectar from a broad range of flowers, including flowers with short as well as those with long corolla tubes (May, 1992; Corbet, 2000; Kunte, 2007; Sultana *et al.*, 2017). Nutrition is known to maintain high fecundity in female butterflies and increase their body weight and fat storage (Hill *et al.*, 1989; O'Brien *et al.*, 2004; Mevi-Schutz *et al.*, 2005; Geister *et al.*, 2008; Karlsson *et al.*, 2009). Butterflies obtain nectar from a range of flowers. The role of tree flowers as a source of nectar has not been appreciated by many researchers. Tree flowers however, can be an important source of nectar for butterflies living in or close to forested as well as urban landscapes. Here, I present an account of butterfly species which can benefit from feeding on the flowers of *Azadirachta indica* (A. Juss; Family: Meliaceae) commonly known as 'Neem tree'. The tree commonly grows in urban and rural areas in most parts of India and a few researchers have indicated

A COMPREHENSIVE CHECKLIST OF BUTTERFLIES SEEN IN CORBETT TIGER RESERVE, UTTARAKHAND, INDIA

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[1]*Department of Biomedical Science, Acharya Narendra Dev College, Govindpuri, Kalkaji, New Delhi-19, India*

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Reviewer: Peter Smetacek

Abstract

Corbett Tiger Reserve (CTR) conserves a wealth of flora and fauna and is a known destination for ecotourism in Northern India. Besides mammals and birds, for which CTR is known to many, frequent visits to CTR and its vicinity for watching butterflies are also on the rise in recent times. In this respect, an account of species of butterflies in the CTR and its vicinity would be useful not only for butterfly ecotourism but also for conservational, educational and scientific purposes. By virtue of photographic documentation of species of butterflies in CTR for over a decade, we provide here a list of butterflies seen in various tourist zones of CTR and its immediate vicinity. We recorded 94 genera and 130 species belonging to six families. On the basis of our records and work by others in CTR, a comprehensive checklist of 143 species of butterflies has been compiled.

Introduction

Corbett Tiger Reserve (CTR) is one of the key biodiversity areas in the foothills of Himalaya in Northern India. Established as a wildlife sanctuary with a total area of few hundred square kilometres in 1934, it was upgraded to a National Park in 1936 (Khanna *et al.*, 2008). Presently, the CTR has a well-protected expanse of 1288.31 km² (NTCA, 2009). The spread of CTR encompasses a variety of habitats that support diverse flora and fauna (Pant, 1986, Editor-Director, 2008, Khan *et al.*, 2008). Besides conserving wilderness, the location and approachability of CTR; and plentiful wildlife attracts lakhs of tourists every year (Badola *et al.*, 2010; Gusain, 2015). The recreational value of CTR generates livelihood for the local community (Badola *et al.* 2010; Kumar *et al.*, 2019).

Today, butterfly watching is one of the favourite recreational activities for many, and the trend is gradually on the rise. This makes butterflies important from the perspective of ecotourism; defined here as "low impact nature tourism which contributes to the maintenance of species and habitats either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people to value, and therefore protect, their wildlife heritage area as a source of income" (Fennel, 2015; Kurnianto *et al.*, 2016; Singh *et al.*, 2016). The diverse and pristine habitat of CTR is expected to be rich in the diversity of butterflies. However, literature on butterfly diversity in and around CTR is sparse. Only two reports provide an account of species of butterflies found in CTR (Kumar, 2008; Arya *et al.*, 2020). The number of species of butterflies mentioned in these reports are 36 (Kumar, 2008), and 56 (Arya *et al.*, 2020). The present communication reports 130 species of butterflies based on the observations made

OVIPOSITION BY *JAMIDES BOCHUS* (STOLL, [1782]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN NEW DELHI, INDIA

RAJESH CHAUDHARY[1] & VINESH KUMAR[2]

*[1 & 2]Department of Biomedical Science, Acharya Narendra Dev College (University of Delhi), Govindpuri, Kalkaji, New Delhi-110 019. *Corresponding Author- email: rajeshchaudhary@andc.du.ac.in*

Reviewer: Peter Smetacek

Several individuals of the Dark Cerulean (*Jamides bochus*) were sighted 3-4 times daily between 30. viii.2020 to 20.ix.2020, fluttering over the crown of *Millettia pinnata* (L.) Panigrahi (Fabaceae). On two occasions, more than two individuals were sighted at a time. On 22.ix.2020, a female *J. bochus* was observed laying eggs on nascent buds and leaves of *M. pinnata*, in the Rohini area of New Delhi. It was observed for 5 minutes from a distance of 2.5-3 m and the events were photographed (Figures 1). The butterfly returned twice to the same spot to lay eggs after fluttering for about 1 minute in the vicinity of the twig, where it had laid the first batch of eggs.

M. pinnata is a medium sized tree planted commonly alongside many roads in Delhi. Sightings of *Jamides bochus* in Delhi are rare. However, during the past few years it has been sighted several times. It was so far not known to breed in Delhi (Chaudhary *et. al.*, 2019, Dr. Surya Prakash, *pers. comm.*). The present observation provides supporting evidence towards the assertion by Chaudhary & Kumar (2019) that the records of the *J. bochus* in Delhi are of a breeding population rather than of migrants.

Reference

Chaudhary, R. & V. Kumar. 2019. Sightings of *Jamides bochus* (Stoll, [1782]) and *Prosotas nora* (C. Felder, 1860) (insecta: Lepidoptera: Lycaenidae) from urbanized parts of New Delhi. *Bionotes* 21 (1): 3-4.

Fig.1 & 2: Oviposition by *Jamides bochus* on nascent buds and leaf of *Millettia pinnata* in Delhi.

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Volume 20, September 2020, 100759

Diabetes: Perspective and challenges in modern era

Yamini Goyal [a 1], Amit Kumar Verma [a 1], Deepti Bhatt [a], Arshad Hussain Rahmani [b], Yasheshwar [c], Kapil Dev [a]

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Abstract

Prevalence of diabetes is increasing rapidly due to change in lifestyle and modernization. Other than genetic and lifestyle factors, research has been concentrated in recognizing the effect of in utero conditions and mechanisms of epigenetics in developing diabetes. It emphasizes the need of discovering new methods of prevention focusing on child and maternal health. The Diabetes prevalence is more in developing nations than developed nations. In modern era with the globalization diabetes is a major reason of medical care expenditure and mortality and it is one of the biggest health challenges of current and

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Vol. 15, Issue 2 (December 2020), pp. 1396 – 1406

Vertical Motion of the Variable Infinitesimal Mass In the Circular Sitnikov Problem

[1,*]Abdullah A. Ansari, [2]Sada Nand Prasad and [3]Chaman Singh

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Received: May 12, 2020; Accepted: September 18, 2020

Abstract

The circular case of Sitnikov problem is studied here when the infinitesimal body varies its mass according to Jeans law and it is moving along the z-axis which is perpendicular to the orbital plane of the two equal spherical primaries. The two primaries are moving in $xy-$plane on the same circular path. These two primaries are imposing the Newtonian forces on the third variable mass body but not influenced by it. Stability of equilibrium points is examined followed by the derived equations of motion. The time-series solutions of the equation of motion are performed by using the Lindstedt-Poincaré method which is used to remove the secular term. We have numerically performed the time-series which shows that variation parameters have great impact on it.

Keywords: Circular Sitnikov problem; Variable mass; Meshcherskii transformation; Lindstedt-Poincaré method

MSC 2010 No.: 70F15, 70K42, 70F07

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MSC 2010 No.: 70F15, 70K42, 70F07

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Published: 10 September 2020

Generalized Elliptic Restricted Four-Body Problem with Variable Mass

Abdullah A. Ansari & Sada Nand Prasad

Astronomy Letters **46**, 275–288 (2020) | Cite this article

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Abstract

The elliptic case of restricted four-body problem with variable mass of infinitesimal body is studied here. The three primary bodies which are placed at the vertices of an equilateral triangle and moving in the elliptical orbits around their common center of mass. Out of these primaries we have considered that one massive body is having radiating effect and other two bodies are oblate in shapes. The fourth body which have infinitesimal mass, are varying its mass according to Jeans law. We derive the equations of motion of the infinitesimal body under the generalized sense in the elliptic restricted four-body problem by using the Meshcherskii-space time transformations. Further we numerically study about the equilibrium points, Poincaré surfaces of section, regions of possible motion and basins of the

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THE MOTION PROPERTIES OF THE VARIABLE MASS PLANETOID IN THE ELLIPTICAL SITNIKOV PROBLEM

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July 25, 2020

Abstract

The aim of the study is to investigate the effect of variation parameters due to variable mass of the planetoid in the elliptical Sitnikov problem. Where both primaries are moving in elliptical orbits and imposing the gravitational forces on the third infinitesimal body which varies its mass according to Jeans law and it does not affect the motion of the primaries. Planetoid is moving along perpendicular line (z-axis) to the orbital plane of the primaries. We derive the equation of motion of the planetoid followed by the hamiltonian of the system. Then we solve the equation of motion of the Hill's type equation. And again the time-series solution to the equation with nonlinear force is determined using first the Courant and Snyder transformation followed by the Lindstedt–Poincaré perturbation method which is used to remove the secular term and then an application of Courant and Snyder transformation is used. We have numerically performed the time-series which shows that variation parameters have great impact on it. We also compare our results with the existing results and found significant role of the variation parameters used.

Keywords: Elliptical Sitnikov problem, Variable mass, Jeans law, Courant and Snyder transformation.

1 Introduction

Sitnikov configuration is an interesting problem which starts over decades by K. A. Sitnikov in 1960. This configuration of restricted problem has primaries which are moving either in elliptic or circular path in the same plane while third body is moving on the vertical straight line of the plane of the motion of the primaries. These

THE MOTION PROPERTIES OF THE VARIABLE MASS PLANETOID IN THE ELLIPTICAL SITNIKOV PROBLEM

Abdullah A. Ansari[1,*], Laxmi Narain[2] and Sada Nand Prasad[2]

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Pratiksha Saxena, Chaman Singh & Kamna Sharma

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Abstract

From the past few decades, most of the researchers concentrate on recycling of consumer goods to reduce the impact on environment and health, but now it is time to change our basic approach. In this research paper, we elaborate a nascent issue of product stewardship. Economic production model (EPQ) is a production model in which production occur in a time cycle to fulfill the demand. The proposed model we consider a basic EPQ model with all basic

Indian Journal of Science and Technology

DOI: 10.17485/IJST/v13i37.290

Year: 2020, **Volume**: 13, **Issue**: 37, **Pages**: 3850-3870

Year: 2020, **Volume**: 13, **Issue**: 37

Original Article

Green design and product stewardship approach for two-warehouse inventory model

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ABSTRACT

Background/Objectives: To trim down the recycling cost of any manufactured goods with the help of green design and product stewardship. **Methods/Statistical analysis:** For the planned EPQ (economic production quantity model) model, all costs are calculated to find total cost and this total cost is optimized with the help of the Hessian matrix. Sensitivity analysis is also carried w.r.t. different parameters, to illustrate the impact of these parameters on the proposed model. The convexity of the total cost function is also checked with the help of mathematical software Mathematica 9.0. **Findings:** Major finding of the proposed model are as follows: (i) Increase in the number of recycles results in the reduction of the total cost. (ii) Product stewardship parameter has a negative effect on total cost as the PS increases from 1 to 4 units, total cost decreases from 5926.00 to 5918.96 units (see Table 9) (similar findings can be written for numeric example 1 after correcting it). (iii) Green design costs have a positive effect on total cost, as the green design cost

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Generalized cr3b Problem with Heterogeneous Primary and Secondary as Finite Straight Segment

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Received: April 4, 2021; Accepted: August 4, 2021

Abstract

The existence and stability of stationary points are investigated under the effects of heterogeneous primary having N-layers with different densities, radiating finite straight segment and the Coriolis as well as centrifugal forces in the frame of cr3bp. The equations of motion are determined with the help of which we evaluate five stationary points analytically as well as graphically, and examine their stability.

Keywords: Restricted three-body problem; Heterogeneous body; Finite straight segment; Radiation pressure; Stationary points

MSC 2010 No.: 70F15, 70F07, 70F05

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European Journal of Pharmacology

Volume 890, 5 January 2021, 173741

Review

A comprehensive review on potential therapeutics interventions for COVID-19

Heerak Chugh [a 1], Amardeep Awasthi [a 1], Yashi Agarwal [a], Rajesh K. Gaur [c], Gagan Dhawan [d], Ramesh Chandra [a b]

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Abstract

COVID-19 is an infectious respiratory disease caused by SARS-CoV-2, a new beta coronavirus that emerged in Wuhan, China. Being primarily a respiratory disease, it is highly transmissible through both direct and indirect contacts. It displays a range of symptoms in different individuals and thus has been grouped into mild, moderate, and severe diseases. The virus utilizes spike proteins present on its surface to recognize ACE-2 receptors present on the host cells to enter the cell cytoplasm and replicate. The viral invasion of cells induces damage response, pyroptosis, infiltration of immune cells, expression of pro-inflammatory cytokines (cytokine storm), and activation of the adaptive immune system. Depending on viral load and host factors like age and underlying medical conditions, the immune responses mounted against SARS-CoV-2 may cause acute respiratory distress syndrome (ARDS), multiple organ failure, and death. In

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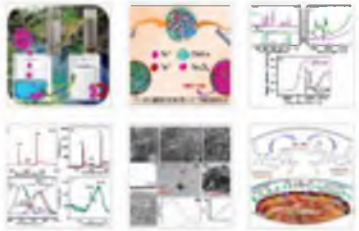

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Fe_3O_4 loaded chitin – A promising nano adsorbent for Reactive Blue 13 dye

Drashya Gautam [a], Laishram Saya [b], Sunita Hooda [a]

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Herein we report the development of easily separable, Fe_3O_4 loaded chitin nanomaterial (MCH NM) via simple Co-precipitation route, as a promising adsorbent for removal of Reactive Blue 13 (RB13) dye from aqueous solution in visible light ($\lambda \geq 420$nm). This nanomaterial was characterized using distinctive physicochemical techniques; MCH NM show band gap energy of 2.257 eV, evaluated by Tauc's plot using UV–visible spectroscopy. MCH NM show excellent swelling property due to the tendency of the polymer chains to reach elongated configurations at equilibrium beyond which an elastic

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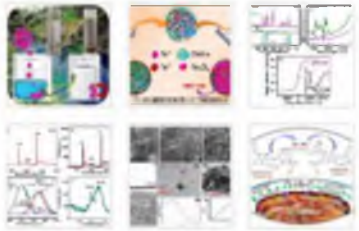

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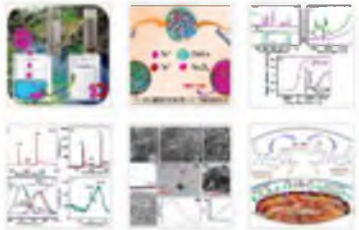

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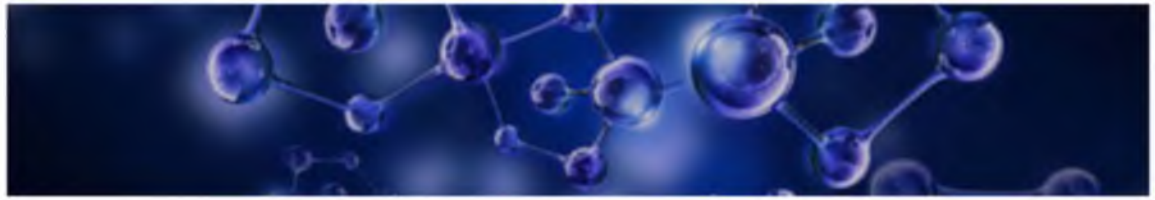

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Synthesis of Silver Nanoparticles by *Phyllanthus emblica* Plant Extract and Their Antibacterial Activity

Rajesh Kumar Meena[1*], Risikesh Meena[2], Dinesh Kumar Arya[3], Sapana Jadoun[4], Renu Hada[5] and Roopa Kumari[6]

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Artificial Intelligence Assisted Smart Mirror

Amit Garg[1], Prince Sharma[2#], Vivek Verma[3], Shruti Yadav[4], Aman Tyagi[5]

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Abstract— According to a survey [1] and research carried out by Today Show and AOL [2], the average person spends 55-56 minutes every day in front of the mirror. In today's fast-moving world, there is a need to manage time very efficiently while being healthy and content in one's life. Considering these observations, this paper constitutes the demonstration and creation of a project aiming to utilize every minute spent in front of a mirror in things like keeping track of mental health and making the best use of smart emerging technologies. In the proposed project idea, this paper presents another interactive smart mirror with some technological capabilities like emotion tracking, voice-activated talking bot with personal assistance, face recognition, the door unlocks, controlling lights, fans, and much more. The proposed mirror also displays day to day schedule, reminders, meetings and engagements fetching all of the required information from the user's Google account and real-time information such as live weather updates, local time, and latest headlines. Moreover, it keeps on displaying positive messages, compliments one's outfit, and greetings depending on what time it is.

Keywords— Smart Mirror, Raspberry PI, Artificial Intelligence, node.js, Python, JavaScript, Two-way mirror

I. INTRODUCTION

It is said that every second count and the saying is considered to be among the best of letter and spirit. There is rarely a home on earth without a mirror. Normally, a majority of people spend almost half of an hour in front of a mirror on a daily basis. With the advancement in technology the mirror should also adapt to move towards many emerging technologies like smartphones, tablets and laptops. The proposed solution to the problem is to turn the mirror into a Smart Electronic device like Alexa, Google Assistant.

Taking advantage of AI technology it is embedded in it to make smart and usable in all technological aspects. The most important goals of the Smart Mirror are to save the user's time and consequently, help in being more productive and also to allow receive all the updates on a timely basis. A smart mirror also reduces the great haste of completing morning routines by

II. RELATED WORK

The proposed smart mirror facilitates access to personalized services such as assistance, emotion tracking, face recognized door unlocks, retrieval of important engagements and notifications from user's Google account, real-time weather updates, and news headlines. Even while functioning as an ordinary mirror, it complements the user's outfit and greets concerning the time.

Some of the previous works in this field are written briefly in this section.

1. A system [1] that lets users control the household smart appliances and provide access to personalized services; ensuring comfort in accessing these services without requiring any human intervention
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Artificial Intelligence Assisted Smart Mirror

Amit Garg[1], Prince Sharma[2#], Vivek Verma[3], Shruti Yadav[4], Aman Tyagi[5]

[12345]Department of Electronics, Acharya Narendra Dev College, Govindpuri, New Delhi, India-110019

[#]Email address: princesharma2899@gmail.com

Abstract— According to a survey [1] and research carried out by Today Show and AOL [2], the average person spends 55-56 minutes every day in front of the mirror. In today's fast-moving world, there is a need to manage time very efficiently while being healthy and content in one's life. Considering these observations, this paper constitutes the demonstration and creation of a project aiming to utilize every minute spent in front of a mirror in things like keeping track of mental health and making the best use of smart emerging technologies. In the proposed project idea, this paper presents another interactive smart mirror with some technological capabilities like emotion tracking, voice-activated talking bot with personal assistance, face recognition, the door unlocks, controlling lights, fans, and much more. The proposed mirror also displays day to day schedule, reminders, meetings and engagements fetching all of the required information from the user's Google account and real-time information such as live weather updates, local time, and latest headlines. Moreover, it keeps on displaying positive messages, compliments one's outfit, and greetings depending on what time it is.

Keywords— Smart Mirror, Raspberry PI, Artificial Intelligence, node.js, Python, JavaScript, Two-way mirror

I. INTRODUCTION

It is said that every second count and the saying is considered to be among the best of letter and spirit. There is rarely a home on earth without a mirror. Normally, a majority of people spend almost half of an hour in front of a mirror on a daily basis. With the advancement in technology the mirror should also adapt to move towards many emerging technologies like smartphones, tablets and laptops. The proposed solution to the problem is to turn the mirror into a Smart Electronic device like Alexa, Google Assistant.

Taking advantage of AI technology it is embedded in it to make smart and usable in all technological aspects. The most important goals of the Smart Mirror are to save the user's time and consequently, help in being more productive and also to allow receive all the updates on a timely basis. A smart mirror also reduces the great haste of completing morning routines by

II. RELATED WORK

The proposed smart mirror facilitates access to personalized services such as assistance, emotion tracking, face recognized door unlocks, retrieval of important engagements and notifications from user's Google account, real-time weather updates, and news headlines. Even while functioning as an ordinary mirror, it complements the user's outfit and greets concerning the time.

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Journal of Alloys and Compounds

Volume 830, 25 July 2020, 154641

Enhancement in NH_3 sensing performance of ZnO thin-film via gamma-irradiation

Maqsood R. Waikar [a], Pooja M. Raste [a], Rakesh K. Sonker [b], Vinay Gupta [b], Monika Tomar [c], Mahendra D. Shirsat [d], Rajendra G. Sonkawade [a]

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Abstract

In this work, chemically synthesized Zinc Oxide (ZnO) thin films were exposed to Cobalt-60 (Co-60), 1.25 MeV average energy of gamma source at different doses for possible augmentation in NH_3 sensing. The hexagonal crystalline structure was confirmed by XRD spectra and an enhancement in crystallite size was observed with an increase in radiation followed by decrease at 50 kGy dose. The FTIR spectra showed there were no significant changes in the peak position after gamma-irradiation. The morphological investigation showed the maturation of 1D ZnO hexagonal nanorods over the surface of the film. However, after gamma-irradiation, the ZnO nanorods were found connected, forming bunches. The band-gap increased for 50 kGy doses as compared to pristine ZnO thin film. However, characterization result analysis showed that gamma-irradiation produced conspicuous improvements in chemically prepared ZnO microstructure. It was

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Outline

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1. Introduction

2. Experimental details

3. Results and discussions

4. Conclusions

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Declaration of competing interest

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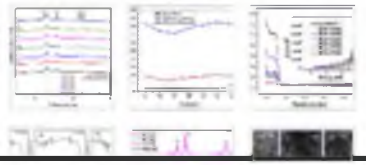

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Materials Science in Semiconductor Processing

Volume 110, May 2020, 104975

Post-γ -irradiation effects on structural, optical and morphological properties of chemical vapour deposited MWCNTs

Maqsood R. Waikar [a], Rakesh K. Sonker [b], Sakshi Gupta [c], Shiv Kumar Chakarvarti [d], Rajendra G. Sonkawade [a]

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Highlights

- The crystallite size increases with increasing γ dose at 60kGy as compared to pristine MWCNTs.
- Bandgap and structural parameters d, ε, δ and g decreases with increasing γ dose as compared to pristine MWCNTs.
- FTIR spectra peak shifted after γ irradiation is the evidence of changes in the structure of the MWCNTs.
- Raman spectra show the structural ordering at high dose (60 kGy) of MWCNTs.

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RESEARCH PAPER

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Chemistry and Pharmacology of Miraculous *Echinacea purpurea* L.

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Department of Chemistry, University of Rajasthan, Jaipur, Rajasthan, India
*Department of Chemistry, Acharya Narendra Dev College, Delhi, India
**Department of Chemistry, SBRM Govt. P.G. College, Nagaur, Rajasthan, India

ABSTRACT

Echinacea purpurea L. (EP) is one of the most important perennial medical herbs with enormous pharmacological and aesthetic properties. Mainly Echinacea is focused on its immunomodulatory effects, anti-inflammatory, antimicrobial, antiviral, antifungal and urinary tract infections. Other aspects of its beneficial effects viz. antioxidant, antibacterial, antiviral, and larvicidal activities antianxiety, antidepression, cytotoxicity, and antimutagenicity as induced by the plant have been revealed in various studies. The chemistry and its pharmacological actions are well documented. Several groups of

Advances in Zoology and Botany 8(1): 12-19, 2020 http://www.hrpub.org
DOI: 10.13189/azb.2020.080103

Optimizing Synthesis of *Citrus limetta* Peel Silver Nanocomposites Possessing Larvicidal Potential against Dengue Vector, *Aedes aegypti* L.

Devina Aggarwal[1], Aarti Sharma[2], Sarita Kumar[3,*]

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Abstract *Aedes aegypti* L. is the major vector accountable for the spread of several diseases of medical importance. The control strategies primarily relying on chemical insecticides have caused negative impact on our environment and human health. Thus, current study employed *Citrus limetta* peel extracts (CLPE) against larvae of *Ae. aegypti*. Silver nanocomposites (AgNCs) from CLPE were synthesised and the process of synthesis was optimized by varying temperature; volume and concentration of silver nitrate solution; and the volume of catalyst. A conspicuous change in colour of the reaction mixture was noticed from pale yellow to dark brown. This

diseases; like Yellow fever, Zika, Dengue fever and Chikungunya; has captivated attention of researchers, health organizations and vector control bodies. In the last few decades, the prevalence of *Aedes*-borne diseases; especially dengue; has augmented extensively at global level. According to World Health Organization, almost half of the world's population (3.9 billion) residing in 128 countries is prone to the dengue infection while more than 100 countries are endemic to dengue [1]. According to Union Health Ministry of India, the infections and fatalities caused by dengue virus are rising in India year by year raising serious concerns about the vector control.

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pH induced conformational alteration in human peroxiredoxin 6 might be responsible for its resistance against lysosomal pH or high temperature

Rimpy Kaur Chowhan, Sunaina Hotumalani, Hamidur Rahaman & Laishram Rajendrakumar Singh

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Abstract

Peroxiredoxin 6 (Prdx6), the ubiquitously expressed enzyme belonging to the family of peroxidases, namely, peroxiredoxins, exhibits a unique feature of functional compartmentalization within cells. Whereas, the enzyme localized in cytosol shows glutathione peroxidase activity, its lysosomal counterpart performs calcium independent phospholipase A2 (aiPLA2) activity. Like any true moonlighting protein, these two activities of Prdx6 are mutually exclusive of each other as a function of the pH of the cellular compartments. Differential substrate preference at different pH (i.e. peroxidised phospholipids at neutral pH and reduced phospholipids at acidic pH) is considered to be the reason for this behavior. To gain insight into the pH-induced structural–functional interplay we have systematically evaluated

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Vandita Grover

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Sentiment analysis is now a prominent field of interest owing to a growing trend of users expressing their opinions on social media, review pages, feedback forms, and other online channels. The machine learning approach to sentiment analysis focuses on feature extraction methods like constructing lexicons to learn sentiment polarity or learning word embeddings and applying them for their use in machine learning algorithms for sentiment classification. But most popular machine learning approaches still cannot capture nuanced emotions like sarcasm, irony, etc. Emojis are now being used along with text by the users to express emotions and hence can help researchers improve sentiment classification tasks. Sentiment analysis powered by emojis is still in the nascent phase and has gained some pace in the last five years. The primary goal of this paper is to discuss the use of emojis that supplement the

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Research Article

Optimisation of dielectric spacer layer thickness in Ag nanospheres/ITO/c-Si structure for plasmonic solar cells using FDTD simulation

Manju Rani, Jyoti Kashyap, Udaibir Singh & Avinashi Kapoor

Pages 1320-1328 | Received 27 Apr 2021, Accepted 01 Jun 2021, Published online: 15 Jun 2021

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ABSTRACT

The thickness of dielectric spacer layer (DSL) plays an important role in performance of plasmonic solar cells. In this work, effect of thickness variation of ITO (indium tin oxide) DSL in silver (Ag) nanospheres/ITO/crystalline silicon(c-Si) structure on forward and backward scattering efficiencies has been investigated. Simulations were carried out using the open-source software MEEP via FDTD method for Ag nanospheres of sizes 50nm, 80nm and 100nm. Maximum forward scattering was observed with 80nm

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Applicability of Field Plate in Double Channel GaN HEMT for Radio-Frequency and Power-Electronic Applications

Nisha Chugh, Manoj Kumar, Subhasis Haldar, Monika Bhattacharya & R.S. Gupta

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In the present communication, for the first time, applicability of Field Plate (FP) for Double Channel (DC) AlGaN/GaNHEMT is demonstrated. Impact of design space parameters such as field plate length (L_{FP}) and Silicon Nitride thickness (t_{SiN}) on breakdown voltage of DC HEMT is investigated and benchmarked with Single Channel (SC) HEMT. The investigation is carried out using ATLAS Technological Computer Aided Design (TCAD) Simulation tool, which is an efficient method in terms of time and cost to analyze and understand DC HEMT prior to the fabrication. The simulation shows new findings that breakdown voltage of DC device exhibited a large deviation with that of SC device. The breakdown voltage deviation is well corroborated

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Gamma Rays Induced Modification in Ultrahigh Molecular Weight Polyethylene (UHMWPE)

Suveda Aarya,[1] Pawan Kumar,[2] Mamta Bhatia,[2] Sanjeev Kumar,[3] Jyotsna Sharma,[4] and **Siddhartha**[2]

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Abstract

Modifications taking place in ultrahigh molecular weight polyethylene (UHMWPE) films due to gamma ray radiation-induced and investigated in correlation with the applied doses. Films were irradiated in a vacuum at room temperature by a 1.25 MeV Co^{60} a source with doses ranging from 0 to 300 kGg. The optical, chemical, structural, and surface morphological properties of the irradiated and unirradiated UHMWPE films

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Rakesh K. Sonker*, Rajkamal Shastri, and Rahul Johari

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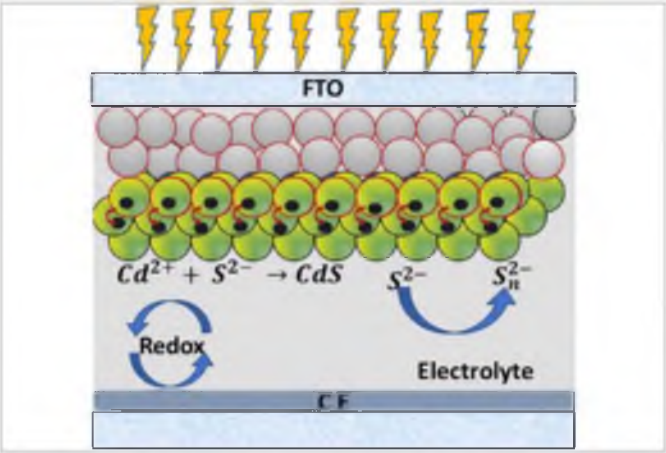
SUBJECTS: Cadmium sulfide, Chemical structure, Nanoclusters, Quantum dots,

Energy & Fuels

Abstract

In this paper, a thorough investigation of cadmium sulfide nanoparticle characteristics has been studied as a result of the wide attention and enormous application in a solar cell. Perovskite-sensitized solar cells (PSSCs) are a favorably effectual and sanitary hybrid, organic−inorganic solar cell device. The simple way uses synthesized cost-effective CdS quantum dots (QDs) via the sol−gel approach and also investigates their structural, electronic, and vibrational properties of CdS nanoparticles with the density functional theory method in B3LYP. Moreover, we use high-resolution transmission electron microscopy (HRTEM) techniques to confirm our calculations and acquire good agreement to the structural analysis of CdS QD formation. The maximum grain diameter is obtained from a HRTEM image, at ~4 nm. The particle size analyzer that obtained ~4 nm of CdS QD nanoparticles was determine via a dynamic light scattering study. The results demonstrated that the fabricated CdS QD-based dye-sensitized solar cell and PSSC represented a maximum power conversion efficiency (η) of 0.5 and 1.8% at 1 sun condition. This efficiency was improved by approximately 72%, associated with that of the reference cell.



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Influence of lufenuron on the nutrient content and detoxification enzyme expression in *Aedes aegypti* L. (Diptera: Culicidae)

Kungreiliu Panmei, Roopa Rani Samal, P. Lanbiliu & Sarita Kumar

International Journal of Tropical Insect Science **41**, 2965–2973 (2021) | Cite this article

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Abstract

Aedes aegypti is of utmost public health concern transmitting various diseases of human health concern. Employment of chemical-based control interventions has induced immunity in mosquitoes, harmed environment, and adversely affected human health and non-targets diverting the research focus on alternate measures. Current study investigates the efficacy of an Insect Growth Regulator, lufenuron, against early fourth instars of *Ae. aegypti*. The larvae exposed to lufenuron for 24 h were assessed for the effects on the development and adult emergence. The impact of sub-lethal and median-lethal dose of lufenuron was determined on the nutrients and detoxification enzymes of *Ae. aegypti*. The larvae exposed to lufenuron

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Roopa Rani Samal & Sarita Kumar

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Aedes aegypti is a globally spread disease vector of supreme concern, primarily controlled by chemical insecticides. Current study investigates the comparative rate of acetamiprid and deltamethrin resistance development in *Ae. aegypti* larvae and; possible correlation between resistance and cuticular thickening. The larvae were selected with LC_{90} level of the respective insecticide for 10 successive generations and the level of resistance induced was estimated. The larvae of parent (PS), acetamiprid-selected (ACSF-10) and deltamethrin-selected (DLSF-10) strains were sectioned through first abdominal segment to elucidate the variation in cuticular thickness. The PS larvae of *Ae. aegypti* were 229.26-fold higher susceptible to deltamethrin as compared to acetamiprid, exhibiting corresponding LC_{50} values of

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Physiological and reproductive fitness cost in Aedes aegypti on exposure to toxic xenobiotics in New Delhi, India

PDF

Published Feb 12, 2021

DOI https://doi.org/10.31018/jans.v13i1.2470

Addea Gupta
Sanskriti School, New Delhi, India
Roopa Rani Samal
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India
Sarita Kumar
Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, India

Abstract

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Proactive role of *Streptomyces* spp. in plant growth stimulation and management of chemical pesticides and fertilizers

M. Kumar, P. Kumar, P. Das, R. Solanki & M. K. Kapur

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Abstract

In current agriculture practices, various chemical stimulants are being used to enhance crop productivity. However, these chemical fertilizers and pesticides show a deadly impact on the environment, food chain, and human health. The researchers are looking for the biological replacement of these chemical fertilizers and pesticides. Nevertheless, still, no strong bioalternative has replaced the use of such chemicals. Bacteria belonging to the genus *Streptomyces* are well-known producers of secondary metabolites, which can be potentially utilized to replace chemical fertilizers and pesticides. Metabolites from *Streptomyces* can degrade the chemical pesticides, help in the recoupment of essential minerals (e.g., iron,

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REVIEW ARTICLE OPEN ACCESS

Exploring Small Heat Shock Proteins (sHSPs) for Targeting Drug Resistance in *Candida albicans* and other Pathogenic Fungi

Rahul Dev

Department of Zoology, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi - 110 019, India.

Abstract

Fungal infections have predominantly increased worldwide that leads to morbidity and mortality in severe cases. Invasive candidiasis and other pathogenic fungal infections are a major problem in immunocompromised individuals and post-operative patients. Increasing resistance to existing antifungal drugs calls for the identification of novel antifungal drug targets for chemotherapeutic interventions. This demand for identification and characterization of novel drug targets leads to the development of effective antifungal therapy against drug resistant fungi. Heat shock proteins (HSPs) are important for various biological processes like protein folding, posttranslational modifications, transcription, translation, and protein aggregation. HSPs are involved in maintaining homeostasis of the cell. A subgroup of HSPs is small heat shock proteins (sHSPs), which functions as cellular chaperones. They are having a significant role in the many cellular functions like development, cytoskeletal organization, apoptosis, membrane lipid polymorphism, differentiation, autophagy, in infection recognition and are major players in various stresses like osmotic stress, pH stress, etc. Studies have shown that fungal cells express increased levels of sHSPs upon antifungal drug induced stress responses. Here we review the important role of small heat shock proteins (sHSPs) in fungal diseases and their potential as antifungal targets.

Keywords: *Candida albicans*, Drug resistance, Small heat shock proteins, Antifungals

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Characterization of *Euplotes lynni* nov. spec., *E. indica* nov. spec. and description of *E. aediculatus* and *E. woodruffi* (Ciliophora, Euplotidae) using an integrative approach

Jeeva Susan Abraham [a], Sripoorna Somasundaram [a], Swati Maurya [a], Renu Gupta [b], Seema Makhija [a], Ravi Toteja [a]

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Abstract

Four species belonging to the genus *Euplotes* have been investigated, namely: *E. lynni* nov. spec., *E. indica* nov. spec., *E. aediculatus*, and *E. woodruffi*. All populations are from India and were investigated using morphological and molecular markers. The phylogenetic relationships were inferred from small subunit ribosomal rRNA gene (SSU rRNA), internal transcribed spacer (ITS) region, and mitochondrial cytochrome c oxidase subunit I (COI) gene. Predicted secondary structure models for two new species using the hypervariable region of the SSU rRNA gene and ITS2 region support the distinctness of both species. Morphological characters were subjected to principal component analysis (PCA) and genetic variations were studied in-depth to analyze the relatedness of the two new species with their congeners. An integrative approach combining morphological features, molecular analysis, and ecological characteristics was carried out to understand the phylogenetic position of the reported species within the different clades of the genus *Euplotes*.

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Volume 261, 1 June 2021, 117851

Review

Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions

Laishram Saya [a d], Vipin Malik [b], Aarushi Singh [c e], Snigdha Singh [c e], Geetu Gambhir [b], W. Rameshwor Singh [d], Ramesh Chandra [c], Sunita Hooda [b]

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Researchers nowadays are relentlessly on a race exploring sustainable materials and techniques for the sequestration of toxic dyes and metal ions from water bodies. Biopolymers such as guar gum, owing to its high abundance, low cost and non-toxicity, are potential candidates in this field. Plenty of hydroxyl groups in the polymer backbone enable guar gum to be functionalised or grafted in a versatile manner proving itself as an excellent starting substance for fabricating upgraded materials meant for diverse applications. This review offers a comprehensive coverage of the role of guar gum-based nanocomposites in removal of dyes and heavy metal ions from waste water through adsorption and photo-catalytic degradation. Isotherm and kinetics models, fabrication routes, characterisation techniques, swelling properties and reusability as well as adsorption and degradation mechanisms are outlined. A detailed analysis with convincing results suggests a good future perspective of implementation of these materials in real-time wastewater treatment technology.

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Review

Guar gum based nanocomposites: Role in water purification through efficient removal of dyes and metal ions

Laishram Saya [a d], Vipin Malik [b], Aarushi Singh [c e], Snigdha Singh [c e], Geetu Gambhir [b], W. Rameshwor Singh [d], Ramesh Chandra [c], Sunita Hooda [b]

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Abstract

Researchers nowadays are relentlessly on a race exploring sustainable materials and techniques for the sequestration of toxic dyes and metal ions from water bodies. Biopolymers such as guar gum, owing to its high abundance, low cost and non-toxicity, are potential candidates in this field. Plenty of hydroxyl groups in the polymer backbone enable guar gum to be functionalised or grafted in a versatile manner proving itself as an excellent starting substance for fabricating upgraded materials meant for diverse applications. This review offers a comprehensive coverage of the role of guar gum-based nanocomposites in removal of dyes and heavy metal ions from waste water through adsorption and photo-catalytic degradation. Isotherm and kinetics models, fabrication routes, characterisation techniques, swelling properties and reusability as well as adsorption and degradation mechanisms are outlined. A detailed analysis with convincing results suggests a good future perspective of implementation of these materials in real-time wastewater treatment technology.

REVIEW article

Front. Microbiol., 12 January 2021
Sec. Antimicrobials, Resistance and Chemotherapy
Volume 11 - 2020 | https://doi.org/10.3389/fmicb.2020.607099

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Recent Advances in a Polydopamine-Mediated Antimicrobial Adhesion System

Indu Singh[1] Gagan Dhawan[1*] Seema Gupta[1*] Pradeep Kumar[2*]

[1] Acharya Narendra Dev College, University of Delhi, Delhi, India
[2] Nucleic Acids Research Laboratory, CSIR-Institute of Genomics and Integrative Biology, Delhi, India

The drug resistance developed by bacteria during antibiotic treatment has been a call to action for researchers and scientists across the globe, as bacteria and fungi develop ever increasing resistance to current drugs. Innovative antimicrobial/antibacterial materials and coatings to combat such infections have become a priority, as many infections are caused by indwelling implants (e.g., catheters) as well as improving postsurgical function and outcomes. Pathogenic microorganisms that can exist either in planktonic form or as biofilms in water-carrying pipelines are one of the sources

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Antimicrobial, radical scavenging, and dye degradation potential of nontoxic biogenic silver nanoparticles using *Cassia fistula* pods

Indu Singh, Seema Gupta, Hemant K. Gautam, Gagan Dhawan & Pradeep Kumar

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Abstract

Synthesis of metallic nanoparticles via green approach holds great potential in diverse fields of biotechnology and medicine with special mention to silver nanoparticles (AgNPs) which undoubtedly display antimicrobial, radical scavenging, and dye degradation properties. Currently, there is a need to explore more cost-effective and efficient methods to synthesize AgNPs. In this study, we have synthesized biogenic AgNPs using an aqueous extract of a flowering plant of the legume family, Fabaceae, subfamily Caesalpiniaceae, *Cassia fistula*, which is also well known for its medicinal values. Spectroscopically and physicochemically characterized AgNPs were evaluated for their cytocompatibility, antimicrobial effects, antioxidant and catalytic activity to establish their potential for various biomedical applications. DLS studies revealed their size ~ 237 nm with the surface charge of ~ − 30 mV. The results of the zone of inhibition and MIC assays showed the superiority of the activity of these particles over the pod extract. Catalytic reduction of toxic p-nitrophenol to benign p-

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Applications of Chitosan in Tissue Engineering

Smriti Rekha Deka,[1,*] Seema Gupta,[2] Pradeep Kumar[1,*]

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[2]Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi- 110019, India

Received: December 12, 2020, Revised: March 28, 2021, Accepted: March 29, 2021

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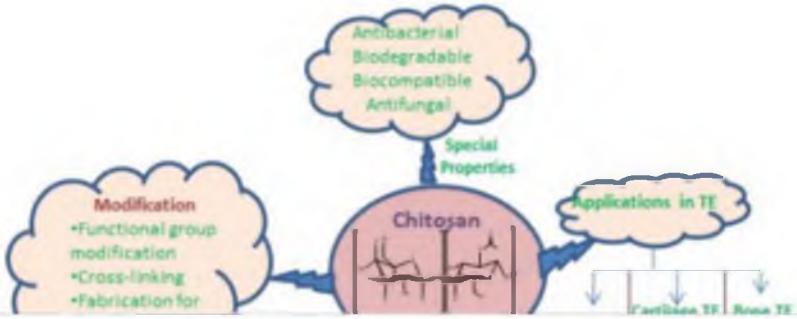

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Mannosylated and mannan-modified nanovectors targeting Resident Tissue Macrophages (RTM) for efficient pharmacotherapy

Indu Singh,[1,2] Seema Gupta,[2] Gagan Dhawan,[2] Pradeep Kumar[1]*

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[2]Acharya Narendra Dev College (University of Delhi), Govindpuri, Kalkaji, New Delhi- 110019, India

Received: January 01, 2021, Revised: March 28, 2021, Accepted: March 30, 2021

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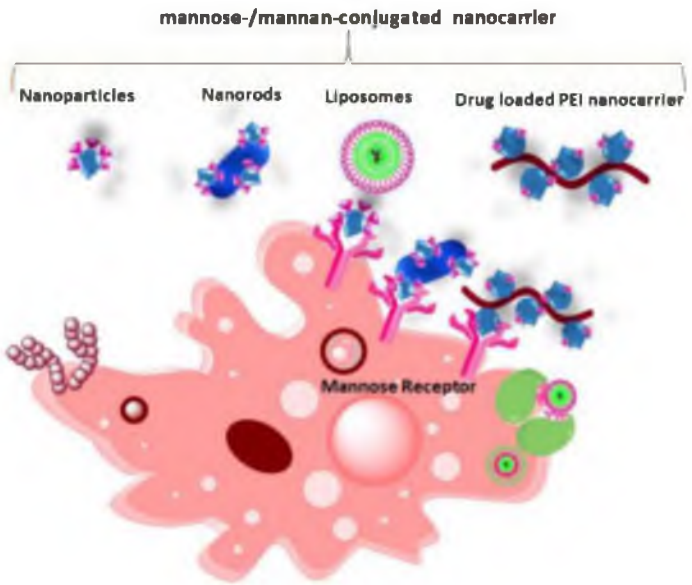

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Nanovectors advocate extensive scientific advancement for feeding safe and efficient pharmaceutical delivery systems. Embraced as both organic and inorganic vectors, these nanovectors can be designed and engineered with various layers of

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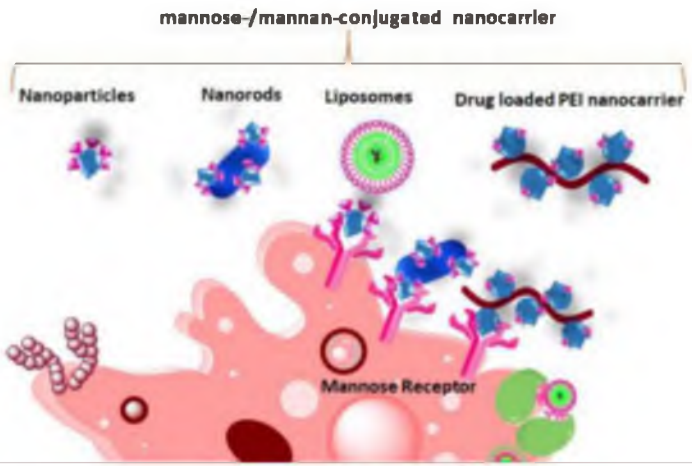

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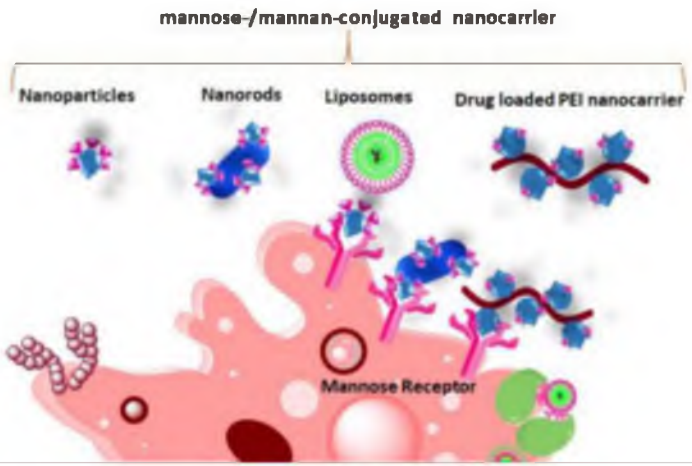

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Abstract

The rise of normal body temperature of 98.6 °F beyond 100.4 °F in humans indicates fever due to some illness or infection. Viral infections caused by different viruses are one of the major causes of fever. One of such viruses is, Chikungunya virus (CHIKV) is known to cause Chikungunya fever (CHIKF) which is transmitted to humans through the mosquitoes, which actually become the primary source of transmission of the virus. The genomic structure of the CHIKV consists of the two open reading frames (ORFs). The first one is a 5' end ORF and it encodes the nonstructural protein (nsP1-nsP4). The second is a 3' end ORF and it encodes the structural proteins, which is consisted of capsid, envelope (E), accessory peptides, E3 and 6 K. Till date, there is no effective vaccine or medicine available for early detection of the CHIKV infection and appropriate diagnosis to cure the patients from the infection. NSP3 of CHIKV is the prime target of the researchers as it is responsible for the catalytic activity. This review has updates of literature on CHIKV; pathogenesis of CHIKV; inhibition of CHIKV using theoretical and experimental approaches.

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Keywords: CHIKV | docking | MD simulations | inhibition

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RESEARCH ARTICLE

Synthesis, comparative *in vitro* antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 M^{pro}

Sugandha Singhal, Pankaj Khanna, Leena Khanna

First published: 04 June 2021 | https://doi.org/10.1002/bio.4098 | Citations: 11

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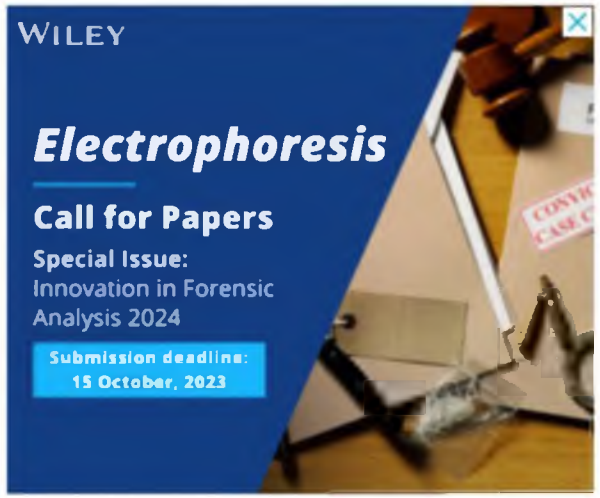

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In this study, synthesis of 15 novel bis indole-based Schiff bases (SBs) **4a**–**4o** was conducted by condensation of 2-(1-aminobenzyl)benzimidazole with symmetrical bis-

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Screening of compound library identifies novel inhibitors against the MurA enzyme of *Escherichia coli*

Diksha Raina, Harshita Tiwari, Smriti Sharma, Deepika, Praveen Kumar Chinthakindi, Amit Nargotra, Payare L. Sangwan, Kandasamy Eniyan, Urmi Bajpai, Ram A. Vishwakarma, Farrah Gul Khan, Saurabh Saran & Inshad Ali Khan

Applied Microbiology and Biotechnology **105** 3611–3623 (2021) | Cite this article

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Abstract

Bacterial cell has always been an attractive target for anti-infective drug discovery. MurA (UDP-N-acetylglucosamine enolpyruvyl transferase) enzyme of *Escherichia coli* (*E.coli*) is crucial for peptidoglycan biosynthetic pathway, as it is involved in the early stages of bacterial cell wall biosynthesis. In the present study we aim to identify novel chemical structures targeting the MurA enzyme. For screening purpose, we used *in silico* approach (pharmacophore based strategy) for 52,026 library compounds (Chembridge, Chemdiv and in house synthetics) which resulted in identification of 50 compounds. These compounds were screened in vitro against MurA enzyme and release of inorganic phosphate (Pi) was estimated. Two compounds (IN00152 and IN00156) were found to inhibit MurA enzyme > 70% in primary screening and IC_{50} of 14.03 to 32.30 μM respectively. These two hits were further evaluated for their mode of inhibition studies and whole-cell activity where we observed 2-4 folds increase in activity in presence of Permeabilizer EDTA (Ethylenediaminetetraacetic

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SHELTER BUILDING BEHAVIOUR OF *HASORA CHROMUS* (CRAMER, 1780) LARVAE (INSECTA: LEPIDOPTERA: HESPERIIDAE)

RAJESH CHAUDHARY
Department of Biomedical Science, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi-110019, India.
rajeshchaudhary@andc.du.ac.in

Reviewer: Peter Smetacek

Abstract
Larvae of many lepidopterans, including those belonging to the family Hesperiidae, construct leaf shelters. It has been indicated that these shelters confer protection to larvae from predators and harsh environmental conditions. The repertoire of shelter architectures constructed by given genera or species of Hesperiidae is fairly predictable. Thus, shelter building behaviour can also be important from the perspective of evolution. The present study provides an insight into shelter building behaviour of larvae of Common Banded Awl, *Hasora chromus* (Cramer), including various designs of shelter that larvae can make, and the role of shelters protection from predators. *H. chromus* larvae were found to construct at least four broad architectural types of shelters by folding and tying leaves. The shelters function as a barrier for arthropod predators (including wasps and spiders), and also effective in protecting larvae from avian predators too.
Keywords: Common Banded Awl, *Hasora chromus*, Hesperiidae, Larva, Ecobiology, Shelter-building, Predation, Protection.

Introduction

Larvae of lepidopterans have devised several ways to protect themselves from predators as well as environmental conditions such as solar heat, dislodgement due to shaking or wind blow (Greeney et al., 2015). Their protective strategies include chemical, physiological, morphological, and behavioural defences association with other organisms and avoiding encounters with predators by constructing shelters (Greeney et al., 2015). The latter strategy, *i.e.* shelter making, is widely utilized by larvae of Hesperiidae (Greeney et al., 2003). The larvae of this butterfly family construct shelters with a diverse array of architecture through precisely executed actions, including cutting, rolling, folding and tying a portion or whole of a leaf or several species is largely predictable, and this may be important from the point of view of phylogeny of this group of butterflies (Greeney et al., 2003, 2010; Greeney 2009). However, studies on shelter building behaviour, architectural details of shelter and its protective values (protection from predators and harsh environment) for larvae have not received much attention, particularly for Indian hesperids. In the present communication, these aforementioned aspects have been reported for Common Banded Awl (*Hasora chromus* Cramer, 1780), a common hesperid butterfly found in most parts of India. *Hasora chromus* lays eggs singly or in groups of 2-3 eggs on nascent leaves of its host plant. There are five larval instars, live in self-constructed leaf

Appl. Math. Inf. Sci. 15, No. 2, 189-197 (2021)

Applied Mathematics & Information Sciences
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http://dx.doi.org/10.18576/amis/150211

Properties of Motion of the Infinitesimal Variable Mass Body in the Well Known Circular Restricted Three-Body Problem with Newtonian and Yukawa Potential

Abdullah A. Ansari[1,*], *Mehtab Alam*[1], *Kalu Ram Meena*[2] *and Ashraf Ali*[3]

[1]International Center for Advanced Interdisciplinary Research (ICAIR), Ratiya Marg, Sangam Vihar, New Delhi, India
[2]Department of Mathematics, Acharya Narendra Dev College,University of Delhi, Delhi-110019, India
[3]Faculty of Computer Studies, Arab Open University, Kingdom of Bahrain

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Published online: 1 Mar. 2021

Abstract: The effects of Newtonian and Yukawa gravitational potentials are studied on the circular restricted three-body system under the assumption that infinitesimal body varies its mass according to Jeans law. The equations of motion are determined under these perturbations. The numerical studies are conducted where locations of equilibrium points, regions of motion, trajectories with Poincaré surfaces of section and the basins of attraction have been investigated by well known software Mathematica. Moreover, the stability of the locations of equilibrium points are determined and it was found that all these points are unstable.

Keywords: Attracting domain, Newtonian potential, Variable mass, Trajectories, Yukawa potential.

1 Introduction

[6], [7], [8], [9], have explored the effect of oblateness on

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On Estimating Scale Parameter of the Selected Pareto Population under the Generalized Stein Loss Function

K. R. Meena, Aditi Kar Gangopadhyay & Omer Abdalghani

Pages 357-377 | Published online: 19 Mar 2021

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Abstract

The problem of estimation after selection can be seen in numerous statistical applications. Let $X_{i1}, \ldots, X_{in}$ be a random sample drawn from the population $\Pi_i, i = 1, \ldots, k$, where Π_i follows Pareto distribution with an unknown scale parameter θ_i and common known shape parameter β. This article is concerned with the problem of estimating θ_L (or θ_S), the scale parameter of the selected Pareto population under the generalized Stein loss function. The uniformly minimum risk unbiased (UMRU) estimators of θ_L and θ_S, scale parameters of the largest and the smallest population respectively, are determined. For $k = 2$, we have obtained a sufficient condition of minimaxity of θ_S and showed that the generalized Bayes estimator of θ_S is a minimax estimator for $k = 2$. Also, a class of linear admissible estimators of the form $dX_{(2)}(dX_{(1)})$ of θ_L and θ_S is found, and a sufficient condition for inadmissibility is provided. Further, we demonstrate that the UMRU estimator of θ_S is inadmissible. A comparison between the proposed estimators is conducted using MATLAB software and a real data set is analyzed for illustrative purposes. Finally, conclusions and discussion are reported.

KEY WORDS AND PHRASES: Generalized Bayes estimators | generalized Stein loss (GSL) function | inadmissibility | minimaxity | Pareto distributions | UMRU estimator

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Enzymes as Antimicrobial Agents

Phage Lysins (Enzybiotics)

Abstract

Antimicrobials are essential for combating infectious diseases. However, an increase in resistance to them is a major cause of concern. The empirical use of drugs in managing COVID-19 and the associated secondary infections have further exacerbated the problem of antimicrobial resistance. Hence, the situation mandates exploring and developing efficient alternatives for the treatment of bacterial and fungal infections in patients suffering from COVID-19 or other viral infections. In this review, we have described the alternatives to conventional antimicrobials that have shown promising results and are at various stages of

Alternative Treatment Strategies for Secondary Bacterial and Fungal Infections Associated with COVID-19

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Synthesis and Characterization of Nanoselenium: A Step-by-Step Guide for Undergraduate Students

Gagan Dhawan*, Indu Singh, Uma Dhawan*, and Pradeep Kumar*

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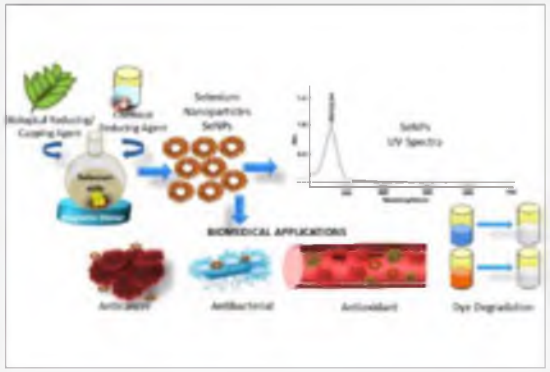
SUBJECTS: Metal nanoparticles, Nanoparticles, Selenium, Sodium, Students

Abstract



Nanoparticle synthesis is an important area of nanotechnology and has been performed by undergraduate students frpm various universities across the globe. Due to the availability of massive data on the synthesis of a wide variety of metallic nanoparticles, including silver, gold, selenium, zinc, copper, iron, palladium, platinum, titanium, etc., and their oxides, it has become tedious to select an ideal and workable protocol for their synthesis. Herein, we have focused on the standardized chemical and biological methodologies to prepare selenium nanoparticles (SeNPs or nanoselenium). Chemical methods exploit chemicals such as sodium selenite (Na_2SeO_3) and reductants (L-ascorbic acid, glutathione, etc.), along with stabilizing agents (Polysorbate 20, protic acid, lysozyme). Although these methods have been used for commercial purposes, they suffer from several drawbacks such as the use of excessive additives for controlled morphology, multistep synthesis, high running cost, and environmental toxicity. Biogenic synthesis using plant materials and microorganisms (algae, fungi, yeast, bacteria, and viruses), on the other hand, is a sustainable, environment-friendly, and cost-effective approach. The natural reducing agents facilitate the conversion of selenium salts into nanosized selenium particles in a single step and act as capping and stabilizing agents, which impart synergism in biological activities. Physical methods such as hydrothermal, irradiation, pulsed laser ablation, etc., have also been used for their production; however, high cost, stringent conditions, and high energy consumption have hampered their applications. Herein, we present a step-by-step methodology using chemical and biological reducing agents to synthesize selenium nanoparticles which will assist the undergraduate learners in selecting a well-tested method based on the conditions of an experiment and desired applications.

KEYWORDS: Second-Year Undergraduate, Upper-Division Undergraduate, Interdisciplinary/Multidisciplinary, Laboratory Instruction, Hands-On Learning/Manipulatives, Applications of Chemistry, Green

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Self-Assembled Biodegradable Core-Shell Nanocomposites of Amphiphilic Retinoic Acid-LMW bPEI Conjugates Exhibit Enhanced Transgene Expression in Hepatocellular Carcinoma Cells With Inherent Anticancer Properties

Zeba Ahmadi • Harekrushna Jena • Mahak Singh • Gagan Dhawan • Pradeep Kumar

Published: April 29, 2021 • DOI: https://doi.org/10.1016/j.xphs.2021.04.016 •

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Abstract

Low molecular weight branched polyethylenimines (LMW bPEIs) are almost nontoxic but display poor transfection efficiency due to lack of adequate complexation ability with nucleic acids followed by transportation across the cell membrane. Here, a series of amphiphilic retinoyl-bPEI conjugates (RP-1, RP-2 and RP-3) has been synthesized by allowing the reaction between bPEI (1.8 kDa) and a bioactive and hydrophobic vitamin A metabolite, all-*trans*-retinoic acid (ATRA), in varying

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Volume 32, Issue 11, November 2021, Pages 3342-3354

Review

Fluorine-containing pharmaceuticals approved by the FDA in 2020: Synthesis and biological activity

Yingjie Yu [a], Aiyao Liu [a], Gagan Dhawan [b], Haibo Mei [a], Wei Zhang [c], Kunisuke Izawa [d], Vadim A. Soloshonok [e f], Jianlin Han [a]

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https://doi.org/10.1016/j.cclet.2021.05.042

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Abstract

Thirteen new fluorine-containing drugs, which have been granted approval by the US Food and Drug Administration (FDA) in 2020, are profiled in this review. Therapeutic areas of these new fluorinated pharmaceuticals include medicines and diagnostic agents for Cushing's disease, neurofibromatosis, migraine, Alzheimer's disease, myelodysplastic syndromes, hereditary angioedema attacks, and various cancers. Molecules of these approved drugs feature aromatic fluorine (Ar-F) (11 compounds), aromatic Ar-CF_3 (1), aliphatic CHF (1) and CF_2 (1) groups. For each compound, we provide a spectrum of biological activity, medicinal chemistry discovery, and synthetic approaches.

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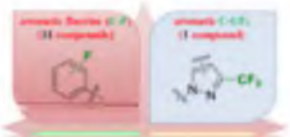

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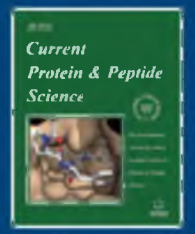

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Review Article

Peroxiredoxin-6: A Guardian of Lung Pathophysiologies

Author(s): Anju Kumari, Rimpy Kaur Chowhan, Pushpa Kakchingtabam, Sharifun Shahnaj, Hamidur Rahaman, Mohd Saquib Ansari and Laishram Rajendrakumar Singh*

Volume 22, Issue 9, 2021

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Abstract

The moonlighting protein, Prdx-6, exhibits peroxidase activity, phospholipase activity, and lysophosphatidylcholine acyltransferase (LPCAT) activity. Although it is ubiquitous in expression, its level is prominently high in the lung. Prdx-6 has been known to be an important enzyme for the maintenance of normal lung physiologies including, anti-oxidant defense, lung surfactant homeostasis, and cell signaling. Studies further unveiled that the altered activity (peroxidase or ai- PLA2) of this enzyme is linked with various lung pathologies or diseases. In the present article, we attempted to address the various pathophysiologies or disease conditions (like lung ischemia, hyperoxia, lung cancer, emphysema, and acute lung injury) wherein Prdx-6 is involved. The study implicates that Prdx-6 could be used as a common drug target for multiple lung diseases. Important future insights have also been incorporated.

Keywords: Peroxiredoxin-6 , reactive oxygen species (ROS) , antioxidants , hyperoxia , acute lung injury , pulmonary microvascular endothelial

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Review

Signaling mechanisms and biochemical pathways regulating pollen-stigma interaction, seed development and seedling growth in sunflower under salt stress

Satish C. Bhatla, Mansi Gogna, Prachi Jain, Neha Singh, Soumya Mukherjee & Geetika Kalra

Article: 1958129 | Received 23 Jun 2021, Accepted 15 Jul 2021, Published online: 25 Aug 2021

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ABSTRACT
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Biomolecules associated with pollen-stigma interaction
Major biochemical events during seed development
Signaling and enzymatic actions leading to oil body (OB) mobilization during seed germination

ABSTRACT

Sunflower (*Helianthus annuus* L.) is one of the major oilseed crops cultivated world over for its high-quality oil rich in linoleic acid. It also has established applications in pharmaceutical and biotechnological industries, mainly through recombinant production of unique oil body (OB) membrane proteins-oleosins, which are used for producing a wide variety of vaccines, food products, cosmetics and nutraceuticals. The present review provides a critical analysis of the progress made in advancing our knowledge in sunflower biology, ranging from mechanisms of pollen-stigma interaction, seed development, physiology of seed germination and seedling growth under salt stress, and finally understanding the signaling routes associated with various biochemical pathways regulating seedling growth. Role of nitric oxide (NO) triggered post-translational modifications (PTMs), discovered in the recent past, have paved way for future research directions leading to further understanding of sunflower developmental physiology. Novel protocols recently developed to monitor temporal and spatial distributions of various biochemicals involved in above-stated developmental events in sunflower, will go a long way for similar applications in plant biology in future.

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Unraveling the AM fungal community for understanding its ecosystem resilience to changed climate in agroecosystems

Dipanti Chourasiya, Manju M. Gupta, Sumit Sahni, Fritz Oehl, Richa Agnihotri, Reena Buade, Hemant S Maheshwari, Anil Prakash & Mahaveer P Sharma

Symbiosis **84**, 295–310 (2021) | Cite this article

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Abstract

The changing global climate affects the agroecosystem making it challenging to achieve the world's sustainable development goals. Among the facets of belowground microbial communities, the arbuscular mycorrhizal fungi (AMF) hold an important place. They represent the most common symbiont phylum colonizing more than 80% of the plant families and are likely to be affected by global climate change. These fungi facilitate plant's mineral acquisition, improving growth and protecting them from biotic and abiotic stresses. The elevated carbon dioxide (eCO_2) level, temperature, increased nitrogen and phosphorus deposition influences the plant phenology and AMF functioning through changes in diversity and community composition of AMF. The interaction effects of soil management practices due to climate change affect the system productivity and perturb mineral cycling. Understanding the carbon and nitrogen cycling of an agro-ecosystem and its associated AMF communities concerning ecosystem productivity is the need of the hour. Plant-fungal associations require a

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Al_2O_3/CuI/PANI nanocomposite catalyzed green synthesis of biologically active 2-substituted benzimidazole derivatives†

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Sahil Kohli, [ab] Garima Rathee, [a] Sunita Hooda *[b] and Rajesh Chandra *[a]

Author affiliations

Abstract

This work is generally focused on the synthesis of an efficient, reusable and novel heterogeneous Al_2O_3/CuI/PANI nanocatalyst, which has been well synthesized by a simple self-assembly approach where aniline is oxidized into PANI and aniline in the presence of KI also acts as a reductant. The nanocatalyst was well characterized by XRD, FTIR, SEM, EDX, TEM, BET and XPS techniques. In this study, the fabricated material was employed for the catalytic one-pot synthesis of 2-substituted benzimidazoles *via* condensation between *o*-phenylenediamine and aldehydes in ethanol as a green solvent. The present method is facile and offers several advantages such as high % yield, less reaction time, and no use of additive/bases. Also, the catalyst showed better values of green metrics including low E-factor: 0.17, high reaction mass efficiency: 85.34%, high carbon efficiency: 94%, and high process mass intensity: 1.17.

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Multifunctional activity of graphene oxide-based nanoformulation against the disease vector, Aedes aegypti

PDF

Published Dec 16, 2021

DOI https://doi.org/10.31018/jans.v13i4.3018

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Sarita Kumar
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Abstract

Aedes aegypti management is a global concern due to the absence of medication and effective vaccines. The pesticide mediated health hazards and rising insecticide resistance in mosquitoes have aggravated the issues. As graphene Oxide (GO) based nanoformulations are considered a novel mosquito management strategy; the present investigation evaluated the efficacy of GO based nanoformulations conjugated with malathion (ML) and endosulphan (EN) against *Ae. aegypti*. The GO was synthesised by Hummers' method and was confirmed by UV visible spectral analysis. The GO ML and GO EN binary mixtures (1:1 and 1:2) were assayed for toxic potential against mosquito larvae as per WHO protocol and the dead larvae were scrutinized for morphological deformations/abnormalities. The contact irritancy potential of GO nanoformulations was also evaluated against adult *Ae. aegypti*. The UV visible spectrum of GO showed a narrow and high peak at ~300 nm corresponding to an n-π^* plasmon peak. The GO insecticide binary mixtures augmented the ML and EN toxicity by 80.43% and 6.43 fold, respectively. The GO ML mixture exposed larvae revealed cuticular deposition of black soot while larvae exposed to GO EN exhibited disintegrated gut viscera. GO insecticide combinations increased flights in *Ae. aegypti* denoting irritant potential. The effectual toxic, abrasive and irritant activity of GO insecticide nanoformulations recommends developing graphene based toxicants for mosquito management

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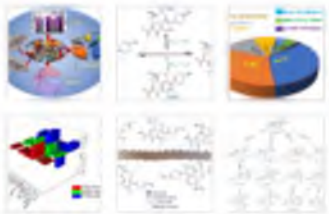

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Volume 813, 20 March 2022, 152529

Review

A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater

Laishram Saya [a b c], Vipin Malik [b], Drashya Gautam [b], Geetu Gambhir [b], Balendra [a], W. Rameshwor Singh [c], Sunita Hooda [b]

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Highlights

- Bioaccumulation of antibiotics like Levofloxacin in the environment is a cause of global concern.
- Maximum studies are carried out on adsorption and AOPs mainly photocatalytic degradation.
- Several photocatalysts exhibited up to 100% degradation of LEV making photocatalytic degradation the best method
- Biological degradation which may prove to be the most environment friendly is less reported for LEV removal.
- Hybrid techniques reserve a great scope of future research in the field.

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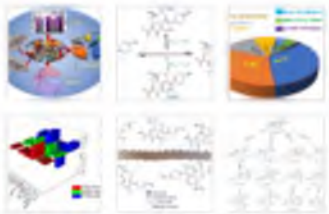

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Science of The Total Environment

Volume 813, 20 March 2022, 152529

Review

A comprehensive review on recent advances toward sequestration of levofloxacin antibiotic from wastewater

Laishram Saya [a b c], Vipin Malik [b], Drashya Gautam [b], Geetu Gambhir [b], Balendra [a], W. Rameshwor Singh [c], Sunita Hooda [b]

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Highlights

- Bioaccumulation of antibiotics like Levofloxacin in the environment is a cause of global concern.
- Maximum studies are carried out on adsorption and AOPs mainly photocatalytic degradation.
- Several photocatalysts exhibited up to 100% degradation of LEV making photocatalytic degradation the best method
- Biological degradation which may prove to be the most environment friendly is less reported for LEV removal.
- Hybrid techniques reserve a great scope of future research in the field.

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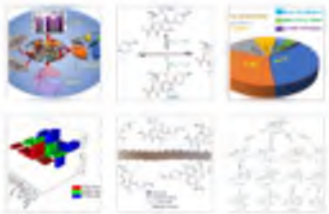

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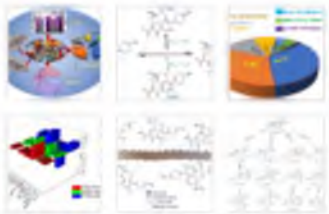

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Abstract

Bis(indolyl) methane (BIM) derivatives have shown numerous biological properties which has influenced the scientific fraternity to explore the length and breadth of their synthesis. Mostly, the procedure involves a catalytic electrophilic substitution reaction of indoles with various aldehydes and ketones. However, many variations have been applied from time to time to promote this reaction under green conditions. The use of water as a solvent in organic synthesis, has gained much attention due to economic and eco-friendly reasons. It has also been observed that the reactions under aqueous conditions have shown high reactivities and chemo-selectivity, which are not found in organic media. "In water synthesis" of BIMs has gained considerable recent importance and several methods have been developed. Thus, in this review we have summarized different synthetic protocols used to prepare BIMs under aqueous conditions in the last fifteen years.

Keywords: Green protocols | aqua mediated | bis-indole | nanocatalyst | transition metal catalyst | acid catalysts

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Advanced Materials Letters

A DFT Study of Interaction of $(CdSe)_3$ Quantum Dots with Nucleobases

Document Type : Research Article

Authors
Pragati Malik Rita Kakkar

https://doi.org/10.5185/amlett.2021.081653

Abstract
Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) play important roles in the storage of genetic information and protein biosynthesis. Nucleobases, which are nitrogenous bases, are the functional units of these nucleic acids. It is very important to detect changes in the sequence of DNA/RNA, as any mutations in them may cause harm to the organism. Our aim is to verify the use of $(CdSe)_3$ Quantum Dots (QDs), owing to their distinctive optical and electronic properties, for sensing changes in DNA/RNA. Hence, in this work, we have focused on studying the interaction between $(CdSe)_3$ QDs and the five nucleobases (adenine, guanine, cytosine, thymine and uracil) at various probable sites by means of density functional calculations. Several structural, electronic and optical properties, and charge transfer on interaction between the two, have been discussed. The present band gap and charge transfer calculations indicate that binding of $(CdSe)_3$ to guanine is strongest and is weakest with uracil. The vibrational spectral analysis indicates that the intensities of the peaks due to $(CdSe)_3$ enhance on interacting with the nucleobase, and a blue shift is observed in all the interactions. The presence of both the frontier orbitals (HOMO and LUMO) on the QD indicates that $(CdSe)_3$ acts as a guardian of DNA and prevents it from damage. Hence, our studies direct that CdSe QDs can be successfully employed as sensors for these nucleobases.

Keywords
Nucleobase purine pyrimidine quantum dots sensing HOMO LUMO

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Size-dependent structural and electronic properties of stoichiometric II–VI quantum dots and gas sensing ability of CdSe quantum dots: a DFT study

Jyoti Singh, Rakhi Thareja, Pragati Malik & Rita Kakkar

Journal of Nanoparticle Research **24**, Article number: 33 (2022) | Cite this article

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Abstract

The structural, electronic, and quantum confinement effects observed in II–VI quantum dots have been described using density functional theory. Various properties like binding energy, Fermi energy, charge distribution, and band gap of various clusters have been determined as a function of cluster size in order to find out the most stable of all the clusters considered. The binding energies are found to be a function of the cluster size but converge to a maximum. Cadmium is observed to possess a larger tendency to form clusters with higher coordination numbers compared to zinc and mercury. In mercury sulfide $(HgS)_n$, the clusters with $n = 6$ and 13 get dissociated into two graphene-like parallel layers. The adsorptions of single gas molecules on the $(CdSe)_{13}$ quantum dots are exothermic, indicating that most of the gas molecules adsorb spontaneously on the CdSe quantum dots. Among the various gases, O_2 and NO_2 are the gas molecules that get most strongly chemisorbed. The CdSe quantum dot acts as an electron donor when it interacts with the oxidizing gases, O_2, CO, NO_2, and SO_2 gases. The vibrational analysis of the combined systems indicates that the intensities of the peaks due to

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Journal of Catalysis

Volume 401, September 2021, Pages 297-308

Surface engineered Iridium-based magnetic photocatalyst paving a path towards visible light driven C-H arylation and cyanation reaction

Pooja Rana [a], Rashmi Gaur [a], Bhawna Kaushik [a], Pooja Rana [a], Sneha Yadav [a], Priya Yadav [a], Priti Sharma [c], Manoj B. Gawande [b], Rakesh K. Sharma [a]

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Abstract

The report presents the fabrication and application of a highly versatile, magnetic and robust iridium based photoredox nanocatalyst. Herein, $Ir(PPy)_3$ based photocatalyst sites have been chemically engineered over the magnetic nanoparticles to encompass the captivating features of homogeneous iridium photocatalyst with the magnetically recyclable core. A household photoreactor was designed and fabricated to achieve highly selective visible light driven oxidative C-H arylation and C-H cyanation under sustainable and ambient reaction conditions utilizing the Ir@PyBz@ASMNPs photoredox nanocatalyst. The environment friendly Ir@PyBz@ASMNPs shows excellent photocatalytic activity, broad substrate adaptability and outstanding recyclability compared to the analogous homogeneous catalysts. Indeed, the Ir@PyBz@ASMNPs possess some key features including high surface area, high iridium metal loading and excellent stability. This work is expected to enlighten and provide new insights in the rational design of high performance and recoverable photoredox nanocatalyst through surface engineering strategy.

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Issue 19, 2021

From the journal:
Materials Chemistry Frontiers

Unlocking the catalytic potency of a magnetic responsive $CoFe_2O_4$/Ni-BTC MOF composite for the sustainable synthesis of tri- and tetra-substituted imidazoles†

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Sneha Yadav,[a] Ranjana Dixit,[a] Shivani Sharma,[a] Sriparna Dutta,[a] Bhavya Arora,[a] Pooja Rana,[a] Bhawna Kaushik,[a] Pooja Rana,[a] Alok Adholeya,[b] Manoj B. Gawande[c] and Rakesh K. Sharma

Author affiliations

Abstract

With the advancements in materials engineering, unprecedented newer materials based on magnetic MOFs have emerged as one of the promising candidates in the strategic field of catalysis. Within this perspective, the present report unveils the fabrication of an intricately designed magnetic $CoFe_2O_4$/Ni-BTC based MOF composite *via* a one-pot solvothermal approach. The synthesized composite was comprehensively characterized using various analytical tools

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Enhanced catalysis through structurally modified hybrid 2-D boron nitride nanosheets comprising of complexed 2-hydroxy-4-methoxybenzophenone motif

Pooja Rana, Ranjana Dixit, Shivani Sharma, Sriparna Dutta, Sneha Yadav, Aditi Sharma, Bhawna Kaushik, Pooja Rana, Alok Adholeya & Rakesh K. Sharma

Scientific Reports **11**, Article number: 24429 (2021) | Cite this article

2102 Accesses | **3** Citations | **8** Altmetric | Metrics

Abstract

Tuning the structural architecture of the pristine two dimensional hexagonal boron nitride (*h*-BN) nanosheets through rational surface engineering have proven advantageous in the fabrication of competent catalytic materials. Inspired by the performance of *h*-BN based nanomaterials in expediting key organic transformations, we channelized our research efforts towards engineering the inherent surface properties of the exclusively stacked *h*-BN

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(IJACSA) International Journal of Advanced Computer Science and Applications,
Vol. 12, No. 8, 2021

Identifying Central Nodes in Directed and Weighted Networks

Sharanjit Kaur[1]
Department of Computer Science,
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***Abstract*—An issue of critical interest in complex network analysis is the identification of key players or important nodes. Centrality measures quantify the notion of importance and hence provide a mechanism to rank nodes within a network. Several centrality measures have been proposed for un-weighted, un-directed networks but applying or modifying them for networks in which edges are weighted and directed is challenging. Existing centrality measures for weighted, directed networks are by and large domain-specific. Depending upon the application, these measures prefer either the incoming or the outgoing links of a node to measure its importance. In this paper, we introduce a new centrality measure, *Affinity Centrality*, that leverages both weighted in-degrees as well as out-degrees of a node's local neighborhood. A tuning parameter permits the user to give preference to a node's neighbors in either incoming or outgoing direction. To evaluate the effectiveness of the proposed measure, we use three types of real-world networks - migration, trade, and animal social networks. Experimental results on these weighted, directed networks demonstrate that our centrality measure can rank nodes in consonance to the ground truth much better than the other established measures.**

***Keywords*—Centrality; weighted network; directed network; migration network; world input output trade network; community structure**

I. Introduction

Data analysts from diverse domains represent relationships online social networks [12], [25], detecting influential criminals [9], performing resilience analysis of power grid networks [13], locating key areas of activity in the urban infrastructure of a city [1], and traffic sampling for intrusion detection [28].

Several centrality measures have been formulated to quantify the notion of central nodes in un-weighted/ weighted, un-directed networks and are surveyed in [7], [3], [4], [5]. However, quantification of node centrality is more challenging in complex weighted and directed networks due to the dynamic effect of weighted reciprocal links on its computation. Very few measures exist for such networks, and the area remains under-explored.

A. The Problem and Motivation

PageRank (PR) proposed by Brin and Page to rank web pages is a popular and effective centrality measure [20], and there exist variations and extensions of PR for weighted, directed networks [27], [30]. These measures quantify the importance of a web page by iterative counting of the number and quality of its incoming links. The underlying assumption is that more important web pages have more *incoming* links from other central web pages. The problem is that this assumption, though correct for web pages, may not be valid for other domains. For example, in the migration networks, a state's

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Perception of youth on Digital India

Sunita Narang, Monica Singhania, Surinder Kaur and Shalu Mahajan

Published Online: July 8, 2021 · pp 365-388 · https://doi.org/10.1504/IJBIR.2021.116393

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Abstract

Digital India is seen as the engine for transition of India into an empowered nation. In this direction, several pro-people initiatives like MyGov, Digilocker, e-basta, and e-hospital are being implemented. Through a self-structured survey questionnaire, the study evaluates awareness about, implementation and utilisation of various e-services offered under the Digital India Program among Delhi University students. It examines the extent to which the services are being utilised and main barriers/challenges restricting its utilisation. The data has been analysed using ANOVA. The study reveals a high level of awareness among students. They believe it will improve the quality of services leading to good governance. Major factors restricting its implementation include lack of computer knowledge, fear of frauds and resistance to change. The study stressed on educating people about the benefits and usage of Digital India. The nation as a whole can move towards green and responsible governance by improving its acceptability.

Keywords

youth perception, Delhi University, Digilocker, e-basta, electronic basta, e-governance, electronic governance, Digital India Program, analysis of variance, ANOVA, e-learning, electronic learning, computer knowledge, good governance

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Research Article

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Intensity quantification of public opinion and emotion analysis on climate change

Tishya Thukral[1], Ashwani Varshney[2] and Vibha Gaur[1*]
Department of Computer Science, Acharya Narendra Dev College, University of Delhi, India[1]
Department of Computer Science, University of Delhi, India[2]

Received: 13-July-2021; Revised: 09-October-2021; Accepted: 13-October-2021
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Abstract
Human-related activities are primarily accountable for climate change resulting in natural disasters. Therefore, it has become essential to analyze and evaluate public awareness of climate change globally. With the prevalence of social networks like Twitter, sentiment classification has been recognized as a powerful tool to determine public opinion and concern on such ecological issues. Therefore, this study proposes a framework to classify the tweets containing public opinion towards climate change using Bi-directional Long Short-Term Memory (Bi-LSTM) Networks. The proposed framework quantified the intensity of the public opinion classified by the Bi-LSTM model to measure the strength of the public concern towards climate change and validated it using three case studies: Earth Day, Delhi Air Pollution, and Australian Bushfires. The intensity values of the public sentiments concerning these events were obtained as 98.50%, 96.57%, and 98.33%, respectively. The proposed work was further augmented with a lexicon-based emotion analyzer to categorize the emotions associated with the tweets into positive, negative, neutral, and mixed to substantiate the results. This framework can be utilized before enforcing the policy decisions on the general public in any domain.

Keywords
Bi-LSTM networks, Sentiment analysis, Global warming, Social networks, Climate change.

1.Introduction
The large-scale shift in the weather patterns due to intensified global warming is becoming a severe issue globally with constant evolving outlooks. Rising temperatures, melting of glaciers, and changes in weather patterns are some of the indicators of climate change. Increased human emissions on the

Therefore, developing appropriate learning techniques to analyze and evaluate public awareness of the critical issues has become an absolute necessity for a promising future. For example, there have been instances of mass protests during the implementation of acts such as the Citizenship Amendment Act of (CAA) 2019 [4] and Farm Bills

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Intensity quantification of public opinion and emotion analysis on climate change

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Abstract
Human-related activities are primarily accountable for climate change resulting in natural disasters. Therefore, it has become essential to analyze and evaluate public awareness of climate change globally. With the prevalence of social networks like Twitter, sentiment classification has been recognized as a powerful tool to determine public opinion and concern on such ecological issues. Therefore, this study proposes a framework to classify the tweets containing public opinion towards climate change using Bi-directional Long Short-Term Memory (Bi-LSTM) Networks. The proposed framework quantified the intensity of the public opinion classified by the Bi-LSTM model to measure the strength of the public concern towards climate change and validated it using three case studies: Earth Day, Delhi Air Pollution, and Australian Bushfires. The intensity values of the public sentiments concerning these events were obtained as 98.50%, 96.57%, and 98.33%, respectively. The proposed work was further augmented with a lexicon-based emotion analyzer to categorize the emotions associated with the tweets into positive, negative, neutral, and mixed to substantiate the results. This framework can be utilized before enforcing the policy decisions on the general public in any domain.

Keywords
Bi-LSTM networks, Sentiment analysis, Global warming, Social networks, Climate change.

1.Introduction
The large-scale shift in the weather patterns due to intensified global warming is becoming a severe issue globally with constant evolving outlooks. Rising temperatures, melting of glaciers, and changes in weather patterns are some of the indicators of climate change. Increased human emissions on the

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A smart learning assistance tool for inclusive education

Authors: Sangeeta Srivastava, Ashwani Varshney, Supriya Katyal, Ravneet Kaur, Vibha Gaur Authors Info & Claims

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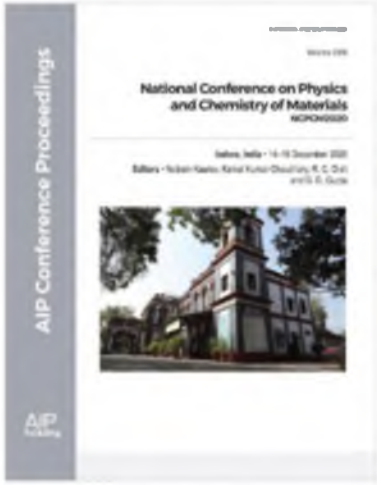

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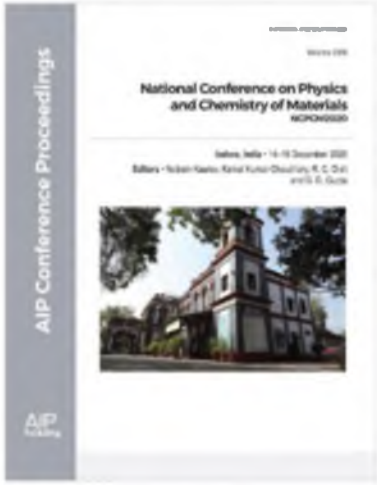

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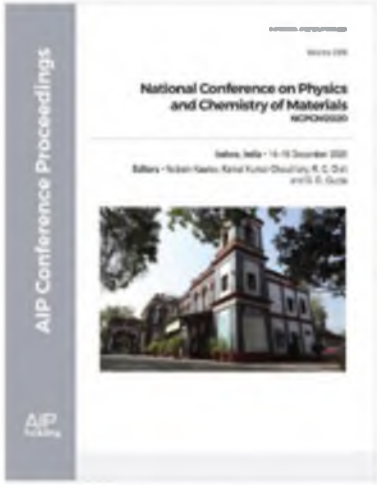

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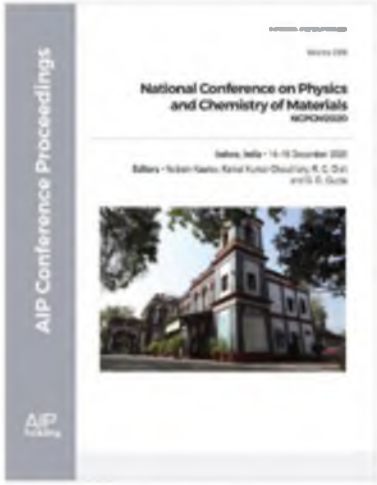

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Optimal ordering policy for deteriorating items with stock dependent demand, partial backlogging and trade credit period

Sachin Kumar Verma, Mohd. Rizwanullah and Chaman Singh

Published Online: September 6, 2021 · pp 95-120 · https://doi.org/10.1504/IJLSM.2021.117709

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Abstract

In this paper, policies of optimal ordering has been focussed on economic order quantity (EOQ) model, where we considered deteriorated as well as non-instantaneous nature items. In this inventory model, we are also assuming there is a stock-dependent demand and constant holding cost. Occurrence of shortage during the complete process of the system, taking into consideration with partial backlogging where deterioration of items follows the Weibull distribution. In the present study, it is considered that the supplier's proposed lucrative trade credit offers to the retailers to buy more to generate more revenue. Numerical examples parallel to the present inventory model gives an optimal result. Lastly, sensitivity analysis applied to different parameters and graphical representations have shown to validate the model.

Keywords

stock dependent demand pattern, partial backlogging, constant holding cost, trade credit, Weibull deterioration

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Manu Sankar, Sarita Kumar

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Abstract

Mosquitoes serve as the major vector transmitting malaria, dengue, yellow fever and several other diseases of human concern. Rising in mosquito-borne diseases and consequent fatalities throughout the world has made the management of mosquitoes of paramount importance. With the use of various insecticidal agents and their indiscriminate application in the fields for vector control: other issues such as multiple insecticide resistance, lethality to non-specific targets and adverse effects on human and environmental health have emerged making the situation more critical. Hence, the focus of researchers has diverted to the use of Insect Growth Regulators (IGRs) that affect the growth and development of the insects without inducing any appreciable toxic effects. The paper comprehensively reviews various IGRs and their potential use against insect pests and mosquito vectors. A special emphasis has been laid on the utilization of diflubenzuron, its larvicidal potency and growth regulatory effects against mosquitoes. The paper also delivers a detailed discussion on various approaches governing with the application of diflubenzuron. a chitin synthesis inhibitor, for its potent effects over a wide range of other insect species, low toxicity to humans, safety to other non-target animals, negligible deleterious environmental impact along with the possible

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Increased production of antioxidant herbal supplements utilizing traditional medicinal plants has been attributed to a high margin of economic effectiveness, environmental friendliness, and accessibility. Current investigations determined the antioxidant properties of leaf and stem extracts of five plants, *Oxalis corniculata*, *Argemone mexicana*, *Thevetia neriifolia*, *Acacia karoo* and *Cassia fistula* using DPPH radical scavenging activity, Xanthine oxidase (XO) inhibition and Superoxide scavenging activity. Based on the individual extract activity, different binary formulations were prepared and assayed for their antioxidant properties to identify the most promising combination. The *A. mexicana* and *A. karoo* leaf extracts showed maximum DPPH activity while highest XO inhibition was induced by *A. mexicana* leaf extract (IC_{50} = 6.849 ± 1.502 µg/mL) followed by the *T. neriifolia* stem extract (IC_{50} = 10.366 ± 0.1.322 µg/mL). Superoxide (SO) scavenging effect of all the extracts was significantly higher in comparison to the control. The combinations of *A. mexicana* and *A. karoo* leaf extracts in 2 : 1 and 3 : 1 ratios; and that of *C. fistula* and *A. karoo* stem extracts exhibited synergistic antioxidant effects in comparison to the individual extracts. The antioxidant activity increased

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Journal of Communicable Diseases (E-ISSN: 2581-351X & P-ISSN: 0019-5138)

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Formulation of Clitoria ternatea Leaves-mediated Silver Nanoparticles to Control Aedes aegypti Larvae

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Sarita Kumar
Professor, Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi, India.

Keywords: Larvicide, Nanocomposites, Clitoria ternatea, Aedes aegypti, DLS, SEM, TEM

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In vitro and in silico anticancer potential analysis of *Streptomyces* sp. extract against human lung cancer cell line, A549

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Abstract

During our previous investigation, bioactive compounds present in the extract of *Streptomyces* sp. strain 196 were characterized using LC–MS/MS and ^{1}H NMR studies. These compounds were K-252-C aglycone indolocarbazole alkaloid, decoyinine, and cycloheximide; the study of these natural drugs against lung carcinoma is still limited. Focus of the current investigation was to study the anticancer effect of strain 196 extract on lung cancer cells (A549). During in vitro studies, anti-proliferative effect of extract was studied using MTT assay in A549 cells. Effect of extract on cell survival was further evaluated using colony assay. Cell death was qualitatively assessed using apoptosis assay. The aftereffect of extract treatment on metastatic potential of cancerous cells was studied using wound closure assay. Effect of extract on the morphology and cytoskeletal arrangement of A549 cells was studied using phalloidin staining. The extract demonstrated concentration and time-dependent cytotoxicity with IC_{50} value at 0.5 mg/ml (6 h) and 0.15 mg/ml (24 h). The proliferation and metastatic potential of

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SIGHTINGS OF THE TAILLESS LINEBLUE *PROSOTAS DUBIOSA* (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN DELHI, INDIA

RAJESH CHAUDHARY[1] AND CHANDRA BHUSAN MAURYA[2]

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Reviewer: Piet van der Poel

The floristic composition of Delhi has changed significantly during past one and half centuries (Maheshwari, 1963; Anonymous, 1991). Several non-native plant species have been introduced for afforestation and beautification of gardens and parks (Maheshwari, 1963). In addition, the city has also witnessed an increased plantation of vegetable and fruit plants (Maheshwari, 1963). Factors such as change in floristic characteristics, appearance of new microhabitats, change in land use and climate change, alone or in combination can cause an alteration to the butterflies species diversity in a geographical area (Kwon *et al.*, 2021; Mukherjee *et al.*, 2019).For instance, in Delhi, a few species of butterflies,such as Common Jay (*Graphium doson* C. & R. Felder, 1864), Red Pierrot (*Talicada nyseus* Guérin-Méneville, 1843) and Plains Cupid (*Chilades pandava* Horsfield, 1829),that are fairly common at present, werenot recordedby previous workers (Donahue, 1967; Larsen,2002). These butterfly species are thought to have been introduced in Delhi duringthe last two decades along with their host plants, which have ornamental value. Also, species which were once considered extremely rare in Delhi such as the Common Lineblue (*Prosotas nora* C. Felder, 1860) and 2019; 2020).Besides these, there is a recent record of the Common Grass Dart (*Taractrocera maevius*) (Madan & Dey, 2018) that had not been reported previously from Delhi.In the present communication, we report sightings of the Tailless Lineblue (*Prosotas dubiosa*) from various parts of Delhi and its vicinity.

Two individuals of the Tailless Lineblue were sighted in the Sanjay Van area (28° 31′ 48″N, 77° 10′ 15″E) of South Delhi during thelate morning on2.x.2021 (Figure 1).Both the individuals were found puddling together on a footpath. These were observed for about 10 minutes and photographed. Another individual of this species was sighted and photographed on the morning of 13.x.2021, basking on a tree inthe R. K. Puram area (28° 33′ 20″N, 77° 10′ 49″E) of New Delhi. It is noteworthy that this butterfly species was also sighted by us on 14.x. and 16.x.2021 (two individuals each day) in Aravalli Biodiversity Park, Gurugram, Haryana (28° 28′ 56″N, 77° 06′ 39″E).Therefore, it islikely that the Tailless Lineblue is present in other parts of Delhi-NCR as well.

To the best of our knowledge, the Tailless Lineblue has not been reported previously from Delhi (Donahue, 1967; Larsen, 2002) or

SIGHTING OF PLAIN TIGER (*DANAUS CHRYSIPPUS* LINN., 1758) FORM *DORIPPUS* IN NEW DELHI, INDIA

RAJESH CHAUDHARY
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Reviewer: Peter Smetacek

Four forms of *Danaus chrysippus* are known from India, viz. *chrysippus, alcippoides, amplifascia* and *dorippus* (Smetacek, 2001). The first form is the most common in the country whereas sighting of the other three forms are rare (Smetacek, 2001). The form *dorippus*, known to be a common form in Africa, is sighted only rarely in India (Smith *et al*., 1997; Smetacek, 2001). This form is

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M. Yuvaraj & P. Smetacek. 2019. First report of *Danaus chrysippus* form *dorippus* (Insecta: Lepidoptera: Nymphalidae) from Andhra Pradesh, India. *Bionotes* 21(3): 65-

GENERA OF ANTS ASSOCIATED WITH LARVAE OF PLAINS CUPID (*CHILADES PANDAVA*, HORSFIELD, 1829) (INSECTA: LEPIDOPTERA: LYCAENIDAE) INFESTING *CYCAS*, IN DELHI, INDIA, AND AN INSIGHT INTO THE NATURE OF THEIR INTERACTION

RAJESH CHAUDHARY[1] AND VINESH KUMAR[2]

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Reviewer: Peter Smetacek

Abstract

Larvae of many species of Lycaenid butterflies are known to associate with ants. With respect to larvae, the association can be facultative or obligatory. Also, larvae of some species of Lycaenids maintain a parasitic, and many others a mutualistic relationship with ants. Larvae of *Chilades pandava* (Lepidoptera:Lycaenid:Polyommatini) -a butterfly that has recently extended its range along with the artificial introduction of its larval host plants, several species of *Cycas*, is known to associate with more than one genera/species of ants. We sampled ornamental *Cycas* plants in urban Delhi infested with *C. pandava* for the genera of ants that associate with the larvae of this butterfly. Results compiled from sampling studies in Delhi, and various reports from literature indicated that at least 13 genera of ants can associate with larvae of *C. pandava*. In the present communication, these results have been discussed in light of the nature of association between *C. pandava* and ants.

Keywords Lycaenid-ant Association, Mutualism

Introduction

The larvae of many Lycaenid butterflies are known to associate with ants- 'myrmecophily' (Pierce *et al.*, 2002). The relationship between larvae and ants can be parasitic, commensal or mutualistic (Baylis *et al.*, 1993; Fiedler, 2012). The latter type of relationship i.e. mutualism, occurs most frequently (Fiedler, 2006a; 2012). In mutualism, the butterfly larvae provide nutritious secretion-'larval nectar' (rich in sugars and amino acids) from Dorsal Nectary Organs (DNO, located in 7th abdominal segment of larvae) to ants. In return, the larvae are exempted from attack by ants and additionally, ants aggressively safeguard segment which are known to secrete volatile substances, and Pore Cupola Organs (PCO) distributed on abdomen (Pierce *et al.*, 2002; Ekka *et al.*, 2020). The function of substances secreted from TO is similar to the ant alarm pheromone; it alerts ants when larvae are alarmed, and can communicate the message of need for protection to several species of ants (Pierce *et al.*, 2002; Ekka *et al.*, 2020). Gnatzy *et al.* (2017) suggested that TO are mechanosensors. PCO is known to secrete substances to appease ants which otherwise may attack soft bodied larvae. Thus, the three organs, i.e. DNO, TO and PCO are important

GENERA OF ANTS ASSOCIATED WITH LARVAE OF PLAINS CUPID (*CHILADES PANDAVA*, HORSFIELD, 1829) (INSECTA: LEPIDOPTERA: LYCAENIDAE) INFESTING *CYCAS*, IN DELHI, INDIA, AND AN INSIGHT INTO THE NATURE OF THEIR INTERACTION

RAJESH CHAUDHARY[1] AND VINESH KUMAR[2]

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[1] rajeshchaudhary@andc.du.ac.in

Reviewer: Peter Smetacek

Abstract

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REVIEW ARTICLE

COVID-19 and Cardiovascular Disease

Clinical Implications of Biochemical Pathways

Varmani, Shivani G[1,#]; Chowhan, Rimpy Kaur[2,#]; Sharma, Ishani[3]; Narang, Rajiv[4]

Author Information

Journal of the Practice of Cardiovascular Sciences 7(2):p 97-107, May–Aug 2021. | *DOI:* 10.4103/jpcs.jpcs_21_21

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Abstract

Coronavirus disease of 2019 (COVID-19) is a viral pandemic which has taken away more than over 4 million lives all over the world as of July 9, 2021, with the USA, India, and Brazil being the most affected

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Applications and Applied Mathematics: an International Journal (AAM)

(R1513) The Dynamical Study of Variable Mass Test Particle in Nonlinear Sense of Restricted 3-body Problem with Heterogeneous Primaries

Sada Nand Prasad, *Acharya Narendra Dev College, University of Delhi*
Kumari Shalini, *Zakir Hussain Delhi College, University of Delhi*
Abdullah A. Ansari, *International Center for Advanced Interdisciplinary Research (ICAIR)*

Abstract

The main idea of this paper is to study the non-linear stability property of the motion of the test particle which is moving under the influence of heterogeneous primaries having N-layers with different densities as well as varying its mass according to Jeans law. The system is also perturbed by the small perturbations in Coriolis as well as centrifugal forces. We evaluate the equations of motion of the test particle under the influence of the above said perturbations. From this system of equations of motion, we reveal analytically the locations of stationary points as well as the non-linear stability.

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Development of Dimethylisoxazole-Attached Imidazo[1,2-*a*]pyridines as Potent and Selective CBP/P300 Inhibitors

Alex Muthengi, Virangika K. Wimalasena, Hailemichael O. Yosief, Melissa J. Bikowitz, Logan H. Sigua, Tingjian Wang, Deyao Li, Zied Gaieb, Gagan Dhawan, Shuai Liu, Jon Erickson, Rommie E. Amaro, Ernst Schönbrunn*, Jun Qi*, and Wei Zhang*

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Journal of Medicinal Chemistry

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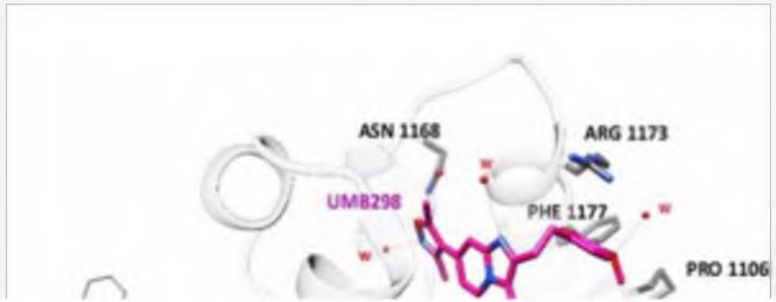
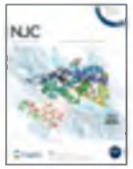
SUBJECTS: Assays, Inhibition, Inhibitors,

Abstract

The use of epigenetic bromodomain inhibitors as anticancer therapeutics has transitioned from targeting bromodomain extraterminal domain (BET) proteins into targeting non-BET bromodomains. The two most relevant non-BET bromodomain oncology targets are cyclic AMP response element-binding protein (CBP) and E1A binding protein P300 (EP300). To explore the growing CBP/EP300 interest, we developed a highly efficient two-step synthetic route for dimethylisoxazole-attached imidazo[1,2-*a*]pyridine scaffold-containing inhibitors. Our efficient two-



Issue 3, 2021



From the journal:
New Journal of Chemistry

Ex vivo binding studies of the anti-cancer drug noscapine with human hemoglobin: a spectroscopic and molecular docking study†

Check for updates

Heerak Chugh,[a] Pramod Kumar,[b] Neeraj Kumar,[a] Rajesh K. Gaur,[c] Gagan Dhawan[d] and Ramesh Chandra*[a]

Author affiliations

Abstract

Noscapine is a non-narcotic alkaloid known to display anti-cancer activity against a wide variety of tumors. Since plasma proteins play the central role in drug transport and targeting, herein we study the binding of noscapine hydrochloride (Nos) with human hemoglobin (Hb), a naturally encapsulated transport molecule. The molecular and biophysical basis of Nos–Hb binding has been investigated by using UV-vis, fluorescence spectroscopy, circular dichroism (CD) and computational methods. The Benesi–Hildebrand binding constant (K_b) and Stern–Volmer constant (K_{SV}) were determined to be 150 M^{-1} and 5.31×10^3 M^{-1}, respectively. The biomolecular-quenching constant (K_q), 1.06×10^{12} M^{-1} s^{-1}, indicated a rather static quenching mechanism and negative value for free energy (ΔG −12.5 kJ M^{-1}) which

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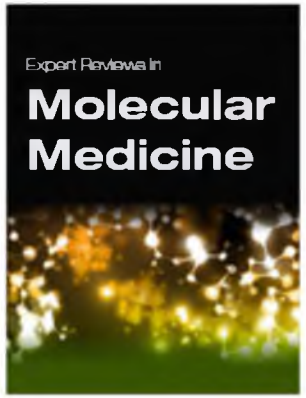

Expert Reviews in Molecular Medicine

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Abstract

Introduction

Unfolded protein response

Targeting unfolded protein response: a new horizon for disease control

Published online by Cambridge University Press: **04 March 2021**

Madhu Khanna, Nishtha Agrawal, Ramesh Chandra and Gagan Dhawan

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Abstract

Unfolded protein response (UPR) is an evolutionarily conserved pathway triggered during perturbation of endoplasmic reticulum (ER) homeostasis in response to the accumulation of unfolded/misfolded proteins under various stress conditions like viral infection, diseased states etc. It is an adaptive signalling cascade with the main purpose of relieving the stress from the ER, which may otherwise lead to the initiation of cell death via apoptosis. ER stress if prolonged,

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Inclusion of environmental awareness as basic tenet of education in India for realization of sustainable practices

Arijit Chowdhuri, Sakshi Saraswat, Charu Khosla Gupta

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Res. J.Educational Sci., **Volume 9, Issue (1),** Pages 1-8, August,1 **(2021)**

Abstract

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Abstract

Worldwide Ambient Air Pollution (AAP) has been identified as a major hazard to all living beings covering the entire gamut from cities enveloped in smog to non-discernible polluted air inside homes and that are known to bring a negative influence on health and climate. World Health Organization (WHO) in its global report of 2019 attributed 7 million deaths to Air Pollution, both household (HAP) and AAP. In the scathing report while 3.8 million deaths were ascribed to inefficient fuel burning and dirty cook

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Pressure Ionization, Polarizability and Screening Constants in Confined Hydrogen Like Ions of Astrophysical Importance

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Volume 34, Part 3, 2021, Pages 767-770

Encompassing environment synthesis, characterization and photovoltaic utilization of cadmium sulphide quantum dots

Rahul [a b], Shruti Singh [c], Pramod K. Singh [b], Jitender Paul Sharma [e], Sunanda Kakroo [b], Rakesh Sonker [d], Zishan H. Khan [a]

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Abstract

Semiconductor QDs has been intensively studied to their interesting characteristics both from the views of fundamental research and practical applications. Colloidal quantum dots are grown in solution from precursors. In comparison amongst the quantum dots (QDs) available in the literature, cadmium supplied quantum dots (CdS QDs) are more popular because of their high luminescence, good quantum yield, wide band gap. The most popular method of preparation is hot organometallic precursor route. In this paper, very low cost and efficient CdS-QD has been synthesized using chemical bath method. The prepared CdS QDs are characterized by UV–Vis absorption, photoluminescence (PL), XRD. A quantum dot sensitized solar cell (QDSSC) will be proposed using a synthesized

International Journal of Computer Science Trends and Technology (IJCST) – Volume 9 Issue 5, Sep-Oct 2021

RESEARCH ARTICLE OPEN ACCESS

Reliable Time Slot Allocation Scheme among Mobile Nodes in MANET

Chandra Kanta Samal

Deptt. Computer Science. ANDC, Delhi University,
New Delhi - India

ABSTRACT
The broadcast protocol in MANET is less efficient and cannot guarantee collision free broadcasts due to high mobility of nodes. This article purposes a new slot allocation scheme between mobile nodes to control, collision; it requires 1-hop neighbour information and also the two-hop neighbor's coverage. Each node maintains a local topology of its 2-hop neighbourhood, and only a small subset of 1-hop neighbours forwards this message, which can reduce the possibility of collision, decrease the delay of the broadcast, and improve the throughput of the network. The subset of 1-hop neighbours selected should cover all the 2-hop nodes and it reduces the broadcast storm problem. Simulation results show that reliable time slot allocation among mobile node algorithm is efficient and reachability within the transmission range of the network. It is a collision free, reliable time slot allocation scheme among nodes and minimum time slot forward broadcast up to 2-hop nodes.
Keywords: Broadcast Storm Problem, Slot Allocation, Throughput, Topology, Reachability.

I. INTRODUCTION

In broadcasting, one node sends a packet to any or all other nodes within the network. Efficient broadcasting during a mobile unintended network focuses on selecting a small forward node set while ensuring broadcast coverage. Due to high mobility and dynamism in mobile ad hoc network, a collision occurs. Within the multi - hop environment, mobile nodes depend to each other's when they are transmitted. It is a distributed network, nodes frequent connectivity changes, due to mobility of nodes and high demand for channel access protocols. Mobile node's transmission on broadcast using omnidirectional antennas, then broadcast service available in mobile ad hoc network. The initial slot assignments between mobile nodes to make a frame schedule on that time collision occur, when new link detects for joining or removes the network in that case again the initial slot assignments. Many transmission scheduling protocols are proposed to improve the channel efficiency [3]. This research paper, we propose the Reliable Time Slot Allocation Among Mobile Nodes (RTSAAMN) algorithm using in Mobile Ad hoc Network. This algorithm involves a minimum time slot; it reduces collisions on the network and their network bandwidths of channels

Received: 5 November 2021 | Accepted: 5 March 2022

DOI: 10.1002/jmv.27708

RESEARCH ARTICLE

JOURNAL OF MEDICAL VIROLOGY WILEY

Adverse events and breakthrough infections associated with COVID-19 vaccination in the Indian population

Geetika Arora[1] | Jyoti Taneja[2] | Priya Bhardwaj[3] | Shorya Goyal[4] | Kumar Naidu[5] | Sunita. K. Yadav[2] | Daman Saluja[1] | Sunita Jetly[4]

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Sunita Jetly, Department of Biomedical Sciences, Acharya Narendra Dev College, University of Delhi, New Delhi 110019, India

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Abstract

Vaccines against COVID-19 provide immunity to deter severe morbidities associated with the infection. However, it does not prevent infection altogether in all exposed individuals. Furthermore, emerging variants of SARS-CoV-2 impose a threat concerning the competency of the vaccines in combating the infection. This study aims to determine the variability in adverse events and the extent of breakthrough infections in the Indian population. A retrospective study was conducted using a pre-validated questionnaire encompassing social, demographic, general health, the status of SARS-CoV-2 infection, vaccination, associated adverse events, and breakthrough infections in the Indian population. Informed consent and ethical approval were obtained as per Indian Council of Medical Research (ICMR) guidelines. Participants, who provided the complete information, were Indian citizens, above 18 years, and if vaccinated, administered with either Covishield or Covaxin, were considered for the study. Data have been compiled in Microsoft Excel and analyzed for statistical differences using STATA 11. The responses from 2051 individuals fulfilling the inclusion criteria were analyzed. Among 2051, 1119 respondents were vaccinated and 932 respondents were non-vaccinated. Among 1119 vaccinated respondents, 7 were excluded because of missing data. Therefore, out of 1112 vaccinated, 413 experienced adverse events with a major fraction of younger individuals, age 18–40 years, getting affected (74.82%; 309/413). Furthermore, considerably more females than males encountered adverse consequences to vaccination ($p < 0.05$). Among vaccinated participants, breakthrough infections were observed in 7.91% (88/1112; 57.96% males and 42.04% females) with the older age group, 61 years and above (odds ratio, 3.25 [1.32–8.03]; $p = 0.011$), and males were found to be at higher risk. Further research is needed to find the age and sex-related factors in determining vaccine effectiveness and adverse events.

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J. Integr. Sci. Technol. 2022, 10(2), 61-66 Article

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Association of Gender, Age, and Comorbidities with COVID-19 infection in India

Sunita Kumari Yadav,[1] Priya Bhardwaj,[2] Praveen Gupta,[3] Daman Saluja,[4] Sunita Jetly,[5] Jyoti Taneja[1*]

[1]Zoology Department, Daulat Ram College, University of Delhi, Delhi-110007 India. [2]Department of Zoology, University of Delhi, Delhi-110007 India. [3]Department of Neurology, Fortis Memorial Research Institute, Gurugram, Haryana-122022 India. [4]Medical Biotechnology Laboratory, Dr. B.R. Ambedkar Center for Biomedical Research, and Delhi School of Public Health, IoE, University of Delhi, Delhi-110007 India. [5]Department of Biomedical Sciences, Acharya Narendra Dev College, University of Delhi, Delhi-110019 India.

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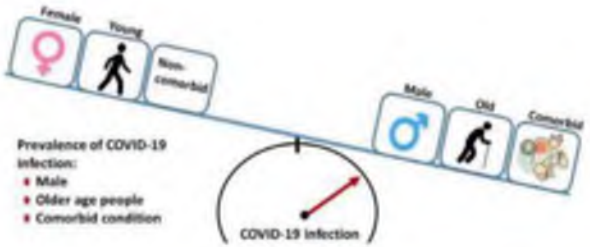
ABSTRACT



Due to a lack of data on various parameters with COVID-19 in the Indian population, this study was carried out to understand the relation among gender, age and comorbidities in Indian population. The data was collected using a questionnaire based survey form that included questions on demographic characteristics, infection and any pre-underlying conditions (n=1146). The data showed that the male patients had suffered more from COVID-19 (58.6%). Also, the patients suffering from comorbidity are more likely to suffer from a severe form of COVID-19 and obesity/overweight was identified as the most prevalent (n=69) comorbid condition, followed by diabetes (n=35), thyroid (n=19) and hypertension (n=11). In severe COVID-19 cases, 85% of patients had a comorbid condition. In another study of COVID-19 hospitalized-cases, about 97% of patients were found to have an underlying medical condition. Among these, diabetes (55.9%) was identified as the most prevalent comorbidity. Males and older people are at a higher risk of developing COVID-19 infection in Indian population. The comorbid conditions also predisposed individuals to COVID-19 and aggravated the infection.

Keywords: COVID-19, comorbidity, age, gender, obesity, diabetes, hypertension

INTRODUCTION

15 December 2021, it has affected about 270 M people worldwide, including 3.1-3.8 cases from India.[1] Due to its heterogeneity, the

Hesitancy and Acceptance of COVID-19 Vaccination Amidst the Second Wave of Pandemic in India: A General Population Study

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Sunita Jetly, PhD[1]*, Priya Bhardwaj, PhD[2]*, Geetika Arora, MSc[3], Daman Saluja, PhD[4], Sunita K. Yadav, PhD[5], Kumar P. Naidu, MSc[6], and Jyoti Taneja, PhD[5]

Introduction

Currently, with Delta, Omicron, and other variants on a rampage across the world, it is imperative to get vaccinated in time to curtail the burden of COVID-19 pandemic. The SARS-CoV-2 pandemic was devastating in India, infecting more than 34 million people and 4 million mortality as on December 22, 2021.[1] India is the second densest country with a population of more than 1.3 billion posing a challenge for COVID-19 vaccination.[2] In order to accelerate the pace of vaccination, the Government of India adopted an aggressive "Covid-19 Vaccine Communication Strategy" with the key elements being advocacy, capacity building, media, and social media engagement, social mobilization, community

Results

Demographic Profile of Respondents

A total of 2051 Indians participated in the online and offline surveys with a higher representation of respondents aged 18 to 40 years (70.9%), 41 to 60 years (23.8%), and 61 years and above (5.3%). Gender was found to be almost equally distributed among respondents. About 37.7% were academicians followed by professional and managerial occupations (32.3%) and frontline workers (15.7%). Of note, about 37.1% of the study participants had experienced COVID-19.

Basic Characteristics of Vaccine Hesitancy (VH)

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Bioorganic & Medicinal Chemistry
Volume 69, 1 September 2022, 116886

Bioreducible polyethylenimine core–shell nanostructures as efficient and non-toxic gene and drug delivery vectors

H. Jena [a b], Z. Ahmadi [b c], P. Kumar [b], G. Dhawan [a d]

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Abstract

Low molecular weight branched polyethylenimine (LMW bPEIs 1.8 kDa) have received considerable attention for the fabrication of nucleic acid carriers due to their biocompatible and non-toxic nature. However, due to the inadequate nucleic acid complexation ability and transportation across the cell membrane, these show poor transfection efficacy, limiting their clinical applications. Therefore, to overcome these challenges, in this study, we have grafted bPEI 1.8 kDa with a disulfide bond containing hydrophobic moiety, 3-(2-pyridyldithio) propionic acid (PDPA), via amide linkages through EDC/NHS-mediated coupling to obtain N-[3-(2-pyridyldithio)] propionoyl polyethylenimine (PDPP) conjugates. The best formulation for nucleic acid transfection was evaluated after preparing a series of PDPP conjugates by varying the amount of PDPA. In an aqueous environment, these PDPP conjugates self-assembled to form spherical shaped core–shell PDPP nanostructures with size ranging from ~188–307 nm

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Exploring the role of framework mutations in enabling breadth of a cross-reactive antibody (CR3022) against the SARS-CoV-2 RBD and its variants of concern

Samvedna Saini, Manusmriti Agarwal, Amartya Pradhan, Savitha Pareek, Ashish K Singh, Gagan Dhawan, ...show all

Pages 2341-2354 | Received 11 Oct 2021, Accepted 12 Jan 2022, Published online: 31 Jan 2022

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Abstract

Cross-reactive and broadly neutralizing antibodies against surface proteins of diverse strains of rapidly evolving viral pathogens like SARS-CoV-2 can prevent infection and therefore are crucial for the development of effective universal vaccines. While antibodies typically incorporate mutations in their complementarity determining regions during affinity maturation, mutations in the framework regions have been reported as players in determining properties of broadly neutralizing antibodies against HIV and the Influenza virus. We propose an increase in the cross-reactive potential of CR3022 against the emerging SARS- CoV-2 variants of concern through enhanced conformational flexibility. In this study, we use molecular dynamics simulations, *in silico* mutagenesis, structural modeling, and docking to explore the role of light chain FWR mutations in CR3022, a SARS-CoV anti-spike (S)-protein antibody cross-reactive to the S-protein receptor binding domain of SARS-CoV-2. Our study shows that single substitutions in the light chain framework region of CR3022 with conserved epitopes across SARS-CoV strains allow targeting of diverse antibody epitope footprints that align with the epitopes of recently-categorized neutralizing antibody classes while enabling binding to more than one strain of SARS-CoV-2. Our study has implications for rapid and evolution-based engineering of broadly neutralizing antibodies and reaffirms the role of framework mutations in effective change of antibody

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Review on adsorptive removal of metal ions and dyes from wastewater using tamarind-based bio-composites

Vipin Malik, Laishram Saya, Drashya Gautam, Shallu Sachdeva, Neelu Dheer, Dinesh Kumar Arya, Geetu Gambhir & Sunita Hooda

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Large-scale industrialization and urbanization have led to such an alarming level of water contamination throughout the world that wastewater management has become one of the major global challenges attracting much research attention in recent times. Various techniques have been adopted for the treatment of polluted water among which adsorption has been preferred on a larger scale by virtue of its ease and cost-effective nature. This review highlights the efficiency of tamarind-based nanocomposites as potential adsorbents for a varying range of harmful organic and inorganic water pollutants including metal ions, fluoride ions and numerous kinds of dyes. A comprehensive analysis of fabrication routes, adsorption isotherms, kinetic and thermodynamic modeling as well as the adsorption mechanism and recyclability of these adsorbents is being presented in this work. In addition, various factors affecting the adsorption behavior such as pH, amount of adsorbent, concentration of ion/dye and influence of contact time are being elaborately outlined. The comparison of different composites on the basis of their effectiveness, selectivity, economic and environmental aspects has also been outlined. Moreover, a brief comparison of tamarind-based nanocomposites with

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ASIAN JOURNAL OF CHEMISTRY

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A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions

Geetu Gambhir[1], Drashya Gautam[1], Laishram Saya[1,2], Amit Kumar[1], Subodh Kumar[1], Aarushi Singh[1], Shiddha Singh[1], Ramesh Chandra[1,*] and Sunita Hooda[1,*]

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A new polymeric membrane sensor for Cd(II) ion based on methyl acrylate-acrylonitrile-methyl methacrylate terpolymer as membrane carrier has been synthesized via atom transfer radical polymerization (ATRP) method at 60 °C. Preliminary investigation with the membrane exhibited promising selectivity for Cd(II) ion with a slope of 32.02 mV/decade and the same could be estimated in the concentration range of $1 \times 10^{-6} - 1 \times 10^{-3}$ M in the working pH range of 4-6 for up to 90 days. The potentials generated across the membrane were reproducible and the response time was less than one minute. The electrode works well even in a partially non-aqueous media. The effect of surfactant and detergent on the working of Cd(II) selective electrode was also studied. A decrease in potential was observed in the presence of appreciable amount of surfactant and detergent. Addition of plasticisers was found to greatly improve the performance of membrane, best results being obtained with the membrane ratio (NaTPB:TP:TBP::1:100:06), exhibiting a working concentration range of $1 \times 10^{-6} - 1 \times 10^{-3}$ mol L^{-1} with a short response time of 10 s. The proposed sensor shows significantly good selectivity toward Cd(II) ion in comparison with some alkali, alkaline earth, transition and heavy metal ions. It was successfully employed as an indicator electrode in potentiometric titration of cadmium(II) ions against EDTA solution.

Keywords: Methyl methacrylate, Terpolymer, Sensor, Cadmium(II), Ion selective electrode, Membrane.

INTRODUCTION

In recent times, there has been an unwanted accumulation of heavy metal ions in the environment due to their utilization on a wide scale in various activities such as agricultural, technological and industrial applications, *etc*. This has posed a serious threat to the eco-system, particularly human beings [1,2]. Amongst all heavy metals, cadmium is attracting much concerning attention as it is one of the most toxic metals associated with serious health effects. Cadmium is present in its inorganic form in phosphate rocks. However, huge amount of cadmium is introduced into the environment due to widespread use of phosphate fertilizers as well as from the waste effluents of industries like electroplating, smelting, alloy manufacturing, pigments, plastic, battery, mining and refining processes [3-5]. Chronic exposure to cadmium can cause adverse health problems such as destruction of the red blood cells, high blood pressure, damage to kidney, lungs and liver, *etc*. [6,7]. Cadmium is also known to cause severe joint and spine pain due to osteomalacia, osteoporosis and itai-itai disease as cadmium potentially interferes with mineralization of bone [8,9]. Cadmium is even declared a carcinogen [10]. The daily permissible limit for cadmium intake from various sources is 1.0-1.2 μg/g of human body weight as recommended by food scientists. According to the guidelines of United States Environmental Protection Agency (USEPA), the maximum cadmium content in drinking water is 5 ppb [11]. In this scenario, detection of cadmium content in water sources has become very important so that subsequent actions can be implemented for its removal or reducing to the minimal permissible level.

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A Novel Terpolymer Membrane-Based Electrode Sensor for Selective Determination of Cd(II) Ions

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A new polysaccharide-based ion-exchange resin for industrial wastewater treatment

Savita Bargujar[1)] (ORCID ID: 0000-0001-5392-597X), **Geetu Gambhir**[2), *)] (0000-0002-8995-9714), **Madhu Bala Raigar**[2), *)] (0000-0001-5711-5907), **Sunita Hooda**[2)] (0000-0001-8002-400X), **Dinesh Kumar Arya**[2)] (0000-0002-9716-0136), **Mamta Bhatia**[3)] (0000-0002-4176-4942)

DOI: dx.doi.org/10.14314/polimery.2022.5.4

Abstract: A new ion-exchange resin was obtained by incorporating a tripropylamine group into a tamarind polysaccharide resin (TTA). The TTA resin was characterized by FTIR, elemental analysis, and other physicochemical properties. The influence of pH, treatment time and resin concentration on the adsorption of metal ions from industrial wastewater was investigated. It was found that the obtained TTA resin effectively removes heavy metal ions in the following order: Fe^{2+}> Cu^{2+}> Zn^{2+}> Cd^{2+}> Pb^{2+}.

Keywords: industrial wastewater, tamarind, tripropylamine, ion-exchange resin, adsorption, flocculants.

Nowa żywica jonowymienna na bazie polisacharydów do oczyszczania ścieków przemysłowych

Streszczenie: Nową żywicę jonowymienną otrzymano poprzez wbudowanie grupy tripropyloaminowej do żywicy polisacharydowej tamaryndowca (TTA). Żywicę TTA scharakteryzowano za pomocą FTIR, analizy elementarnej i innych właściwości fizykochemicznych. Zbadano wpływ pH, czasu obróbki i stężenia żywicy na adsorpcję jonów metali ze ścieków przemysłowych. Stwierdzono, że żywica TTA skutecznie usuwa jony metali ciężkich w następującej kolejności: Fe^{2+}>Cu^{2+}>Zn^{2+}>Cd^{2+}>Pb^{2+}.

Słowa kluczowe: ścieki przemysłowe, tamaryndowiec, tripropyloamina, żywica jonowymienna, adsorpcja, flokulanty.

In India ground water is used for domestic as well as agricultural purposes. Heavy metals ions such as iron, cobalt, cadmium, lead, mercury, chromium, selenium, arsenic, copper and zinc are invariably present in groundwater.These metal ions are considered to be toxins when they enter inside the body exceeding the prescribed limit, wherein they start causing illness [1–3]. Some of the heavy metal ions such as iron, cobalt, cadmium, lead, mercury, Zn^{2+}, Cd^{2+}, Pb^{2+} have extensive applications in electronic appliances such as LED, Mobile phones, and other devices due to their chemical, electrical, optical and magnetic values [5]. Growing demand for reduction of metal ions in water has enhanced the strive for development of feasible ways to remove harmful metal ions from industrial contaminated water. Environmentally friendly adsorbents have been investigated for preferential adsorption

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In India ground water is used for domestic as well as agricultural purposes. Heavy metals ions such as iron, cobalt, cadmium, lead, mercury, chromium, selenium, arsenic, copper and zinc are invariably present in groundwater.These metal ions are considered to be toxins when they enter inside the body exceeding the prescribed limit, wherein they start causing illness [1–3]. Some of the heavy metal ions such as iron, cobalt, cadmium, lead, mercury, Zn^{2+}, Cd^{2+}, Pb^{2+} have extensive applications in electronic appliances such as LED, Mobile phones, and other devices due to their chemical, electrical, optical and magnetic values [5]. Growing demand for reduction of metal ions in water has enhanced the strive for development of feasible ways to remove harmful metal ions from industrial contaminated water. Environmentally friendly adsorbents have been investigated for preferential adsorption

A new polysaccharide-based ion-exchange resin for industrial wastewater treatment

Savita Bargujar[1)] (ORCID ID: 0000-0001-5392-397X), **Geetu Gambhir**[2), *)] (0000-0002-8995-9714), **Madhu Bala Raigar**[2), *)] (0000-0001-5711-5907), **Sunita Hooda**[2)] (0000-0001-8002-400X), **Dinesh Kumar Arya**[2)] (0000-0002-9716-0136), **Mamta Bhatia**[3)] (0000-0002-4176-4942)

DOI: dx.doi.org/10.14314/polimery.2022.5.4

Abstract: A new ion-exchange resin was obtained by incorporating a tripropylamine group into a tamarind polysaccharide resin (TTA). The TTA resin was characterized by FTIR, elemental analysis, and other physicochemical properties. The influence of pH, treatment time and resin concentration on the adsorption of metal ions from industrial wastewater was investigated. It was found that the obtained TTA resin effectively removes heavy metal ions in the following order: Fe^{2+}> Cu^{2+}> Zn^{2+}> Cd^{2+}> Pb^{2+}.

Keywords: industrial wastewater, tamarind, tripropylamine, ion-exchange resin, adsorption, flocculants.

Nowa żywica jonowymienna na bazie polisacharydów do oczyszczania ścieków przemysłowych

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Article

Assessment of Groundwater Quality for Drinking and Irrigation Use in Gurugram Block of Gurugram District, Haryana, India

May 2022 · Asian Journal of Chemistry 34(6):1555-1564 · Follow journal
DOI: 10.14233/ajchem.2022.23779

Vijay Laxmi · Jakir Hussain · Idris Husain · Geetu Gambhir

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Abstract

Groundwater is a vital and reliable source of water in all climates worldwide. In this work, a total of 26 groundwater samples were collected from the Gurugram Block of Gurugram District (a cosmopolitan city situtated proximately to capital of India) analyzed for electrical conductivity, pH, hardness, dissolved solids (TDS), Na+, K+, Ca2+, Mg2+, Cl- and alkalinity as HCO3 −, CO3 2−. Based on the analytical results, the sodium adsorption ratio, sodium percentage, residual sodium carbonate, chloro-alkaline index, base exchange index, meteoric genesis index, permeability index), magnesium hazard and Kelly index were calculated. The most abundant cations were Na+ and Ca2+, which accounted for 43% and 36% of total cations, respectively. Based on median value, the cations are in the following order: Na+ > Ca2+ > Mg2+ > K+. There are no dangers in any of the 22 villages (85%). They have fluoride levels which are less than the maximum desirable limit of 1.0 mg/L established by IS: 10500, 2012. There were 15 villages

Polycyclic Aromatic Compounds
Volume 43, Issue 4, 2022, Pages 2908-2919

Research Article
Research Articles

A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions

Shilpa Yadav [a], Neeti Misra [b], Pankaj Khanna [b], Mansi [a], Kriti Batra [a], Leena Khanna [a]

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Abstract

The Diels-Alder reaction involves cycloaddition of dienes and dienophiles to form a six-membered ring. The reaction involves the formation of adduct which can have two possible configurations, viz, endo and exo. For a vast majority of the Diels-Alder reactions, endo is the major adduct. This first ever study focuses on the Diels-Alder reaction between dibenzazepine and 2,5-dimethylfuran depicted by the computational method using Gaussian 16 software at different basis set levels. The formation of adduct is studied under different temperatures in the gas phase and aqueous medium. The kinetically favored endo adduct is preferred at low temperatures as compared to exo adduct. The adduct gets dehydrated further to give tribenzazepine as the final product. The applicability of the reaction is also proved experimentally in absence or presence of

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Chromone functionalized pyridine chemosensor for cupric ions detection

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HIGHLIGHTS

- Chromone functionalized pyridine chemosensor was synthesized.
- CD can selectively detect cupric ions with limit of detection 1.2×10^{-6} M.
- The binding stoichiometry obtained as 1:2 for CD: Cu^{2+} complex from Job's plot.
- The Schiff base utilized for sensing cupric ions in a variety of spiked samples of water.

GRAPHICAL ABSTRACT

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LOD, Binding constant

ABSTRACT

A new Schiff base 2-ethoxy-3-[[(6-[[(2-ethoxy-4-hydroxy-2H-chromen-3-yl)methylidene]amino]pyridine-2-yl)imino]methyl]-2H-chromen-4-ol (**CD**) was synthesized as a result of the condensation of 2,6-diaminopyridine and 3-formyl chromone in 1:2 M ratio and used for cupric ions detection and characterized through FTIR, HRMS and ^{1}H NMR spectral techniques. The sensing capability of Schiff base for cupric ions as compared to other transition metal ions was examined by absorbance and emission studies. A considerable decrease in emission intensity appeared in Schiff base in the case of cupric ions while irrelevant changes were examined for the rest of the ions. The binding stoichiometry was obtained as 1:2 for **CD**: Cu^{2+} complex intended from the job's plot which was confirmed through HRMS spectral technique. DFT calculations were carried for the confirmation of structural relationships and absorption–emission data. The Regression coefficient, Limit of detection, and Association constant were obtained as 98.7%, 1.2×10^{-6} M, and 3.26×10^4 M^{-1} respectively using Benesi-Hildebrand (B-H) equation. The sensing power of Schiff base **CD** to recognize cupric ions was unaltered by the addition of the rest of metal ions, which was authenticated through interference studies. Schiff base **CD** and its complex with cupric ions were found stable over an extensive time period as revealed by time-reliant studies. The data collected by pH studies revealed that the preferred pH range for detecting cupric ions by Schiff base **CD** was 6 to 11. The Schiff base was finally utilized for sensing cupric ions in a variety of spiked samples of water like canal water, tap water, groundwater, distilled water.

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Chromone derived effective probe for the detection of metal ion (Cu^{2+}) and chemical explosive (p-nitrotoluene)

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ARTICLE INFO

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Schiff base CCH
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ABSTRACT

A new chromone based Schiff base probe 1,3-bis(((4-oxo-4H-chromen-3-yl)methylidene)amino) urea (**CCH**) has been synthesized in one step by the condensation reaction between 3-formyl chromone and carbohydrazide in a 2:1 M ratio. The characterization of **CCH** was done by employing various analytical techniques: FTIR, ^{1}H NMR, ^{13}C NMR, HRMS and FESEM. The probe **CCH** showed a naked eye colorimetric response from colourless to yellow for the Cu^{2+} ions with greater selectivity over other metal ions taken for analysis. The binding constant and limit of detection of **CCH** for Cu^{2+} ions were calculated to be $4.5 \times 10^4 M^{-1}$ and 11.4×10^{-7}M, respectively, using UV-Visible titrations. The DFT (Density functional theory) results also confirmed the experimental studies. In addition, **CCH** has shown its applicability for the detection of nitroaromatic compound i.e., p-nitrotoluene (**pNT**). The sensing mechanism of **pNT** was studied by UV-Visible and fluorescence studies. A significant quenching of the emission intensity of **CCH** at 402 nm in the case of **pNT** was noted above other nitroaromatics taken for study. The binding constant and limit of detection for **pNT** were calculated to be $1.2 \times 10^5 M^{-1}$ and 25×10^{-6}M, respectively, using B-H plot. The presence of other nitroaromatics negligibly affects the detection of **pNT** in **CCH** solution, as confirmed by anti-interfering studies. FESEM analysis of **CCH** with **pNT** confirmed the formation of an adduct. The time resolved fluorescence lifetime measurement also ensured the **CCH-pNT** adduct formation and the average life time data revealed that the quenching process was dynamic. The **CCH-pNT** adduct formation was also validated via DFT studies. Overall results suggested that the Schiff base **CCH** could be an efficient option to detect Cu^{2+} ions colorimetrically and **pNT** by fluorimetrically.

1. Introduction

Schiff bases are compounds having an active imine linkage (C = N) which is prominently responsible for their various applications in several fields [1,2]. Nowadays, Schiff bases are primarily used as colorimetric and optical sensors for the detection of different analytes such as; metal ions, anions, explosives, etc. [3-9]. This is possible because they possess strong binding affinity towards metal ions to form stable complexes [10,11]. Schiff bases are electron-rich compounds, which makes them suitable for the sensing of nitroaromatics (electron-deficient species) by providing an easy electron transfer process from ligand to nitroaromatics [12]. Several chemosensors other than Schiff bases are also known for analyte detection, but Schiff bases are more preferred now days because of their simplicity, high stability, structural flexibility and an easy synthetic route, in addition they produced with a water molecule as a side product only [1,11-14]. A number of analytical methods have been introduced for the detection of analytes using chemosensors, namely; fluorescence sensing, electrochemical sensing, atomic absorption spectroscopy, inductively coupled plasma-mass spectrometry, surface-enhanced Raman spectroscopy (SERS), chemiluminescence, thermal neutron analysis, cyclic voltammetry, high performance liquid chromatography (HPLC), energy-dispersive X-ray diffraction, gas chromatography (GC), [15-20]. Among these methods, colorimetric sensing and optical sensing (UV-Vis and fluorescence) are more suitable because of their cost-effectiveness, easy sample preparation, high selectivity, sensitivity, and rapid detection of analytes, which makes them more useful tools over other techniques. Colorimetric detection is more facile approach as it involves the naked eye detection of the analyte with less equipment [21,22]. Imbalanced consumption of metal ions can cause severe environmental and health issues [23]. As a result, the design and synthesis of sensors for the detection of such ionic species are crucial. Copper is the third most abundant trace element in

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WET CHEMICAL GROWTH OF ONE DIMENSIONAL ZnO FILM

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ABSTRACT

The present work focuses on the growth of ZnO films vertically on indium tin oxide substrate using a wet chemical method. The morphological and structural study of the prepared films confirmed the formation of one-dimensional growth with a polycrystalline single-phase hexagonal wurtzite structure. The computed texture coefficient indicates the c-axis growth of the film. The optical spectra study exhibited a strong and sharp characteristics absorption band. The numerical derivative method and the Tauc plot method for the different transition values have been used to compare energy bandgap calculations.

Keywords: ZnO Film, SEM, XRD, Rietveld Refinement, UV-Visible Spectroscopy, Tauc Plot Method

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INTRODUCTION

In the recent era, metal oxide nanostructures showcase many applications in every field that exists, mainly biosensors, solar cells, photocatalysis, bio-imaging, UV-light emitters, piezoelectric transducers, chemical sensors.[1] There are many metal oxide nanostructures existing in nature, out of which ZnO is the most promising nanostructures (nanomaterial) due to its wide bandgap, thermal stability, high electron mobility, conductance variability, etc.[2] According to the literature, these ZnO nanostructures can be subdivided into various categories such as nanodots, nanoflowers, nanowires, nanopores, nanotubes, nanorings, nanorods, etc.[1] Among these, nanorods and nanowires are being extensively used for practical applications, such as nanowires are used for field-effect transistor (FET) devices, nanogenerators, and nanorods are used for heterojunction devices such as varistors, four-probe electrode systems, sensing applications, etc.[3-8] In addition to these applications, ZnO nanorods in the form of films are being used in FET, dye-sensitized solar cells (DSSCs), light emitters, light detectors, biosensors, gas sensors, etc.[3,5]
Various methods are reported in the literature for synthesizing these nanorods, such as electrochemical deposition technique, hydrothermal method, sputter chemical deposition, etc.[9-10] However, certain criteria need to be met to use these methods, mainly high reactant concentration, and high reaction temperature. On similar grounds, these processes are complex and expensive. Therefore, the more accessible approach to synthesize ZnO nanorods is by using the wet chemical method due to its easy processing and cost effectiveness.[11-13]

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An *In Silico* investigation for acyclovir and its derivatives to fight the COVID-19: Molecular docking, DFT calculations, ADME and td-Molecular dynamics simulations

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ABSTRACT

In the present work, we have designed three molecules, acyclovir (A), ganciclovir (G) and derivative of hydroxymethyl derivative of ganciclovir (CH_2OH of G, that is D) and investigated their biological potential against the Mpro of nCoV via in silico studies. Further, density functional theory (DFT) calculations of A, G and D were performed using Gaussian 16 on applying B3LYP under default condition to collect the information for the delocalization of electron density in their optimized geometry. Authors have also calculated various energies including free energy of A, G and D in Hartree per particle. It can be seen that D has the least free energy. As mentioned, the molecular docking of the A, G and D against the Mpro of nCoV was performed using Hexadock, an acceptable computational tool and the interaction has been studied in the form of physical data, that is, binding energy for A, G and D were calculated in kcal/mol. It can be seen the D showed effective binding, that is, maximum inhibition that A and G. For a better understanding for the inhibition of the Mpro of nCoV by A, G and D, temperature dependent molecular dynamics simulations were performed. Different trajectories like RMSD, RMSF, Rg and hydrogen bond were extracted and analyzed. The results of molecular docking of A, G and D corroborate with the td-MD simulations and hypothesized that D could be a promising candidate to inhibit the activity of Mpro of nCoV.

1. Introduction

Drug repurposing is the concept of utilising the FDA-approved drugs for a new problem, infection or illness other than the one for which it was originally approved. These repurposing drugs save the time and money, accelerated their admittance into experimental clinical trials against other diseases. This process involved the activity based on an experimental or computational approach to develop the new employ of a drug for its biological potency [1–3]. COVID-19 is named for coronavirus disease-19 and it can cause a range of illness from common cold to severe respiratory syndrome and also infects other organs of the body. Coronaviruses (CoV) are a family of encapsulated viruses with single-stranded RNA and pathogen. In comparison of previously identified SARS-CoV (2002) and MERS-CoV (2013), SARS-CoV-2 or nCoV is a more virulent variant [4–7]. New SARS-CoV has recently received huge attention worldwide and has been declared as a public health emergency of global concern. Repurposing drug like acyclovir is a well-known antiviral drug and was approved for the treatment of infections due to herpes viruses and zoster virus. A clinical research report has been published, showing the acyclovir as a promising drug against the infection due to SARS-CoV-2 [8]. Hedary et al. has reported a study for acyclovir to be a potential candidate against COVID-19 [9]. Acyclo-GTP is a more efficient inhibitor of viral DNA. Ganciclovir and acyclovir have shown good efficacy against cytomegalovirus infection [10]. A case has

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II-VI core/shell quantum dots and doping with transition metal ions as a means of tuning the magnetoelectronic properties of CdS/ZnS core/shell QDs: A DFT study

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ABSTRACT

This paper examines the alterations in the properties of II-VI Quantum Dots (QDs) when these are coated with a shell made of another material of the same family and investigates the structural, electronic and magnetic properties of doped CdS/ZnS core/shell QDs. The core/shell QDs have been constructed by building the shell over the bare core QD and it is found that this construction of a shell over the bare QD can bring about dramatic changes in its optical properties. On changing the shell by varying either the cation or the anion, substantial variations are brought about in the band gap and electrophilicity. The trend of Fermi energies is more negative for core/shell QDs than for the QDs without a shell, and the value is almost the same for core/shell QDs with the same core. Swapping of the core and the shell materials brings greater stability in the case of shells of the wider band gap materials. Binding energy data demonstrates that the CdS/ZnS, CdSe/ZnSe, CdSe/CdS core/shell systems are more stable than ZnS/CdS, ZnSe/CdSe, CdS/CdSe core/shell systems, respectively. An augmentation in the properties is found on doping the QD with transition metal ions. The binding energies are found to be functions of the kind of dopant as well as the spin multiplicity and account for the stability of one spin state over the others at a specific site of the QD. The most fascinating property that plays a decisive role in the extent work is the introduction of magnetism in core/shell QDs as a result of the entry of unpaired electrons within the CdS/ZnS QDs on doping with transition metal ions. The deviation of the observed magnetic moments from the expected values increases as the dopant is varied from Mn^{2+} to Fe^{2+} to Co^{2+} to Ni^{2+} to Cu^{2+}. Hirshfeld charge analysis shows that the doped ion accepts negative charge from the sulfide ions in the core, with the smallest charge transfer seen in the case of Hg^{2+} ions. As we move from Mn^{2+} to Hg^{2+}, the trend followed for the Hirshfeld charges indicates that the overall charge on the core is lower and that on the shell is higher for all the doped cases in comparison to the undoped CdS/ZnS core/shell QD. The band gap values reveal that the Fe^{2+} doped CdS/ZnS core/shell structures have the smallest band gaps. Hence, we expect that this paper will help researchers to develop a strategy to produce QDs of the anticipated properties for various applications, and transition metal ions can be successfully employed for modification of various magnetoelectronic properties of the host semiconductors for future applications in nanotechnology.

1. Introduction

Recent advances in the synthesis of highly monodisperse nanocrystallites have paved the way for numerous spectroscopic studies assigning the quantum dot (QD) electronic states and mapping out their evolution as a function of size. QDs, due to their reduced dimensions, have very high surface to volume ratios, with roughly 80% of the atoms residing on the surface. Hence, their optical and structural properties are significantly affected by the atoms present on the surface. The presence of atoms on the surface with unsaturated valences, called surface defects, leads to the generation of surface trap states acting as non-radiative recombination sites, which degrade the fluorescence quantum yield of the QDs [1]. On passivating the QD surface with organic ligands, these trap states get reduced, but still the complete passivation of surface defects does not occur. In order to passivate the surface in a more complete manner, a secondary layer of semiconductor may be

Abbreviations: QDs, Quantum dots, NCs, Nanocrystals; DOS, Density of states; PDOS, Partial density of states; DFPP, DFT-semilocal pseudopotentials.

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Full Length Article

Precisely engineered type II ZnO-CuS based heterostructure: A visible light driven photocatalyst for efficient mineralization of organic dyes

Bhawna Kaushik [a], Sneha Yadav [a], Pooja Rana [a], Pooja Rana [a], Kanika Solanki [a], Deepti Rawat [b], R.K. Sharma [a,*]

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Gas mass [illegible]

ABSTRACT

Herein, type II band alignment of magnetic ZnO/CuS has been achieved by assembling p-type CuS nanoparticles on n-type ZnO heterostructures to accomplish the photocatalytic degradation of two colored cationic dyes, namely, methylene blue (MB) and toluidine blue (TB). The material exhibited excellent photocatalytic efficiency towards MB and TB with 93% and 87.5% degradation in just 16 and 18 min respectively. The efficacy of doped photocatalyst (FSZCS) was found to be 6 times higher than the undoped material (Fe_3O_4@SiO_2@ZnO; FSZ) whereas pristine CuS degraded only 50% of the dye sample under identical conditions. Therefore, the dramatic enhancement of the photocatalytic degradation performance could be attributed to the synergetic effect created by doping CuS over magnetic ZnO nanocomposites which extended the photoresponse of ZnO by driving the entire degradation process under visible light irradiation and also reducing the charge recombination rate. The plausible mechanistic pathway and identification of degradation products was discussed in detail on the basis of scavenger studies as well as GC-MS analysis. Furthermore, the designed catalyst could be recycled and reused up to 5 runs without any significant decrease in its photocatalytic activity. The reported procedure exhibited multiple advances as it proceeded by utilizing renewable household LEDs as power source at room temperature without the use of any additional oxidant under neutral pH conditions thus, paving a strong path towards sustainable, green and responsible chemistry.

1. Introduction

Photocatalytic degradation has surfaced as a burgeoning technique contributing immensely towards environmental remediation via the use of renewable, clean and abundant solar energy [1]. As a green and sustainable approach, it has found numerous applications in the arena of treatment of perilous and toxic effluents such as dyes, pesticides, pharmaceutical by-products, industrial waste etc. A wide range of photoresponsive materials like metal oxides, metal nitrides and oxy-nitrides, alkali metal base, metal sulfides and carbon-based components have been employed for carrying out the degradation of harmful organic pollutants into environmentally benign products [2–6]. Amongst them, metal oxide and sulfide based semiconductors have occupied a central place in the field of environmental reformation owing to their wide band gap due to deep 2p oxygen orbital in their valence band [7,8]. The process is set off by the generation of electrons when light with wavelength lesser than or equal to the band gap of the semiconductor is illuminated in turn separating the charge carriers (electrons and holes). Semiconductors with wide band gap such as TiO_2 and ZnO have invariably proved their worth as dynamic photocatalysts [9–11]. ZnO specifically with a band gap of 3.37 eV has the potential of detoxifying water owing to its prominent reaction and mineralization rates, lower toxicity, economic nature, higher number of active sites and the fact that it can be moulded to obtain various morphologies [12]. Unfortunately, it works best in the UV region, which constitutes less than 5% of the solar energy thus conspicuously confining its photocatalytic utility. Another factor limiting its photocatalytic efficiency is the rapid charge recombination. Therefore, it is indispensable to shift the optical absorption band of ZnO towards the visible range and simultaneously circumvent the issue of charge recombination [13]. One of the simplest yet appealing pathway to overcome this roadblock is by doping such single-component semiconductor with another narrow band gap semiconductor which can synergistically bring the band gap in visible region and ensure prolonged separation of charge carriers [14]. Copious

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Ingeniously designed Silica nanostructures as an exceptional support: Opportunities, potential challenges and future prospects for viable degradation of pesticides

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Nanocatalysts

ABSTRACT

Despite significant advancements in modern agricultural practices, efficient handling of pesticides is a must as they are continuously defiling our terrestrial as well as aquatic life. During the last couple of decades, substantial efforts by various research groups have been devoted to find innovative solutions to remove pesticides from our environment in a greener way. In this regard, functionalized silica nanoparticles (NPs) have gained considerable attention of scientific community due to their notable properties such as amenable design, large surface area as well as fine tunable and uniform pore structures which make them an ideal material for pesticides removal. The present review aims to gather recent scientific progress attained by silica based nanostructures as an excellent material for effective removal of noxious agrochemicals. Further, a brief discussion on the synthetic strategies as well as various [illegible] with different morphologies of silica have also been highlighted in this article. It also summarizes the recent reports on silica assisted degradation of pesticides via enzymatic, chemical as well as advanced oxidation protocols. Additionally, it presents a critical analysis of different support materials for decontamination of our ecosystem. The review concludes with potential challenges, their possible solutions along with key knowledge gaps and future research directions for successful deployment of silica supported materials in degradation of pesticides at commercial scale.

1. Introduction

For many decades, population spurt has been a topic of deliberation and preoccupations calling for an immediate action to intensify the global agricultural production to ensure food security. According to the "World Population Prospects 2019", a United Nations (UN) report, world population is further expected to reach 9.7 billion by 2050 ([illegible], 2019). Thus, the ever expanding number of inhabitants stresses on the requirement to boost the crop production without increasing farmland footprint. To enhance crop productivity and make agriculture profitable in face of rising valuation, use of pesticides, herbicides and fertilizers have proliferated exponentially. Pesticides refer to a group of chemical compounds used to kill undesirable organisms in farmlands and have been playing a pivotal role in agronomics since the dawn of agricultural revolution ([illegible], 2020). According to their usage, pesticides can be classified broadly in four categories namely, herbicides, insecticides, fungicides and rodenticides. Synthetic organic pesticides generally contain carbamates, organophosphates, coumarins, organochlorines, organonitrogens, pyrethroids along with arsenic and mercury derivatives (Rani et al., 2017).

Nevertheless, with the rapid development and proliferation of chemical industries, their indiscriminate and sporadic use has led to 200,000 human deaths annually along with the contamination of natural resources ([illegible] et al., [illegible]). Most of the chemical pesticides are retained within the body of organism because of their lipophilicity and exhibit detrimental effects on human health due to their carcinogenic nature and ability to damage central nervous system ([illegible] et al., [illegible]). Starting from flora to fauna, pesticides owing to their longer half-lives not only extensively accumulate but also remain persistent in water and soil, thereby posing serious threat to the environment (Fernandez-Perez et al., 2011; Liu et al., 2016). Another major limitation associated with the use of conventional pesticides is that their

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Issue 18, 2022

From the journal
New Journal of Chemistry

Magnetically separable type-II semiconductor based ZnO/MoO_3 photocatalyst: a proficient system for heteroarenes arylation and rhodamine B degradation under visible light†

Check for updates

Bhawna Kaushik,[a] Pooja Rana,[a] Deepti Rawat,[b] Kanika Solanki,[a] Sneha Yadav,[a] Pooja Rana[a] and R. K. Sharma[a]

Author affiliations

Abstract

Herein, a new strategy is used to systematically tailor the band arrangement in a ZnO based heterostructure to realize its bifunctionality towards the synthesis of heteroarylated products and degradation of Rhodamine B under visible light. A Type-II band alignment transition is carried out via introducing MoO_3 rods which subsequently enhance its light-harvesting properties, prolonged charge separation and abundant active sites. The designed heterostructure displayed broad functional group compatibility for both electron-donating and electron-withdrawing group substituted substrates with good product yield. Comparably, their visible light driven heteroarylation process is significantly enhanced to more than 4 times that of pristine ZnO and is superior to most photocatalysts reported previously. ZnO/MoO_3 also displayed remarkable degradation ability of 96.8% towards RhB into innocuous products under neutral conditions without utilizing any oxidant. More impressively, the developed catalyst demonstrated long-term stability and excellent reusability up to five runs without any significant change in efficiency. Hence, this work not only for the first time exhibits the untapped potential of using a highly active, economically efficient and magnetically separable ZnO/MoO_3 core–shell heterostructure to substitute for expensive metals in photocatalysis but also presents a new opening for synthesising hybrid materials with excellent performance in environmental remediation.

Issue 6, 2022

From the journal:
Dalton Transactions

An Earth-abundant cobalt based photocatalyst: visible light induced direct (het)arene C–H arylation and CO_2 capture†

Check for updates

Pooja Rana,[a] Bhawna Kaushik,[a] Rashmi Gaur,[a] Sriparna Dutta,[a] Sneha Yadav,[a] Pooja Rana,[a] Kanika Solanki,[a] Bhavya Arora,[a] Ankush V. Biradar,[b] Manoj B. Gawande[c] and R. K. Sharma[a]

Author affiliations

Abstract

In this work, we have reported a noble metal free heterogeneous photocatalyst to carry out direct (het)arene C–H arylation and solvent-free CO_2 capture *via* single-electron transfer processes at room temperature and under pressure. The catalytic system comprises a cobalt(III) complex grafted over the silica coated magnetic support for the efficient recovery of the photocatalytic moiety without hampering its light harvesting capability. The novel Earth-abundant cobalt(III) based photocatalyst possesses various fascinating properties such as high surface area to volume ratios, large pore volume, crystalline behaviour, high metal loading, excellent stability and reusability. The general efficacy of the highly abundant and low-cost cobalt based heterogeneous nanocatalyst was checked for the selective conversion of aryldiazonium salts into synthetically and pharmaceutically significant biaryl motifs under ambient conditions upon irradiation with visible light. The highly efficient photocatalytic conversion of carbon dioxide (CO_2) to a value-added chemical was accomplished under mild reaction conditions with high selectivity, showing the added benefit of operational simplicity.

Magnetic Boron Nitride Nanosheets Decorated with Cobalt Nanoparticles as Catalyst for the Synthesis of 3,4-Dihydropyrimidin-2(1*H*)-ones/thiones

Pooja Rana, Ranjana Dixit, Shivani Sharma, Sriparna Dutta, Sneha Yadav, Bhavya Arora, Bhawna Kaushik, Pooja Rana, and Rakesh K. Sharma*

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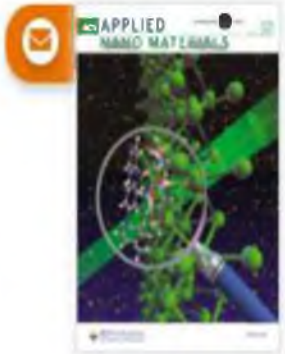

ACS Applied Nano Materials

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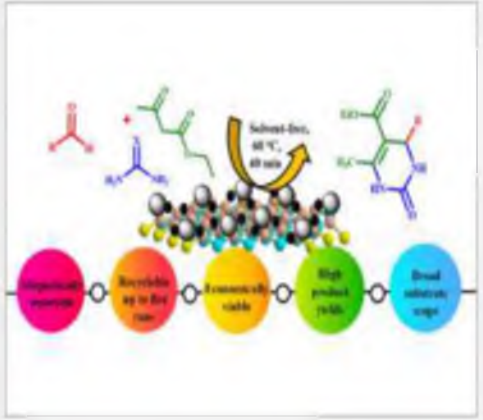
SUBJECTS: Catalysts, Cobalt,

Abstract

Atomically thin two-dimensional boron nitride nanosheets have spawned futuristic advancements in the arena of nanocatalysis research through their intriguing capability to act as exceptional support matrixes. Motivated by their phenomenal attributes, we have fabricated a magnetic boron nitride nanosheet-based cobalt catalytic system wherein boron nitride nanosheets are initially integrated with magnetic Fe_3O_4 nanoparticles (NPs), and the resulting nanostructure is further surface-engineered with cobalt NPs to yield an *h*-BN/Fe_3O_4/Co hybrid. For gaining an insight into their structural and morphological features, reliable spectroscopic and microscopic characterization techniques including TEM, SEM, XRD, FT-IR, VSM, ED-XRF, XPS, BET, TGA, and AAS were employed. The developed nanohybrid material was then utilized to provide ready access to a library of highly bioactive 3,4-dihydropyrimidin-2(1*H*)-ones/thiones under ambient conditions. A plausible mechanistic route for furnishing 3,4-dihydropyrimidin-2(1*H*)-ones catalyzed by *h*-BN/Fe_3O_4/Co has also been delineated. Ambient reaction conditions, solvent-free conditions, high product yield, and excellent thermal and mechanical stability of the catalyst along with facile magnetic retrievability and efficient recyclability are some of the phenomenal characteristics of this methodology. The present protocol besides exhibiting a wider functional group tolerance and a high turnover number was devoid of any additive, thus making it superior to literature precedents reported to date. In consideration of the striking catalytic activity of the *h*-BN/Fe_3O_4/Co nanomaterial, it can be anticipated that the present catalyst can not only possess a stupendous potential to expedite substantial manufacturing of other industrially demanding organic motifs but may also unlock insights for designing next-generation 2D catalytic materials.



KEYWORDS: nanocomposites, heterocyclic motifs, heterogeneous catalytic system, catalytic efficacy, recoverability, recyclability

Issue 22, 2022

From the journal:
New Journal of Chemistry

Unravelling the catalytic potential of a magnetic $CoFe_2O_4$/Cu–ABDC MOF composite in the sustainable synthesis of 2*H*-indazole motifs†

Check for updates

Sneha Yadav,[a] Ranjana Dixit,[a] Shivani Sharma,[a] Sriparna Dutta,[a] Bhavya Arora,[a] Pooja Rana,[a] Bhawna Kaushik,[a] Kanika Solanki[a] and Rakesh K. Sharma *[a]

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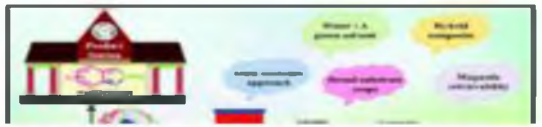
Abstract

Incessant advancements made in catalytic processes during the past few decades prompted researchers to design prodigious sustainable materials that lie within the domain of green synthesis. From this perspective, metal organic frameworks (MOFs) with abundant chemical functionalities and ultra-high chemical as well as structural tunability have emerged as the most prolific heterogeneous catalysts in synthetic organic chemistry. Herein, we report the fabrication of a magnetic $CoFe_2O_4$/Cu–ABDC (ABDC = 2-aminoterephthalate) hybrid composite *via* a one-pot solvothermal strategy whose catalytic efficiency has been investigated in a three-component coupling reaction to obtain biologically active and pharmacologically significant 2*H*-indazole scaffolds (up to 98% yield). By integrating magnetic inverse spinel cobalt ferrite nanoparticles with the functional properties of the MOF, two most important parameters, *i.e.* environmental compatibility and recyclability, have been well established on a single platform. Aided by the advanced microscopic, spectroscopic and property characterization tools, the morphological as well as structural information of the developed hybrid composite has been deduced well. The aim of this study is to design a sustainably viable process that would provide highly demanding pharmacophores, *i.e.* 2*H*-indazoles, in surprisingly high yields from comparatively cheap benchmark substrates – "substituted anilines, 2-bromobenzaldehydes and sodium azide". Furthermore, our protocol has successfully accomplished the remarkable task of replacing toxic volatile organic solvents with eco-friendly solvents such as water. A broad substrate scope, high atom economy, ambient and greener reaction conditions devoid of any ligands, additives or activators, a lower reaction time and temperature, a high turnover frequency and magnetic retrievability are some of the salient features of this methodology which render it highly promising in industry and academia. Besides, the present study is the first report employing a magnetic MOF as a heterogeneous catalyst for the preparation of 2*H*-indazole moieties.



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Review

Functionalized MCM-41: Versatile Catalysts for Organic Transformations

Dr. Sharda Pasricha, Dr. Pragya Gahlot, Dr. Kavita Mittal, Devansh Rai, Nishita Avasthi, Harsimar Kaur, Shrutı Rai

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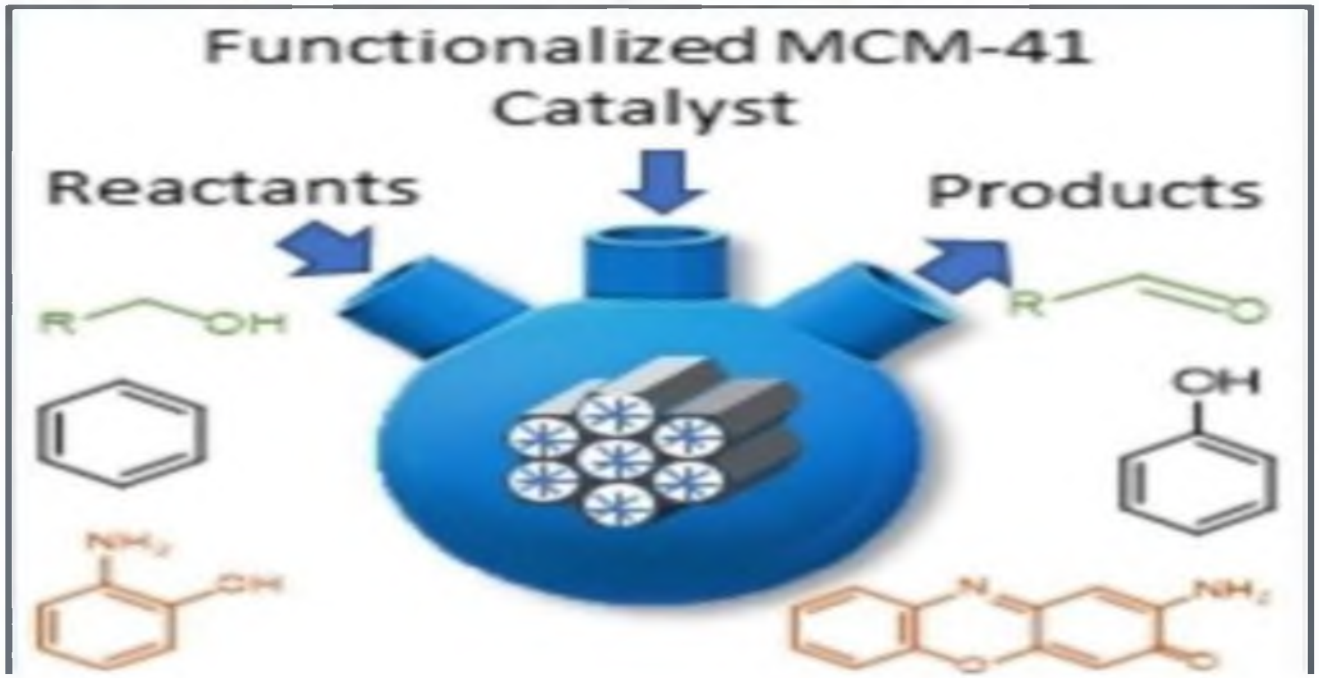
Graphical Abstract

The scope of seven surface functionalized MCM-41 catalysts in organic transformations discussed. Functionalized MCM-41 are innovative and need based catalyst systems for reactions like Sonogashira, Suzuki, Heck, Aldol, Knoevenagel, Friedel Craft reaction and Pechmann condensation etc. Several other reactions like oxidation, reduction, dehydration, esterification, trans-esterification, epoxidation as well as C–S, C–N, C–O and S–S coupling reactions also possible with MCM-41 based catalysts. Multicomponent synthesis of bioactive heterocycles is reported. Major challenges and future prospects of functionalized MCM-41 catalysts are discussed.



Coupling Fear and Contagion for Modeling Epidemic Dynamics

Publisher: IEEE

Cite This

PDF

Kirti Jain ; Vasudha Bhatnagar ; Sadanand Prasad ; Sharanjit Kaur All Authors

2 Cites in Papers

312 Full Text Views

Abstract

Document Sections

I. Introduction

II. Archetypal Model of Fear

III. Individual-Based Fear Model

IV. Differential Equation-Based Model

Abstract:

The emotion of fear related to an infectious disease not only influences an individual's behavior but also transmits to social contacts. Therefore, modeling human behavior is a precursor to reliable estimates of epidemic size and duration. In this paper, we present an abstract model of fear, which is realized using an Individual-based Fear Model (IBFM). In this model, fear is coupled with contagion to study the influence of human behavior on epidemic dynamics. Since fear is an inherent characteristic of an individual that determines susceptibility to infection, the model discerns between individuals by maintaining a fear-index . Variations in innate fear levels in populations with cultural differences are also accommodated. Since the fear level of individuals is affected by the changing size of the epidemic, IBFM provides a mechanism to update fear in the population realistically. The mechanism gives rise to multiple epidemic waves observed in real-world epidemics. We compare the epidemic dynamics for IBFM and differential equation-based realization of the abstract model. We present a detailed empirical study to understand the interplay of fear and contagion in IBFM.

Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body problem

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Abstract. The main goal of the present study is to reveal the behaviour of motion of the infinitesimal body in case of circular restricted three-body problem where all the participating bodies have oblate shapes and both primaries have the effect of solar radiation pressure. The third infinitesimal body is varying its mass according to Jeans law. We also consider that the system is affected by the small perturbations in Coriolis and centrifugal forces. We evaluate the equations of motion of the infinitesimal oblate body under the generalized sense in the perturbed circular restricted three-body problem by using the Meshcherskii-space time transformations to preserve the dimensions of the position as well as time, and then determine the Jacobi-integral. Further we numerically illustrated the equilibrium points, Poincaré surfaces of section, regions of possible and forbidden motion and then basins of the attracting domain by supposing the effects of all the parameters used. Further more, we examine the stability of these

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Behaviour of motion of infinitesimal variable mass oblate body in the generalized perturbed circular restricted three-body problem

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Study and prediction of prostate cancer using fuzzy inference system

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Fuzzy logic
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Prostate cancer
Prostate specific antigen
Prostate volume
% Free prostate specific antigen

ABSTRACT

The essential driver of passing among men on the planet is prostate disease. In the chief stage, for early identification of the prostate disease by applying Fuzzy Inference System (FIS) has been depicted in this study. The age of the patient, Prostate Volume (PV), % Free PSA (FPSA) and Prostate Specific Antigen (PSA) are utilized as input parameters in FIS for computing the risk factor of the prostate cancer. In this study Mamdani method is used for evaluation and analysis of the Prostate Cancer Risk (PCR). The present FIS additionally required the base estimation decreases horribleness lessens dismalness, mortality and more dependable from other system. It can likewise be considered in medicine to decrease manual assignments and human mistake. This review advocate that, this FIS might consequence on work on the productivity to recognized the distinctive kind of the malignant growths just as lessening the expense of care of the patients.

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1. Introduction

In the past decades, Egawa et al. [10] used PSA renders for differentiating prostate carcinoma, Catalona [7] used PSA concentrations for detection of Prostate cancer, Allahverdi, and Valdiz, [1] developed and design the pre-diagnosis expert system for medicine. Roelubom et al. [27] investigates the growth of prostate by Serum PSA which was a stronger predictor. Boegla et al. [5] applied fuzzy knowledge to use fuzzy system, while in same time Lascio [18] developed a fuzzy system analysis of diabetic neuropathy. Allahverdi [2] investigates the impact of fuzzy set theory in to numerous medical difficulties with Artificial intelligence which extensively used in various fields including robotics, marketing, medical applications. Numerous expert systems were considered for progress of Fuzzy logic which plays a significant part in medication regions [24] to predict the forecast to treatment with citalopram in liquor dependency [30] to investigate diabetic neuropathy [18]; To investigate the volumes of brain tissue for the MRI to analyse the MRI data [19] and to investigate the blood pressure by using fuzzy logic. Lu et al. [19] developed fMRI activation detection for image segmentation without supposition of time series. PERSI et al. [25] investigate a fuzzy expert system to diagnosis of prostate cancer by input parameters as PSA (prostate specific antigen) and PV (prostate volume) and PCR (prostate cancer risk) output parameter.

Gawedal, Brier, and Zurada [11,12] developed and used a fuzzy rule-based system to help the doctors who decided about the dose of medicine to treat the 200 dialysis patients. Danaei et al. [8] analysed first time to give cause of cancer and their 12 attributes with nine risk factors. Benecchi [4] developed a fuzzy neuro system which gave good accuracy other than tPSA (total prostate-specific antigen) and %FPSA (percent free PSA) for detection of prostate cancer. Miller et al. [22] has set the limit by using particular PSA value for detection of prostate cancer and discusses their testing. Keles et al. [14] investigates neuro fuzzy system rules for

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Selling price, time dependent demand and variable holding cost inventory model with two storage facilities

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ARTICLE INFO

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Keywords:
Own Warehouse (OW)
Rented warehouse (RW)
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ABSTRACT

Customer service stock-out rates, as well as the company's business sales and marketing productivity, are controlled by the storage facility (warehouse). In this study, a two-storage production inventory model with demand dependent on price and time described. The rate of demand is governed by the selling price and the time. In this analysis, we hypothesized that the deterioration rate is constant and that the holding cost for own storage is time-dependent (OW). For rental storage, the deterioration rate is considered to be time-dependent, while the holding cost is assumed to be constant (RW) which is more realistic. This study assists to reduce total inventory costs by finding the best replenishment strategy. A numerical example is used to demonstrate the model's method, as well as a sensitivity analysis on a few parameters.
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1. Introduction

A storage facility (warehouse) is a huge structure where raw supplies or produced substances are kept till; they are exported or dispersed to trade outlets for sale. In recent years, the problem of two storage or two shops inventory models has received a lot of attention in the beginnings of multi-national enterprises. Two storage facility models play an important role for middle-order retail outlets and smaller shops of multinational companies to stay competitive for sale prices. When the price of commodities becomes less than purchasers can purchase quantities in bulk so it becomes important to purchases to keep this extra stock in the storage house (warehouse).

Several scholars have addressed a variety of two-warehouse inventory models throughout the previous two decades. Hartley [9] was the first to suggest this type of system. They assumed that the holding cost of RW was higher than that of OW in that scenario. Sarma [20] investigated inventory model of two storage facilities and having an optimum release rule and extend the Hartly model by considering the cost of transportation. Murdeshwar and Sathe (1985) developed lot size two shop model and consider the rate of production fixed. Sarma [21] and Benkherouf [1] investigated an order level deterministic model with two warehouses and consider the preserving capacities in a leased warehouse were higher for those who kept goods in own warehouse. Dave [4] modified the model of Sarma [20]. Sarma [22] extended and investigated the two shop model developed by Dave [4] under effect of two new parameters. Goswami and Chaudhuri [8] developed a linear trend of demand an EOQ model with two storage facilities for wouseing items.

Pakkala and Achary [16] developed two shop model dependent on discrete time and Pakkala and Achary [17] generated release rule for warehouse or storehouse when purchaser purchased deteriorating goods in bulk. Bhunia and Maiti [2] extended a two shops model in which Stock level reliant on the rate of consumption. Bhunia and Maiti [3] modified and devolved two shop model for decaying products by considering continuous release rule for transferring goods from shops. Wu [25] investigated a two shops model by considering a demand function constant as well as deter-

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TWO WARE-HOUSES FUZZY INVENTORY MODEL FOR DETERIORATING ITEMS WITH RAMP TYPE DEMAND AND SHORTAGES

Garima Sethi, Research Scholar, SRM Institute of Science and Technology, Delhi-NCR Campus
Ajay Singh Yadav, SRM Institute of Science and Technology, Delhi-NCR Campus
Chaman Singh, Acharya Narendra Dev College

ABSTRACT

In this paper we developed a fuzzy inventory model for single spoilage two-parameter weibull-distribution degradation rate, ramp type demand, and partial backordering at a constant rate. In the current market scenario, an increase in the cost of the inverter affecting the total cost of inventory costs due to inflation can increase at any time of the order length.The increase in the cost of the components of the inventory cannot be pre-determined due to the uncertainty of the market situation. Therefore, we have considered the interval based fuzzy concept to handle the uncertainty condition. Ordering cost, the cost of holding in both ware-houses is considered a triangular fuzzy number.

Keywords: Weibull deterioration distribution; Partial backlogging; Rramp type demand; Fuzzy holding cost; Ordering cost.

INTRODUCTION

In traditional models, many researchers have considered the rate of demand to be constant, linear time dependent, stock dependent or accelerating over time and the same trend of considering this type of demand still continues but it is not always true that demand occurs in the same pattern. The assumption of a constant demand rate is generally valid in the mature phase of a product's life cycle. Several models have developed inventory models for items stored in two ware-houses under modelling assumptions. The rate of demand in these models is assumed to be constant over time. However, in practice a person will accept the demand for separation over time.Most classical inventory models assumed that the utility of the inventory remains constant during the period of their storage. But in real life, degradation occurs during the storage period. The deterioration of physical objects is a common phenomenon in the real world that can occur for various reasons and has attracted a lot of attention from various researchers.In recent years, the problem of inventory worsening has received considerable attention. Most products such as medicine, blood, fish, alcohol, gasoline, vegetables, and radioactive chemicals have self-life, and once spoiled they begin to deteriorate. The listed researchers, above, have taken care of deteriorating objects in their models and have developed models accordingly. In addition to inventory deterioration, limited storage is also a major practical problem for real life.Due to lack of large storage space at important market places, one should be forced to own a small ware-

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Smart materials for cardiovascular devices

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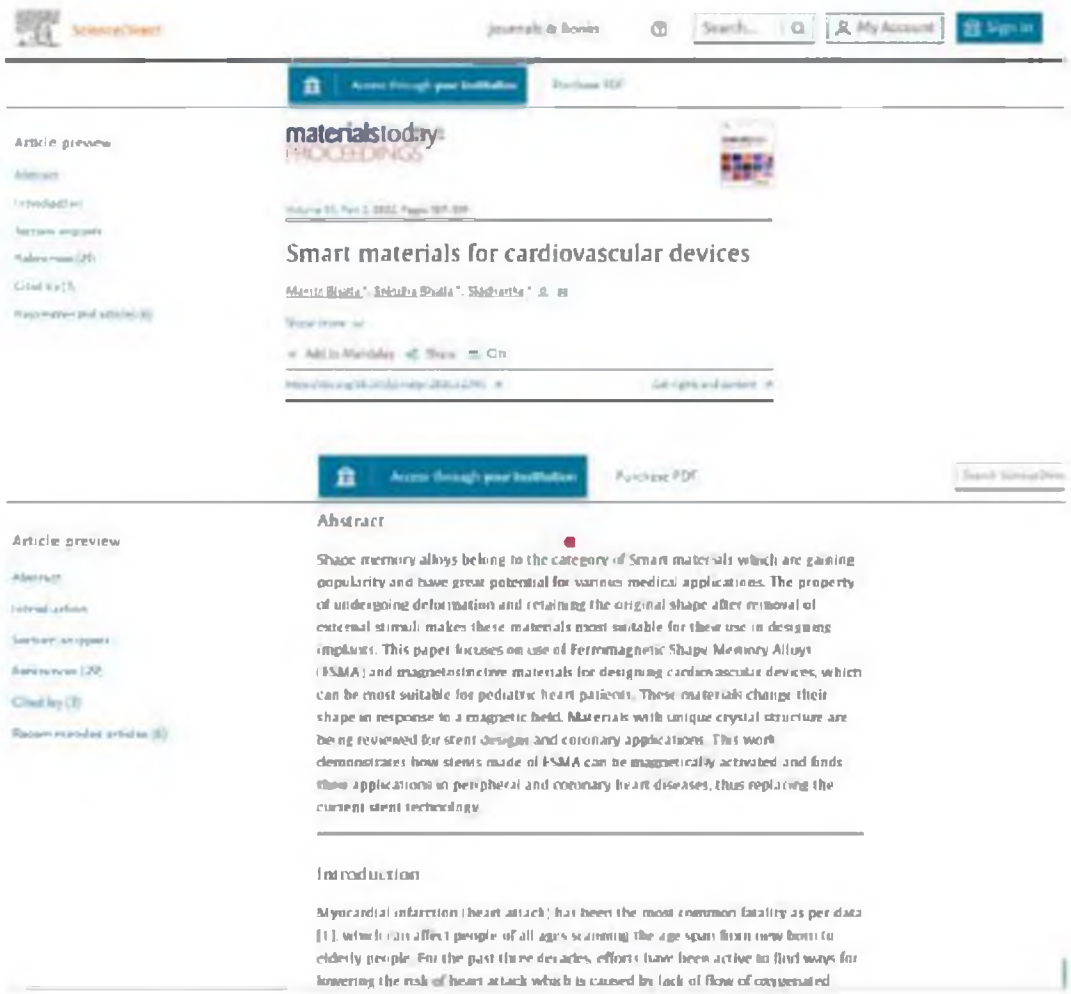
Abstract

Shape memory alloys belong to the category of Smart materials which are gaining popularity and have great potential for various medical applications. The property of undergoing deformation and retaining the original shape after removal of external stimuli makes these materials most suitable for their use in designing implants. This paper focuses on use of Ferromagnetic Shape Memory Alloys (FSMA) and magnetostrictive materials for designing cardiovascular devices, which can be most suitable for pediatric heart patients. These materials change their shape in response to a magnetic field. Materials with unique crystal structure are being reviewed for stent designs and coronary applications. This work demonstrates how stents made of FSMA can be magnetically activated and finds their applications in peripheral and coronary heart diseases, thus replacing the current stent technology.

Introduction

Myocardial infarction (heart attack) has been the most common fatality as per data [1], which can affect people of all ages scanning the age span from new born to elderly people. For the past three decades, efforts have been active to find ways for lowering the risk of heart attack which is caused by lack of flow of oxygenated



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Volume 55, Part 2, 2022, Pages 597-599

Smart materials for cardiovascular devices

Manita Bhatta*, Sukulya Bhatta*, Siddhartha*

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Abstract

Shape memory alloys belong to the category of Smart materials which are gaining popularity and have great potential for various medical applications. The property of undergoing deformation and retaining the original shape after removal of external stimuli makes these materials most suitable for their use in designing implants. This paper focuses on use of Ferromagnetic Shape Memory Alloys (FSMA) and magnetostrictive materials for designing cardiovascular devices, which can be most suitable for pediatric heart patients. These materials change their shape in response to a magnetic field. Materials with unique crystal structure are being reviewed for stent design and coronary applications. This work demonstrates how stents made of FSMA can be magnetically activated and finds their applications in peripheral and coronary heart diseases, thus replacing the current stent technology.

Introduction

Myocardial infarction (heart attack) has been the most common fatality as per data [1], which can affect people of all ages scanning the age span from new born to elderly people. For the past three decades, efforts have been active to find ways for lowering the risk of heart attack which is caused by lack of flow of oxygenated

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ENERGY STORAGE

SPECIAL ISSUE ARTICLE

Studies on energy storage properties of BFO/WO_3 bilayer thin film capacitor

Volume 5, Issue 3
Special Issue: Special Issue on "Progress in Advanced Energy Storage Materials"
March 2023
e342

Funding information: Department of Science and Technology, New Delhi, India

References Related Information

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Abstract

Present work reports the growth of BFO/WO_3 bilayer thin film structures over Silicon, corning and ITO coated glass substrates. BFO layer in BFO/WO_3 bilayer structure was deposited using Pulsed Laser deposition (PLD) technique at optimized laser energy (200 mJ) while WO_3 nanostructured layer was deposited using rf-magnetron sputtering technique at varying glancing angle from 65° to 80°. For the realization of MBM (metal bilayer-metal) device, top Gold (Au) electrodes have been deposited using thermal evaporation technique. The BFO/WO_3 bilayer structure fabricated at 70° glancing angle exhibited the saturation (P_s) and remnant (P_r) polarization as 45.45 μC/cm² and 21.52 μC/cm² respectively, which are appreciably higher than the earlier reports for pure BFO thin films. Enhanced energy storage characteristics were obtained in Au/BFO/WO_3/ITO structure fabricated at 70° glancing angle with charge-discharge efficiency (67%) and enlarged recoverable energy density (467 mJ/cm³). Achieved results indicate the utilization of fabricated Au/BFO/WO_3/ITO structures towards high energy storage applications.

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Double quantum ionization cross-sections for more general exponential cosine screened coulomb potential

Rachna Joshi

Abstract

Double-quantum ionization cross-sections for hydrogen atom have been calculated for the more general exponential cosine screened coulomb (MGECSC) potential. The ionization cross-sections are calculated as a function of the wavelength of the incident photons, as well as the potential parameters, μ, δ and c, using linearly and circularly polarized radiation. The transition matrix elements are calculated using the efficient pseudostate summation technique which has proved to be very accurate in these calculations. Numerical data is also presented for the double-quantum ionization cross-sections for hydrogen atom under the effect of MGECSC potential.

Double-quantum ionization cross-sections for hydrogen atom have been calculated for the more general exponential cosine screened coulomb (MGECSC) potential. The ionization cross-sections are calculated as a function of the wavelength of the incident photons, as well as the potential parameters, μ, δ and c, using linearly and circularly polarized radiation. The transition matrix elements are calculated using the efficient pseudostate summation technique which has proved to be very accurate in these calculations. Numerical data is also presented for the double-quantum ionization cross-sections for hydrogen atom under the effect of MGECSC potential.

Keywords: Double-quantum ionization | Hydrogen atom | MGECSC potential

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Abstract

Double-quantum ionization for Rydberg hydrogen is studied. The variation of ionization rates with wavelength is shown for linearly polarized (LP) and circularly polarized (CP) radiations. For performing the infinite summations over the intermediate states, pseudo-state summation technique (PST) is used which is fast and efficient. Presently, the numerical values of two-quantum and three-quantum ionization rates from ground state and metastable 2s state only are available in the literature. The present work reports the calculations for the double-quantum ionization rates from higher excited levels of hydrogen. Numerical data is also presented for comparison with future experiments.

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Abstract
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Abstract

We calculate Shannon entropy for Modified Hulthen potential (MHP). Dependence of Shannon entropy on various parameters of the potential is investigated. For solving Schrodinger equation, i.e., for calculation of the wavefunctions, Numerov method has been employed which is fast and efficient. Numerical simulation is performed for the purpose. Novel data for Shannon entropy is presented for a wide range of the parameters of MHP.

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Favourable tuning of optical absorbance, bandgap and surface roughness of ZnO thin films by C ion implantation at the critical angle

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ARTICLE INFO

Keywords:
Low energy ion implantation
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Surface roughness

ABSTRACT

Low energy ion implantation with exquisite control of angle allows manipulating the applications of thin films. Here we present a favourable and efficient strategy of 50 keV Carbon ion implantations on ZnO thin films at three different tilt angles 0°, 30° and 60°. This plays a significant role in tuning of optical absorbance, bandgap, grain size and surface roughness simultaneously. The TRIM simulations are performed to elucidate the theoretical understanding and to compare the modifications in the physical properties using different characterization tools. These experimental results demonstrate that the ion implantations at 30° result in a significant reduction of 89% in the grain size and 35% reduction in the optical transmittance along with an improvement of 25% in the surface roughness of these thin films. The optical bandgap is also tuned from 3.27 to 3.20 eV. These results establish a new approach in designing the exotic materials with lower grain size, lower bandgap and smoother surface along with higher absorbance of ultraviolet (UV) light that will help increasing the data storage capacity and getting higher energy efficiency with reduced UV light emissions.

1. Introduction

The role of ion implantations has been extensively investigated for the applications in electronics industry and now these are being employed in the nano-structuring and nano-patterning in the semiconductors such as Si, Ge, etc. [1] The energetic incident ions transfer their kinetic energy and momentum to the host atoms which result in the atomic mass redistributions and cascade collisions at the surface of materials. This leads to the surface modifications and the nano-patterning of vivid types [2–7]. In general, structural, optical and magnetic changes are induced by the ion implantations due to the variation in the ion fluence and the energy [8–11]. ZnO thin films are selected due to their excellent metal-oxide material properties and as these have a large probability of intrinsic defects like Oxygen vacancy (V_{O}) and Zinc vacancy (V_{Zn}) in the surface or volume. The implantation of p-type non-metals like C, N, B, P and Si into ZnO has been found to improve the characteristic properties [12]. There are other advantages with this material such as higher exciton binding energy (approximately 60 meV) along with high tolerance for radiation and wide direct bandgap energy (up to 3.37 eV). This material is selected mostly for scientific research and also for industrial applications [13,14], which have led to the development of promising technologies based on engineering and control of their important and useful physical properties. Various metal and non-metal ion irradiations at high energy (hundreds of MeV) and ion implantations at low energy (tens of keV) at different angles have been performed mainly for generating the ripples on the surfaces. Buddhi et al. [15] have reported that the formation of nano-ripples on gold surfaces is possible by 50 keV Ar cluster ion beam bombardment at different angles. Further, it has also been confirmed using atomic force microscopy (AFM) that the maximum roughness of the gold surface is obtained at an incident angle of 60°. A significant mass redistribution was found by Ar ion beam bombardment at room temperature that led to the formation of nano-ripples on the surface. In the case of off-normal incidence, the target atoms receive the energy from the ions and move in the forward direction. As per the scientific reports, the ion incidence at a grazing angle removes the surface atoms in a very effective manner and smoothens the surface of the thin films without any erosion. Since 1972, ZnO and TiO_2 have been found to have outstanding sustainability and photocatalytic performances because of which these materials are being widely explored [16–18]. ZnO has a bandgap of about 3.24 eV and ultraviolet (UV) light will be required to start the photocatalytic reactions. In general, only 5% UV light can be

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Materials Letters

Unravelling impacts of C ion implantations at polar angles in the physical properties of ZnO nanostructured thin films

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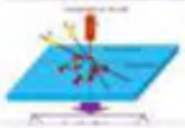
Abstract

The physical properties of nanostructured ZnO thin films have been modified by a pragmatic approach of varying polar angles during low energy ion implantation. The C ions of 50keV were implanted at three polar angles 0°, 30° and 60°. Materials characterizations using X-ray diffraction, magnetic force microscopy and vibrating sample magnetometer reveal that such ion implantation plays a major role in modifying the structural and magnetic properties, and the samples implanted at the critical angle of 30° show remarkable change (82%) in the saturation magnetization. In order to confirm these experimental findings, Monte Carlo simulations were carried out and the results are found to be in good agreement.

Graphical abstract



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Physics of Plasmas

Volume 29, Issue 4
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Spatiotemporal nonlinear evolution of the laser pulse and turbulence generation in laser produced plasmas

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This study presents a model to understand the behavior of the turbulence generated in the magnetic field of megagauss order during high-intensity laser interaction with magnetized plasma. The modified nonlinear Schrödinger (MNLS) equation is developed by contemplating the effect of the group velocity dispersion, diffraction, and nonlinearity induced by the relativistic variation of electron mass and the nonlinear ponderomotive force. Numerical simulation is carried out to solve the dimensionless MNLS equation. The simulation results show the generation of the solitary wave type coherent structures in the nonlinear spatiotemporal evolution of the laser pulse at the early stage, but subsequent turbulence generation has also been observed. The ensemble-averaged turbulent power spectrum has been studied and the power-law scaling is approximately $\sim k^{-1.86}$ (a solid red line of scaling $k^{-1.86}$ is given for reference). To get insight into the spatiotemporal nonlinear development of the laser pulse while propagating in the plasma medium, a semi-analytical model has also been presented. The present study could be substantial in replicating astrophysical scenarios by laboratory simulations along with understanding the underlying quintessential physics of magnetic turbulence.

Topics

Dielectric properties, Dispersion, Laboratory procedures, Ponderomotive force, Analytical

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Physica B: Condensed Matter
Volume 632, 1 May 2021, 413762

Effect of Ag doping on structural, morphological and optical properties of CdO nanostructured thin films

Z.R. Khan [1], Abdullah S. Alshammari [1], Maha Shiva [2], M. Sarazin [1], Mariam Mahmoud [1], Mirzah Kumar [1], Bassam S. Sarkar [1]

Article preview
Abstract
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Abstract

Pure CdO nanostructured thin films and Ag doped with 1.0, 2.0 and 4.0 wt% doping concentrations were fabricated successfully on glass substrates with a cost-effective spin coating technique. The prepared films exhibit a cubic crystal structure oriented along (111) plane. The surface morphology of the pure CdO films shows a cauliflower shape structure, becomes granular and compact at high Ag doping concentration. Raman spectra of the films reveal LO (longitudinal optical) and TO (transverse optical) vibration modes at 408.80 cm^{-1} and 566.54 cm^{-1}. The absorption of the films significantly varies with Ag doping concentrations and as a result, the electronic structure of the films is tailored. Moreover, the optical band gaps vary in the range of 1.42–1.70 eV. In addition, the optical parameters n, k were studied in correlation with Ag doping concentrations. The obtained room temperature photoluminescence spectra of the prepared films show a broad peak at ~350 nm. The third order nonlinear optical parameters of the films were also examined systematically.

Bulletin of Entomological Research

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Research Paper

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Keywords:
Acetamiprid, *Aedes aegypti*, monooxygenase, PBO; resistance, synergism

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Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, *Aedes aegypti* L.

Roopa Rani Samal, Kungrellu Panmei, P. Lanbiliu and Sarita Kumar

Department of Zoology, Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi 110019, India

Abstract

Aedes-borne diseases are on the rampant rise despite continued application of chemical insecticide-based interventions. The appearance of high degree of insecticide resistance in *Aedes* species and noxious effects on environment and non-targets have raised further concerns. Among new chemical interventions, neonicotinoids are considered a safe and effective approach. The present study investigated the control potency of acetamiprid and development of resistance in *Aedes aegypti* larvae, and the involvement of CYP450 monooxygenases in inducing resistance. The early fourth instars of *Ae. aegypti* parent susceptible strain (PS) were selected with acetamiprid for 15 generations (ACSF strain) increasing the resistance to 19.74-fold in ACSF-10 and 36.71-fold in ACSF-15. The ACSF-10 larvae were assayed with acetamiprid combined with piperonyl butoxide (PBO) in three different ratios (1:1, 1:5 and 1:10) and selected for next five generations with 1:10 combination. Selection with synergized acetamiprid (APSF strains) reversed as well as reduced the rate of resistance development resulting in only 1.35-fold resistance in APSF-15. The APSF strains showed %monooxygenase dependency ranging from 86.71 to 96.72%. The estimation of the monooxygenases levels in parent and selected larvae showed increased monooxygenase level in the ACSF strains by 2.42–2.87-fold. The APSF-15 strains exhibited 57.95% lower enzyme production than ACSF-15 strain. The reduction and reversion of resistance by using PBO and the elevated levels of monooxygenases in ACSF and reduction in APSF strains recommend the involvement of CYP450-mediated mechanism in the development of acetamiprid resistance in *Ae. aegypti*. These studies could help in devising resistance management strategies in order to preserve the efficiency of pre-existing insecticides.

Introduction

Aedes aegypti L. is a widespread mosquito responsible for the transmission of ever-increasing infections causing extensive though variable degree of health hazards in the world, especially in tropical and sub-tropical regions. In several countries, *Aedes*-borne disease, dengue, has become a principal health concern due to worrisome rise to 390 million annual dengue infections with 96 million clinical manifestations (Bhatt *et al.*, 2013). India has recorded a total of 39,419 dengue cases and 56 deaths in year 2020 and 39,419 suspected cases of Chikungunya (NVBDCP, 2021*a*, 2021*b*).

In the absence of vaccines and adequate medication, mosquito-borne diseases are primarily kept under check via mosquito management, at larval as well as adult stage. The traditional ways of interventions, such as use of mosquito bed nets, window screens, etc., are still in practice widely. Yet, application of chemical-based measures is on rampant rise to manage complicated-resistant mosquitoes quickly and effectually (Liu *et al.*, 2006; Kumar *et al.*, 2009). Various groups of chemical toxicants have been used against mosquitoes; however, the negative impact of these on the surroundings, and non-target organisms along with the appearance of high insecticide resistance levels among mosquitoes has caused concerns (Bonner *et al.*, 2007; Moore *et al.*, 2009). Several countries have reported insecticide resistance in *Ae. aegypti*, including India (Kushwah *et al.*, 2015), Brazil (Lima *et al.*, 2011), China (Li *et al.*, 2015), Colombia (Fonseca-Gonzalez *et al.*, 2011), Malaysia (Ishak *et al.*, 2015) and Thailand (Yanola *et al.*, 2011); and revealed metabolic detoxification and decreased sensitivity of insecticide-target proteins as the prime cause for the resistance (Bansal *et al.*, 2012; Yang and Liu, 2014).

Among the new approaches and chemical interventions, neonicotinoids, synthetic derivatives of nicotine, are one of the fastest-growing insecticides and considered a safe replacement of the conventional insecticides currently used in the mosquito management. These chemicals induce toxicity in the target insect pest by interacting with nicotinic acetylcholine receptors (nAChRs) of the insect nervous system mediating fast cholinergic transmission (Li *et al.*, 2012). Acetamiprid, a neonicotinoid, reacts with nAChRs located in the post-synaptic neural

Bulletin of Entomological Research

[redacted]

Reversion of CYP450 monooxygenase-mediated acetamiprid larval resistance in dengue fever mosquito, *Aedes aegypti* L.

Roopa Rani Samal, Kungreilu Panmei, P. Lanbiliu and Sarita Kumar

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Research Paper

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Keywords:
Acetamiprid; *Aedes aegypti*; monooxygenase; PBO; resistance; synergism

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Abstract

Aedes-borne diseases are on the rampant rise despite continued application of chemical insecticide-based interventions. The appearance of high degree of insecticide resistance in *Aedes* species and noxious effects on environment and non-targets have raised further concerns. Among new chemical interventions, neonicotinoids are considered a safe and effective approach. The present study investigated the control potency of acetamiprid and development of resistance in *Aedes aegypti* larvae, and the involvement of CYP450 monooxygenases in inducing resistance. The early fourth instars of *Ae. aegypti* parent susceptible strain (PS) were selected with acetamiprid for 15 generations (ACSF strain) increasing the resistance to 19.74-fold in ACSF-10 and 36.71-fold in ACSF-15. The ACSF-10 larvae were assayed with acetamiprid [redacted] with piperonyl butoxide (PBO) in three different ratios (1:1, 1:5 and 1:10) and selected for next five generations with 1:10 combination. Selection with synergized acetamiprid (APSF strains) reversed as well as reduced the rate of resistance development resulting in only 1.35-fold resistance in APSF-15. The APSF strains showed [redacted] dependency ranging from 86.71 to 98.72%. The estimation of the monooxygenase levels in parent and selected larvae showed increased monooxygenase level in the ACSF strains by 2.42–2.87-fold. The APSF-15 strains exhibited 57.95% lower enzyme production than ACSF-15 strain. The reduction and reversion of resistance by using PBO and the elevated levels of monooxygenases in ACSF and reduction in APSF strains recommend the involvement of CYP450-mediated mechanism in the development of acetamiprid resistance in *Ae. aegypti*. These studies could help in devising resistance management strategies in order to preserve the efficiency of pre-existing insecticides.

Introduction

Aedes aegypti L. is a widespread mosquito responsible for the transmission of ever-increasing infections causing extensive though variable degree of health hazards in the world, especially in tropical and sub-tropical regions. In several countries, *Aedes*-borne disease, dengue, has become a principal health concern due to worrisome rise to 390 million annual dengue infections with 96 million clinical manifestations (Bhatt *et al.*, 2013). India has recorded a total of 39,419 dengue cases and 56 deaths in year 2020 and 39,419 suspected cases of Chikungunya (NVBDCP, 2021*a*, 2021*b*).

In the absence of vaccines and adequate medication, mosquito-borne diseases are primarily kept under check via mosquito management, at larval as well as adult stage. The traditional ways of interventions, such as use of mosquito bed nets, window screens, etc., are still in practice widely. Yet, application of chemical-based measures is on rampant rise to manage complicated-resistant mosquitoes quickly and effectually (Liu *et al.*, 2006; Kumar *et al.*, 2009). Various groups of chemical toxicants have been used against mosquitoes; however, the negative impact of these on the surroundings, and non-target organisms along with the appearance of high insecticide resistance levels among mosquitoes has caused concerns (Bonner *et al.*, 2007; Moore *et al.*, 2009). Several countries have reported insecticide resistance in *Ae. aegypti*, including India (Kushwah *et al.*, 2015), Brazil (Lima *et al.*, 2011), China (Li *et al.*, 2015), Colombia (Fonseca-Gonzalez *et al.*, 2011), Malaysia (Ishak *et al.*, 2015) and Thailand (Yanola *et al.*, 2011); and revealed metabolic detoxification and decreased sensitivity of insecticide-target proteins as the prime cause for the resistance (Bansal *et al.*, 2012; Yang and Liu, 2014).

Among the new approaches and chemical interventions, neonicotinoids, synthetic derivatives of nicotine, are one of the fastest-growing insecticides and considered a safe replacement of the conventional insecticides currently used in the mosquito management. These chemicals induce toxicity in the target insect pest by interacting with nicotinic acetylcholine receptors (nAChRs) of the insect nervous system mediating fast cholinergic transmission (Li *et al.*, 2012). Acetamiprid, a neonicotinoid, reacts with nAChRs located in the post-synaptic neural

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Research Article

Attractive Sugar Bait Formulation for Development of Attractive Toxic Sugar Bait for Control of *Aedes aegypti* (Linnaeus)

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Background. Attractive toxic sugar bait (ATSB), based on "attract and kill" approach, is a novel and promising strategy for mosquito control. Formulation of an attractive sugar bait (ASB) solution by selecting an efficient olfaction stimulant and preparation of an optimized sugar-attractant dosage is a significant component for the success of the approach. *Methods.* Current study evaluated relative potential of nine ASBs, formulated by combination of sugar and fresh fruit juices (guava, mango, muskmelon, orange, papaya, pineapple, plum, sweet lemon, and watermelon) in attracting *Aedes aegypti* adults. Freshly extracted and 48-hour fermented juices were combined with 10% sucrose solution (w/v) in 1 : 1 ratio. Cage bioassays were conducted against two laboratory strains (susceptible: AND-*Aedes aegypti*; deltamethrin-selected: AND-*Aedes aegypti* DL10) and two field-collected strains (Shahdara strain of *Aedes aegypti*: SHD-Delhi; Govindpuri strain of *Aedes aegypti*: GVD-Delhi). Each of the nine ASBs was assayed, individually or in groups of three, for its attraction potential based on the relative number of mosquito landings. The data were analysed for statistical significance using PASW (SPSS) software 19.0 program. *Results.* The prescreening bioassay with individual ASB revealed significantly higher efficacy of ASB containing guava/plum/mango juice than that containing six other juices ($p < 0.05$) against both the laboratory and field strains. The bioassay with three ASBs kept in one cage, one of the effective ASBs and two others randomly selected ASBs, also showed good attractancy of the guava/plum/mango juice-ASB ($p < 0.05$). The postscreening assays with these three ASBs revealed maximum attractant potential of guava juice-sucrose combination for all the four strains of *Ae. aegypti*. *Conclusion.* Guava juice-ASB showed the highest attractancy against both laboratory and field-collected strains of *Ae. aegypti* and can be used to formulate ATSB by combining with a toxicant. The field studies with these formulations will ascertain their efficacy and possible use in mosquito management programs.

1. Introduction

Aedes aegypti (Linnaeus) is the major insect disease vector for transmitting viral diseases, dengue, yellow fever, Chikungunya, and Zika [1]. In 2019, the largest number of dengue cases (5.2 million) were ever reported worldwide affecting all WHO regions [2]. Since the use of chemical-based control interventions is associated with environmental concerns, there is a need for natural and environmentally safe interventions [3].

Insecticide-laced attractive toxic sugar bait (ATSB) is considered a new mosquito control method based on the feeding behaviour of mosquitoes [4]. The mosquitoes feed on plant sugars (sucrose and fructose), nectar, honeydew, etc., as a source of energy for their nutrition and survival [5] and use visual and olfaction cues to locate flowers and fruits [6]. Sugar-seeking mosquitoes are attracted by the volatile components of fruits and flowers [7], damaged and rotted fruits [8], and various fruits, edible seeds, flowers, and insect honeydew [9]. Thus, a combination of sugar, an attractant

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Molecular characterization and transcriptional modulation of stress-responsive genes under heavy metal stress in freshwater ciliate, *Euplotes aediculatus*

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Abstract

Heavy metal pollutants in the environment are increasing exponentially due to various anthropogenic factors including mining, industrial and agricultural wastes. Living organisms exposed to heavy metals above a certain threshold level induces deleterious effects in these organisms. To live in such severe environments, microbes have developed a range of tolerance mechanisms which include upregulation of stress-responsive genes and/or antioxidant enzymes to detoxify the metal stress. Single cell eukaryotic unicellorganisms, i.e., ciliates, are highly sensitive to environmental pollutants mainly due to the absence of cell wall, which make them suitable candidates for conducting ecotoxicological studies. Therefore, the present investigation describes the effects of heavy metals (cadmium and copper) on freshwater ciliate, *Euplotes aediculatus*. The activities of antioxidant enzymes, i.e., catalase and glutathione peroxidase in *E. aediculatus* were determined under heavy metal exposure. Besides, the expression of stress-responsive genes, namely, heat-shock protein 70 (*hsp70*) and catalase (*cat*), has also been determined in this freshwater ciliate species under metal stress. The present study showed that the enzyme activity and the expression of these genes increased

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REVIEW ARTICLE

Microbial Journey: Mount Everest to Mars

Utkarsh Sood[1] · Gauri Garg Dhingra[2] · Shailly Anand[3] · Princy Hira[4] · Roshan Kumar[5] · Jasvinder Kaur[6] · Mansi Verma[7] · Nirjara Singhvi[8] · Sukanya Lal[9] · Charu Dogra Rawat[9] · Vineet Kumar Singh[10] · Jaspreet Kaur[4] · Helianthous Verma[9] · Charu Tripathi[11] · Priya Singh[4] · Ankita Dua[12] · Anjali Saxena[13] · Rajendra Phartyal[7] · Perumal Jayaraj[7] · Seema Makhija[10] · Renu Gupta[4] · Sumit Sahni[10] · Namita Nayyar[7] · Jeeva Susan Abraham[10] · Sripoorna Somasundaram[10] · Pushp Lata[9] · Renu Solanki[3] · Nitish Kumar Mahato[14] · Om Prakash[15] · Kiran Bala[16] · Rashmi Kumari[17] · Ravi Toteja[10] · Vipin Chandra Kalia[18] · Rup Lal[1]

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Abstract A rigorous exploration of microbial diversity has revealed its presence on Earth, deep oceans, and vast space. The presence of microbial life in diverse environmental conditions, ranging from moderate to extreme temperature, pH, salinity, oxygen, radiations, and altitudes, has provided the necessary impetus to search for them by extending the limits of their habitats. Microbiology started as a distinct science in the mid-nineteenth century and has provided inputs for the betterment of mankind during the last 150 years. As beneficial microbes are assets and pathogens are detrimental, studying both have its own merits. Scientists are nowadays working on illustrating the microbial dynamics in Earth's subsurface, deep sea, and polar regions. In addition to studying the role of microbes in the environment, the microbe-host interactions in humans, animals and plants are also unearthing newer insights that can help us to improve the health of the host by modulating the microbiota. Microbes have the potential to remediate persistent organic pollutants. Antimicrobial resistance which is a serious concern can also be tackled only after monitoring the spread of resistant microbes using disciplines of genomics and metagenomics The cognizance of microbiology has reached the top of the world. Space Missions are now looking for signs of life on the planets (specifically Mars), the Moon and beyond them. Among the most potent pieces of evidence to support the existence of life is to look for microbial, plant, and animal fossils. There is also an urgent need to deliberate and communicate these findings to layman and policymakers that

Utkarsh Sood and Gauri Garg Dhingra have contributed equally to this work.

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REVIEW ARTICLE

Microbial Journey: Mount Everest to Mars

Utkarsh Sood[1] · Gauri Garg Dhingra[2] · Shailly Anand[3] · Princy Hira[4] · Roshan Kumar[5] · Jasvinder Kaur[6] · Mansi Verma[7] · Nirjara Singhvi[8] · Sukanya Lal[9] · Charu Dogra Rawat[9] · Vineet Kumar Singh[10] · Jaspreet Kaur[4] · Helianthous Verma[9] · Charu Tripathi[11] · Priya Singh[4] · Ankita Dua[12] · Anjali Saxena[13] · Rajendra Phartyal[7] · Perumal Jayaraj[7] · Seema Makhija[10] · Renu Gupta[4] · Sumit Sahni[10] · Namita Nayyar[7] · Jeeva Susan Abraham[10] · Sripoorna Somasundaram[10] · Pushp Lata[9] · Renu Solanki[3] · Nitish Kumar Mahato[14] · Om Prakash[15] · Kiran Bala[16] · Rashmi Kumari[17] · Ravi Toteja[10] · Vipin Chandra Kalia[18] · Rup Lal[1]

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A Comparative Study of Physical and Chemical Parameters and Ciliate Diversity of Leachate Contaminated Soil from the Landfill and the Soil from the Human Inhabitant Land

S. Sitaram | S. Abraham | S. Soman-nair-ram | S. Sandeep | S. Dinesh | R. Gupta | S. Vinoth | E. Bhavya | A. R. Sinha

Eurasian Soil Science 55, 1161–1172 (2022) | Cite this article

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Reema Singh, Seema Gupta and Pradeep Kumar

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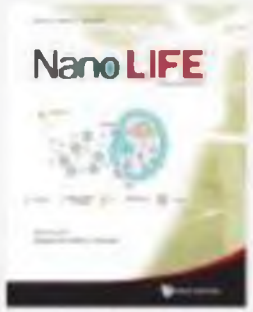
Abstract

Nanomedicine or nanotechnology exhibits outstanding features to challenge severe health issues including pathogenic viral infections, the most culpable invaders in the



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of nanomaterials, such as nanogels, nanospheres, nanosponges, liposomes, nanoparticles and many others, that have been investigated in vitro and in vivo for successful drug delivery, vaccination, diagnostic assay and device development with anticipation to be translated as advanced clinical practices, need a collective relook. This paper intends to contribute insightful critique of current studies on the efficacy of nanoplatforms as drug transporter, diagnostic tool and vaccine candidate against pathogenic viruses covering the highly pathogenic and noticeable "coronaviruses".

Keywords: Nanotechnology • viruses • nanotherapeutics • nanovaccines • nanoparticles •

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Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi simulation of integrated networks of implicated human genes

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In type 2 diabetes mellitus (T2DM) patients, chronic hyperglycemia and inflammation underlie susceptibility to tuberculosis (TB) and result in poor TB control. Here, an integrative pathway-based approach is used to investigate perturbed pathways in T2DM patients that render susceptibility to TB. We obtained 36 genes implicated in type 2 diabetes-associated tuberculosis (T2DMTB) from the literature. Gene expression analysis on T2DM patient data (GSE26168) showed that *DEFA1* is differentially expressed at $P_{adj}<0.05$. The human host TB susceptibility genes *TNFRSF10A*, *MSRA*, *GPR148*, *SLC37A3*, *PXK*, *PROK2*, *REV3L*, *PGM1*, *HIST3H2A*, *PLAC4*, *LETM2*, and *EMP2* and hsa-miR-146a microRNA were also differentially expressed at $P_{adj}<0.05$. We included all these genes and added the remaining 28 genes from the T2DMTB set and the remaining differentially expressed genes at $P_{adj}<0.05$ in STRING and obtained a well-connected network with high confidence score (≥ 0.7). Further, we extracted the KEGG pathways at FDR<0.05 and retained only the diabetes and TB pathways. The network was simulated with BioNSi using gene expression data. It is evident from BioNSi analysis that the NF-kappa B and Toll-like receptor pathways are commonly perturbed with high ranking in multiple gene expression datasets of type 2 diabetes versus healthy controls. The other pathways, necroptosis pathway and FoxO signalling pathway, appear perturbed with high ranking in different gene expression datasets. These pathways likely underlie susceptibility to TB in T2DM patients.

Keywords. BioNSi; differential expression; simulation; text mining; tuberculosis; type 2 diabetes

1. Introduction

Patients with type 2 diabetes mellitus (T2DM) are reportedly at risk of acquiring tuberculosis (TB) (Chaudhry *et al.* 2012; Niazi and Kalra 2012; Kapur and Harries 2013). T2DM develops due to insulin resistance. It is on the rise, affecting an increasing number of people every year worldwide (Faurholt-Jepsen *et al.* 2011). The majority of diabetic patients are of T2DM type (Agarwal *et al.* 2016). Also, 10% of deaths due to TB cases are linked to diabetes in low- and middle-income countries (Faurholt-Jepsen *et al.* 2011). Drugs used to treat TB are reported to cause diabetes-associated conditions. Rifampicin reportedly

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Identification of perturbed pathways rendering susceptibility to tuberculosis in type 2 diabetes mellitus patients using BioNSi simulation of integrated networks of implicated human genes

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1. Introduction

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Original research article | Published: 01 November 2022

Pharmacological Manipulation of UPR: Potential Antiviral Strategy Against Chikungunya Virus

Nishtha Agrawal, Sanjesh Saini, Madhu Khanna, Gagan Dhawan & Uma Dhawan

Indian Journal of Microbiology **62**, 634–640 (2022) | Cite this article

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Abstract

Viruses invade the host cells and maneuver the cellular translation machinery to translate the viral proteins in substantial amounts, which may disturb Endoplasmic Reticulum homeostasis leading to induction of Unfolded Protein Response (UPR), a host response pathway involved in viral pathogenesis. Here, we investigated the effect of UPR pathways on the pathogenesis of chikungunya virus infection. We observed that chikungunya virus mediated the modulation of UPR. A positive modulation was observed in the activation of IRE1 and ATF6 branch while the PERK branch of UPR observed suppressed upon virus infection. We further investigated the effect of the inhibition of UPR pathways on chikungunya virus replication using inhibitors for each branch. Cells treated with 3-ethoxy-5,6-dibromosalicylaldehyde (IRE1 inhibitor) and AEBSF (ATF6 inhibitor) significantly inhibits the viral replication process. This study has provided a novel perspective in designing antivirals against chikungunya virus.

Graphical Abstract

Review Paper

Realizing the New Reality: Machine Learning Curbing Antimicrobial Resistance in *Cutibacterium acnes*

Gupta Romasha[1], Dhawan Gagan[1], Kumar Bipul[1,2] and Gautam Hemant K.[1,2,3]*
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Abstract

Increase in antibiotic resistance is the current cause of global concern facing the human healthcare sector. Dermatologists, particularly face a major challenge, especially when treating acne due to the over-prescription of antibiotics. In an era of tremendous technological advancement, the need for the development of bioinformatics tools and the availability of public databases is the new holy grail to combat antibiotic resistance. With the emergence of machine learning approaches, screening of drug-resistant microbes and identification of known and novel resistant genes have been facilitated for the rapid development of drugs or techniques to combat the problem of resistance.

The whole-genome sequences of Cutibacterium acnes are stored digitally in the PATRIC database for research purposes. With the amalgamation of machine learning algorithms along with the availability of genomic sequences, the prediction of antimicrobial resistance is becoming a reality. The swift and accurate prediction of antibiotic resistance using machine learning tools and algorithms would lower the increasing rate of antibiotic resistance encountered in Cutibacterium acnes and will help dermatologists to combat the problem of Acne vulgaris more efficiently.

Keywords: Antimicrobial resistance, Machine learning, PATRIC database, Whole genome analysis.

Introduction

In recent times, the astronomical growth of antimicrobial-resistant (AMR) infections has become a matter of great concern exposing public health to innumerable threats. According to an estimate, AMR infections are causing around 70, 0000 deaths worldwide on an annual basis. It is also believed that this number will amount to 10 million per year by 2050[30].

Bacteria, which are considered as one of the oldest life forms existing on the earth, have mastered the artwork of evading detrimental conditions that threaten their existence. Selective mutations have empowered them to continue to exist for billions of years making them resistant to the available conventional antibiotics that are being used to treat infections caused by them. Over time, many causative organisms have become smarter and tailored themselves to dodge the medications designed to kill them, rendering the products less effective[26]. Since most bacteria, viruses and other microbes multiply expeditiously, they can quickly evolve and broaden resistance to antimicrobial drugs[10].

The rapid increase of use of antimicrobials readily available in the market is undoubtedly boosting antimicrobial resistance[16]. It is a common practice to administer antibiotics without professional oversight. For instance, it is commonly observed that people suffering from the common cold and flu-like conditions take medication on their own without proper prescription or consultation. An increase in antibiotic resistance is driven by an amalgamation of germs unveiled to antibiotics. Antibiotic resistance is not biased, rather it can affect any individual at any level of life irrespective of their gender and age[2].

Antibiotics are generally administered to cure an infection in the body, however, when the patients stop responding, it does not mean that the body is becoming resistant to antibiotics, rather it is the micro-organism that becomes resistant against the prescribed antibiotics to kill them. These factors lead to the emergence, spread and persistence of multidrug-resistant (MDR) bacteria, which are also referred to as "superbugs"[18,24]. The antibiotics prescribed by a physician against resistant bacteria will only increase the level of resistance and will delay the patient's recovery.

Acne, the most common chronic disease, is the result of abnormal sebaceous production inside pores and skin follicles[11,20]. This leads to abnormal keratinization inside the follicle resulting in a comedo formation. The inflammation process is then prompted and propagated with the aid of *Cutibacterium acnes*, a bacterium that infects the skin. Erythromycin, clindamycin and oral tetracyclines are the most frequently used antibiotics for the treatment of acne[33]. These antibiotics are known to inhibit the growth of bacteria (commonly known as bacteriostatic) rather than killing the bacteria (commonly known as bactericidal). Exposure to such bacteriostatic agents repeatedly results in the emergence of antibiotic-resistant strains of *Cutibacterium acnes* in recent times.

A complete genomic DNA sequence depicts the structural details of the individual traits of an organism or population. Microbial genome sequencing helps in detecting the antibiotic resistance for various pathogens and provides

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Upsurge in biomedical waste due to COVID-19 in India: A statistical correlation, challenges and recommendations

Ritu Khosla[1†], Ashima Jha[2†], Shweta Dua[3], Shivani G. Varmani[2*], Namita Rajput[4] and Balaram Pani[5]

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Proper management of Biomedical Waste (BMW) is an essential component of any sustainable healthcare sector. With the burst of COVID-19 pandemic when every hospital and treatment facility was overburdened patients, efficient handling of the huge amount of generated BMW became a task for the entire world. This review compares the BMW generated before and during the second wave of COVID-19, highlights the challenges in managing the exuberated amount of COVID-19 waste and sites recommendations to promote sustainable design thinking, in order to address this grave concern in the current setting of the Indian system. The study indicated that inappropriate management of waste and the lacunae in the entire chain from segregation to collection until its disposal has posed a serious threat to the wellbeing of healthcare workers, sanitation staff as well as the operators and housekeeping staff at the hospitals, isolation centers and Municipal Corporation. Many states had inadequate number of common BMW treatment facilities (CBMWTFs) leading to inefficient treatment of the excess waste. The behavioural and attitudinal barriers of neglect and ignorance of different stakeholders further aggravated the problem of BMW management to manifolds. To achieve better management we recommend spreading awareness regarding the kind and infectious nature of waste generated by COVID-19 patients and their caregivers, segregation and decontamination of such waste at source and increasing the capacity as well as number of CBMWTFs. Creative ways to recycle the waste must be devised so as to reduce the burden on disposal sites.

KEYWORDS
COVID-19, biomedical waste, India, recommendations, challenges

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Research Articles | Published: 06 July 2022

Evaluation of stigma receptivity and its properties in *Helianthus annuus* L. (Asteraceae)

B. Sharma, G. Kalra & H. Verma

Vegetos 36 474–483 (2023) | Cite this article

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Abstract

Stigma receptivity has a critical role in the development of flowering plants. The time of stigma receptivity is important as it results in pollen recognition, adhesion and formation of pollen tube. The duration of receptivity may vary from few hours to few days. At receptivity, the stigma accumulates different biomolecules required for reproductive success. The purpose of present investigation is to identify the biomolecules and assess their critical role, in receptivity of stigma. Receptivity of *Helianthus annuus* L. (family Asteraceae), is evaluated by activity of enzymatic markers (through enzymatic method for histochemical localization), and the associated signaling molecules (localized by confocal microscopy). Esterases and Peroxidases act as the marker enzymes for receptivity in flowering plants. Interplay of reactive oxygen species (ROS), hydrogen peroxides and flavonoids facilitate stigma to override the stressful environmental conditions and also provide it resistance against pathogens. Present investigations, further reveal that the secondary metabolites present in stigma of sunflower act efficiently against the gram negative (*Escherichia coli*) and gram positive (*Staphylococcus* spp.) bacteria thereby highlighting stigma's ability to defend itself and inflorescence as a whole, from microbial infection during its development. The study, thus highlights the interplay of enzymes, reactive oxygen species and flavonoids in increasing cross-tolerance in

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Research Article

Hydrotrope assisted green synthesis of dicoumarols and *in silico* and *in vitro* antibacterial, antioxidant and xanthine oxidase inhibition studies

Meraj, Pankaj Khanna, Deepshikha Gupta, Shilpa Yadav & Leena Khanna

Received 28 Jul 2022, Accepted 03 Nov 2022, Published online: 14 Nov 2022

Abstract

Aqueous hydrotrope has been employed for the first time to synthesize heteroaryl dicoumarols by condensation of 4-hydroxycoumarin and different heterocyclic aldehydes. This method is highly efficient and green, and the same aqueous hydrotropic solution can be used up to five times without any considerable loss of yield in the product. The synthesized compounds showed good antibacterial potential against Gram-positive (*Staphylococcus aureus*/NTCC 0997 and *B. oceanisediminis*) and Gram-negative (*Escherichia coli*/D0157:H7 and *E. coli rosetta*) bacterial strains using the Resazurin microtiter plate visual method. The MIC value of 312 µg/ml for compounds **3b**, **3k** and **3l** for *S. aureus* while 39 µg/ml for compounds **3a**, **3b** and **3k** for *E. coli* and 625 µg/ml for **3a** and **3b** for *B. oceanisediminis* was observed. The compounds were screened via computational methods like molecular docking studies and molecular dynamic simulations with PDB id's 2W9S and 2EX6. Antioxidant activity was assessed

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An understanding of coronavirus and exploring the molecular dynamics simulations to find promising candidates against the Mpro of nCoV to combat the COVID-19: A systematic review

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ABSTRACT

The first infection case of new coronavirus was reported at the end of 2019 and after then, the cases are reported in all nations across the world in a very short period. Further, the regular news of mutations in the virus has made life restricted with appropriate behavior. To date, a new strain (Omicron and its new subvariant Omicron XE) has brought fear amongst us due to a higher trajectory of increase in the number of cases. The researchers thus started giving attention to the viral infection and discovering drug-like candidates to cure the infections. Finding a drug for any viral infection is not an easy task and takes plenty of time. Therefore, computational chemistry/bioinformatics is followed to get promising molecules against viral infection. Molecular dynamics (MD) simulations are being explored to get drug candidates in a short period. The molecules are screened via molecular docking, which provides preliminary information which can be further verified by molecular dynamics (MD) simulations. To understand the change in structure, MD simulations generated several trajectories such as root mean square deviation (RMSD), root mean square fluctuation (RMSF), hydrogen bonding, and radius of gyration for the main protease (Mpro) of the new coronavirus (nCoV) in the presence of small molecules. Additionally, change in free energy for the formation of complex of Mpro of nCoV with the small molecule can be determined by applying molecular mechanics with generalized born and surface area solvation (MM-GBSA). Thus, the promising molecules can be further explored for clinical trials to combat coronavirus disease-19 (COVID-19).

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UHPLC ANALYSIS OF POLYCYCLIC AROMATIC HYDROCARBONS (PAH) COMPOUNDS FROM THE SOIL BY QuEChERS AOAC METHOD FROM MANESAR INDUSTRIAL AREA, HARYANA, INDIA

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ABSTRACT

An Ultra-High-Performance Liquid Chromatography (UHPLC) method was developed and validated as per ICH guidelines for the analysis of 16 PAH compounds as per USEPA and various soil samples were analyzed in Manesar located 60 km away from Delhi, capital of India 28.3542° N, 76.9400° E in different seasons. The sampling was done in the industrial areas, agricultural fields, and residential plots all within 10 km radius of the industrial area. In the present study, the QuEChERS method was used for sample preparation, which has shown good recoveries around 80 to 120%. The extraction time was only 10 minutes, followed by the UHPLC technique of run time of just 16 minutes. Average PAH concentration in Manesar soil was found highest in the winter session of industrial areas. ∑16 PAH was 141 ppb in the industrial area in winter, 64 ppb in agricultural fields, and 24.7 ppb in residential plots. The lowest PAH levels were observed in the monsoon season. These values are very less if compared to Brazil, UK, Germany, and Korea.

Keywords: Soil, Manesar, PAH, QuEChERS, UHPLC

INTRODUCTION

Polycyclic Aromatic Hydrocarbons (PAH) are known carcinogenic and mutagenic compounds which are formed by burning organic matter with less oxygen presence and heavy vehicle emissions (**Sorensen, 1994; Nam *et al.*, 2003**). Such compounds need to be monitored and checked from time to time in industrial areas. Apart from mutagenicity, they are responsible for many other lungs and respiratory diseases (**Gilliland *et al.*, 1983; Yang *et al.*, 1991; Rost and Leibner, 2002**). In soil, these compounds are retained in humus and organic matter for a very long time as they are hydrophobic (**Krauss *et al.*, 2000**). Hence soil is the best place to trace out and check for PAH contamination (**Ockenden *et al.*, 2003**). Few studies have already been done in India, like in Delhi (**Kumar and Kapoor, 2004**), Mumbai (**Sahu *et al.*, 2001**), and Ahmedabad (**Ranjan and Shah, 1993**). PAHs are one of the most dangerous pollutants found in soil as per IARC. Higher ring PAHs are more carcinogenic (**Yang *et al.*, 1991; Massel and Olibson, 2004**). The study of PAH becomes very essential in areas where the industries are very close to residential apartments and agricultural fields. Manesar located 60 km away from Delhi, the capital of India 28.3542° N, 76.9400° E is one of the fastest-growing industrial areas and townships. As per Human Rights Documentation Indian Social Institute, (India) Manesar has fertile lands which are used for farming. It is becoming more important to check the PAH levels in Manesar as it's a hub of farming lands, residential, industries, and all within 10 km area. The PAH-contaminated soil can be harmful to farming as PAH can percolate from soil to vegetables (**Wennrich *et al.*, 2002**). Many studies have shown that if vegetables are grown in PAH-contaminated soil, it may lead to the uptake of PAH in them (**Wennrich *et al.*, 2002**). High concentrations of PAH compounds were found in vegetables like a tomato at 0.2 µg/kg, spinach at 6.6µg/kg, and cabbage 20.4µg/kg (**M. Kluska, 2003**). So, the study of soil is very crucial to trace out PAH. Currently available and reported PAH analysis methods are long and time taking and use a classical sample preparation and analysis approach. Classical soxhlet extraction technique takes 8 to 12 hours of extraction of PAH from soil and uses a huge amount of extraction solvents which is then analyzed by HPLC technique whose run time was around 30 to 40 minutes for analysis of 16 PAH. This study has identified the use Quick, Easy, Cheap, Effective, Rugged, and Safe (QuEChERS) AOAC method which is very quick and rugged. QuEChERS (Quick, Easy, Cheap, Effective, Rugged, and Safe) is an acetonitrile-based extraction technique followed by dispersive solid-phase extraction (SPE) (**Anastassiades *et al.*, 2003**). Followed by this extraction technique a new UHPLC method was also developed and validated as per ICH guidelines which separate 16 PAHs in just 16 minutes.

MATERIALS AND METHODS

Regional site description

Manesar located 60 km away from Delhi, the capital of India 28.3542° N, 76.9400° E has become the hub of industrialization and real estate. The faster-growing industrialization needs the huge movement of heavy vehicles run on diesel. NH8 is the highway that connects Manesar to Gurugram and Delhi. Apart from the main highway NH8 various other roads pass through agricultural fields. One such road is Pataudi road which is the easiest and most popular road considered as an alternative to NH8. The frequency of heavy and small vehicles increased drastically throughout the last 5 years due to the sudden outburst of industrialization and real estate construction in Manesar. This road is surrounded by farmlands. PAH study is very essential to check the levels as heavy vehicle exhausts are a potential source of PAHs. Manesar itself has many factories which release smoke from chimneys. Chimneys are potential sources for PAH releases. During winter seasons, many organic materials are burnt like wood and coals as a source of fuel, which is again a potential source of PAH. Hence, PAH study has become essential in Manesar and surrounding areas. The climate of Manesar is dry and hot with a temperature range from 32°C to 48°C. In winter, the temperature ranges from 4°C to 30°C.

Sample collections

For sample collection, the entire Manesar area was categorized into three parts industrial area, an agricultural area, and a residential area. For analysis, 5 cm topsoil was taken through an auger and sieved through 20-mesh sieve, and stored in airtight plastic tubes in a refrigerator at 4°C. Total of 240 samples were collected, 80 samples from each location.

Extraction and analysis of PAH

QuEChERS AOAC technique was used for the extraction of PAH from the soil. In a 50 ml tube, 5gm soil samples were taken, followed by 5ml water and sonicated

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Review | Published: 21 June 2022

Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles

Sharda Patricha, Kavita Mittal, Pragya Gahlot, Harsimar Kaur, Nishita Avasthi & Shweta

Journal of the Iranian Chemical Society 19, 4035–4092 (2022) | Cite this article

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Abstract

Natural and synthetic hybrid molecules are an attractive scaffold for therapeutic agent development due to their dual/multiple modes of action, minimum or no side effects, favorable pharmacokinetics and other advantages. Coumarin-fused/linked heterocycles are important classes of natural products affording intriguing array of pharmacological activities, which make them ideal for building effective biological scaffolds for medicinal research. Given their promising medicinal applications, an extraordinarily large emphasis is placed on the design of efficient and greener synthetic procedures. Multicomponent reactions (MCRs) are an important tool to expedite the tailoring of a vast number of organic molecules. In recent years, MCRs have simplified access to diverse coumarin heterocycles through molecular hybridization. This review highlights the broad range of science that has arisen from the multicomponent synthesis of coumarin-fused/linked templates bearing heterocycle ring/s either fused or linked to positions 3 or 4 of the pyran ring or the phenyl ring. The review facilitates a better understanding of the role of homogenous or heterogeneous catalyst, inert support and substituents, on the reaction parameters, stereo-/chemo-/regioselectivity of the product. The effect of catalyst functionalization on the number and types of catalytic sites (acidic or basic), stability of the catalyst and synergic catalysis are also discussed. The role of

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Multicomponent synthetic strategies and perspectives for synthesis of linked or fused coumarin heterocycles

Sharda Pasricha, Kavita Mittal, Pragya Gahlot, Harsimar Kaur, Nishita Avasthi & Shweta

Journal of the Iranian Chemical Society 19, 4035–4092 (2022) | Cite this article

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Entropy for item inclination in sub-community based recommender system

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Abstract
To overcome the new user cold-start problems in collaborative filtering, an innovative framework has been proposed that used entropy for item inclination in sub-community-based recommender system (EISR). It administered demographic filtering on user and item attributes for finding similar users and applied collaborative filtering on rating preferences. The proposed framework leveraged the advantages of traditional group aggregation strategies for delivering good quality recommendations using item preferences of the members of a refined group detected using two-tier approach. At Tier-I, user communities were detected using demographic attributes, which were decomposed into discernible sub-communities by exploiting the item preferences of users. A novel entropy-based hybrid group aggregation method called pragmatic propensity was used to combine the item preferences of members of these sub-communities. Also, experiments conducted using the MovieLens and Book-crossing datasets revealed the better quality of recommendations and the comparison with other algorithms confirmed the effectiveness of the proposed framework.

Keywords
Group recommender systems, Cold start problem, Community detection, Social network, Entropy, Item inclination, collaborative filtering, Demographic filtering, Group aggregation strategies.

1.Introduction
Machine learning (ML) entails self-learning via data usage and experience [1]. It requires no human intervention to uncover patterns in data [2]. Recent work in this area includes classification of liver tumours [3]; extraction of clinical attributes from the breast cancer dataset [4]; prediction of student performance [5]; accurate recognition of complex physical human activity acquired using body-worn sensors [6]. Recommender system (RS) is also an exciting application of ML for suggesting relevant items to a user [7]. ML driven recommendation engines [8] have become ubiquitous in the last few decades. Intelligent web engines have crept in everywhere, recommending everything from movies, songs, food, social media posts to anything conceivable. Unconsciously, everybody is following these recommendations. The apparent reasons are convenience and satisfaction; else, dealing with a profusion of information on the web is quite cumbersome.

Famous online service providers like Facebook, Netflix, Spotify, Amazon, and LinkedIn use recommendation engines to boost sales and enhance customer satisfaction by utilising data filtering techniques of underlying RS [9].

RS uses traditional filtering techniques [10, 11] viz. collaborative filtering (CF), content-based filtering (CbF), demographic filtering (DF), and knowledge-based filtering (KF), along with hybrid filtering techniques that combine the benefits of former techniques [12]. Liao et al. have found that users trust systems that use CF for recommendation over those using CbF or DF and have given pointers for solving cold-start problems [13]. CF is the most sought-after technique that collects users' preferences and predicts their interests. However, unfortunately it suffers from cold-start problems (non-availability of preference information for the new user/item). Recent research points towards the inclusion of user demographic attributes (age, gender and location) to abate these problems [14]. Recently, González et al. have also utilized demographic information to evaluate the bias and unfairness of recommendations given to the minority groups [15].

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Evaluation of Cost benefit Analysis using One-R Supervised Machine Learning Algorithm for Healthcare

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Research Article

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PAPER

Mildly reduced graphene oxide membranes for water purification applications

Shani Kumar[1,2], Amit Garg[1,*] and Arijit Chowdhuri[3]

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Keywords: Mildly reduced graphene oxide, swelling, membrane, water purification

Abstract

Presently carbon allotropes namely graphene, graphene oxide (GO) and reduced graphene oxide (RGO) are being extensively utilized for water purification applications. The presence of myriad types of oxygen functional groups in the GO, however, makes this material very hydrophilic, allowing it to absorb water and to swell in moist or watery environments and to significantly damage its intended performance. In contrast, fully reduced graphene oxide membranes are not stable due to fewer oxide groups which are mainly responsible for GO flakes stacking. In the present work, the aforementioned problems are overcome by optimizing the oxygenated functional groups to develop mildly reduced graphene oxide (MRGO) membrane over PVDF (polyvinylidene fluoride) support. GO is reduced by L-Ascorbic Acid (LAA) with different amounts of wt.% and an optimized MRGO membrane is achieved at 10 wt.% of LAA, which is stable and showing comparatively lower swelling than GO membrane. All related structural and optical characterizations like XRD, SEM, EDAX, Raman, FTIR, and Contact angle have been done to evaluate the effect of mild reduction of GO. The studies are indicative of their potential application in water purification.

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Water purification is a method that eliminates harmful chemical compounds [1], organic/inorganic substances [2] including pharmaceutical wastes [3], cations [4] and biological pollutants [5] from water. It also involves distilling (turning a liquid in vapor and further condensing it in liquid form) and deionizing (ion removing by extracting dissolved salts) [6]. The purification of water is mainly aimed at providing clean water. Water purification also meets the needs of safe and drinking water applications in medical, pharmacological, chemical and industrial applications. The purification process reduces contaminant concentrations such as suspended particles, parasites, bacteria, algae, viruses, and fungi [7]. Many technologies are being used for water purification in which membrane-based separation is at high demand because it operates without heating and thus utilizes less electric energy than standard processes of heat separation like distillation, sublimation or crystallization [8]. Since the practical discovery of the first 2D material called graphene, much focus is paid to two dimensional structures in condensed matter physics, material science and chemistry [9, 10]. Due to its unique atomic thickness and micrometer lateral dimensions, 2D materials have increasingly been explored as a fundamental medium to establish separation technologies [11–14]. Graphene oxide (GO), the oxidative form of graphene, is rated at a high level due to its unique permeation path, large surface area, outstanding anti-fouling properties, high chemical tolerance, high hydrophobicity [15, 16]. It is a single layer of carbon monoatomic on the basal planes and sides, formed in a honeycomb with oxide groups (epoxide, carboxyl, and hydroxyl) [17, 18]. Water permeance and dye rejection depend on various parameters. In a recent review article by Moghadam *et al* [19], membranes in form of atomically thin nanosheets or assembled laminated sheets using 2D materials like graphene, the filtration mechanism of gas and liquid species depend on size and density of pores, defects in the

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An Inclusive Science Laboratory for Visually Impaired Students

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Abstract : Education is a powerful tool that has the potential to improve the social and economic condition of a person in a developing country like India. The greatest challenge for the Government is the accomplishment of quality education in inclusive and accessible arrangements for persons with disabilities. The teaching techniques adopted in traditional classrooms aren't usually designed to cater to the need of visually impaired students. Visually impaired students are usually held back from pursuing STEM (Science Technology Engineering and Maths) education and are encouraged to take up humanities and commerce. The lack of resources is mostly responsible for holding back visually impaired students from pursuing Science along with other factors such as the incompetence and attitude of the facilitators. In this work, an inclusive science laboratory for visually impaired students is envisaged using assistive technology that can facilitate them in performing lab experiments. Assistive technology plays a crucial role in the shift of the education system for visually impaired students to an inclusive model. Low cost, easy to use and store, hardware modules with talkable features has been designed to measure temperature, time, to detect contrast and color using Arduino UNO. With the help of these modules, a visually impaired student can be assisted to perform laboratory experiments effortlessly, which otherwise is not made accessible to them.

Keywords: Arduino, assistive technology, Inclusive science laboratory, visually impaired.

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1. Introduction

The economic status of a citizen has its dependence on access to education. Educated youth is incredibly skilled to mold and reinforce growth prospects. Education can enable a person to make an informed decision and further can result in participative citizenship in a democratic environment. The Constitution of India guarantees equality of all its citizens in every respect and this is pertinent to education as well. The right to Education Act was passed by the parliament of India in 2009. It made education, a fundamental right of all children of the age group 6-14 years irrespective of their caste, creed, social status, and even physical disability. To date significant steps have been taken by the Indian Government, both at the central level and at the state level, to promote education amongst children. The Central Government has supported many schemes like District Primary Education Programme (DPEP), Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), Samagra Shiksha to

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FLEXIBLE INVENTORY SYSTEM OF IMPERFECT PRODUCTION UNDER DETERIORATION AND INFLATION

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Abstract: This study emphasizes the development of a flexible inventory system considering rework requirements on imperfect and defective items. This work has considered defective items could be sold at a lower price in the market as compared to the perfect items. The developed model has considered Weibull deterioration and inflation to balance the same amount in the future due to its potential earning capacity. And demand's function depends on price as well as inventory level because a large pile of goods and their price strategy attracts more customers to generate higher demand. The work also supports managerial decision-making by focusing on the volume flexibility system for smooth production runs. The mathematical formulation of the developed inventory system tries to optimize the inventory cost function under a realistic scenario. A solution procedure has been illustrated and assisted with a numerical example. Later, a validation test is also performed to check the robustness of the proposed mathematical model. The findings of the study will support policymakers, strategists, and firms to implement

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ROMANIAN ASTRONOMICAL JOURNAL

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International Journal of Analysis and Applications

Effects of Mass Variation in the Collinear Perturbed Moulton-Copenhagen Configuration

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Abstract. The main idea of this paper is to investigate the motion properties of the smallest body under the gravitational forces of the three collinear spherical primaries. Here we place the three primaries on the same line where the masses of two primary bodies are taken equal and third primary body is having the solar radiation effect. The effects of Coriolis and centrifugal forces on the system is considered. Therefore this system is recognized as collinear perturbed Moulton-Copenhagen configuration. After determining the equations of motion and quasi-Jacobi integral, we numerically illustrate the locations of equilibrium points (in-plane and out-of-plane), regions of motion, Poincare surfaces of section, basins of attraction and periodic orbits. And then the examination of stability for the equilibrium points lie either in-plane or out-of-plane are examined.

1. Introduction

One of the extensions of the restricted three-body problem is the restricted four-body problem in the fields of Mathematics and theoretical Physics. Where two types of configurations are found in the literature. First when the three-primaries are placed at the vertices of a triangle and the second when the three-primaries are placed at the same horizontal line. Till now many researchers have studied about the first type of configuration with various types of perturbations while the second type of configuration is studied by very few researchers. But it is also an interesting configuration for study.

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Key words and phrases. perturbed Moulton-Copenhagen configuration; variable mass; Jeans law; out-of-plane equilibrium points.

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Deo Datta Aarya, Shashi Prakash, Rahul Boadh, Anand Chauhan, Yogendra Kumar Rajoria, The Implementation of the Pentagonal Fuzzy Number toward the Solution of the Fuzzy Inventory Model with Ramp Demand Function and Three Parameters Weibull Deterioration

The Implementation of the Pentagonal Fuzzy Number toward the Solution of the Fuzzy Inventory Model with Ramp Demand Function and Three Parameters Weibull Deterioration

Deo Datta Aarya[1], Shashi Prakash[2], Rahul Boadh[3], Anand Chauhan[4], Yogendra Kumar Rajoria[5*]

Abstract

The purpose of this study is to provide an ordering strategy for commodities that deteriorate over time using ramp-type demand rates, shortfalls, and deterioration rates. The ramp-type demand function moves up and down through duration up to a particular point before becoming constant. It is predictable. The three-parameter Weibull deterioration rate, which considers both things that have recently deteriorated while being received into an inventory system and items that may deteriorate in the future, shows the changes in deterioration rate over time. Owing to the inclusion of uncertainty, model factors such as deterioration, ordering, carrying, and shortage costs are examined by a fuzzy approach and defuzzy by the GMI method, which optimises the entire average cost for the model. This seems to be applicable for seasonal items as well as newly introduced high-tech items like computers, tablets, and smart phones.

Keywords: Weibull deterioration, Graded mean integration (GMI), Fuzzification
DOI Number: 10.14704/Nq.2022.20.17.Nq88017 Neuroquantology 2022; 20(17):115-124

1. Introduction

Nowadays, numerous organizations allow their businesses to flourish by effectively managing their inventory. As a result, maintaining and controlling stocks is a huge burden for businesses. "Inventory refers to any economically valuable resources that are being prepared for sale at various phases. Inventory management is crucial to the efficient and effective operation of an organization. On the one hand, having too much inventory might add a significant expense to the firm. Holding relatively few stocks, on the other hand, may result in stock-outs and the loss of future clients. The inventory hypothesis provides a solution to these kinds of difficulties by addressing the fundamental considerations of when and how much more to order. One of the fundamental models of inventory theory is the economic order quantity (EOQ) model developed [1]. Nowadays, it is difficult for retailers and distributers to accurately assess demand. Furthermore, most of the time, the inventory decision-maker does not have access to appropriate historical data or statistical assumptions are ridiculous. Using classic inventory models in real life is difficult in each circumstance. To deal with unreliable data in decision-making, it is preferable to use a fuzzy number to define inventory parameters. In developing an inventory model, the impact of deterioration must be considered as a

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Volume 65, Part 1, 2022, Pages 365-371

Optimal strategy for remanufacturing system of sustainable products with trade credit under uncertain scenario

Pranty Pansari [a], Amrit Chauhan [a], Deo Datta Aarya [a], Rahul Boadh [a], Samarjita Kartar Rajesh [a], [b], Shikha Mohan Gupta [a]

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Abstract

The manufacturing of commodities using cost-effective strategies that decrease adverse environmental effects while conserving raw materials and energy is based on sustainable manufacturing. Through sustainable production, employees, the community, and product safety are all improved. Carbon emissions are also considered as another factor for developing a sustainable strategy during the production process. To develop a policy for the production period for both the manufacturer and the remanufacturer under a fuzzy environment present study, a three-layer fuzzy sustainable manufacturing model has been established, with the producer, remanufacturer, and retailer as contributors, and the effects of economic and environmental factors were addressed. The aim of the article is to minimize overall cost by developing a manufacturing model that takes into account trade-credit policies, product recycling, and carbon emission effects. By

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Space Dependent Study of Fast Neutron Spectra and Tritium Prod
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Volume 132, Issue 13
October 2022

RESEARCH ARTICLE | OCTOBER 07 2022

Effect of variation in glancing angle deposition on resistive switching property of WO_3 thin films for RRAM devices

Shiva Lamichhane, Savita Sharma, Monika Tomar, Arijit Chowdhuri

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Journal of Applied Physics 132, 134102 (2022)
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In this paper, nanostructured tungsten oxide (WO_3) thin films are deposited using the RF magnetron sputtering technique in Glancing Angle (GLAD) arrangement. Variation in the structural, morphological, optical, and resistive switching (RS) characteristics of nanostructured WO_3 film is investigated as a function of GLAD angle (60°–80°). Electrical studies on nanostructured WO_3 films deposited at room temperature are found to exhibit enhanced bipolar resistive-switching properties in metal–insulator–metal pattern [Au/WO_3/ITO]. The R_{off}/R_{on} ratio between high and low resistance states was noted to be about 190 besides a minimum set voltage of ~2.22 V in the case of the WO_3

metal–insulator–metal pattern [Au/WO_3/ITO]. The R_{off}/R_{on} ratio between high and low resistance states was noted to be about 190 besides a minimum set voltage of ~2.22 V in the case of the WO_3 thin film deposited at the 70° glancing angle. A detailed current transport mechanism analysis indicates the existence of ohmic behavior and trap-assisted space charge limited conduction as the governing mechanisms at the state of low and high applied bias, respectively. Good data retention characteristics coupled with reproducible and fast RS capabilities obtained with Au/WO_3/ITO device structure promise scope of rapid development in future RS-based novel memory devices applications.

Topics

Electrical properties and parameters, Nonvolatile memory, Flash memory, Atomic force microscopy, Magnetron sputtering, Resistive switching, Thin film deposition

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Volume 515, Issue 4
October 2022

JOURNAL ARTICLE

Ensemble-based unsupervised machine learning method for membership determination of open clusters using Mahalanobis distance

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Sukanta Deb, Anuja Bartolo, Srikhanti Gamer

Monthly Notices of the Royal Astronomical Society, Volume 515, Issue 4, October 2022, Pages 4685–4701, https://doi.org/10.1093/mnras/stac2116
Published: 01 August 2022 **Article history** ▾

Volume 515, Issue 4
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ABSTRACT

We present an improved method for the determination of membership of an open cluster using ensemble-based unsupervised machine learning techniques. The working principle of this method relies on two stages: (i) choosing a suitable range of three astrometric parameters (π, $\mu_\alpha \cos\delta$, μ_δ) using k-nearest neighbour (kNN) algorithm on the data downloaded for the cluster within a smaller search radius; (ii) application of two component Gaussian mixture modelling (GMM) on the resulting one dimensional Gaussian distribution of Mahalanobis distance (MD) of stars using the range of parameters obtained from the earlier step, but with the data downloaded within a bigger search radius. MD is calculated from the mean of each of the parameters in three dimensions. Thus the use of MD reduces the input of the GMM from the 3D parameter space into a 1D parameter space for the cluster membership determination. The method has been tested on a few clusters including those which have overlaps in some/all the parameters using the data obtained from the *Gaia* DR3 data base. It is found that the approach can easily separate the cluster members from the field stars. The clean colour–magnitude diagrams and similar direction of proper motions of the member stars obtained for the clusters shows that this method is very efficient and robust in

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Regular Article | Published: 02 September 2022

Two-photon bound-to-bound transitions under strong screening potential

Bachna Joshi

The European Physical Journal Plus 137, Article number 996 (2022) | Cite this article

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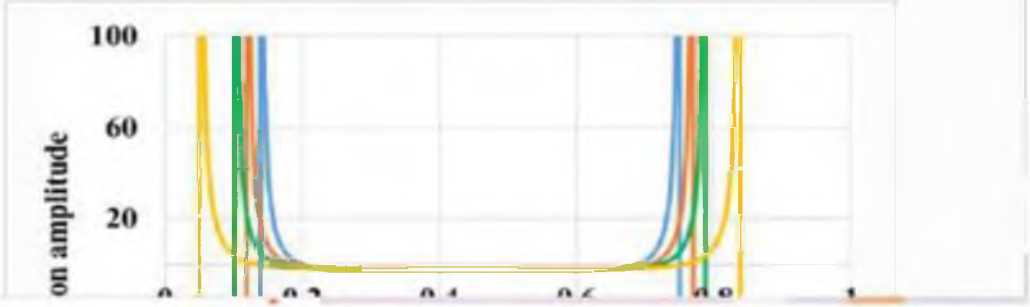
Abstract

Two-photon transition amplitudes for bound-to-bound transitions in hydrogen are calculated for the most general exponential cosine screened Coulomb (MGECSC) potential which is of relevance in many branches of physics. The variation in transition amplitude with different potential parameters is investigated. Enhancement in the transition amplitudes is observed when, on absorption of a single photon, the system is in resonance with an intermediate level. To the best of the knowledge of the author, the MGECSC potential has not been applied previously to the problem of two-photon excitation.

Graphical abstract



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Regular Article – Atomic Physics | Published: 26 August 2022

Theoretical analysis of relativistic energy corrections, partition function and thermodynamic properties of spherically confined hydrogen atom

Rachna Joshi, Arun Goyal, Pranav Kumar & Man Mohan

The Europeon Physical Journal D 76 Article number: 149 (2022) | Cite this article

Abstract

The relativistic energy corrections for the spherically confined hydrogen with penetrable wall are calculated for various orbitals as a function of pressure and confinement radius. The relativistic corrections at high pressures of the order of 10^8–10^9 atm are found to be more than thousand times higher than the corresponding values for the free atom. For calculating the energy eigenvalues, the efficient Numerov method is adopted. The partition function and other thermodynamic properties are also calculated for temperature range 10^4 K to 10^{10} K at low (0–10 atm) and high pressures (10^4–10^8 atm). We investigate the behaviour of partition function and thermodynamic parameters graphically with pressure and temperature. We discuss the effect of high temperature and reduction of confinement radius on these parameters. The present study will be useful in Industrial applications like development of hydrogen fuel and in various physics branches such as in fusion and astrophysical plasma, condensed matter, statistical mechanics and also in other research areas where we encounter atoms which are subjected to high pressures.

Graphical abstract

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Data Availability Statement: All relevant data are within the paper.

RESEARCH ARTICLE

A novel RP-HPLC method for quantification of cholinesterase activity in human blood: An application for assessing organophosphate and carbamate insecticide exposure

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Abstract

Several methods have been reported to estimate Acetylcholinesterase (AChE) enzyme activity in blood samples. The Ellman assay is the most important among all but with several shortcomings, and there is a need to develop a method which is accurate, sensitive and quick for analyzing AChE. Therefore, we have developed an assay utilizing RP-HPLC with UV detection for the determination of AChE activity. This method measured the conversion of 1-naphthol acetate to 1-naphthol to estimate AChE activity in blood samples. Performance was judged on the basis of reproducibility, sensitivity, accuracy, and the ability to screen enzyme activity within 20minutes. A series of experiments were performed, varying the concentration of blood and substrate, with optimal sensitivity using 50 μM substrate and 10μL blood. The validation parameters such as linearity (R^2 of ≥ 0,9842 for 1-naphthol and ≥ 0,9897 for 1-naphthol acetate), precision (94,21–96,41%), accuracy (85,2%–99,6% and 82,6%–99,3% for 1-naphthol and 1-naphthol acetate respectively), and robustness were validated according to International Conference on Harmonization (ICH) guidelines. Blood samples were collected from healthy people, farmers exposed to spraying of pesticides, and suicidal patients who ingested pesticides and were hospitalized and were analyzed by the developed method. The AChE level was approximately 21 units/mL compared to 24units/mL in controls, whereas suicidal patients showed the least AChE levels of 1 unit/mL. The employment of this method is recommended for estimating AChE level on various matrices.

Introduction

Pesticides are routinely used in agriculture, especially organophosphorus (OP) and carbamate pesticides. Pesticide residues in drinking water and food have sparked health concerns. There

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Original Research
Published: 12 October 2022
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Morphological and physiological changes induced by *Achyranthes aspera*-mediated silver nanocomposites in *Aedes aegypti* larvae

Aarti Sharma[1], Monika Mishra, Vinay Singh Dagar and Sarita Kumar*[1]

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Aedes aegypti is responsible for the global spread of several ailments such as chikungunya, dengue, yellow fever, and Zika. The use of synthetic chemicals is the primary intervention in mosquito management. However, their excessive utilization resulting in the spread of toxic ingredients in the environment and posing threats to beneficial organisms has prompted the recommendation for the use of biologically synthesized nanocomposites as a promising approach for vector control. Silver nanocomposites were synthesized using leaf (AL-AgNCs) and stem (AS-AgNCs) extracts of *Achyranthes aspera*. The early fourth instars of *A. aegypti* were exposed to lethal doses of these nanocomposites to evaluate their effects on larval development, behavior, morphology, and mid-gut histoarchitecture. The cellular damage and deposition of nanocomposite residues in the mid-gut were studied using light and transmission electron microscopy. The *A. aspera* silver nanocomposite (AA-AgNC)-exposed larvae exhibited dose-dependent extended duration of development and diminished adult emergence, but did not exhibit modified behavior. Intense damage to the cuticle membrane and slight contraction in the internal membrane of anal papillae were noticed. Morphologically, the mid-gut appeared disorganized, darkly pigmented, and shrunk. Histological investigations of the mid-gut revealed significantly disordered internal architecture with lysed cells, damaged peritrophic membrane and microvilli, disintegrated epithelial layer, and a ruptured and displaced basement membrane. Visualization of the larval mid-gut through TEM showed severe cellular damage and aggregation of black spots, indicating the deposition of silver particles released by AA-AgNCs. The investigations revealed the bio-efficacy of *A. aspera*-mediated AgNCs against *A. aegypti* inducing stomach and contact toxicity in the larvae. The utilization of AA-AgNCs is recommended for *A. aegypti* management as a safe and effective intervention.

Keywords:
Achyranthes aspera, *Aedes aegypti*, development, histological architecture, morphology, silver nanocomposites, stomach poison, TEM

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Original Research
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Insect Pest and Vector Laboratory, Department of Zoology, Acharya Narendra Dev College, University of Delhi, New Delhi, India

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Keywords:
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Aedes aegypti is responsible for the global spread of several ailments such as chikungunya, dengue, yellow fever, and Zika. The use of synthetic chemicals is the primary intervention in mosquito management. However, their excessive utilization resulting in the spread of toxic ingredients in the environment and posing threats to beneficial organisms has prompted the recommendation for the use of biologically synthesized nanocomposites as a promising approach for vector control. Silver nanocomposites were synthesized using leaf (AL-AgNCs) and stem (AS-AgNCs) extracts of *Achyranthes aspera*. The early fourth instars of *A. aegypti* were exposed to lethal doses of these nanocomposites to evaluate their effects on larval development, behavior, morphology, and mid-gut histoarchitecture. The cellular damage and deposition of nanocomposite residues in the mid-gut were studied using light and transmission electron microscopy. The *A. aspera* silver nanocomposite (AA-AgNC)-exposed larvae exhibited dose-dependent extended duration of development and diminished adult emergence, but did not exhibit modified behavior. Intense damage to the cuticle membrane and slight contraction in the internal membrane of anal papillae were noticed. Morphologically, the mid-gut appeared disorganized, darkly pigmented, and shrunk. Histological investigations of the mid-gut revealed significantly disordered internal architecture with lysed cells, damaged peritrophic membrane and microvilli, disintegrated epithelial layer, and a ruptured and displaced basement membrane. Visualization of the larval mid-gut through TEM showed severe cellular damage and aggregation of black spots, indicating the deposition of silver particles released by AA-AgNCs. The investigations revealed the bio-efficacy of *A. aspera*-mediated AgNCs against *A. aegypti* inducing stomach and contact toxicity in the larvae. The utilization of AA-AgNCs is recommended for *A. aegypti* management as a safe and effective intervention.

KEYWORDS
Achyranthes aspera, *Aedes aegypti*, development, histological architecture, morphology, silver nanocomposites, stomach poison, TEM

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Morphological and physiological changes induced by *Achyranthes aspera*-mediated silver nanocomposites in *Aedes aegypti* larvae

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Docking-Based Virtual Screening Ascertaining β-Sitosterol-Induced Alterations in the *Helicoverpa armigera* Hübner Gut Enzymes

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ABSTRACT

Present investigation attempts to study binding of β-sitosterol with *Helicoverpa armigera* midgut enzymes; alanine aminotransaminase (ALT), aspartate aminotransaminase (AST) and alkaline phosphatase (ALP); through docking-based virtual screening. Extraction of the protein sequence of the enzymes revealed a respective linear chain of 535, 522 and 430 amino acids for ALP, ALT and AST. The binding energy for ALT-ligand complex was lowest as compared to the AST and ALP-docked complexes. The ALT-docked complex had ligand efficiency of (-) 0.32 with an inhibition constant of 104.01, more hydrogen bonds and hydrophobic interactions leading to a more stable complex. However, unfavored bumps in AST and ALP complexes may have led to comparatively unstable complexes. The dietary β-sitosterol exhibits differential binding with midgut enzymes of *H. armigera* larvae. The strong binding of β-sitosterol with ALT indicates the highest inhibition of ALT activity due to the activity-stability trade-off. The enzymes, AST and ALP exhibited relatively higher activity as a resultant of lesser stabilization of the β-sitosterol-enzyme complex. *In silico* studies have indicated that β-sitosterol can be used an effective control agent against *H. armigera*.

Keywords: Helicoverpa armigera, β-sitosterol, alanine aminotransaminase (ALT), aspartate aminotransaminase (AST), alkaline phosphatase (ALP), docking-based virtual screening.

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An overview on non-*Apis* bees *vis-à-vis* the exploration of integrated taxonomic approach (Hymenoptera: Apoidea)

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Abstract
Easy and proficient identification of species or organisms is important for various users, such as conservationists, physiologists and ecologists, etc. Taxonomy is a significant branch of biological sciences to classify the different species and understand their relationships. Currently, taxonomy's existence is under crisis and its future protection is required in coming times. Majority of taxonomists are using phylogenetic approach for classifying different species. However, scientists believe that taxonomy should be integrative based on a comprehensive framework for delimiting and describing taxa through integrated information using various data and methodologies. This novel approach does not aim to replace the traditional taxonomy but stresses upon the delineation of species over naming new species. Integrative taxonomy defines the units of species diversity employing multiple approaches; like population genetics, phylogeography, ecology, comparative morphology, development and behaviour, etc. Disagreements among disciplines over the number and demarcation of species can be resolved by using molecular data explaining the evolutionary relationships among species. We present a comprehensive review to explore and identify various non-*Apis* bees and their relationships using integrated taxonomical approaches. We believe that the phylogenies and supportive data can collectively provide a comparative framework for understanding the evolutionary relationships among bee families.

Key words: Integrative taxonomy, non-*Apis* bees, phylogenetic relationships, review, species delineation.

Introduction

Taxonomy is a highly significant branch of biological sciences which mainly aims to classify the different species and understand their relationships between them. Currently, scientists believe that taxonomy' existence is under crisis and its future protection is required in coming times (Wheeler et al. 2004). It is estimated that around 10 million more species exist in nature which still remain to be discovered and in order to do this, we must clarify the nature of primarily two taxonomic tasks, namely delineating and classifying species (Wheeler et al. 2004). These two scientific tasks are currently performed by taxonomists in different ways.

Earlier species diversity and identification studies completely relied on the traditional taxonomy based on morphological characters. Currently, phylogenetic study is a major approach of taxonomists for classification of different species an to reconstruct innate relationships among living organisms; though, in early 1970s, phylogenetic method was a challenge to the taxonomists (Felsenstein 1979). Traditional taxonomists, however were not only in consonant with population biologists and phylogeographers but they also disagreed methodology developed by them for delimiting species (Sites & Marshall 2003). The communication gap between different disciplines involved in delimiting species resulted in 'taxonomy crises'. In order to solve this, scientists believed on integrative taxonomy proposing that this amalgamation will decide the future of taxonomy in coming times.

The term 'Integrative taxonomy' came into existence in 2005 implying a comprehensive framework for delimiting and describing taxa through integrated information using various data and methodologies (Will et al. 2005). The diversity and phylogenetic relationships studies on the families of various major insect groups, such as Coleoptera (Bhardwaj & Jyoti 2018), Hymenoptera (Sharkey et al. 2011), Diptera (Cameron et al. 2007) and Hemiptera (Medeiros et al. 2013) have been carried out by many researchers worldwide. However, the suspect of many systematists that majority of species would remain undescribed using

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Metabolic detoxification and *ace-1* target site mutations associated with acetamiprid resistance in *Aedes aegypti* L

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Despite the continuous use of chemical interventions, *Aedes*-borne diseases remain on the rise. Neonicotinoids are new, safer, and relatively effective pharmacological interventions against mosquitoes. Neonicotinoids interact with the postsynaptic nicotinic acetylcholine receptors (nAChRs) of the insect central nervous system, but the absence of nAChR polymorphism in resistant phenotypes makes their involvement in neonicotinoid resistance uncertain. Thus, an investigation was carried out to understand the role of metabolic detoxification and target site insensitivity in imparting acetamiprid resistance in *Aedes aegypti* larvae. Studies were conducted on the parent susceptible strain (PS), acetamiprid-larval selected strain for five generations (ACSF-5; 8.83-fold resistance) and 10 generations (ACSF-10; 19.74-fold resistance) of *Ae. aegypti*. The larval selection raised α-esterase and β-esterase activities by 1.32-fold and 1.34-fold, respectively, in ACSF-10 as compared to PS, while the corresponding glutathione-S-transferase and acetylcholinesterase activity increased by 22.5 and 2%. The *ace-1* gene in PS and ACSF-10 showed four mismatches in the 1312–1511 bp region due to mutations in the Y455C codon (tyrosine to cysteine) at the 1367th position (TAC→TGC); I457V codon (isoleucine to valine) at 1372 bp and 1374 bp (ATA→GTG); and R494M codon (arginine to methionine) at 1484 bp (AGG→ATG). The R494M mutation was the novel and dominant type, observed in 70% ACSF-10 population, and has not been reported so far. The studies evidenced the combination of metabolic detoxification and target site mutation in imparting acetamiprid resistance in *Ae. aegypti*.

Keywords

Aedes aegypti, acetamiprid, resistance, metabolic detoxification, mutation, target site

Introduction

Aedes aegypti L. is a widespread disease vector posing a wide range of health risks, particularly in tropical and subtropical areas owing to favorable climatic conditions. Ever since the emergence of various *Aedes*-borne diseases, dengue has become a major public health concern, with reports of 390 million annual dengue infections and 96 million

EVIDENCE OF BREEDING OF *JAMIDES BOCHUS* (STOLL, [1782]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) IN NEW DELHI, INDIA

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Reviewer: Peter Smetacek

The butterfly Dark Cerulean (*Jamides bochus*) was first recorded in Delhi by Larsen in 1985, who considered it a case of migration (Larsen, 2002). It was also reported from Delhi in the late 1990s (Chaudhary *et al.*, 2019, Dr. Surya Prakash, *pers. comm.*). The sighting of Dark Cerulean however has become quite frequent in Delhi during the last five years, with several sightings between July to March every year (Chaudhary *et al.*, 2020, Rajesh Chaudhary unpublished records). It was also found laying eggs on its host plant *Millettia pinnata* (L.) Panigrahi (Fabaceae) in Delhi on one occasion in the year 2020, indicating that it might have extended its breeding range towards drier parts of North-west India (Chaudhary *et al.*, 2020).

In the present communication, we report additional supporting evidence which strengthens our assertion that the recent sighting records of Dark Cerulean in Delhi are members of a breeding population rather than of migrants.

An individual of Dark Cerulean butterfly was spotted hopping on the ground in a residential area of South Delhi (28° 32 '22" N, 77° 15' 46" E) on 31.viii.2022, close to its host plant *Millettia pinnata* (Figure 1). On close examination, it was found that both the wings on one side of the butterfly were malformed (Figure 1). The butterfly was also found to be freshly eclosed. It could barely fly 1-2 meters at a time.

The above observations indicate that this individual of Dark Cerulean eclosed with malformed wings in the area where it was spotted. Therefore, it is additional evidence which affirms the breeding status of Dark Cerulean in Delhi.

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SIGHTING OF RUDDY MEADOW SKIMMER *NEUROTHEMIS INTERMEDIA* (RAMBUR, 1842) (INSECTA: ODONATA: LIBELLULIDAE) IN DELHI, INDIA

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The dragonfly, Ruddy Meadow Skimmer (Paddyfield Parasol) *Neurothemis intermedia* (Rambur, 1842) is widely distributed in India, Sri Lanka and many South-East Asian countries (Fraser, 1936; Subramanian, 2009; Singh, 2022). In India, it is found throughout peninsular India, Bengal, Assam, and Sikkim (Fraser, 1936; Subramanian, 2009). In northwest India, it has been reported from the states of Uttarakhand, Uttar Pradesh, Punjab, Himachal Pradesh, Haryana and Rajasthan (Singh, 2022). Despite its widespread occurrence in northwest India, it has not been reported from Delhi (Kumar, 1997; Singh, 2022). This dragonfly is usually found in grasslands, marshy vegetations near ponds and lakes, and paddy fields (Suri Babu, 2000; Subramanian, 2009; Singh, 2022). It is seen on the throughout the year except during winter months as long spells of cold temperature slow down the development of larval stage (Suri Babu, 2000).

Males of the Ruddy Meadow Skimmer have a bright red abdomen with brownish ventro-lateral stripes; rusty-brown thorax; transparent wings with an amber-yellow patch at the base of both the pairs of wings. Females are similar to males, but have more defined ventro-lateral abdominal markings; pale-yellow wings, and lack the amber-yellow patch at the base (Fraser, 1936; Subramanian, 2009; Singh, 2022). An andromorphic form of female Ruddy Meadow Skimmer has been reported in one instance from central India (Prasad, 2000; Joshi *et al.*, 2020).

An individual of *Neurothemis intermedia* was observed in the residential area in northwest Delhi (28° 42' 30" N, 77° 07' 49" E) on 2nd August 2020, at 10:30 am. The dragonfly was roosting on a cable wire, and was photographed using digital SLR camera (Figure 1). The features of dragonfly notable from the photographs include-pale labrum, clypeus and frons; eyes - reddish-brown above and pale-grey below; thorax, rusty-brown and bright red abdomen with ventro-lateral blackish-brown stripes interrupted at apical end of the segments; both pairs of wings with amber-yellow base and dark reddish-brown pterostigma. These features are indicative of the individual being a male. However, it possessed female-like anal appendages (Figure 1C). Thus, the observed individual of Ruddy Meadow Skimmer was an andromorphic form of female.

The observed Ruddy Meadow Skimmer could be a vagrant to Delhi. It is also possible that the species is a resident of Delhi, and the observed individual has migrated into the residential area from its

OVIPOSITING RECORD OF TAILLESS LINEBLUE *PROSOTAS DUBIOSA* (SEMPER, [1879]) (INSECTA: LEPIDOPTERA: LYCAENIDAE) FROM THE VICINITY OF DELHI

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The butterfly, Tailless Lineblue is widely distributed in India (Varshney & Smetacek. 2015; Kehimkar 2016). It was, however, recorded only recently from Delhi and its immediate vicinity (Chaudhary *et al.*, 2021). Since then, it has been reported on several occasions from the aforementioned area during monsoon and post-monsoon months i.e. August to December (Rajesh Chaudhary, *personal observations*). It is not apparent if the recent sightings of Tailless Lineblue in the area are a case of chance migration or if the observed individuals belong to a breeding population (Chaudhary *et al.*, 2021). In the present communication, the ovipositing of Tailless Lineblue at the Aravalli Biodiversity Park, Gurugram is reported. The Park touches the southwestern boundary of Delhi and is an ecological restoration site planted with flora native to the Aravalli hills.

Two individuals of Tailless Lineblue were seen laying eggs on nascent flower buds of the tree *Acacia leucophloea* (Roxb.) Willd. in Aravalli Biodiversity Park, Gurugram (28°29'02"N, 77°06'50"E) on 15.x.2022 (Figure 1). These individuals were observed for about 20 min. and photographed using a digital SLR camera fitted with a telephoto zoom lens. Throughout the duration of observation, both individuals laid eggs several times on the *Acacia leucophloea* tree.

The above observations indicate that individuals of Tailless Lineblues which are being sighted so often in Delhi and its vicinity in recent times belong to a population breeding in this area. The present observation adds Tailless Lineblue to the list of butterfly species that are known to breed in Delhi and its immediate vicinity.

ACKNOWLEDGEMENTS

The author acknowledges Mr. Vijay Dhasmana of 'The Rewilders' for his support.

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Arbuscular mycorrhizal fungi and host-plant relationship with respect to heavy metal remediation of soil

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(Submitted on July 19, 2022; Accepted on September 20, 2022)

ABSTRACT

A multitude of contaminants have entered the environment and are harmful to living beings. Agricultural plantations growing in unfavourable environments undergo various abiotic stresses due to heavy metals. These factors reduce plant growth and pose a threat to the plant population. Various traditional techniques are used to remove contaminants from the contaminated soil, like incineration, soil washing, chemical precipitation, soil excavation, detonation, and many more. Recently, phytoremediation is proving to be very effective as a green method of soil remediation and involves using plants to extract, sequester and detoxify pollutants. Many recent studies have shown that using hyperaccumulators associated with efficient endophytic or rhizosphere microbial communities is efficient in enhancing phytoremediation. In this context, arbuscular mycorrhizal (AM) fungi may be a highly suitable contender because they are an indispensable member of rhizosphere microflora. Their application to hyper-accumulators is important. The combined effect of both can improve the efficiency of the remediation process by shortening the mitigation cycle and can help maintain the stability and persistence of remediation. This review will explain two main aspects of AM fungi–Plant relationship with respect to HM remediation of soil.

Keywords: Heavy metals, Soil remediation, Phytoextraction, Phytostabilization

INTRODUCTION

In the environment, many contaminants pose a threat to living organisms. Among these heavy metals, pesticides, radionuclides, and persistent organic pollutants (POPs) are key contaminants of concern. Pesticides, notably chlorinated organic chemicals (aldrin, DDT, dieldrin, lindane, endosulfan, and others), were used extensively in farming techniques, resulting in their persistence in air, water, and soil, as well as biomagnification or bioaccumulation in living systems/cells. This is owing to their hydrophobicity, nonpolarity, lipid solubility, and volatility (Hagen and Walls, 2005; Jayaraj *et al.*, 2016). Similarly, the usage of heavy metals such as arsenic (As), copper (Cu), lead (Pb), cadmium (Cd), nickel (Ni) and mercury (Hg) in different medicinal, industrial manufacturing, and agricultural sectors resulted in significant environmental discharge. Furthermore, radioactive wastes produced by nuclear power plants, industries, nuclear research facilities, or medical facilities emit hazardous ionizing radiation into the environment (Hatra, 2018). All these pollutants induce a variety of diseases or abnormalities in lower and higher animals, including humans, ranging from metabolic issues to reproductive failure, neurotoxicity, developmental disorders, and cancer (Brenner *et al.*, 2003; Stewart *et al.*, 2008; Briz *et al.*, 2011; Alavanja and Bonner, 2012; Huang *et al.*, 2019; Vardhan *et al.*, 2019). Among the several pesticide chemical families, organophosphates, organochlorines, pyrethroids, and carbamates are the most well-known insecticides. Chlorinated pesticides such as benzene hexachloride (BHC), dichloro-diphenyl-trichloroethane (DDT), aldrin, hexachlorocyclohexane (HCHs), dieldrin, heptachlor, and others have long-lasting effects. During the 1940s and 1970s, pyrethroids were the most popular insecticides. However, their toxicity, persistence, and bioaccumulation in nontarget organisms were phased out and replaced by relatively less toxic compounds, carbamates, organophosphates, and pyrethroids compounds (Shen and Wania, 2005; Ritter, 2009; Hussain *et al.*, 2009). Heavy metals such as Cd, Hg, Co, As, Pb, chromium (Cr), zinc (Zn), and Ni are required in different biological processes such as cell metabolism (Co), electron and oxygen transport (Cu and Fe), hormone and antioxidant production (Se), enzymatic activity (Mg). They have deleterious effects in all organisms (humans, animals, and plants) at low concentrations (Nagajyoti *et al.*, 2010; Chibuike and Obiora, 2014; Ayangbenro and Babalola, 2017; Li *et al.*, 2019). Heavy metals are extensively used in medicine (diagnostic imaging, drugs), industry (electric appliances, automobiles, machinery, tools, utensils), agriculture (fertilizers/biocides), and domestic infrastructure (buildings, bridges) due to their beneficial properties such as electrical conductivity, strength, and durability (Tchounwou *et al.*, 2012). This results in their widespread presence in the environment. However, a strong affinity for sulfur (thiol group-SH), higher electro-negativity (hexavalent chromium), and lipid solubility (Hg) cause myeloma, CNS disorders, metabolic, and degenerative conditions/disorders in living organisms via various routes like occupational exposure in humans, bioaccumulate transfer (through food chain), and dermal absorption (Tchounwou *et al.*, 2012; Pratush *et al.*, 2018; Vardhan *et al.*, 2019; Phian *et al.*, 2022).

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Hydrothermally Fabricated Bio-nanocomposite of Guar gum as a Promising Adsorbent for Reactive Green 19 Dye from Wastewater

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***Abstract*-Reactive dyes which are mainly used for dyeing cotton and other cellulose-based fibers are released in huge quantities into water bodies. They are associated with several harmful effects including allergic dermatoses, respiratory diseases, colonic and rectal cancers, etc. In this paper, we report a novel and facile synthesis of bio-nanocomposite of magnetic guar gum (BMGG) wherein the polymeric network of guar gum is decorated with spinels of magnetic nanoparticles via a simple hydrothermal method which shows promising removal efficiency for reactive dyes. Physicochemical techniques such as FESEM, TEM, EDAX, FTIR, Raman, TGA, VSM, pH_{zpc}, and XRD have been used for characterizing the as-synthesized nanocomposite. Batch adsorption studies carried out on BMGG showed rapid and excellent adsorption potential of the semi-synthetic material exhibiting a removal efficiency of up to 98.44 % within an hour with a maximum adsorption capacity of 526.32 mg g^{-1} for anionic Reactive green 19 dye from aqueous medium. The adsorption kinetics data fitted best into the pseudo-second-order model. Out of various isotherm models being studied such as Langmuir model, Freundlich and Temkin model, the adsorption equilibrium was found to be best described by the Langmuir isotherm model. The spontaneous as well as the exothermic nature of the adsorption phenomenon, is clearly evident from the thermodynamic studies. BMGG composites also showed significant regeneration capacity showing retention in adsorption efficiency even up to several cycles of adsorption-desorption process. Hence, the reported semisynthetic nanomaterial holds a good scope of playing a significant role in solving the perpetual challenge of water pollution.**

***Keywords*: adsorption, kinetics, isotherms, reactive green 19, adsorption capacity**

I. INTRODUCTION

Over the last 10 years, researchers from various domains have been putting in relentless efforts in the field of exploration and design of sustainable materials that can be utilized as adsorbents for the removal of toxic contaminants from wastewater, most importantly synthetic dyes. Among several categories of dyes being synthesized, Reactive dyes are the ones that are used on an extensive scale. A Reactive dye primarily has chromophores containing an azo or anthraquinone moiety along with a number of other reactive groups such as an activated double bond (e.g., vinyl sulphone) or a heterocycle (e.g., trichloropyrimidine, chlorotriazine or difluorochloropyrimidine) (Mahmoud et al., 2007). Reactive dyes, owing to a multitude of advantages such as chemical stability, easy accessibility, fast and facile binding with the fabric, have been used on large scale for coloring cellulosic cotton fabric. Due to their chemical stability and high solubility in aqueous medium, these dyes are non-biodegradable due to which they pass untreated from the effluents through most of the conventional treatment methods (Ozacar et al., 2013). Various basic parameters such as temperature, salt concentration, and alkaline condition along with the reactivity and diffusion coefficient of the dye play a crucial role in determining the dye fixation efficiency of reactive dyes on cellulosic fabrics (Hossain et al., 2020, Lee et al., 2019). Nevertheless, the efficiency of dye fixation on cellulosic fibers is considerably low varying from only 50-90%, which results in low absorption of these dyes on the fabrics. This, in turn, leaves a high content

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Bibliometric Analysis of Peer-Reviewed Literature on Stress Factors Affecting Agricultural Productivity

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Abstract

Sustaining agricultural productivity is essential to ensuring food security. Climate change, increasing population and dwindling resources are factors of concern threatening crop productivity. Research across the globe have focused on seeking innovative measures to protect and enhance crop yield. We explored and analyzed peer-reviewed literature to provide an understanding of current and emerging trends in the field. A bibliometric method was followed using the database Scopus. Search queries used to retrieve documents were "Agriculture/crop productivity" and "Plant stress". The study period was restricted to the last five years, from 2017-2021. The search query found 2207 documents in Scopus under the agriculture and plant stress theme. Increasing growth of publications was observed in successive years. Research activities in this field have the most contributors from Asian countries – China and India followed by the US. The major stresses affecting agricultural productivity being investigated were-Water stress, Temperature stress, Salinity stress. Amongst these, the theme related to water stress/ precipitation/ drought stress was the most investigated. The availability of water has a pivotal role in sustainable agriculture. The use of conservation agricultural practices such as intercropping, no-tillage, and soil mulching has proven to be effective in retaining soil water content and reducing the dependency on irrigation, especially in rainfed areas, thereby assisting in drought mitigation and increasing crop yield. Precision agriculture approach employing satellite data to predict weather and rainfall and early detection of stress signals using hyperspectral reflectance has shown promising results in ensuring sustained productivity. Breeding and transgenic approaches for plants with higher water use efficiency (WUE) and the ability to tolerate water stress are key areas of research being followed throughout the world.

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Impact of Covid-19 on Corporate Social Responsibility: A Study of Indian IT Sector

Sandeep Kumar Goel, Stuti Jain

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Corporate social responsibility has come to the limelight with the outbreak of Covid-19 pandemic. The aim of this paper is to study and analyze the impact of Covid-19 on corporate social responsibility with a special focus on Indian IT sector, to make a comparison of CSR obligation and CSR spending between pre and post pandemic period. It also study the activity wise spending of CSR of select sample companies for the years 2019-20 and 2020-21. Paired sample t test was used to test the formulated hypotheses. Finding of the study reveals that Indian IT companies played a pivotal role in fight against the pandemic and devoted much of its CSR funds towards healthcare and disaster relief. Statistical analysis reveals that there is a significant improvement in the CSR obligation of select companies in the post pandemic period (2020-21) as compared to pre pandemic period (2019-20).

Keywords

Corporate Social Responsibility; CSR; Covid-19; Pandemic; IT Sector; CSR

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Phool: Journey from Waste to Wealth

Dr. Surinder Kaur[1], Ms. Hanisha Bhagat[2], Ms. Parminder Kaur[3] and Mr. Nishant[4]

Abstract

With increasing awareness about sustainable living, there are many entrepreneurs who think of innovative sustainable business models but are hesitant to take the initial steps as they are sceptical about the challenges that they may have to face in the journey and where to look for the solutions. Thus, there is a need to document the journey of successful green businesses right from the point when the idea clicked to its transformation in to successful business, their triumphs and low points and what kept them going. This will not only serve to give recognition to these entrepreneurs for their work but will also guide upcoming entrepreneurs. The present work is in this direction. The present case study seeks to document the journey of Phool.co. The objective of the present case study is to examine unconventional business model adopted the company, identify the challenges faced by the company and explore strategies adopted by company to overcome these challenges, and its key success factors.

All the data and information for the study has been collected from the company's website, published interviews of its founders and key managerial personnel. The study revealed that company was able to succeed due to its unique packaging and marketing model. Its ability to innovate new green products such as florafoam, and fleather gave it recognition across the globe. The research findings about the way the founders of Phool toiled day and night and crossed initial hurdles regarding procurement of raw material, technological innovation, and securing finances for the project will certainly serve as a guide to other green entrepreneurs go wholeheartedly in their quest for sustainable living. In future, the work can be extended to comparative study of some more such start-ups to get better understanding of challenges faced by such entrepreneurs and how to resolve these.

Key Words: *Green Businesses, Sustainability, Zero waste solutions, Innovations in Business, Green Manufacturing Processes, Sustainable Business Models, Environment Protection, Eco-friendly Businesses*

1. Introduction

Green entrepreneurs in India are changing the basic network of production, marketing and consumption through eco-friendly concepts utilizing innovative product designs, raw materials, process design and marketing policies. They are the people who recognize the links between innovation and sustainability and thereby develop a comparative advantage for their firms/companies by selling differentiated products and services based on their environmental benefits. They are playing a crucial role towards sustainable economies not just by devising innovative production/marketing

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Key Words: *Green Businesses, Sustainability, Zero waste solutions, Innovations in Business, Green Manufacturing Processes, Sustainable Business Models, Environment Protection, Eco-friendly Businesses*

1. Introduction

Green entrepreneurs in India are changing the basic network of production, marketing and consumption through eco-friendly concepts utilizing innovative product designs, raw materials, process design and marketing policies. They are the people who recognize the links between innovation and sustainability and thereby develop a comparative advantage for their firms/companies by selling differentiated products and services based on their environmental benefits. They are playing a crucial role towards sustainable economies not just by devising innovative production/marketing

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International Journal of Next-Generation Computing

Perpetual Innovation

A Simulation-based Approach to Evaluate and Regulate the Reputation Score of a Software Agent in E-Market

Volume 13, Special Issue 5, October 2022

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Abstract

Reputation is a crucial factor that governs the importance of a software agent in the agent mediated e-market. In the e-market, various buyers and service providers are involved in buying and selling the products. A buyer agent (BA) acts on behalf of a buyer to buy the products from a service provider agent (SPA) preferably having a good reputation score (Rep Score). The conventional customer rating mechanism for online transactions lacks adequate analysis and investigation of customer reviews and hence does not reflect the accurate reputation of the service providers. This research investigates the reputation of a software agent using customer feedback based on product attributes such as product quality, design, price, delivery time, and defects. A knowledge rule set is formed to establish a link between customer feedback and the repute of a software agent. Further, a simulation based approach using the Rosetta toolkit and the Fuzzy Control System is applied to quantify and fine-tune the reputation of a software agent. There could be a chance of an unfair relationship between the same

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(R1985) Study the Effect of Modified Newtonian Force on the Restricted 3-body Configuration in Non-Linear Sense

Bhawna Singh
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MEASURING COMPLEXITY AND CHAOS IN THREE-SPECIES FOOD CHAIN SYSTEM WITH THE BEDDINGTON-DEANGELIS FUNCTIONAL RESPONSE

SADA NAND PRASAD, I. M. SAHA AND ABDULLAH A. ANSARI*

(*Received* 27 August 2020; *Revised* 8 April 2022)

Three species food chain system with the Beddington-DeAngelis Functional response investigated for regular and chaotic evolutions under different feasible conditions in the framework of nonlinear dynamics. The Euler's method employed to transform the continuous model into discrete model. A number of bifurcation plots obtained by varying certain system parameters in turn while keeping other parameters constant. These diagrams show clearly regular evolution followed by chaos for certain range of changing parameter. Regular and chaotic attractors obtained for different parameter spaces. Numerical calculations further extended to calculate Lyapunov exponents (LCEs), topological entropies and correlation dimensions of chaotic attractors for different sets of parameter values. Results of obtained are presented through graphics and tables and analysed properly.

1. Introduction

Most of the existing real phenomena in nature are nonlinear and their evolutionary dynamical behavior often displays properties like unpredictability, chaos and complexity. Because of these researchers are attracted to carry more investigations on real phenomena. Population dynamics and ecological system problems are among those studied frequently. Investigations relating to problems of interaction between ecological populations, such as consideration of two-species continuous or discrete time evolution systems, in form

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2010 Mathematics Subject Classification: 37G15, 37D45

Key words and phrases: bifurcation, chaotic attractors, Lyapunov exponents; topological entropy, correlation dimension

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Post COVID-19 Long Term Effects Persisting More Than 6 Months in Various Age Groups of Indian Population

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Re-characterization of Potential Zoonotic Trematode Parasite Parasitizing Intestine of Snakehead Fish, (*Channa striata*) Utilizing Multiple Sequence Alignment Tools (MSA)

Chauhan Bhumika[1], Misra Monica[1]* and Sharma Bindu[2]

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Abstract: Metacercariae of *Clinostomum* Leidy, 1856 are frequently encountered in freshwater fish. The species configuration and taxonomic antiquity of the genus *Clinostomum* has been very unsteady and under discussion. Two species, i.e. *Clinostomum complanatum* Rudolphi, 1814 and *Clinostomum marginatum* Rudolphi, 1819, have been specifically troublesome and their taxonomic validation has been debated. 19 human incidences of *Clinostomum complanatum* have been reported to cause pharyngitis and lacramalitis from Japan, Thailand and Korea. *Clinostomum marginatum* is commonly known as yellow grub as it causes pinhead sized lumps in fishes that are white to yellow or black. In the present communication, we have made use of cytochrome oxidase c subunit 1 gene as DNA barcode for validating the taxonomy of *C. complanatum* and *C. marginatum* harboring phylogenetic studies and multiple sequence alignment tools. Currently, in India species of this group are distinguished mainly on the basis of morphological characters that underlie possible confusions. Therefore, we disinterred the species through molecular analysis. The current findings are salient to authenticate the phylogenetic place and relationship among two trematode spp. and bypass misidentification regarding their validation, as it is more necessary in that case when many species harbours the same host and are of zoonotic importance.

Keywords: Zoonotic, Helminth, *Clinostomum complanatum*, Taxonomic, Cox1, molecular, *Clinostomum marginatum*

Citation: Chauhan Bhumika, Misra Monica and Sharma Bindu: Re-characterization of potential zoonotic trematode parasite parasitizing intestine of snakehead fish, (*Channa striata*) utilizing multiple sequence alignment tools (MSA). Intern. J. Zool. Invest. 8(2): 475-483, 2022.

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Introduction

The global aquaculture production has exceeded 91.4 million tons and generated an average income of more than US$ 145.4 billion (Aohagi *et al.*, 1992; Sosa *et al.*, 2016). Aquaculture has served as a prominent key factor in the economy of India. Increased parasitism and disease outbreaks have negative impacts not only on the fish production, but also leads to economic losses.

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Abstract: Metacercariae of *Clinostomum* Leidy, 1856 are frequently encountered in freshwater fish. The species configuration and taxonomic antiquity of the genus *Clinostomum* has been very unsteady and under discussion. Two species, i.e. *Clinostomum complanatum* Rudolphi, 1814 and *Clinostomum marginatum* Rudolphi, 1819, have been specifically troublesome and their taxonomic validation has been debated. 19 human incidences of *Clinostomum complanatum* have been reported to cause pharyngitis and lacramalitis from Japan, Thailand and Korea. *Clinostomum marginatum* is commonly known as yellow grub as it causes pinhead sized lumps in fishes that are white to yellow or black. In the present communication, we have made use of cytochrome oxidase c subunit 1 gene as DNA barcode for validating the taxonomy of *C. complanatum* and *C. marginatum* harboring phylogenetic studies and multiple sequence alignment tools. Currently, in India species of this group are distinguished mainly on the basis of morphological characters that underlie possible confusions. Therefore, we disinterred the species through molecular analysis. The current findings are salient to authenticate the phylogenetic place and relationship among two trematode spp. and bypass misidentification regarding their validation, as it is more necessary in that case when many species harbours the same host and are of zoonotic importance.

Keywords: Zoonotic, Helminth, *Clinostomum complanatum*, Taxonomic, Cox1, molecular, *Clinostomum marginatum*

Citation: Chauhan Bhumika, Misra Monica and Sharma Bindu: Re-characterization of potential zoonotic trematode parasite parasitizing intestine of snakehead fish, (*Channa striata*) utilizing multiple sequence alignment tools (MSA). Intern. J. Zool. Invest. 8(2): 475-483, 2022.

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Introduction

The global aquaculture production has exceeded 91.4 million tons and generated an average income of more than US$ 145.4 billion (Aohagi *et al.*, 1992; Sosa *et al.*, 2016). Aquaculture has served as a prominent key factor in the economy of India. Increased parasitism and disease outbreaks have negative impacts not only on the fish production, but also leads to economic losses.

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Impact of Climatic Change on Respiratory Health

Jain Rajkumar[1], Aryama Priya[1], Chauhan Bhumika[1], Misra Monica[1*] and Saxena Tanushri[2]

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Abstract: Threatening effects of climate change are widely visible to the entire population. Though known to all, its adversity is understood only by a handful. With this study, we aimed to broaden its reach. Aiming at creating a louder voice of climate change, we wish to enlighten people about the adverse health effects it has in store for us. While reasons and results may be innumerable, yet precautions are few. Innumerable unknown repercussions have been approximated as well. Naturally occurring gases like carbon dioxide, nitrogen oxides and black carbon cause air pollution which aggravates allergenicity of plants causing earlier and longer pollen seasons. This worsens the situation for people already prone to asthma, allergens and other respiratory tract infections. Additionally, climate changes can exacerbate the issue evermore. Though the effects are perceptible, the reasons and cures are still being studied extensively.

Keywords: Climate, Pollution, Respiratory diseases, Asthma, COVID-19

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Introduction

Climate change is a constantly aggravating situation which is hidden from none. The long-term effects which lead to changes in temperature and rainfall patterns are appertained to climate change. It is a global havoc created by man-made interventions. A change in climate has caused widespread problems and has put earth's ecosystem and life of unborn generations in trouble. The visible effects have grown dramatically over the past few years and it has been estimated that it will grow fourfold in the next ten years if the present rates of deterioration continue. As per UN reports, an increase of 1.5°C in global temperature would help maintain survivable conditions but an estimate of 3.2°C increase has been drawn based on current climate plans.

Contrary to popular belief, climate change is not only about rising temperatures. It encapsulates fervent droughts, famine, dreadful

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Edited by P Kangueane
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PCR primer design for mitochondrial cox-1 gene from *Clinostomum complanatum* towards diagnosis

Monica Misra[1], Bhumika Chauhan[1], K.M. Deepika[2], A. Madhuri[3] & Bindu Sharma[4,*]

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REVIEW ARTICLE

A Literature Review on Reckless and Hazardous Contraceptive Practices used since Primeval Times

Bhumika Chauhan and Monica Misra*

Department of Zoology, Acharya Narendra Dev College, University of Delhi, Delhi-110009

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ABSTRACT

Historians have extrapolated that primitive society used a diversity of methods to restrain populations such as physical segregation of men and women, infanticide and rallying of practices that would prevent pregnancies. The lack of education, perceived stigma from friends, alienation from parents and stringent financial implication were some of the utmost reasons considered as major drawback that leads to unplanned pregnancies and turning out with severe deadly consequences. The authors in the present communication accentuates the usage of harmful elements like lead, arsenic , plastic bags, oils , honey ,etc as method of contraception in ancient times that was absolutely not only myths but also hazardous. The utility of few herbal plants had already proved to have 100% effectiveness on birth control in distinct animal groups but still there usage remains unseasoned in humans. The authors also spotlights on the fact that certain authentic research is still needed to substantiate the use of herbs as natural mode of birth control as the present day practices of oral contraceptives (OC) retain hormonal imbalances and side effects.

Keywords: Contraceptive , women , fertility, birth control , sperm, human.

INTRODUCTION

In spite of the accessibility of secure and potent forms of contraception till today, societies in both developing as well as the developed world endure from unsatisfactory elevated rates of coincidental and nasty pregnancies. Though much progress has been made in recent decades in fertility abstraction in developing countries but still around 120 million (10–12%) married women in many regions and also more than 24% in sub-Saharan Africa, persevere to report an envious demand for contraception(Sirtuk Ware *et al*.,2013).The expeditious hike in the population growth has remarkably expanded the number of individuals per family and many cases of serious shortage of food and shelter have been reported that eventually leads to high maternal and infant mortality

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RESEARCH ARTICLE

Role of A Evolutionary Conserved Hypothalamic Neuropeptide: Neuropeptide Y (NPY) in Release of Gonadotropin and Anterior Pituitary Hormones in Different Animal Groups

Bhumika Chauhan[1], Varsha Baweja[2] and Monica Misra[3*]

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ABSTRACT

The neuroendocrine control of gonadotropin secretion is attained by the ensemble of Luteinizing Hormone Releasing Hormone (LHRH) secreting neurons that are distributed within the anterior hypothalamus. These neurons are the main element of hypothalamo-hypophysiotropic association and their activity in turn is modulated by neurotransmitter or peptidergic synaptic inputs. In recent years, considerable attention has been focused to evaluate the role of neuropeptides that have been identified in the Central Nervous System (CNS) especially in the hypothalamus. Some of the neuropeptides of the hypothalamus modulate the release of LHRH and which in turn regulates the LH release. One such peptide released from the hypothalamus is Neuropeptide- Y, that acts as both neurotransmitter and neurohormone with multiple diverse effects like stimulation of feeding, inhibition of sex behaviours and modulation of cardiovascular parameters. Its role has also been found in severe stress and pathogenesis of bulimia ,low renin hypertension and in Alzheimer's disease which further signifies the importance of its study. NPY shows high degree of conservation throughout evolution. The present review is on the effect of Neuropeptide- Y on the levels of GnRH with major effects on LHRH .

Keywords: neuropeptide , hypothalamus , NPY , neurons , LHRH , LH ,FSH ,GnRH.

INTRODUCTION

Neuropeptides are small sized disparate group of hypothalamic signaling molecules that plays a significant role in communication among the cells in the central nervous system (CNS) and also a crucial role in cell-to-cell

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Monkeypox: Endemic to Epidemic
A review of the current scenario of Monkeypox disease outbreak

[1]Dr. Meenakshi Thakur, [2]Dr. Sushma Bhardwaj, [3]Dr. Jyotsna Singh

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Abstract - The recent outbreak of Monkeypox disease in different parts of the world has drawn attention and concerns of the scientific communities, medicine world and the governments. The world has witnessed what havoc a virus can cause if it jumps from an animal to human beings. Are we moving towards the next pandemic? How safe are the use of animals in medicine and biological research? What will be the consequence of this new zoonotic disease? To avoid another pandemic, it is important that we watch the progress of this disease closely and understand the causes, consequences, treatment, and possible control before it gets out of hands. This article is a compilation of all the information about Monkeypox disease that is available in different domains, to give an overview of the current scenario of the disease.

Index Terms – Monkeypox, virus, MPV, epidemiology of MPV

I. INTRODUCTION

Monkeypox is a viral, zoonotic (transmitted to human from animals), and rare disease that is caused by infection with monkeypox virus (MPV or MPXV) with symptoms close to smallpox but not as severe as smallpox. Monkeypox was first discovered in 1958, when outbreaks of a pox-like disease occurred in monkeys used for research. About a few thousand cases occurred in Africa especially in central and western parts of the African continent [1]. The cases outside Africa were limited to a small number with a travel history of people visiting Africa or with the import of the infected animals.

In 1970, the Democratic Republic of the Congo reported the first human case of monkeypox. Since then, many cases have been reported from various central and west African countries. Most cases are reported from poorest and most marginalized communities in the world [2][3]. Incidents of MPV infections are on a rise since early May 2022. About 19 countries across the world have reported confirmed or suspected cases of monkeypox to the WHO. Since the reports are from different parts of the world, this can no longer be considered endemic to the African region [14].

The cases detected outside the endemic places in the early May 2022 has surpassed the total number detected and this rapid spread has put the scientists worldwide on high alert. There has been a sudden and unexpected occurrence of monkeypox simultaneously in many non-endemic countries, which suggests that there is a possibility of some undetected transmissions for an unknown duration of time followed by recent amplifying events [14].

Epidemiological investigations are going on, however, from the various cases that are reported, so far, no established travel links to endemic areas has been established. Based on currently available information, a unique observation has been established which highlights the possibility of the spread of the disease, mainly but not exclusively, amongst men who have sex with men (MSM) and are seeking primary care in primary clinics or sexual health clinics. A scientific clinical link has yet to be established.

II. WHAT IS MPV?

Monkeypox virus is a double stranded DNA virus which belongs to genus *Orthopox virus* belonging to the Poxviridae family. The *Orthopox virus* genus also includes variola virus responsible for smallpox and cowpox virus. Various animal species have been known to be susceptible to the monkeypox virus. The natural reservoir of monkeypox has been a question of interest from many scientists since its discovery. However, it has been detected from rodents of African region, non-hominids primates such as monkey (hence the name 'Monkeypox'). Further research is needed to know the exact reservoir's of the virus and the route of its entry into the human population.

III. PATHOGENESIS

Pathogenesis is the progression of an infection which leads to disease. The general viral pathogenicity includes (a) implantation of virus at the portal of entry, (b) viral replication in the host cell [3], spread of viral agent to target organs causing the disease and (c) migration of virus to sites of shedding into the environment.

Factors that affect the pathogenic mechanisms are (a) accessibility of host tissue to the virus (b) host cell susceptibility to virus multiplication, and (c) virus susceptibility to host defences. Low-virulent strains of pathogenic virus strains are favoured by natural selection forces.

In case of monkeypox, infection may begin from the respiratory epithelium or the dermis. The virus further progresses and enters the lymphatic system leading to the swelling of the lymph nodes. Other organs that are susceptible to infected are mucus lining of nose and buccal cavity.

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IN VITRO MICROPROPAGATION OF *ACACIA HOLOSERICEA* A. CUNN. EX G. DON THROUGH COTYLEDONS

Anita Narang
Department of Botany
Acharya Narendra Dev College, University of Delhi
New Delhi, India

Abstract

Cotyledonary explants were excised from 15-day-old seedlings of *Acacia holosericea* A. Cunn ex G. Don and cultured on B_5 medium supplemented with different growth regulators. Caulogenesis was observed both directly and indirectly in different cytokinin adjuvanted media. Of all the cytokinins tested, zeatin supported maximum multiple shoot differentiation. Friable to compact nodular green calluses developed at cut ends of explants and on their surface within 15-20 days of inoculation. Caulogenesis was observed only after 40-45 days of initial culture, and an average of 4.3±2.7 shoots per explant were formed on 2.5 mg/l zeatin containing B_5 medium in 40% of explants. The addition of 200 mg/l Ad.S enhanced the percentage of explants forming shoot buds to 50 and raised the number of shoot buds per explant to 12.0±6.8. Cent percent of the *in vitro* raised shoots when excised and subcultured on B_5 basal medium, developed roots directly at their base.

Keywords: *Acacia Holosericea*, Cotyledons, Fabaceous Tree, Micropropagation

Abbreviations: Ad.S., Adenine Sulphate; B_5, Gamborg Et Al Medium; BA, N^6-Benzyladenine; 2ip, (6-Dimethyl Allylamine)-Purine; Kn, Kinetin.

Introduction

The last three decades have witnessed a large proportion of forests being denuded. The availability of land for crop production is gradually shrinking at an alarming rate due to industrialization, urbanisation, etc. The environment has been strikingly degraded both in rural and urban areas. Maintenance of higher living standards, obviously, always craving for much more than required consumption of natural resources have been the chief cause for environmental degradation in the urbanised world, whereas it is poverty and overpopulation in rural areas which have led to the degradation of the environment in the developing countries. Hence, reforestation is an urgent priority for mitigating such hazardous and catastrophic developments. This can be done by planting trees that are multipurpose, fast-growing, high-yielding, capable of withstanding abiotic and biotic stresses, resistant to diseases and pests as well as have the ability to fix atmospheric nitrogen directly, ultimately acting as artificial fertilisers[1][2]. Some such woody species are the leguminous trees, whose potential has been recognized the world over. There has been a conspicuous lacuna in the axenic morphogenesis due to their recalcitrant nature under *in vitro* conditions. However, it has now been possible to micropropagate some of the most valuable woody legumes such as *Acacia*, *Albizia*, *Dalbergia*, *Prosopis*, etc.

Acacia holosericea A. Cunn. Ex G. Don, is a native of Australia and was introduced in India for afforestation projects. It is a small tree, well adapted to a wide range of harsh habitats in arid lands, and plays a significant role in the revegetation of denuded lands. The tree grows well even under environmentally stressed conditions such as water scarcity, low nutrients and high levels of salinity. It is also known to be responsible for altering the soil microbiota by modifying the structure of Arbuscular Mycorrhizal fungal communities [3]. Besides being adaptable to arid regions, it is often grown as an ornamental tree [4]. This tree taxon has appreciably high productivity, useful for biochar, bio-oil and biogas production [5]. It grows profusely which makes it not only suitable but also important for introduction in Indian deserts [6]. The present study reports micropropagation of *A. holosericea* through the cotyledonary explants.

Materials and methods

Seeds of *Acacia holosericea* were soaked in concentrated sulphuric acid for 30 min. and surface sterilised by treating with freshly prepared chlorine water for 45 min. Chlorine was obtained by adding 30 ml of concentrated hydrochloric acid (LR) to 4 g of potassium permanganate. The chlorine water was prepared by bubbling chlorine in 500 ml of distilled water for 15-20 min. Thereafter, the seeds were washed thrice with sterilised water and implanted aseptically on semi-solid Knop's medium [7].

Cotyledons were excised from 15-day-old *in vitro* raised seedlings and cultured on B_5 [8] medium either alone or supplemented with growth regulators such as cytokinins and/or auxins. In addition, a few adjuvants such as adenine sulphate and coconut water were also tried.

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AXENIC PROPAGATION OF A WOODY LEGUME - PROSOPIS CINERARIA (L.) DUCE THROUGH COTYLEDONARY NODE EXPLANTS

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Abstract: Cotyledonary node explants of Prosopis cineraria (L.) Duce were excised from 10-day-old seedlings grown in vitro on Knop's medium [1] and cultured on Murashige & Skoog medium [2] supplemented with various cytokinins like N^6-benzyladenine,(6-dimethyl allylamine)-purine, kinetin or zeatin. Maximum number of shoots developed in 63% explants on 11µmol (2.5mg/l) N^6-benzyladenine adjuvanted MS medium after 60 d of culture. The adventive shoots differentiated in the axil of cotyledons. 89% shoots formed roots within 20-25d when subcultured on MS medium supplemented with 13.2µmol (3mg/l) indole-3-butyric acid. The plants developed in vitro were gradually transferred to the soil.

Keywords: Cotyledonary Node, Fabaceous Tree, Micropropagation, Prosopis Cineraria

Abbreviations: AC, activated charcoal; B_5, Gamborg et al.'s medium; BA, N^6-benzyladenine; 2iP, (6-dimethyl allylamine)-purine; F.A.A., Formalin-acetic acid-alcohol; IAA, Indole-3-acetic acid; IBA, Indole-3-butyric acid; Kn, Kinetin; MS, Murashige & Skoog medium; NAA, α-Naphthalene acetic acid; NOA, β-Naphthoxyacetic acid.

Introduction

Micropropagation of trees is being increasingly recognised as a potential bypass technology for rapid afforestation to achieve enhanced biomass production. In addition, it offers means not only to conserve elite and rare tree germplasm but also for bringing about their genetic improvement. Prosopis is an important multipurpose fabaceous tree of arid tropics and has several species of value, predominant in the Thar desert. Though considered as a problematic and recalcitrant species to in vitro regeneration, during the past few years, a few reports with limited success have appeared employing both juvenile and mature explants [3,4,5].
The present investigations were undertaken to develop a protocol for micropropagation of a fabaceous taxon Prosopis cineraria, which is one of the two tree species that serve as lifeline for inhabitants of drier regions of Rajasthan in India.

Material and Methods

Seeds of Prosopis cineraria belonging to subfamily Mimosoideae were obtained from the Central Arid Zone Research Institute, Jodhpur, India. They were scarified and soaked in distilled water for 8hr at room temperature and surface sterilized with freshly prepared chlorine water (3.5±0.5mg/l) for 45min. Chlorine was obtained by addition of 30ml of concentrated hydrochloric acid to 4g of potassium permanganate. The chlorine water was prepared by bubbling chlorine in 500ml of distilled water for 15-20min. Thereafter, the seeds were washed three times with sterilized distilled water and germinated aseptically on Knop's medium containing 2% sucrose (British Drug House, Poole, England) and 0.8% agar (Hi-media, Mumbai, India). The pH of media was set at 5.8 before autoclaving at 121°C at 1.06 kg/cm^2 pressure for 15min.

About 0.8-1cm long segments of cotyledonary node were excised from 10-day-old seedlings and cultured on MS basal medium alone as well as adjuvanted with cytokinins (BA, Kn, 2iP or zeatin) at 0.5 to 3mg/l levels. The media contained 3% sucrose and 0.8% agar. Cultures were maintained at 25±2°C and 55±10% relative humidity under white fluorescent light at 40µ cEm^{-2}s^{-1} irradiance emitted by 40W Crompton incandescent tubes programmed for 16 hr photoperiod. Explants were subcultured on a fresh medium after every 25-30 days and data were recorded at an interval of 10-15d. The final data were scored after 60d of culture. The in vitro reared shoots were excised and reared on MS medium supplemented with 1-3mg/l auxins (IAA, IBA, NAA or NOA) for root induction. A minimum of 30 replicates were raised for each treatment and all experiments were repeated at least once. The average number of shoots per responding explant has been represented as mean value indicating the standard deviation (mean±S.D).

For histological studies, tissues were fixed in F.A.A. and dehydrated through a graded ethanol-xylene series, followed by infiltration and embedding in paraffin wax. Serial sections, 20-25µm thick, were cut with a rotary microtome and affixed to slides. These were dewaxed, stained with safranin-fast green combinations, dehydrated and mounted in canada balsam. Photomicrographs were taken by a 35mm camera attached to the Leitz Orthoplan Universal Microscope.

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Research Article

SYNTHESIS, CHARACTERIZATION AND APPLICATION OF NOVEL GUAR GUM-N,N-DIMETHYLANILINE RESIN FOR WASTE WATER TREATMENT

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ABSTRACT

The polymeric ion exchange resin has found extensive applications in recovery and removal of transition metal ions from process solutions due to their selectivity particularly against alkali metal ions. The ion exchanger based on guar gum is hydrophilic and biodegradable, whereas ion exchangers prepared from petrochemical products are hydrophobic and not biodegradable. Its cost is low, locally available in large quantities from agricultural resources and is environment friendly. N,N-Dimethylaniline group has been incorporated in Guar gum based polysaccharide by a modified Porath's method of functionalization of polysaccharide in order to develop a hydrophilic flocculants cum ion exchanger. The characterization of synthesized resin [GGMA] was carried out by FT-IR spectrum, moisture content, ion exchange capacity, solubility of resin in different solvent, resin durability and elemental analysis. The adsorption of different metal ions on GGMA resin follows the order: Fe > Cu > Zn > Cd > Pb. The adsorbency of different metal ions on GGMA resin was studied up to 10 cycles. The effects of pH, treatment time, treatment temperature, and resin dose on the removal of metal ions from industrial effluent were also studied. The GGMA resin was found to be applicable for the removal and recovery of heavy metal ions from Faridabad ground water.

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INTRODUCTION

Water pollution due to hazardous heavy metals has been a major global concern for us. Heavy metal ions not only reach surface water but also contaminate ground water in trace amounts by leaching from soil after rain. Heavy metals are detected in ground water. Water pollution affects plants and animals living in these bodies of water as well as human communities that use the polluted water. The removal of heavy metal ions from waste water can be achieved by several processes, such as precipitation, solvent extraction, chemical, electrochemical techniques[1] and advanced oxidation process[2]. The presence of lead, cadmium and other heavy metals ions in the environment has become a major threat to plant, animal and human life due to their bioaccumulations tendency and toxicity, therefore must be removed from municipal and industrial effluents before discharge.

A number of chelating ion exchange resins have been produced by resin manufacturers to overcome this problem and to encourage ion exchange to a broader range of processing solutions using high capacity cation and anion exchange resins with metal complexing effluents[3].

The separation of many transition and post transition metals was accomplished using various ion exchange resins[4]. Ion exchange method during the last decade has become increasingly important in various analysis in organic and inorganic chemistry[5-7]. Ion exchange process has been recognized as a powerful tool in separation, purification and metal recovery systems. The process involves a reversible exchange of ions which takes place between liquid and solid phase of ion exchangers during two sequential processes: adsorption/metal loading and elution. Adsorption/metal loading is interpreted as the extraction process in which the targeted ions from the liquids are exchanged with mobile ions from the ion exchangers[8-9]. The interest in the chelating resins or ion exchange resins is due to the rapid adsorption of metal ions, higher selectivity and less swelling, in comparison with the analogous organic polymer. Chemically, guar gum (Figure 1) is a polysaccharide composed of the sugars galactose and mannose. The backbone is a linear chain of β 1, 4-linked mannose residues to which galactose residues are 1, 6-linked at

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Linkages Between Credit Cards and Consumers' Impulsive Buying Behavior : An Empirical Analysis

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Abstract

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Review

Antibiotic Resistance: A Global Health Crisis

Renu Solanki[1] · Shailly Anand[1] · Mugdha Anand[1] · Pratiek Kumar[1] · Munendra Kumar[1] · Monisha Khanna Kapur[1*]

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Abstract

Antimicrobial Resistance (AMR) has been recognized as a global health crisis. It occurs when the microbial pathogens develop mechanisms by means of which the existing antibiotics become ineffective against them and the management of infections caused by them become difficult. According to the data of World Health Organization (WHO) the most common multidrug resistant (MDR) microbes include *Mycobacterium tuberculosis*, *Neisseria gonorrhoeae*, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Pseudomonas aeruginosa*, *Clostridium difficile*, *Klebsiella pneumoniae* and many more. Overpopulation, globalization, misuse of antibiotics by humans, injudicious use of antibiotics in livestock, poor hygiene standards in hospitals and lack of development of new antibiotics constitute the major causes for the rise in antimicrobial resistance. Although, the development of new antibiotics is considered as a potential solution to tackle the spread of AMR, newer alternative strategies including vaccines, bacteriophages, monoclonal antibodies, other bioactive molecules like peptides and development of effective diagnostic tools are also being explored by scientists to overcome this issue. This global concern thus requires collaborative efforts from countries across the world. Therefore, different organizations like World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Infectious Diseases Society of America, World Economic Forum are working tirelessly towards the control of AMR.

Keywords: Antibiotics, anti-microbial resistance, health, global challenge

Introduction

Antibiotics are the chemical substances which kill or stop the growth of microbes including bacteria and fungi. On the basis of their mode of action, antibiotics are divided into two broad categories [1]:

(i) Bacteriostatic: These antibiotics prevent the bacteria from multiplying further mainly by hampering the cell wall synthesis.

(ii) Bactericidal: These antibiotics kill the bacteria by preventing the DNA replication, protein synthesis or by affecting other metabolic pathways (Figure 1).

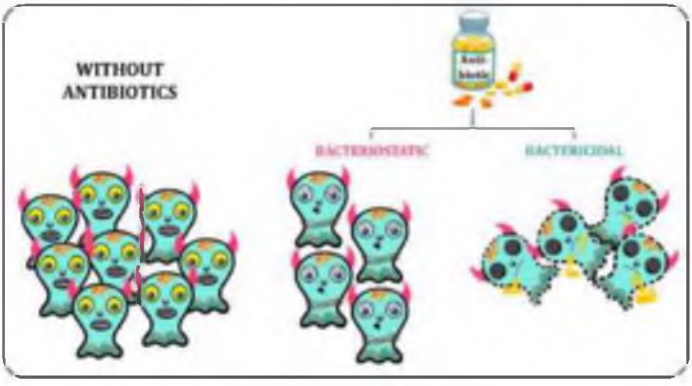

Figure 1: Bacteriostatic and Bactericidal antibiotics

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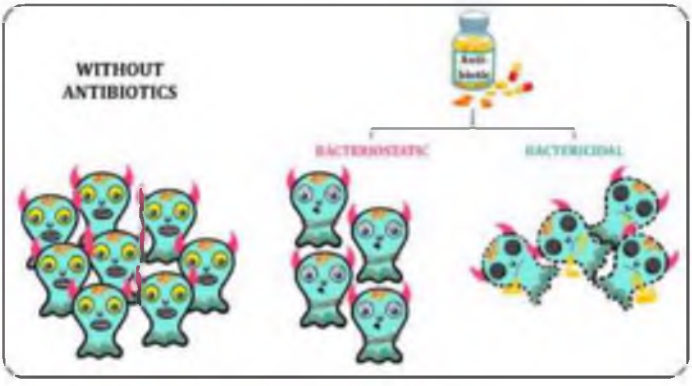

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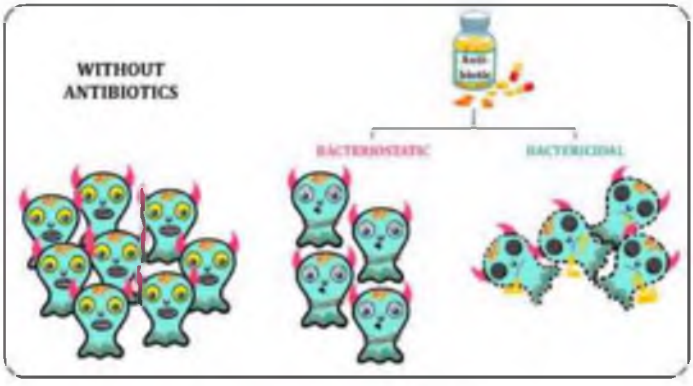

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Review

Role of abiotic and biotic components in remediating environmental pollutants: A review

Sripoorna Somasundaram[1] · Jyoti Dagar[1] · Jeeva Susan Abraham[1] · Swati Maurya[1] · Sandeep[1] · Seema Makhija[1] · and Ravi Toteja[1]*

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Abstract

Increasing environmental pollutants due to various anthropogenic activities are of great concern nowadays since they affect the health of both terrestrial and aquatic ecosystems. Pollutants such as pesticides, heavy metals, fertilizers are non-biodegradable and persist in the environment for a longer duration affecting the health of living organisms. In this context, bioremediation technology is gaining considerable attention. Bioremediation technology involves various living organisms for the removal of toxic pollutants. This review discusses detoxification methods adopted by various microorganisms. An attempt has also been made to understand how these detox-mechanisms can be exploited to clean up the environment in a natural way. Finally, various environmental factors that regulate bioremediation processes and the methods to improve the rate of bioremediation have been mentioned. This comprehensive study may help to understand the fundamental aspects and future perspectives of microbial remediation of pollutants which could help in commercial success of waste management processes.

Keywords: Bioremediation; Biotechnology; Detoxification; Environmental pollution; Microbes

Introduction

Environmental pollution is of great concern worldwide due to increasing industrialization, urbanization, mining, usage of agro-chemicals and other anthropogenic activities [1]. Pollutants including both organic and inorganic compounds such as fertilizers, pesticides, heavy metals, herbicides, insecticides, greenhouse gases, hydrocarbons, oil, dyes, nuclear wastes, e-waste, etc. are reported to contaminate terrestrial and aquatic environments [2, 3]. These pollutants are known to enter the food chain of various living organisms, causing adverse effects [4]. To control this prevailing condition, many research studies are being conducted to clean-up or reduce the increasing environmental pollutants [3]. Previously, the pollutants or wastes were disposed of in a traditional manner where they were dumped by digging holes [5]. But this method of waste management has become very difficult and unsuccessful due to increasing demand for new places every time to dump the rapidly increasing environmental waste. Nowadays, microbial remediation is gaining attention since it is considered to be a successful cleaning or waste management technique, where the microorganisms are predominantly involved in detoxifying the environmental contaminants [6]. Thus, bioremediation is commonly defined as a biological mechanism that helps in recycling toxic wastes to non-toxic compound by any of the process such as degradation, eradication, immobilization, or detoxification [6]. Since bioremediation processes are environmental and budget friendly in relation to other physical and chemical methods, they have come into extensive usage in remediating technologies [3, 6]. Bioremediation technology generally employs various microorganisms which include bacteria, ciliates, algae and fungi [3]. The versatility of microbes with respect to their nutritional demands and also their metabolic activity confers them the ability to survive even in the harsh environmental conditions and contribute efficiently in bioremediation [2].

This review focuses on various microbial detoxification processes that help in altering the toxic pollutants to non-toxic materials by exhibiting a unique array of mechanisms. This review also talks about the abiotic factors which play predominant role in determining the biodegradation rate of pollutants and about various methods involved in regulating these abiotic factors for proper microbial activity. In addition, the limitations/challenges of bioremediation have been discussed. Thus, the current review will impart an updated information on the remediation strategies to remove environmental pollutants using microorganisms.

Detoxification mechanisms exhibited by various microorganisms

The various microorganisms used in bioremediation processes have been summarized in Table 1.

Following are the different mechanisms adopted by the microorganisms to detoxify the pollutants:

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Review

Role of abiotic and biotic components in remediating environmental pollutants: A review

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Increasing environmental pollutants due to various anthropogenic activities are of great concern nowadays since they affect the health of both terrestrial and aquatic ecosystems. Pollutants such as pesticides, heavy metals, fertilizers are non-biodegradable and persist in the environment for a longer duration affecting the health of living organisms. In this context, bioremediation technology is gaining considerable attention. Bioremediation technology involves various living organisms for the removal of toxic pollutants. This review discusses detoxification methods adopted by various microorganisms. An attempt has also been made to understand how these detox-mechanisms can be exploited to clean up the environment in a natural way. Finally, various environmental factors that regulate bioremediation processes and the methods to improve the rate of bioremediation have been mentioned. This comprehensive study may help to understand the fundamental aspects and future perspectives of microbial remediation of pollutants which could help in commercial success of waste management processes.

Keywords: Bioremediation; Biotechnology; Detoxification; Environmental pollution; Microbes

Introduction

Environmental pollution is of great concern worldwide due to increasing industrialization, urbanization, mining, usage of agro-chemicals and other anthropogenic activities [1]. Pollutants including both organic and inorganic compounds such as fertilizers, pesticides, heavy metals, herbicides, insecticides, greenhouse gases, hydrocarbons, oil, dyes, nuclear wastes, e-waste, etc. are reported to contaminate terrestrial and aquatic environments [2, 3]. These pollutants are known to enter the food chain of various living organisms, causing adverse effects [4]. To control this prevailing condition, many research studies are being conducted to clean-up or reduce the increasing environmental pollutants [3]. Previously, the pollutants or wastes were disposed of in a traditional manner where they were dumped by digging holes [5]. But this method of waste management has become very difficult and unsuccessful due to increasing demand for new places every time to dump the rapidly increasing environmental waste. Nowadays, microbial remediation is gaining attention since it is considered to be a successful cleaning or waste management technique, where the microorganisms are predominantly involved in detoxifying the environmental contaminants [6]. Thus, bioremediation is commonly defined as a biological mechanism that helps in recycling toxic wastes to non-toxic compound by any of the process such as degradation, eradication, immobilization, or detoxification [6]. Since bioremediation processes are environmental and budget friendly in relation to other physical and chemical methods, they have come into extensive usage in remediating technologies [3, 6]. Bioremediation technology generally employs various microorganisms which include bacteria, ciliates, algae and fungi [3]. The versatility of microbes with respect to their nutritional demands and also their metabolic activity confers them the ability to survive even in the harsh environmental conditions and contribute efficiently in bioremediation [2].

This review focuses on various microbial detoxification processes that help in altering the toxic pollutants to non-toxic materials by exhibiting a unique array of mechanisms. This review also talks about the abiotic factors which play predominant role in determining the biodegradation rate of pollutants and about various methods involved in regulating these abiotic factors for proper microbial activity. In addition, the limitations/challenges of bioremediation have been discussed. Thus, the current review will impart an updated information on the remediation strategies to remove environmental pollutants using microorganisms.

Detoxification mechanisms exhibited by various microorganisms

The various microorganisms used in bioremediation processes have been summarized in Table 1.

Following are the different mechanisms adopted by the microorganisms to detoxify the pollutants:

[1]Ciliate Biology Laboratory, Acharya Narendra Dev College, University of Delhi, Govindpuri, Kalkaji, New Delhi 110019, India
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Review

Role of abiotic and biotic components in remediating environmental pollutants: A review

Sripoorna Somasundaram[1] · Jyoti Dagar[1] · Jeeva Susan Abraham[1] · Swati Maurya[1] · Sandeep[1] · Seema Makhija[1] · and Ravi Toteja[1*]

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Abstract

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RESEARCH ARTICLE

Estimation after selection from bivariate normal population with application to poultry feeds data

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[2] *Department of Statistics and Operations Research, Aligarh Muslim University, Aligarh, India*
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[4] *Department of Mathematics and Statistics, Central University of Punjab, Bathinda, India*

Abstract

In many practical situations, it is often desired to select a population (treatment, product, technology, etc.) from a choice of several populations on the basis of a particular characteristic that associated with each population, and then estimate the characteristic associated with the selected population. The present paper is focused on estimating a characteristic of the selected bivariate normal population, using a LINEX loss function. A natural selection rule is used for achieving the aim of selecting the best bivariate normal population. Some natural-type estimators and Bayes estimator (using a conjugate prior) of a parameter of the selected population are presented. An admissible subclass of equivariant estimators, using the LINEX loss function, is obtained. Further, a sufficient condition for improving the competing estimators is derived. Using this sufficient condition, several estimators improving upon the proposed natural estimators are obtained. Further, an application of the derived results is provided by considering the poultry feeds data. Finally, a comparative study on the competing estimators of a parameter of the selected population is carried-out using simulation.

Mathematics Subject Classification (2020). 62F07, 62F15, 62C15

Keywords. Estimation after selection, bivariate normal distribution, improved estimators, LINEX loss function, natural selection rule

1. Introduction

The estimation of a characteristic after selection has been recognized as an important practical problem for many years. The problem arises naturally in multiple applications where one wishes to select a population from the available $k(\geq 2)$ populations and then estimate some characteristics (or parametric functions) associated with the population selected by a fixed selection rule. For example, in modeling economic phenomenons, often the economist is faced with the problem of choosing an economic model from $k(\geq 2)$ different models that returns a minimum loss to the capital economic. After the selection

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Implementation of an Adaptive Artificial Neural Network with Fuzzy Expert System for Diagnoses the Breast and Prostate Cancer: A Hybrid Technique(Article)

Implementation of an Adaptive Artificial Neural Network with Fuzzy Expert System for Diagnoses the Breast and Prostate Cancer: A Hybrid Technique(Article)

Kaur, K., Prasad, J.S., Aarya, D.D., Krishna, H., Tamber, V.B., Rajeria, Y.K., Boudh, R.

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Abstract

Expert systems for medical applications have emerged as a result of recent developments in artificial intelligence. Additionally, in the recent years, computational tools have been developed to enhance the knowledge and skills of doctors when it comes to making decisions regarding their patients. The second leading cause of cancer-related death is breast cancer, which is the most prevalent malignancy in women. About one-third of women with breast cancer pass away from the condition, even though it is treatable when found early. One of the main causes of death in the globe is cancer. Prostate cancer is one type of cancer that claims lives among men. This study is to evaluate the model's accuracy to expert forecasts regarding prostate cancer. Based on patient prostate volume, age, and prostate specific antigen data, predictions are made. Due to the absence of a prostate-like appearance in women, this disease mainly affects men. However, it might be challenging to distinguish between benign and malignant mammographic results, therefore in this work, we designed an expert system for Diagnosis of Breast Cancer and Prostate Cancer. The findings demonstrate that the proposed fuzzy model can be used effectively to aid in the diagnosis and analysis of the possibility of prostate cancer and is one of the factors that doctors consider when determining whether or not a biopsy is necessary for these patients. The PCR value provided by the fuzzy model is within the PCR interval predicted by a specialist doctor. This technique makes it possible to avoid needless biopsy. Additionally, this technique can be useful for training medical students. © 2022 Walters Kluwer Medknow Publications. All rights reserved.

Author keywords:

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Surface texturisation for the reduction of light reflection in ZnO/Si heterojunction

Udaibe Singh

ABSTRACT

In this paper, the impact of pyramidal texture on a silicon substrate in ZnO/p-Si heterojunction was investigated. The texturisation of p-type silicon (100) substrate was obtained using the KOH anisotropic wet chemical etching method for different etching times. The RF magnetron sputtering technique was used to deposit ZnO thin films on textured Si substrates and planar Si substrates to form ZnO/Si heterojunction. The surface morphology was studied with field emission scanning electron microscopy (FE-SEM) and atomic force microscopy (AFM). Optical properties were investigated using UV-Visible spectroscopy and photoluminescence (PL). The results show that the PL intensity in the visible region of the electromagnetic spectrum increases with the etching time, while a significant reduction is observed in the reflectance. Due to impressive anti-reflection response, ZnO/Si (textured silicon-TS) heterojunction can be effective in improving the efficiency of solar cells.

Reflection · Kohl-Texturisation · RF sputtering · PL · Photoluminescence · Visible · Anti-reflection coating

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Synthesis of ternary 0.49BF-0.20PMN-0.31PT ceramic at morphotropic phase boundary for excellent die-/piezo-/ferro-/pyro-electric response

Jian Kumar, Abid Hussain, Abhilash J. Joseph, Sahil Goel, Rajib Gupta, Naorem Santarkar Singh & Udayan Singh

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Abstract

Abstract

A ternary 0.49BF-0.20PMN-0.31PT ceramic with composition at morphotropic phase boundary has been synthesized using the solid state reaction method. The perovskite phase of synthesized 0.49BF-0.20PMN-0.31PT ceramic with monoclinic structure was confirmed by powder XRD. Dense microstructure with uniform grain was revealed by the FESEM micrograph. An excellent dielectric response with a high dielectric constant value, high-phase transition temperature (T_c = 275 °C) and low dielectric loss was obtained. A large value of piezoelectric coefficient (d_{33}^* = 632 pm/V) was achieved from the butterfly loop. The pyroelectric study revealed an excellent pyroelectric response for the ceramic. BF-PMN-PT ceramic displayed excellent ferroelectric P-E hysteresis loops with good fatigue resistance. The magnetic hysteresis loop (M-H) was traced at room temperature which displayed weak ferromagnetic nature of the sample. The obtained properties of the synthesized MPB composition of BF-PMN-PT indicate its great potential in ferroelectric device applications.

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Review

Recent Trends in Carbon Nanotube Electrodes for Flexible Supercapacitors: A Review of Smart Energy Storage Device Assembly and Performance

Himadri Tanaya Das [1,*], Swapnamoy Dutta [2], Tamilarasan Elango Balaji [2], Nigamananda Das [2], Payaswini Das [3], Neelu Dheer [4], Rajni Kanojia [5], Preety Ahuja [6] and Sanjeev Kumar Ujjain [6,*]

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Abstract: In order to upgrade existing electronic technology, we need simultaneously to advance power supply devices to match emerging requirements. Owing to the rapidly growing wearable and portable electronics markets, the demand to develop flexible energy storage devices is among the top priorities for humankind. Flexible supercapacitors (FSCs) have attracted tremendous attention, owing to their unrivaled electrochemical performances, long cyclability and mechanical flexibility. Carbon nanotubes (CNTs), long recognized for their mechanical toughness, with an elastic strain limit of up to 20%, are regarded as potential candidates for FSC electrodes. Along with excellent mechanical properties, high electrical conductivity, and large surface area, their assemblage adaptability from one-dimensional fibers to two-dimensional films to three-dimensional sponges makes CNTs attractive. In this review, we have summarized various assemblies of CNT structures, and their involvement in various device configurations of FSCs. Furthermore, to present a clear scenario of recent developments, we discuss the electrochemical performance of fabricated flexible devices of different CNT structures and their composites, including additional properties such as compressibility and stretchability. Additionally, the drawbacks and benefits of the study and further potential scopes are distinctly emphasized for future researchers.

Keywords: carbon nanotubes; flexible; energy storage; supercapacitor; nanocomposites

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1. Introduction

Development of flexible energy storage systems has improved in recent times, due to the rise in demand for next-generation technology. Recent technologies such as smart wearable and portable electronic devices have encouraged the utilization and further advancement of energy storage components such as supercapacitors or batteries [1–4]. To make existing or upcoming upgraded electronics slimmer, lighter, and more flexible, enhanced energy supply systems are necessarily required. Enhanced electronic devices or technologies which have exhibited great scope of application include electronic textiles, flexible displays, distributed sensors, artificial electronic skin, etc. [5–7]. However, researchers continue to search for promising energy storage systems to achieve desired features for more complex electronic devices [8–10]. Supercapacitors have potential for energy storage utilization in future electronics devices, owing to characteristics including

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In silico prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2

Jyoti Rani[a,b], Anasuya Bhargav[b,c], Faez Iqbal Khan[d], Srinivasan Ramachandran[b,c], Dakun Lai[d] and Urmi Bajpai[a]

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ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused a colossal loss to human health and lives and has deeply impacted socio-economic growth. Remarkable efforts have been made by the scientific community in containing the virus by successful development of vaccines and diagnostic kits. Initiatives towards drug repurposing and discovery have also been undertaken. In this study, we compiled the known natural anti-viral compounds using text mining of the literature and examined them against four major structural proteins of SARS-CoV-2, namely, spike (S) protein, nucleocapsid (N) protein, membrane (M) protein and envelope (E) protein. Following computational approaches, we identified fangchinoline and versiclactone C as the compounds to exhibit strong binding to the target proteins and causing structural deformation of three structural proteins (N, S and M). We recommend the inhibitory effects of these compounds from our study should be experimentally validated against SARS-CoV-2.

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KEYWORDS
SARS-CoV-2; natural antiviral compounds; docking; simulation; COVID-19

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) from the Coronaviridae family has created an unprecedented healthcare crisis (Khan et al., 2020). It has disseminated around the world with a mortality rate of 2.15% (22 July, 2021) (WHO). Further, the emergence of new variants of SARS-CoV2 and their high transmission rate has created an unparalleled disruption in human life and still poses a big threat to human health and global economy. In the past decades, several epidemics have been caused by coronavirus, which include SARS-CoV in 2003 with a mortality rate of 10% (Cheng et al., 2007; Lee et al., 2003) and Middle East Respiratory Syndrome (MERS) in 2012 with 35% mortality rate (de Groot et al. 2013; Zaki et al., 2012). The pathogenicity of SARS-CoV-2 is relatively less than SARS-CoV and MERS, but it is infectivity is higher than other harmless human coronaviruses (Dömling & Gao, 2020). The recent launch of several vaccines has opened the possibility of containing the infection and providing protection to a large populace. However, effective drugs for the treatment of infections caused by coronaviruses (Wu et al., 2020) are still not available and a hunt for drugs against SARS-CoV2 remains critical for the therapeutic interventions.

For discovery of new drugs, natural compounds serve as rich resources (Lin et al., 2014) and nearly a quarter of approved drugs have plant origins (Thomford et al., 2018). Several well-characterized natural compounds have been documented for their antimicrobial, anti-inflammatory and other beneficial effects on humans and animals thereby offering promising sources for drug development (Clark, 1996; El Sayed, 2000). Advancement in the synthetic biology also has accelerated the mass production of natural compounds (Chen et al., 2021). The ethno-medical literature has listed various herbal plants for their appealing antiviral activity (Ganjhu et al., 2015; Mukhtar et al., 2008; Potroz & Cho, 2015). Natural products include extracts from herbal plants, phytoconstituents, and precise extracts of seed, root, fruit, stem, and flower of plants (Boukhatem & Setzer, 2020; Rates, 2001). Several derivatives of medicinal herbs have been widely considered for antiviral activity (Ganjhu et al., 2015). Antiherpetic acyclovir', amoebicide 'emetine' and antimalarial quinine are good examples of drugs modeled on natural products (El Sayed, 2000; Ganjhu et al., 2015). Some of the medicinal plants have also shown antiviral activity against SARS-CoV-2 (Benarba & Pandiella, 2020; Mesli et al., 2021; Mouffouk et al., 2021).

SARS-CoV-2 genome contains approximately 30,000 bases but encodes only a few proteins (Dömling & Gao, 2020). The structural proteins, namely, spike protein, envelope protein, membrane protein and nucleocapsid protein are essential to complete the viral structure. Spike (S) protein mediates the entry of virus into host cells (Wrapp et al., 2020); membrane

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In silico prediction of natural compounds as potential multi-target inhibitors of structural proteins of SARS-CoV-2

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ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused a colossal loss to human health and lives and has deeply impacted socio-economic growth. Remarkable efforts have been made by the scientific community in containing the virus by successful development of vaccines and diagnostic kits. Initiatives towards drug repurposing and discovery have also been undertaken. In this study, we compiled the known natural anti-viral compounds using text mining of the literature and examined them against four major structural proteins of SARS-CoV-2, namely, spike (S) protein, nucleocapsid (N) protein, membrane (M) protein and envelope (E) protein. Following computational approaches, we identified fangchinoline and versiclactone C as the compounds to exhibit strong binding to the target proteins and causing structural deformation of three structural proteins (N, S and M). We recommend the inhibitory effects of these compounds from our study should be experimentally validated against SARS-CoV-2.

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KEYWORDS
SARS-CoV-2; natural antiviral compounds; docking; simulation; COVID-19

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) from the Coronaviridae family has created an unprecedented healthcare crisis (Khan et al., 2020). It has disseminated around the world with a mortality rate of 2.15% (22 July, 2021) (WHO). Further, the emergence of new variants of SARS-CoV2 and their high transmission rate has created an unparalleled disruption in human life and still poses a big threat to human health and global economy. In the past decades, several epidemics have been caused by coronavirus, which include SARS-CoV in 2003 with a mortality rate of 10% (Cheng et al., 2007; Lee et al., 2003) and Middle East Respiratory Syndrome (MERS) in 2012 with 35% mortality rate (de Groot et al. 2013; Zaki et al., 2012). The pathogenicity of SARS-CoV-2 is relatively less than SARS-CoV and MERS, but it is infectivity is higher than other harmless human coronaviruses (Dömling & Gao, 2020). The recent launch of several vaccines has opened the possibility of containing the infection and providing protection to a large populace. However, effective drugs for the treatment of infections caused by coronaviruses (Wu et al., 2020) are still not available and a hunt for drugs against SARS-CoV2 remains critical for the therapeutic interventions.

For discovery of new drugs, natural compounds serve as rich resources (Lin et al., 2014) and nearly a quarter of approved drugs have plant origins (Thomford et al., 2018). Several well-characterized natural compounds have been documented for their antimicrobial, anti-inflammatory and other beneficial effects on humans and animals thereby offering promising sources for drug development (Clark, 1996; El Sayed, 2000). Advancement in the synthetic biology also has accelerated the mass production of natural compounds (Chen et al., 2021). The ethno-medical literature has listed various herbal plants for their appealing antiviral activity (Ganjhu et al., 2015; Mukhtar et al., 2008; Potroz & Cho, 2015). Natural products include extracts from herbal plants, phytoconstituents, and precise extracts of seed, root, fruit, stem, and flower of plants (Boukhatem & Setzer, 2020; Rates, 2001). Several derivatives of medicinal herbs have been widely considered for antiviral activity (Ganjhu et al., 2015). Antiherpetic acyclovir', amoebicide 'emetine' and antimalarial quinine are good examples of drugs modeled on natural products (El Sayed, 2000; Ganjhu et al., 2015). Some of the medicinal plants have also shown antiviral activity against SARS-CoV-2 (Benarba & Pandiella, 2020; Mesli et al., 2021; Mouffouk et al., 2021).

SARS-CoV-2 genome contains approximately 30,000 bases but encodes only a few proteins (Dömling & Gao, 2020). The structural proteins, namely, spike protein, envelope protein, membrane protein and nucleocapsid protein are essential to complete the viral structure. Spike (S) protein mediates the entry of virus into host cells (Wrapp et al., 2020); membrane

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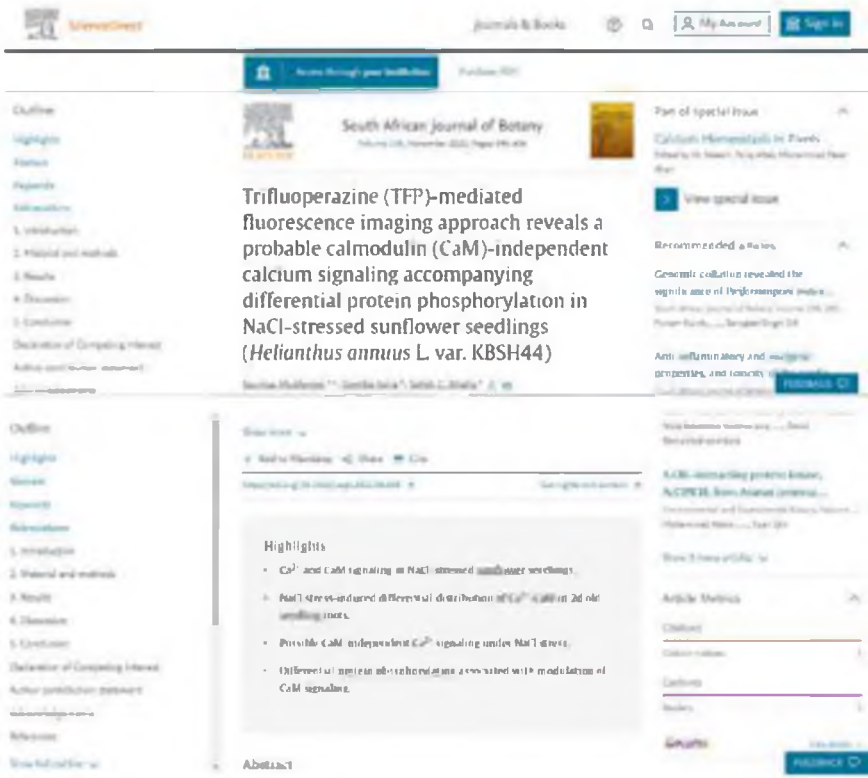
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Trifluoperazine (TFP)-mediated fluorescence imaging approach reveals a probable calmodulin (CaM)-independent calcium signaling accompanying differential protein phosphorylation in NaCl-stressed sunflower seedlings (Helianthus annuus L. var. KBSH44)
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Abstract

frontiers in Plant Science

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ORIGINAL RESEARCH
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Breeding System and Response of the Pollinator to Floral Larceny and Florivory Define the Reproductive Success in *Aerides odorata*

Arjun Adil[1], *Vineet Kumar Singh*[2], *Monika Koul*[3] and *Rajesh Tandon*[1]*

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Consumption of pollination reward by felonious means in a plant species can influence the foraging behavior of its pollinator and eventually the reproductive success. So far, studies on this aspect are largely confined to interaction involving plant-pollinators and nectar robbers or thieves. However, a foraging guild in such interactions may also include floral herbivores or florivores. There is a paucity of information on the extent to which nectar larcenists may influence the foraging behavior of the pollinator and reproductive fitness of plants in the presence of a florivore. We investigated various forms of larceny in the natural populations of *Aerides odorata*, a pollinator-dependent and nectar-rewarding orchid. These populations differed in types of foraging guild, the extent of larceny (thieving/robbing), which can occur with or without florivory, and natural fruit-set pattern. The nectariferous spur of the flower serves as an organ of interest among the foraging insects. While florivory marked by excision of nectary dissuades the pollinator, nectar thieving and robbing significantly enhance visits of the pollinator and fruit-set. Experimental pollinations showed that the species is a preferential outbreeder and experiences inbreeding depression from selfing. Reproductive fitness of the orchid species varies significantly with the extent of floral larceny. Although nectar thieving or robbing is beneficial in this self-compatible species, the negative effects of florivory were stronger. Our findings suggest that net reproductive fitness in the affected plant species is determined by the overarching effect of its breeding system on the overall interacting framework of the foraging guild.

Keywords: floral herbivory, foraging guilds, orchids, nectar robbing, mixed-mating

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INTRODUCTION

Floral nectar, the major pollination reward among the flowering plants, is presented to the pollinators in two ways – openly or selectively. The selective mode is associated with flowers in which nectar is concealed. The hidden floral reward can be consumed by a suitable pollinator only when it is legitimately accessed (Fenster, 1991). The dynamics of production and presentation of nectar by a plant play a crucial role in maintaining constancy with suitable pollinators and sustaining fruit-set (fitness). Altered foraging behavior of the pollinator can adversely influence the fitness when there is discontinuous provisioning of rewards. A variety of foragers who illegitimately

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REVIEW ARTICLE

An Insight of Nanomaterials in Tissue Engineering from Fabrication to Applications

Ritika Sharma[1] · Sanjeev Kumar[2,3] · Bhawna[2,3] · Akanksha Gupta[4] · Neelu Dheer[5] · Pallavi Jain[6] · Prashant Singh[7] · Vinod Kumar[2,8]

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© Korean Tissue Engineering and Regenerative Medicine Society 2022

Tissue engineering is a research domain that deals with the growth of various kinds of tissues with the help of synthetic composites. With the culmination of nanotechnology and bioengineering, tissue engineering has emerged as an exciting domain. Recent literature describes its various applications in biomedical and biological sciences, such as facilitating the growth of tissue and organs, gene delivery, biosensor-based detection, etc. It deals with the development of biomimetics to repair, restore, maintain and amplify or strengthen several biological functions at the level of tissue and organs. Herein, the synthesis of nanocomposites based on polymers, along with their classification as conductive hydrogels and bioscaffolds, is comprehensively discussed. Furthermore, their implementation in numerous tissue engineering and regenerative medicine applications is also described. The limitations of tissue engineering are also discussed here. The present review highlights and summarizes the latest progress in the tissue engineering domain directed at functionalized nanomaterials.

Keywords Tissue engineering · Nanomaterials · Nanotechnology · Regenerative medicine · Biomimetics · Conductive hydrogels · Polymers · Scaffolds

1 Introduction

In tissue engineering (TE) domain, tissue growth is initiated by 3D-scaffolds; the cells proliferate and differentiate into several types or from a base of cells. These scaffolds are combined with growth factors (GFs) to direct cell behaviour and enable the production of tissue. These engineered tissues are functional and capable of implant growth and regeneration [1–5]. Currently, it has become an impressive tool for repairing and reconstructing impaired organs and tissues. In the past two decades, the immense implementation of nanomaterials (NMs) in TE has progressed tremendously (Fig. 1).

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Research Article

Broadband light trapping in a-Si:H based plasmonic solar cells using Au core-Al_2O_3 shell composite nanospheres using FDTD method

Manu Kant, Jitender Singh, Jyoti Pratyoy & Ashish Kapoor

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ABSTRACT

In this work, two different geometries of Au core-Al_2O_3 shell composite nanospheres (CNS) in ITO/a-Si:H based solar cell structure have been considered. A finite difference time domain (FDTD) analysis of optical and electrical properties for both geometries has been conducted using open-source software MEEP. When embedded in the active layer of the cell, Au core-Al_2O_3 shell CNS exhibit relatively high scattering efficiency over a broad spectrum. Maximum normalized scattering efficiency for 'CNS on top' geometry has been found 18.16 while that for 'embedded CNS' geometry it boosts up to 19.62. The localized surface plasmon resonance wavelength achieves a value of 738.9nm for 'CNS on top' and 835.8nm for 'embedded CNS' configurations. Furthermore, reflectance of the incident radiation reduces significantly with the shell thickness leading to effective light trapping. This study provides an important design to enhance the efficiency of silicon based plasmonic solar cells.

KEYWORDS: Plasmonic solar cells, Composite nanospheres, Scattering efficiency, Reflectance, Metallic fill

Related Research

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A Novel Framework for Assessing the Criticality of Retrieved Information

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Abstract: Data created by microblogging platforms provide an exceptional opportunity to mine valuable insights; however, their application in critical information retrieval is still at its inflection point. Taking advantage of Deep Learning (DL) and Natural Language Processing (NLP) techniques, this paper proposes a novel framework for retrieving critical information from Twitter to manage emergencies effectively. The proposed framework classifies the tweets into relevant and irrelevant classes using Bidirectional Encoder Representations from Transformers (BERT). Subsequently, relevant tweets are clustered using a k-means algorithm based on textual semantic similarity obtained using Universal Sentence Encoder (USE). Finally, the critical value of tweets is computed to segregate the relevant information that may assist the management teams to plan and organize their operations efficiently. The proposed work was tested on a real-world dataset of Uttarakhand Floods that occurred in February 2021. The critical information retrieved may be deployed to quickly manage disastrous situations and take the appropriate measures in time.

Keywords: Text Classification, BERT, k-means, Semantic Similarity, Clustering, Information Retrieval, Critical information.

1. Introduction

The advent of social media has marked a shift in information collection and dissemination during emergencies [1]. Researchers have leveraged social media to conduct numerous studies, including but not limited to outbreak detection [2], [3], information retrieval [4], evacuation behavior [5], [6], hazard assessment [6], and damage assessment [7], [8]. Twitter is one of the microblogging platforms that facilitate researchers in carrying out their studies on real-world data. It has 316 million users [9], empowering it with the capability of real-time feedback. Therefore, the potential of Twitter as a dependable and relevant data source is evident [10], [11]. It provides a platform for sharing crucial information and opinions on news updates, government and non-government initiatives and policies, and even requesting assistance during critical times [3], [12], [13]. Many studies [14], [15], [16], [17], [18] have proved that social media platforms like Twitter have also been beneficial to spread situational awareness during an emergency. Situational awareness may be defined as the available knowledge to assess and cope with a situation [18]. Thus, it plays an essential role in helping people during an emergency.

During critical times, government and non-government organizations look for related information to mitigate the adverse impact of the tragedies. Public authorities rely on timely and vital information to launch their operations timely for rescue management. The concerned authorities may send out alerts and learn the urgent needs of affected people to allocate the resources and take appropriate actions [8], [19]. Although social media platforms are promising data resources for emergencies, identifying helpful information for decision-making and action-taking is still challenging [20].

The vast volume of data on social media may contain an enormous amount of unwanted information, which can be overwhelming and bewildering to anyone trying to retrieve crucial details [21], [22]. Thus, it is essential to filter out the irrelevant information and segregate the relevant information to ensure that the precise information reaches the concerned authorities in time. Further, it may reduce the response time for relief and recovery measures during the emergency and increase situational awareness. As natural disasters are occurring more frequently than ever before, a system that could collect the data quickly during the crisis and facilitate assessing the severity of the situation

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Journal of Photochemistry and Photobiology A: Chemistry

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Multiple ionisation and Coulomb explosion in terawatt photoexcitation of Xenon clusters: An experimental and theoretical study

Nirmalya Das,* A. Ali, Rajeev Shagun,* Fatemeh Sajeh,* Ramdas Sahu,* A. Ali, Chris A. Tisseri,*

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Abstract

Multiple ionization and Coulomb explosion following photoexcitation of xenon clusters has been studied at $\sim 10^{12}$ W/cm^2 at three different wavelengths in UV and visible region. Multiply charged xenon ions (Xe^{6+}) up to +4, +6 and +10 states were observed in time of flight mass spectra at 266, 355 and 532 nm respectively. Energetic electrons were also detected and electron energy distribution was measured at all the three wavelengths. The maximum electron energy was found to be dependent on the ionising wavelength. It has been established that [illegible] creates Xe^+ ions and the energized electrons cause secondary ionization of singly charged xenon ion (Xe^+) to give rise to higher charged states of xenon. An analytical model has been developed to understand the multiple ionization of xenon clusters at terawatt laser intensity. It reveals that lowering of ionization potential and excitation to Rydberg states of ions are important factors to generate high charge states like Xe^{10+} commensurate with the experimental results.

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Genome-based reclassification of *Amycolatopsis eurytherma* as a later heterotypic synonym of *Amycolatopsis thermoflava*

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frontiers in Chemistry

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REVIEW
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Endophytic Nanotechnology: An Approach to Study Scope and Potential Applications

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Nanotechnology has become a very advanced and popular form of technology with huge potentials. Nanotechnology has been very well explored in the fields of electronics, automobiles, construction, medicine, and cosmetics, but the exploration of nanotecnology's use in agriculture is still limited. Due to climate change, each year around 40% of crops face abiotic and biotic stress; with the global demand for food increasing, nanotechnology is seen as the best method to mitigate challenges in disease management in crops by reducing the use of chemical inputs such as herbicides, pesticides, and fungicides. The use of these toxic chemicals is potentially harmful to humans and the environment. Therefore, using NPs as fungicides/ bactericides or as nanofertilizers, due to their small size and high surface area with high reactivity, reduces the problems in plant disease management. There are several methods that have been used to synthesize NPs, such as physical and chemical methods. Specially, we need ecofriendly and nontoxic methods for the synthesis of NPs. Some biological organisms like plants, algae, yeast, bacteria, actinomycetes, and fungi have emerged as superlative candidates for the biological synthesis of NPs (also considered as green synthesis). Among these biological methods, endophytic microorganisms have been widely used to synthesize NPs with low metallic ions, which opens a new possibility on the edge of biological nanotechnology. In this review, we will have discussed the different methods of synthesis of NPs, such as top-down, bottom-up, and green synthesis (specially including endophytic microorganisms) methods, their mechanisms, different forms of NPs, such as magnesium oxide nanoparticles (MgO-NPs), copper nanoparticles (Cu-NPs), chitosan nanoparticles (CS-NPs), β-d glucan nanoparticles (GNPs), and engineered nanoparticles (quantum dots, metalloids, nonmetals, carbon nanomaterials, dendrimers, and liposomes), and their molecular approaches in various aspects. At the molecular level, nanoparticles, such as mesoporous silica nanoparticles (MSN) and RNA-interference molecules, can also be used as molecular tools to carry genetic material during genetic engineering of plants. In plant disease management, NPs can be used as biosensors to diagnose the disease.

Keywords: nanotechnology, nanoparticles, crop yield, genetic engineering, molecular approaches, gene carriers

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Synthesis, comparative in vitro antibacterial, antioxidant and UV fluorescence studies of bis indole Schiff bases and molecular docking with ct-DNA and SARS-CoV-2 M^{pro}

Sangeet Bala Gangwal[1], Rashmi Sharma[2], Leena Bharti[1]

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Abstract

In this study, synthesis of 15 novel bis indole-based Schiff bases (Title compounds) was conducted by condensation of 2-(1-aminobenzyl)benzimidazole with symmetrical bis (aldehyde) linked via five alkyl chains ($n = 2$–6). These were subjected to ADME (absorption, distribution, metabolism and excretion), physicochemical properties, molecular docking, in vitro antibacterial and antioxidant studies. The in silico studies indicated lower toxicity with metabolic stability for nearly all the derivatives providing reliable drug candidates. The comparative antibacterial study against Staphylococcus aureus and Escherichia coli, one showed a superior inhibition than reference drug and three more compounds. The increase in linker alkyl chain length and variation of substituents in indole further predicted increased inhibition with maximum activity for compound 4e at 50 µg/ml. The in vitro calf thymus DNA (ct-DNA) binding ability of compounds 4c, 4d, 4e, 4f, 4m, 4n, and 4o was evaluated via ultraviolet-visible and fluorescence spectroscopic techniques. A hyperchromic effect was observed with no apparent wavelength shift which predicted for the groove binding mode. A moderate binding constant for 4e in fluorescence results confirms groove binding. The molecular docking of 4e with ct-DNA (PDB ID 1BNA) and SARS-CoV-2 M^{pro} (3cl protease, PDB ID 6LU7) prove its efficiency as potential DNA binder and antiviral agent.

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Coronaviruses, 2021, 2, e300421188050

BENTHAM SCIENCE

REVIEW ARTICLE

Structure, Transmission, Diagnostic Symptoms, Host and Entry Mechanism of COVID-19: A Review

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Abstract: In Wuhan, China, a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been reported and caused coronavirus disease 19 (COVID-19). The coronavirus infection is pathogenic and highly transmittable and spread quickly around the world by the human to human contact. Through genomic analysis, it has been revealed that the primary reservoir of SARS-CoV-2 is bats due to having severe acute respiratory syndrome-like (SARS-like) viruses phylogenetically. The viral infection is rapidly transmitted by the human to human contact, but the intermediate source of their origin and transfer is not known. To date, any clinically approved vaccine or antiviral drug has not been prepared against COVID-19. However, researchers and scientists have evaluated some broad-spectrum antiviral drugs against COVID-19 through clinical trials and they have found satisfactory clinical recovery. This review summarizes the comparative analysis of the emergence and pathogenicity of COVID-19, severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV). This review is also focused on the development of effective vaccines or antidrug and also provides details related to an approach to practice therapeutic combinations to fight against this viral outbreak.

Keywords: COVID-19, SARS-CoV-2, glycoprotein, infection, symptoms, prevention.

1. INTRODUCTION

The term corona has been raised from the crown-like appearance (Corona is a Latin word it means crown-like). Nucleic acid material of coronavirus constituted with single-stranded RNA. The virus is also known as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), and the family of coronavirus is divided into different classes such as alpha (α), beta (β), gamma (γ), and delta (δ). The β class of coronavirus was reported as the main cause of COVID-19. This disease has been declared as a pandemic and zoonotic disease due to quick transmission in animals and humans. Previously, it is known that this virus is only transmitted in animals until the world witnessed in humans. In Guangdong, China 2003, SARS-CoV has been identified as the outbreak of SARS-CoV-1 [1]. In Middle Eastern countries, an endemic was announced due to another pathogenic coronavirus, called the Middle East respiratory syndrome (MERS-CoV), only a decade later [2]. Recently, Wuhan emerged as the business hub of china at the end of 2019. An outbreak of a novel coronavirus reported more than 177000 deaths and over sixteen lakhs of infections. Previously, SARS-CoV-2 has been named as the Wuhan coronavirus or 2019 novel coronavirus (2019-NCOV) in China, which further finally named as SARS-CoV-2 by the International Committee on Taxonomy of Viruses (ICTV) and this disease called COVID-19 [3-5]. In 2003, SARS-CoV infected around 8098 individuals with 9% mortality rate across 26 countries globally, while novel coronavirus 2019 caused infection and death around 4098018 and 283271 in individuals with a 2.9% mortality rate across 215 countries.

2. NOMENCLATURE

According to the World Health Organisation (WHO), U.S. Centers for Disease Control and Prevention (CDC), and ICTV, COVID-19 stands for CO-corona, VI-virus, D-disease, 19-2019 while SARS-CoV-2 for severe acute respiratory syndrome coronavirus-2 [6].

3. CLASSIFICATION

According to ICTV [1, 7], the classification of coronavirus is given below:

Category	Coronaviruses
Realm	*Ribovira*

contd....

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Computational identification and characterization of antigenic properties of Rv3899c of *Mycobacterium tuberculosis* and its interaction with Human leukocyte antigen (HLA)

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Computational identification and characterization of antigenic properties of Rv3899c of *Mycobacterium tuberculosis* and its interaction with Human leukocyte antigen (HLA)

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REVIEW ARTICLE

Taxonomically Characterized and Validated Bacterial Species Based on 16S rRNA Gene Sequences from India During the Last Decade

Princy Hira[1] · Priya Singh[2] · Anil Kumar Pinnaka[3] · Suresh Korpole[3] · Rup Lal[4]

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Abstract Microbial taxonomy dealing with identification and characterization of prokaryotes like bacteria and archaea has always been a major area of research all over the world. Exploring diversity of microbes and description of novel species with different genes and secondary compounds is of utmost importance for better future and sustenance of life. India having an enormous range of ecosystems and diverse species inhabiting these niches is considered to be one of the richest biodiversity regions of the world. During the last decade, with newer methodologies and better technology, the prokaryotic taxonomy from India has extended our inventory of microbial communities in specific niches. However, there still exist some limitations in classifying the microbes from India as compared to that is done world-over. This review enlists the taxonomic description of novel taxa of prokaryotes from India in the past decade. A total of 378 new bacterial species have been classified from different habitats in India in the last ten years and no descriptions of archaeal species is documented till date.

Keywords Microbial taxonomy · Classification · Niches · Novel species · Indian biodiversity

Princy Hira and Priya Singh have contributed equally to this work.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s12088-019-00845-7) contains supplementary material, which is available to authorized users.

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Introduction

Among one of the richest biodiversity regions of the world, India encompasses from greater Himalayas in the north to the second largest peninsula in the south that show diverse environmental conditions across it and contain three unique biodiversity hotspots viz., Western Ghats, eastern Himalayas and the Indo-Burma region. Also, it has desert in west, world's largest alluvial plain (Great plain of north India) and the thick forests in east. This results into richness of the diversity of both flora and fauna with respect to various environmental conditions. While the wealth of this diversity with respect to higher forms of life, viz., plants and animals is well explored and inventoried, such efforts in prokaryote diversity are recent that need lot more to be discovered and classified. The field of microbial taxonomy in India has taken a new dimension in the last decade and exponentially added the descriptions of new taxa of prokaryotes in the catalogue using polyphasic approach. Along with the description of novel species, the identification of new genes important for environment and human health has various industrial and biotechnological applications [1]. Therefore, taxonomical classification of commercially important organisms acts as a base for further studies on microbiological research. While there are quite a few research groups carrying out microbial taxonomy in India, but with the new and improved methodologies in the recent years' microbiologists have managed to unravel the

ORIGINAL RESEARCH ARTICLE

Prediction of Transcription Factors and Their Involvement in Regulating Rifamycin Production in *Amycolatopsis mediterranei* S699

Nirjara Singhvi[1] · Vipin Gupta[1] · Priya Singh[1,2] · Om Prakash[3] · Andreas Bechthold[4] · Yogendra Singh[1] · Rup Lal[5]

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Abstract *Amycolatopsis mediterranei* S699 produces rifamycin B and successors of this strain are in use for the industrial production of rifamycin B. Semisynthetic derivatives of rifamycin B are used against *Mycobacterium tuberculosis* that causes tuberculosis. Although the rifamycin biosynthetic gene cluster was characterized two decades ago, the regulation of rifamycin B biosynthesis in *Amycolatopsis mediterranei* S699 is poorly understood. In this study, we analysed the genome and proteome of *Amycolatopsis mediterranei* S699 and identified 1102 transcription factors which comprise about 10% of the total genome. Using interactomics approaches we delineated 30 unique transcription factors directly involved in secondary metabolism that regulate rifamycin B biosynthesis. We also predict the role of RifN as hub in controlling the regulation of other genes involved in rifamycin biosynthesis. RifN is important for maintaining the integrity of the rifamycin-network. Thus, these transcription factor can be exploited to improve rifamycin B production in *Amycolatopsis mediterranei* S699.

Keywords Transcription factors · *Amycolatopsis mediterranei* · Rifamycin · Regulation · Interactomics

Nirjara Singhvi and Vipin Gupta have contributed equally.

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Introduction

In prokaryotic cells, transcription factors (TF) are proteins that play important role in controlling the rate of transcription of a gene. TF's bind to specific DNA sequences enabling RNA-polymerases to perform the transcription process. There are a wide range of transcription factors. Some harbour DNA binding regions that bind directly to promoters. Others bind to the enhancer region of a gene. Proteins binding directly to the promoter region initiates the transcription process. TFs binding to the enhancer regions are indirectly stimulating or repressing the transcription process [1]. It is known that regulation of transcription factor is the most important form to control a gene expression. TF have been identified in bacterial family actinobacteria like genus *Streptomyces* have been reported to control gene expression and their regulation within the organized network [1, 2].

Amycolatopsis mediterranei S699 is a well-known actinobacterium that produces rifamycin B. It has been developed as industrial strains for the production of rifamycin B primarily by using classical strain improvement methods [3]. Semisynthetic derivatives of rifamycin B are

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PGPR-mediated induction of systemic resistance and physiochemical alterations in plants against the pathogens: Current perspectives

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Abstract

Plant growth-promoting rhizobacteria (PGPR) are diverse groups of plant-associated microorganisms, which can reduce the severity or incidence of disease during antagonism among bacteria and soil-borne pathogens, as well as by influencing a systemic resistance to elicit defense response in host plants. An amalgamation of various strains of PGPR has improved the efficacy by enhancing the systemic resistance opposed to various pathogens affecting the crop. Many PGPR used with seed treatment causes structural improvement of the cell wall and physiological/biochemical changes leading to the synthesis of proteins, peptides, and chemicals occupied in plant defense mechanisms. The major determinants of PGPR-mediated induced systemic resistance (ISR) are lipopolysaccharides, lipopeptides, siderophores, pyocyanin, antibiotics 2,4-diacetylphloroglucinol, the volatile 2,3-butanediol, N-alkylated benzylamine, and iron-regulated compounds. Many PGPR inoculants have been commercialized and these inoculants consequently aid in the improvement of crop growth yield and provide effective reinforcement to the crop from disease, whereas other inoculants are used as biofertilizers for native as well as crops growing at diverse extreme habitat and exhibit multifunctional plant growth-promoting attributes. A number of applications of PGPR formulation are needed to maintain the resistance levels in crop plants. Several microarray-based studies have been done to identify the genes, which are associated with PGPR-induced systemic resistance. Identification of these genes associated with ISR-mediating disease suppression and biochemical changes in the crop plant is one of the essential steps in understanding the disease resistance mechanisms in crops.

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Recyclable Organocatalyst for One-Pot Asymmetric Synthesis of Dihydrofuranone and Tetrahydropyranone Spirooxindoles

Recyclable fluorous bifunctional organocatalyst promoted one-pot reaction of 1,3-dicarbonyl compounds, olefinic oxindoles, and formaldehyde through a Michael/aldol/cyclization sequence afford asymmetric dihydrofuranone and tetrahydropyranone spirooxindoles in 70–82 % yields with 3:1 to 6:1 dr and up to 99 % ee for the major diastereomers

Recyclable fluorous bifunctional organocatalyst promoted one-pot Michael/aldol/cyclization sequence affords asymmetric dihydrofuranone or tetrahydropyranone spirooxindoles in 70–82 % yields with 3:1 to 6:1 dr and up to 99 % ee for the major diastereomers

Previous article in issue

Next article in issue

Keywords

Asymmetric synthesis | Heterocycles | One-pot synthesis | Organocatalysts | Spirooxindoles

FEEDBACK

A modified intuitionistic fuzzy c-means clustering approach to segment human brain MRI image

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School of Computer & System Sciences[1,2,4]
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Indian Institute of Technology, New Delhi, India.

Abstract

Fuzzy c means (FCM) is one of the prominent method utilized for medical image segmentation. The research work [1] suggested intuitionistic fuzzy c-means to handle uncertainty and vagueness associated with real data. The author defined an objective function which incorporated the hesitation degree along with membership degree. However, instead of solving the objective function analytically, the approximate solution is obtained. In this paper, we have proposed a modified intutionistic fuzzy c-means algorithm (MIFCM) and solved analytically the objective function of modified intuitionistic fuzzy c means algorithm (MIFCM) using Lagrange method of undetermined multiplier. To incorporate hesitation degree, two parametric intuitionistic fuzzy complements namely Sugeno's negation function and Yager's negation function are investigated. The performance of the proposed MIFCM method is compared with three intuitionistic fuzzy clustering methods and the FCM on two publically available MRI dataset and a synthetic dataset. The performance measures (average segmentation accuracy, dice score, jaccard score, false negative ratio and false positive ratio) are used to compare the performance of the proposed method with three variants of intuitionistic fuzzy clustering methods and the FCM. Experimental results demonstrate the superior performance of the proposed method over others.

1 Introduction

Image segmentation is one of the important phase in image analysis and pattern recognition because of its wide real life applications such as medical image analysis, computer vision, industrial inspections etc.. In last few years, medical image analysis is used for diagnosis of various disease such as Parkinson, Alzheimer, Schizophrenia etc.. For this, many medical imaging modalities, such as Computed

Advances in Natural Sciences: Nanoscience and Nanotechnology

PAPER

Performance of chitosan derived activated carbon in supercapacitor

Sultan Ahmed[1,2], Ahsan Ahmed[3] and M Rafat[1]

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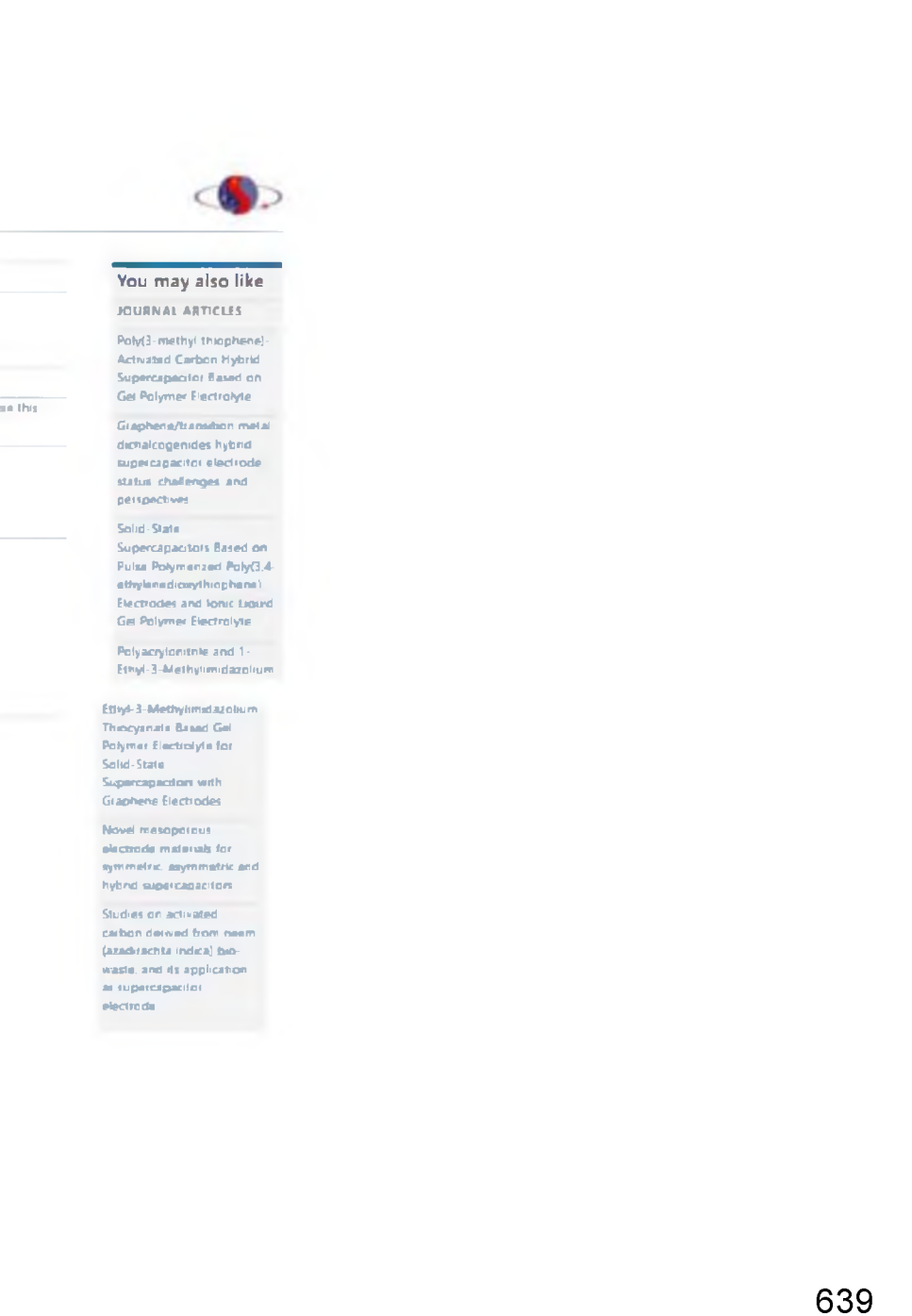
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PAPER

Fe doped $BaTiO_3$ sensitized by Fe_3O_4 nanoparticles for improved photoelectrochemical response

Rishibrind Kumar Upadhyay[1] and Dipika Sharma[2]

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Abstract

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DASC: data aware algorithm for scalable clustering

Vasudha Bhatnagar, Sharanjit Kaur, Rakhi Saxena & Dhriti Khanna

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Abstract

Abstract

Emergence of MapReduce (MR) framework for scaling data mining and machine learning algorithms provides for *Volume*, while handling of *Variety* and *Velocity* needs to be skilfully crafted in algorithms. So far, scalable clustering algorithms have focused solely on *Volume*, taking advantage of the MR framework. In this paper we present a MapReduce algorithm—data aware scalable clustering (DASC), which is capable of handling the 3 Vs of *big data* by virtue of being (i) single scan and distributed to handle *Volume*, (ii) incremental to cope with *Velocity* and (iii) versatile in handling numeric and categorical data to accommodate *Variety*. DASC algorithm incrementally processes infinitely growing data set stored on distributed file system and delivers quality clustering scheme while ensuring recency of patterns. The up-to-date synopsis is preserved by the algorithm for the data seen so far. Each new data increment is processed and merged with the synopsis. Since the synopsis itself may grow very large in size, the algorithm stores it as a file. This makes DASC algorithm truly scalable. Exclusive clusters are obtained on demand by applying connected component analysis (CCA) algorithm over the synopsis. CCA presents subtle roadblock to effective parallelism during clustering. This problem is overcome by accomplishing the task in two stages. In the first stage, *hyperclusters* are identified based on prevailing data characteristics. The second stage utilizes this knowledge to determine the degree of parallelism, thereby making DASC data aware. *Hyperclusters* are distributed over the available compute nodes for discovering embedded

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Bioacoustics or pitfall traps: comparison of a modern and traditional method to estimate Ensifera richness

The order Orthoptera occur in a variety of [illegible] and serve as an [illegible] [illegible] and prey base for bats[1], birds and spiders[2]. Orthopteran communities are affected by vegetation structure and composition and respond strongly to changes in plant [illegible]. Hence, they are suitable for monitoring and conservation studies[3,4]. A variety of sampling methods such as sweep netting, pitfall traps and malaise traps or light traps are employed for estimation of Orthoptera diversity and their abundance from a localized or over a large area[5,6]. Studies on transect [illegible], [illegible] and sweep netting have been carried out mainly in grasshoppers and in a few cases in katydids and field crickets for comparing efficiency of [illegible] [illegible] [illegible][7,8]. One of the most [illegible] techniques for collecting surface-active invertebrates is pitfall trapping[9]. However, pitfall traps for Orthoptera species [illegible] due to changes in [illegible][10]. Species-specific calls of ensiferan insects serve as a reliable method for species identification as each species has a unique frequency and temporal pattern. [illegible] is widely used for [illegible] [illegible][11,12]. Though studies on effectiveness of acoustic methods with respect to traditional methods have been carried out in birds and amphibians, studies are lacking in [illegible][13,14]. Also, distribution and [illegible] of Orthoptera at an urban ecosystem level has received little attention in India and worldwide[15,16,17].

The aim of the present study is to (1) [illegible] of Ensifera (Insecta: Grylloidea) in Delhi and suburban region using [illegible], (2) Compare the [illegible] and pitfall trapping in estimating species richness of Ensifera (Infraorder: Grylloidea), and (3) quantify diversity of other [illegible] captured in the pitfall traps.

The acoustic sampling of ensiferans was carried out at four locations in Delhi region (28.613°N, 77.209°E). Site one (S1) was a [illegible] grassland area, site two (S2) was an urban residential area, site three (S3) had [illegible] vegetation characteristics of an arid region with *Prosopis* sp. and *Acacia* sp. as dominant tree species and site four [illegible] [illegible] garden with [illegible] [illegible] managed by civic authorities. The acoustic and pitfall sampling were carried out from January to April during 2013 and 2014 respectively. The temperatures ranged from 10°C in January to 38°C in April, and relative humidity varied from 50% to 67% during the sampling months.

Call of the ensiferan males was recorded in the field in the evening between 6:00 and 9:00 pm. Individual calling insects were first tracked by ear and located. Recordings were made by holding a digital recorder (TASCAM DR-08, TEAC America Inc., USA, 44.1 kHz, 16 bit, wav format) at a distance of 25 cm from the calling animal. As the calling orthopterans are active only in the evening, the acoustic sampling was restricted to 1 h per evening for a total of 42 days. Only two individuals of a call type were preserved in 70% alcohol for taxonomic identification and the rest were released back in the place where they were captured. Song analysis was performed using the signal processing software RAVEN Pro 1.4 (Cornell Lab of Ornithology, Ithaca, NY, USA) and Spectra Plus 5 (Pioneer Hill Software, Poulsbo, WA, USA) for temporal and spectral analysis.

Pitfall traps were laid in the same locations where [illegible] sampling was carried out previously. Cylindrical plastic pots of diameter 17 cm and depth 16 cm were used as pitfall to catch orthopteran and other insects. Each pit was covered with a funnel to make sure that the captured insect does not jump out. A non-invasive method of pitfall trap was used to avoid unnecessary killing of invertebrates. Funnel traps without any additional preservative were demonstrated as a viable alternative to trap Orthoptera species previously[17]. Each trap was monitored every alternate day (spanning a period of 42 days) to check for captured insects. Captured invertebrates were photographed. For taxonomic [illegible] and invertebrates trapped in the pitfalls were counted and released back in the field but some from [illegible] check for captured insects. Captured invertebrates were photographed for taxonomic [illegible] and invertebrates trapped in the pitfalls were counted and released back in the field but every from the pit. In case of Orthoptera, two individuals per species were preserved. A total of 50 pits were laid for data collection. However, over a period of time 27 pits were stolen and hence, sampling had to be abandoned for these sites. Hence a comparison between the two methodologies, i.e. acoustic and pitfall sampling is limited to a period of four months.

Orthopteran [illegible] were identified up to the genus level using keys in Chopard[18] [illegible] were classified till order level using entomology keys[19]. A standardized abundance of each taxon was estimated by dividing the number of individuals in each taxon by the sampling effort (number of pits) to correct for unequal sampling efforts in

Table 1. [illegible]

Ensifera species	S1	S2	S3	S4	Total no. of individuals
1. Superfamily: Grylloidea					
Family: Gryllidae					
Gryllidae sp.	1	1	1	1	4
Gryllus timavlaiae	–	–	–	1	1
Gryllus X	1	1	2	2	6
Gryllus Y	–	–	–	1	1
Family: [illegible]					
Natronchis sp.	1	1	1	1	4
2. Superfamily: Grylloptera					
Family: Gryllotalpidae					
Gryllotalpa sp.	1	1	1	2	5
Total individuals	4	4	5	10	27

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Bioacoustics or pitfall traps: comparison of a modern and traditional method to estimate Ensifera richness

Manisha Tomar, Abhay Pratap Singh and Swati Dhaskar

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