

RUP LAL
(FNA, F(AAM), FNASc, FNAAS)

INSA Senior Scientist

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Wikipedia : https://en.wikipedia.org/wiki/Rup_Lal

Date of Birth : September 27, 1953

Citizenship : Indian



S.No.	Qualification	University	Year(s)	Subject
1.	Post Doctorate as Alexander von Humboldt Fellow	University of Bielefeld, Germany	1988-1990	Molecular Biology
2.	PhD	University of Delhi, Delhi	1980	Cell Biology
3.	Post-Graduation	Kurukshetra University, Kurukshetra	1975	Zoology
4.	Graduation	Guru Nanak Dev University, Amritsar	1973	Zoology, Botany Chemistry

Academic Positions

S.No.	Post	Organization	Year(s)	Experience
1.	INSA-Senior Scientist	Acharya Narendra Dev College, University of Delhi, Delhi	September 27 2022-Present	Contd.
2.	NASI-Senior Scientist Platinum Jubilee Fellow	The Energy and Resources Institute, New Delhi	July 22, 2019 to July 21, 2022	3 years
3.	Professor	Department of Zoology, University of Delhi	April 13, 2000-September 30, 2018	18 years, 5 months
4.	Reader (Associate Professor)	University of Delhi	April 13, 1992 - March, 2000	7 years, 11 months
5.	Lecturer (Assistant Professor)	Sri Venkateswara College, University of Delhi	July 23, 1979-April 12, 1992	12 years, 8 months

Honorary Positions

1. Visiting Professor, Kumaun University, Nanital, Uttarakhand
2. Ambassador, International Microbiology Literacy Initiative Resources- South Asian Center (IMiLI-SAC) at Phixgen Private Ltd., Gurugram. (<https://imili.org/>)
3. Senior Ambassador for India, Federation of European Microbiological Societies (FEMS), The Netherlands. (January, 2022 onwards)
4. Senior Ambassador for India, International Society for Microbial Ecology (ISME), The Netherlands (2017 onwards)
5. Adjunct Professor, Career Point University, Hamirpur, Himachal Pradesh. (April 8th, 2015 onwards)
6. Director (Honorary), PhiXgen Pvt. Ltd., Gurugram, Haryana. (2023 onwards)

Elected Fellow of Academies

- Fellow of American Academy of Microbiology (FAAM).
- Fellow of Indian National Science Academy (FNA).
- Fellow of National Academy of Science (FNASc).
- Fellow of National Academy of Agricultural Sciences (FNAAS).
- Fellow of Academy of Microbiological Sciences (FAMSc).

Research Profile

Google scholar: <http://scholar.google.co.in/citations?user=MRPBwH8AAAAJ&hl=en>

- Total number of research publications: 274
- Books and Book chapter: 19
- Review and popular articles: 40
- Total cumulative citation: 11269
- h-index: 54

Specializations

- Cell Biology
- Molecular Biology
- Microbial Diversity/Taxonomy
- Environmental Microbiology/Biotechnology
- Microbial Genomics/Metagenomics

Mission

Microbial Literacy under International Microbial Literacy Initiative. (<https://imili.org/>)

Honors, Awards and Fellowships

1. Awarded INSA Distinguished Lecture Fellowship, 2024.
2. Awarded Alexander von Humboldt Fellowship to work at the University of Freiburg, Institute of Pharmaceutical Sciences, Pharmaceutical Biology and Biotechnology, Germany from June 1, 2023 to August 31, 2023.
3. Awarded INSA-Senior Scientist Fellowship by the Indian National Science Academy (2022-2025).
4. Awarded Best ISME Ambassador of the year 2021-2022 by ISME President Nicole Dubilier in 18th International Symposium on Microbial Ecology (ISME18) held at EPFL, Lausanne from 14-19 August 2022.
5. Awarded Lifetime Achievement Award by the Association of Microbiologists of India (AMI) in February 2021.
6. President, Association of Microbiologists of India (2013-2014).
7. Ambassador, Indian Ocean Region, American Society for Microbiology (ASM) (2012-2015).
8. General Secretary, Indian Network for Soil Contamination and Research (INSCR) (2011-2018).
9. President, Indian Network for Soil Contamination and Research (INSCR) (2018 onwards).
10. Awarded NASI-Senior Scientist Platinum Jubilee Fellowship by the National Academy of Science, India (2019-2022).
11. Received Kuldeep Dhatwalia Excellence Award 2017 from Chaman Seva Sansthan, Himachal Pradesh for exemplary work, achievements, commitment, and contributions to the nation's development.
12. Received the Moselio Schaechter Distinguished Service Award 2016 from the American Society for Microbiology for exemplary leadership and commitment towards the substantial furthering of the profession of microbiology in research, education, or technology in the developing world.
13. Prof. B.N. Johri Award on Microbial Diversity (Biannual) by the Association of Microbiologists of India (AMI) for 2016.
14. Prof. S.R. Vyas Memorial Award (Biannual) by the Association of Microbiologists of India (AMI) for the year 2014.
15. Awarded INSA Visiting Scientist under INSA-DFG Bilateral Exchange Program to visit Institute of Pharmaceutical Sciences, University of Freiburg, Germany in June-July, 2019.

16. Awarded Endeavour Executive Fellowship by the Government of Australia, hosted at Murdoch University, Perth, Australia (November 2018- January 2019).
17. Awarded short-term Alexander von Humboldt Fellowship, hosted at Helmholtz Centre for Environmental Research, UFZ, Leipzig, Germany (June - July, 2017 and May – July, 2018).
18. Awarded short-term Alexander von Humboldt Fellowship, hosted at the University of Freiburg, Institute of Pharmaceutical Sciences, Pharmaceutical Biology and Biotechnology, Germany (July – August, 2013).
19. Awarded Indo-US professorship for the year 2008-09 by the American Society for Microbiology to conduct research on “Genetic Manipulations of *Amycolatopsis mediterranei* S699 for the production of rifamycin analogs” at College of Pharmacy, Oregon State University, Corvallis (May – June 2009).
20. Awarded short-term Alexander von Humboldt Fellowship to work on the project entitled, “Annotation of the genome of *Amycolatopsis mediterranei* S699” at the University of Bielefeld, Gentechnologie/Mikrobiologie, Germany (July, 2008).
21. Awarded short-term Alexander von Humboldt Fellowship to work on the project entitled “Genome sequence and analysis and annotations” at the University of Bielefeld, Gentechnologie/Mikrobiologie, Germany (June - July, 2004).
22. Awarded DBT short-term Overseas Associateship to work with Prof. John Cullum at the Department of Genetics, University of Kaiserslautern, Germany (May - October, 2000).
23. Awarded short-term Alexander von Humboldt Fellowship to work on the project, “Cloning of Rifamycin biosynthetic genes in *Amycolatopsis mediterranei*” at the University of Bielefeld, Gentechnologie/Mikrobiologie, Germany (May - July, 1995).
24. Awarded Long-term Alexander von Humboldt Fellowship to work at the University of Bielefeld, Gentechnologie/Mikrobiologie, Germany (July 1988 - August 1990).

PROFESSIONAL SERVICES

A. Membership in Administrative and Academic Societies

S. No.	Post	Organization/University	Duration	
			From (Date)	To (Date)
1	Head of the Department	Department of Zoology, University of Delhi	November 8, 2007	November 7, 2010
2	Dean, Faculty of Sciences	University of Delhi	November 8, 2007	November 7, 2010

3	Dean, Examination	University of Delhi	November 6, 2012	May 28, 2016
4	Chairman of Board of Research Studies	University of Delhi	July 31, 2008	June 7, 2010
5	Chairman of Standing Committee of Academic Council	University of Delhi	November 8, 2007	June 7, 2010
6	Member	Board of Research Studies (BRS) in the Faculty of Medical Sciences,	August 2, 2012	July, 2014
		Departmental Research Committee (DRC) in the Department of Microbiology, University of Delhi, South Campus	August 2, 2014	August 2, 2016
		Departmental Research Committee (DRC), Department of Zoology, Maharshi Dayanand University, Rohtak, Haryana	September, 2013	August 2015
		Departmental Research Committee (DRC) in the Department of Anthropology	August, 2012	July, 2014
		Research Advisory Board of NIIT University, Neemrana, Rajasthan	February, 2016 onwards	2018
		Research Advisory Committee of National Institute of Biotic Stress Management (NIMBSM), Raipur	May 26, 2015	2018
		Research Advisory Committee (RAC), ICAR-NBAIM, Mau	October 18, 2016	October 17, 2019
7	Chairman	Governing Body of Hindu College, University of Delhi, Delhi	September 8, 2011	August 2, 2013
		Governing Body of Swami Shraddhanand College, University of Delhi, Delhi	April 7, 2012 December 17, 2013	June 5, 2012 March 22, 2015
		Screening Committee, Depart of Physics, University of Delhi	October 23, 2009	-
8	Member of Executive Council	University of Delhi	November 8, 2007 November 6, 2012	June 7, 2010 May, 2016
		V.P. Chest Institute	January 25, 2008	January 24, 2011

9	Member of Academic Council	University of Delhi	November 8, 2007	June 7, 2010
			November 6, 2012	May 2016
		IMTECH-JNU (Institute of Microbial Technology)	May, 2015	March 2017.
		MDU, Rohtak (Maharshi Dayanand University)	February 5, 2018	Till date
10	Member (Governing Body)	Governing Body of Swami Shraddhanand College, University of Delhi, Delhi	May 3, 2013	December 17, 2013
		Governing Body of Keshav Mahavidyalaya, University of Delhi, Delhi	November 6, 2014	November 6, 2016
		Governing Body of Sri Guru Gobind College of Commerce, University of Delhi, Delhi	March 22, 2015	March 22, 2017
		Governing Body of Shyam Prasad Mukherji College, University of Delhi Delhi	December 29, 2015	December 28, 2016
11	Expert	Screening-cum-Evaluation Committee, Ramjas College, University of Delhi, Delhi	April, 2014	-
		Screening-cum-Evaluation Committee, Maharshi Dayanand University	November, 2014	-
		Expert Committee for Women Scientists (Bio-CARE programme), Department of Biotechnology, Govt. of India	May, 2011	August, 2014
		Expert member of the National Selection Committee of EK Janaki Ammal National Award on Taxonomy Ministry of Environment and Forest and Climate Change	December 10, 2019	December 9, 2021
		Member of DBT-Expert Committee on HRD	Feb, 2020	2021
12	Member/ University Representative	Governing Body of Hindu College, University of Delhi, Delhi	April 24, 2014	April 23, 2015
		Governing Body of Hindu College, University of Delhi, Delhi	April 24, 2012	April 23, 2013
		Governing Body of Swami Shraddhanand College, University of Delhi, Delhi	March 22, 2012	March 21, 2013

		Governing Body of Swami Shraddhanand College, University of Delhi, Delhi	March 12, 2013	March 11, 2014
		Governing Body of Swami Shraddhanand College, University of Delhi, Delhi	March 22, 2014	March 21, 2015
		Governing Body of Keshav Mahavidyalaya, University of Delhi, Delhi	November 6, 2014	November 5, 2015
		Governing Body of Sri Guru Gobind College of Commerce, University of Delhi, Delhi	March 17, 2015	March 16, 2016
		Governing Body of Sri Guru Gobind College of Commerce, University of Delhi, Delhi	March 22, 2016	March, 2017
		Governing Body of Shyam Prasad Mukherji College, University of Delhi, Delhi	December 29, 2015	December 28, 2016
13	Warden	PG Men's Hostel University of Delhi, Delhi	March 2000	August 2001
14	Provost	Mansarovar Hostel, University of Delhi, Delhi	June 22, 2007	April 28, 2015
15	Chairman	Expert Committee of the North-East Region Twinning R&D program of DBT in Environmental Biotechnology	March 16, 2016	2018
16	Member	Apex Committee, restructuring of Under-Graduate Science Program, University of Delhi	February 21, 2008	February 20, 2011
		Expert Committee for HRD, Department of Biotechnology, Govt. of India	October 2010	2015
		Outside Expert, Faculty of Life Science, MD University, Rohtak	October 6, 2010	October 5, 2012
		Selection Committee, UGC Career Advancement scheme, Guru Nanak Dev University, Amritsar	August 16, 2011	2015
		Expert Committee under STAR College Scheme, Department of Biotechnology, Govt. of India	2012	2014
		Regional Level Expert Committee on Reviewing of Performance for INSPIRE Fellows under INSPIRE Fellowship Component of INSPIRE Program, Department of Science & Technology	May 2012	2015

		DBT Task Force on Bioremediation	September, 2012	May, 2017
		Advisory Committee, Independent Evaluation of DBT (Department of Biotechnology) HRD (Ministry of Human Resource Development) programs, implemented by BCIL (Biotech Consortium India Limited)	2013	2015
		Advisory Committee, Star College Program, Maitreyi College, University of Delhi	June 2013	2015
		Outside Expert, Department of Zoology, MD University, Rohtak	September 9, 2013	August 31, 2015
		Executive Committee member for Star College Scheme, Hansraj College	September 18, 2013	
		DBT Nominee, Institutional Biosafety Committee (IBSC), Institute of Molecular Medicine, New Delhi	May 23, 2014	May 22, 2017
		Outside Expert, Departmental Peer Review Committee, Ministry of Environment and Forests	2014	2014
		Internal Screening Committee, Institute of Advanced Study in Science and Technology, Assam	2014	2014
		Subject Expert of Faculty of Life Sciences, University of Delhi	July 1, 2014	June 6, 2016
		Departmental Research Committee (DRC), Department of Microbiology, South Campus, University of Delhi	August, 2, 2014	August 1, 2014
		Mid-term Monitoring Committee, University of Hyderabad	January, 2015	-
		Area Advisory Board, Amity Institute of Biotechnology, Amity University, Noida	April, 2015	April 2016
		Mid-term Monitoring Committee of CPEPA, Karnataka University	October, 2015	2018
	Observer	Annual/Semester Examination of University of Delhi	May, 2012	-
		Delhi University Student Union Election	September, 2009	2010
		INSA Inter-Academy Exchange Committee	2022	2023

17	Member	INSA Advisory Committee for Science Promotion	2022	2023
		INSA Advisory Committee for Science & Society	2022	2023
		National committee for International Union of Microbiological Societies (IUMS)	2022	2023
18	Chairperson of Subcommittee on Biological Sciences	AcSIR Best Thesis Award 2021 AcSIR Best Thesis Award 2022	2022 2023	- -
19	Chancellor's nominee	Selection Committee of Teaching Faculties in Baba Ghulam Shah Badshah University, Jammu	May, 2023	May, 2026
20	Member	INSA-Sectional Committee X (Agricultural Sciences) Evaluation and recommendation of IDLS & IAF	2023	
21	Chairman	Technical-cum-Financial Appraisal Committee (TFAC) under the Environmental Research and Development Programme (ERDP) of the ministry - reg.	August, 2023	2025
22	Member	INSA-National Committee for International Union of Microbiological Societies (IUMS)	January, 2024	December, 2026

B. Member of International Committees/Bodies

- Member of the Review Committee for the ASM-IUSSTF Indo-US Professorship in Microbiology from April 2009 onwards.
- Ambassador of the International HCH and Pesticide Association (IHPA), from May, 2005 onwards.
- Member of International Education Committee (IEC), American society for Microbiology (ASM), 2013-2014.
- Member of American Society of Microbiologist (ASM).
- Expert Reviewer for scientific projects for financial consideration by EPFL, Lausanne; KAIMRC, Saudi Arabia; Polish Research Organisation, Poland; and Millennium Science Initiative, Chile.

C. Guest Editor Special Issues

- “Societally-relevant microbiology education and outreach” in *Microbial Biotechnology* **January, 2024**
- “Microbiology in India: Status, Challenges and Scope” in *Environmental Microbiology: Volume 24, Issue 6, June 2022*.
- “The Assessment of Microbial Ecology: A Special Emphasis on the Indian Scenario” in *Environmental Microbiology Reports: Volume 14, Issue 3, June 2022*.

- Special Issue on Microbiomes in *Indian Journal of Microbiology*: **Volume 60, Issue 1, March 2020**
- “A Decadal Status of Microbiological Research in India” in *Proceedings of the Indian National Science Academy*: **Volume 85, Issue 4, December 2019**
- Guest Editor for FEMS Microbes special issue on Modulating the environment with microbes.

D. Editor- in-Chief

- Editor-in-Chief of Indian Journal of Microbiology (INJM), published by Springer, Nature (January 2006 – 2013)

E. Editor/Editorial Board Member

- Editor of mSystems, published by American Society for Microbiology (ASM), USA (2016-2024).
- Editorial Board Member of Journal of Bioscience & Bioengineering (JBB), published by Society for Biotechnology, Japan (July 2015-Jan 2017).
- Editorial Advisory Board Member of Environmental Microbiology (EM), published by Society for Applied Microbiology (sfam) in UK (February 2014 onwards).
- Editorial Advisory Board Member of Environmental Microbiology Reports (EMIR) published by Society for Applied Microbiology (sfam) in UK (February 2014 onwards).
- Editorial Board Member of Microbial Biotechnology published by Society for Applied Microbiology (sfam) in UK (March, 2015 onwards).
- Editorial Board member of the journal BMC Biotechnology, published by BioMed Central Ltd., UK (2008 onwards).
- Editorial Board member of the journal BMC Biochemistry, published by BioMed Central Ltd., UK (2008 onwards).
- Editorial Board Member for OA Biotechnology, published by OA Publishing, London (2012 onwards).
- Editor of Indian Journal of Microbiology (INJM), published by Springer, India Ltd. (2013 onwards).
- Editorial Board member of ISME communications. (2019 onwards)
- Sectional Editor (Plant & Agriculture Sciences) of Proceedings of the Indian National Science Academy (INSA flagship journal) (2024 onwards)

F. Visiting Scientist /(Abroad)

- 1.** Visiting Scientist at the School of Life and Health Sciences, University of Technology, Wuhan, China under the program: Forging Links with International Academicians from May 20 to May 25, 2024.
- 2.** Visiting Scientist at the University of Freiburg, Germany under the Alexander von Humboldt fellowship program from 1st June, 2024 to 28th August 2024.
- 3.** Visiting Scientist, Short-term visit to Germany under an exchange program sponsored by the Department of Science & Technology-Deutscher Akademischer Austauschdienst (German Academic Exchange Service) (DST-DAAD), Germany (1st – 31st August, 2015).
- 4.** Visiting Scientist, Short-term visit to Germany under an exchange programme sponsored by the Department of Science & Technology-Deutscher Akademischer Austausch Dienst (German Academic Exchange Service) (DST-DAAD) to Helmholtz Centre for Environmental Research, Leipzig, Germany (1st July -24th July, 2014).
- 5.** Visiting Scientist, Short-term visit under the Indo-Swiss Joint Research Program (ISJRP) to The Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Switzerland (4th - 24th August, 2014).
- 6.** Visit to the International Education Council (IEC) in the capacity of the member for attending the Annual Planning Meeting of IEC, Washington DC, USA (14th - 16th October, 2013).
- 7.** Visiting Scientist, Short term visit under Indo-Australian Collaboration in Biotechnology (IACB) project to CSIRO, Canberra, Australia (23rd August - 8th September, 2008).
- 8.** Attended the first kick-off meeting of the Indo-Swiss Collaboration in Biotechnology (ISCB) project “Environmental Risk and Bioremediation of Hexachlorocyclohexane Isomers” held at The Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Zurich, Switzerland (10th - 11th July, 2008).
- 9.** Visiting Scientist, Short-term visit under Indo-Swiss Joint Research Program (ISJRP) to Department of Fundamental Microbiology (DMF), University of Lausanne, Lausanne, Switzerland (4th May - 8th June, 2007).
- 10.** Visiting Scientist, Short-term visit under ISCB collaborative project to The École polytechnique fédérale de Lausanne (EPFL), University of Lausanne, Lausanne and The Swiss Federal Institute of Aquatic Science and Technology (EAWAG), Zurich, Switzerland (11th - 18th July, 2004).
- 11.** Visiting Scientist at the Department of Genetics, University of Kaiserslautern, Kaiserslautern, Germany (May - June, 2004).
- 12.** Visiting Scientist at the Department of Genetics, University of Kaiserslautern, Kaiserslautern, Germany (June - July, 2002).

13. Visiting Scientist at the Department of Genetics, University of Kaiserslautern, Kaiserslautern, Germany (November - December, 2001).

14. Visiting Scientist at the Department of Biochemistry, University of Cambridge, Cambridge United Kingdom (9th February - 1st May, 1998).

G. Meeting/Conferences Participations (Abroad)

1. Participated and delivered an invited lecture in the Second South Asian Symposium on Microbial Ecology 2023 (SASME 2023) at Himalaya Drishya Resort, Dhulikhel, Nepal from 31st October, 2023 to 2nd November, 2023.

2. Participated and delivered an invited lecture in the 10th Congress of European Microbiologists (FEMS 2023) in Hamburg, Germany from 9-13 July 2023.

3. Participated in the International Symposium on Microbial Ecology (ISME18) held at EPFL, Lausanne from 14-19 August 2022.

4. Participated in the General Meeting of American Society for Microbiology (ASM), San Francisco, USA (17th - 19th June, 2012).

5. Participated in the third coordination meeting of the Indo-Australian Collaboration in Biotechnology (IACB) project “Enabling Technologies for Enzymatic Bioremediation of Cyclic Organochlorine Residues” held at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Canberra, Australia (20th - 24th October, 2009).

6. Participated in the 10th International HCH and Pesticides Forum, Bruno, Czech Republic (7th - 10th September, 2009).

7. Participated in the 3rd Congress of European Microbiologists-FEMS 2009 Conference, Gothenburg, Sweden (28th June - 2nd July, 2009).

8. Participated in the 12th International Symposium on Microbial Ecology (ISME) on “Microbial Diversity- Sustaining the Blue Planet”, Cairns, Australia (17–22, August 2008).

RESEARCH

Supervision/Co-supervision of Doctoral Thesis/Summer Trainees

- Awarded: 75
- Summer Trainees: 200

Research Projects (Completed)

International

1. 2004-2007: Project Principal Investigator of Indo-Swiss Collaboration in Biotechnology (ISCB): “Bioremediation of HCH and PNP Contaminated soil by Bioaugmentation: Proof of Concept at Pilot Scale”. Sponsored by the ISCB, Swiss Federal Institute of Technology, Switzerland (Mar 2004 - Aug 2007).

2. **2007-2010:** Project Principal Investigator of Indo-Australian Collaboration in Biotechnology (IACB) project entitled, “Enabling Technologies for the Enzymatic Bioremediation of Cyclic Organochlorine Residues”. Sponsored by Department of Biotechnology, Govt. of India (Jul 2007 - Jul 2010).
3. **2008-2010:** Project Principal Investigator of Indo-Swiss Collaboration in Biotechnology (ISCB) Phase III: “Environmental Risk and Bioremediation of Hexachlorocyclohexane Isomers”. Sponsored by the ISCB, Swiss Federal Institute of Technology, Switzerland (Sept 2008 - Sept 2010).
4. **2001-2004:** Project Principal Investigator in DST-DAAD Programme: “Genomic Mapping of the Chromosome and Development of a System for the Generation of Rifamycin Analogs in *Amycolatopsis mediterranei*”. Sponsored by Department of Science and Technology, Govt. of India (May 2001 - May 2004).
5. **2012-2014:** Project Principal Investigator of “Mining *linA* and *linB* variants for the development of enzymatic bioremediation of Hexachlorocyclohexane”. Sponsored by Department of Science & Technology (Jul 2012 - Sep 2014).
6. **2013-2015:** Project Investigator of personnel exchange programme entitled “Assessing Natural and Stimulated Biodegradation of the Pesticide Hexachlorocyclohexane (HCH) at Contaminated Field Sites Using Compound-Specific Stable Isotope Analysis (CSIA)”. Sponsored by Department of Science & Technology-Deutscher Akademischer Austauschdienst (German Academic Exchange Service) (DST-DAAD) (Apr 2013 – Apr 2015).
7. **2014-2016:** Project Collaborator on the Project entitled “Tracking biotransformation of Hexachlorocyclohexane isomers by Compound-Specific isotopy Analysis” with Dr. Hans-Peter Kohler and Dr. Thomas Hofstelter. Sponsored by the Swiss National Science Foundation.

National

1. **1981-1984:** Co-investigator of project: “Accumulation, metabolism and effects of organochlorine insecticides on microorganisms”. Sponsored by Ministry of Forests and Wild Life, Govt. of India. (Jan 1981- Jun 1984).
2. **1983-1986:** Principal Investigator of a project: “Accumulation, metabolism and effects of organophosphorus insecticides on microorganisms”. Sponsored by the Ministry of Wild Life and Forests, Government of India (Jun 1983 - Nov 1986).
3. **1987-1990:** Principal Investigator of a project: “Effects of pesticides on Rhizobium-legume symbiosis”. Sponsored by the Ministry of Wild Life and Forests, Government of India (Jan 1987 - May 1990).
4. **1987-1990:** Principal Investigator of a project: “Survey of pesticide residues from food commodities in Delhi and surrounding areas”. Sponsored by Ministry of Health, Government of India and WHO (Jan 1987 - Dec 1990).

5. **1987-1990:** Co-ordinator of project: “College Science Improvement programme (COSIP)”. Sponsored by University Grants Commission, New Delhi (Jul 1987 - Jun 1990).
6. **1992-1997:** Principal Investigator of the Project: “Indigenization and Genetic Manipulations of Rifamycin Production in *Amycolatopsis mediterranei* (*Nocardia mediterranei*)”. Sponsored by the Department of Biotechnology, Govt. of India (Dec 1992 - Nov 1997).
7. **1993-1996:** Principal Investigator of the Project, “Manipulation of Catabolic Genes for Detoxification of Xenobiotics”. Sponsored by the Ministry of Environment and Forests, Govt. of India from (Apr 1993 - Sep 1996).
8. **1997-2000:** Principal Investigator of the Project, “Cloning and Characterization of rifamycin biosynthetic genes and development of a system for the generation of hybrid antibiotics”. Sponsored by Department of Biotechnology, Govt. of India (Apr 1997 – Jun 2000).
9. **1997-2000:** Principal Investigator of the Project: “Cloning and characterization of catabolic genes of gamma-HCH and its isomers in *Sphingomonas paucimobilis*”. Sponsored by the Department of Biotechnology, Govt. of India (Apr 1997 - Mar 2000).
10. **1999–2003:** Principal Investigator of the Project: “Microbial Biodiversity of Indigenous Actinomycetes Germplasm”. Sponsored by the Department of Biotechnology, Govt. of India (Jul 1999 - Jul 2003).
11. **1999-2003:** Co-Investigator of the Project: “Cloning and Characterization of Ligninase/laccase genes from White Rot- Fungus”. Sponsored by Department of Biotechnology, Govt. of India from (Apr 1999 - Mar 2003).
12. **2001-2004:** Principal Investigator of the Project: “Genetic Engineering of Rifamycin gene Cluster in *Amycolatopsis mediterranei* for the production of Rifamycin Analogs”. Sponsored by Department of Biotechnology, Govt. of India (Apr 2001 - Mar 2004).
13. **2001-2005:** Project Investigator of the project “Development of suitable probes for tracking the organisms released for biodegradation of soil contaminated with chlorinated and nitro pesticides”. Sponsored by Department of Biotechnology, Govt. of India from (Aug 2001 - Mar 2005).
14. **2003-2004:** Project Investigator of the project “Characterization and molecular analysis of some PAHs (Phenanthrene, Pyrene and Benzo (a) pyrene) degrading pathways by bacteria through metabolic Engineering”. Sponsored by Department of Biotechnology, Govt. of India (Apr 2003 - Mar 2006).
15. **2004-2007:** Project Investigator of the project “Decontamination and Microbial diversity of HCH, p-Nitrophenol and Chloropyrifos contaminated soils from dumping sites”. Sponsored by Department of Biotechnology, Govt. of India (Apr 2004 - Mar 2007).
16. **2005-2008:** Project Investigator of “Improvement and Development of Cloning Vector transformation system for species of *Amycolatopsis*”. Sponsored by Department of Science and Technology, Govt. of India (Jan 2005 - Jan 2008).
17. **2004-2008:** Project Investigator of “Genome Sequencing of Rifamycin Producing Actinomycete *Amycolatopsis mediterranei* S699”. Sponsored by Department of Biotechnology, Govt. of India (Apr 2004 - Mar 2008).

18. **2005-2008:** Project Investigator of the Indo-Swiss Joint Research Project (ISJRP), “Isolation, Characterization and Mutagenesis of Long-range acting bacterial transcription regulators with receptor domains in aromatic compounds (acronym: TRAROMAT)”. Sponsored by Department of Science and Technology, Govt. of India (Dec 2005 - Dec 2008).
19. **2007-2011:** Project investigator of “Screening for Bio-molecules from Microbial Diversity Collected from Different Ecological Niches”. Sponsored by Department of Biotechnology, Govt. of India (Oct 2007 - Mar 2011).
20. **2008-2012:** Project investigator of “Construction of Bacterial Biosensors for Detection of Aromatic Hydrocarbons”. Sponsored by Department of Biotechnology, Govt. of India (Apr 2008 - Mar 2011).
21. **2008-2012:** Co-Project investigator of “Molecular Analysis of Agrocins Producing *Agrobacterium radiobacter* for Biological Control of Crown Gall in Stone Fruits”. Sponsored by Indian Council of Agricultural Research (ICAR) (Apr 2008 - Mar 2012).
22. **2009-2012:** Project investigator of “Understanding Individual & Community Genomes of Bacteria using New Generation Sequencing Technologies”. Sponsored by University of Delhi under DU/ DST – PURSE Grant (Dec 2009 - Sep 2013).
23. **2007-2014:** Project Investigator of “Genotyping and Isolation of Sphingomonads from HCH contaminated Agricultural soils and their application in Bioremediation”. Sponsored by National Bureau of Agriculturally Important Microorganisms (NBAIM) (ICAR) (April 2007 - March 2014).
24. **2012-2015:** Project investigator of “Understanding Genome Organisation and Gene Expression in Response to Different Hexachlorocyclohexane (HCH) Isomers in HCH Degrading Bacteria and the HCH Dumpsite”. Sponsored by Department of Biotechnology (DBT) (Apr 2012 - Mar 2015).
25. **2012-2015:** Project investigator of “Isolating the Natural Existing Hexachlorocyclohexane Dehydrochlorinase (LinA) & Haloalkane Dehalogenase (LinB) Variants from Hexachlorocyclohexane Contaminated Dumpsite by using Metagenomic Approach”. Sponsored by Department of Science & Technology (Jun 2012 - May 2015).
26. **2014-2017:** Project investigator of “Microbial metagenomic analysis of hot spring situated atop the Himalayan ranges at Manikaran, Himachal Pradesh, India”. Sponsored by National Bureau of Agriculturally Important Microorganisms (NBAIM) (ICAR) (April 2014 to March 2017) Funds: 48.637 Lacs.
27. **2007-2018:** Project investigator of “All India Network Project on Soil-Biodiversity Biofertilizers (XIth Plan)”. Sponsored by Indian Council of Agricultural Research (ICAR) (April 2007 to March 2018) Funds: 22 Lacs.
28. **2015-2018:** Project Investigator of “Production of rifamycin analogues against multi-drug resistant (MDR) strains of *Mycobacterium tuberculosis* by the manipulation of rifamycin polyketide biosynthetic gene cluster of *Amycolatopsis mediterranei* S699 and understanding the changes in human microbiome under antibiotic treatment regimen in patients suffering from tuberculosis”. Sponsored by Department of Biotechnology (DBT) from (October 2015 to September 2018). Funds: 64 Lacs.

29. **2016-2019:** Project Co-investigator of “Characterization of Free Living Ciliated Protists as indicators of pollution and their impact on the micro-ecology of Yamuna River flowing through National Capital Region (NCR) of Delhi, India”. Sponsored by Department of Science & Technology (DST). Funds- 55.76 Lacs.
30. **2016-2018:** Project Investigator of “To study the microbial diversity associated with fish gut by using culture dependent and independent approaches”. Sponsored by AMAAS and National Bureau of Agriculturally Important Microorganisms (NBAIM). Funds: ₹ 19.5 Lacs.
31. **2017-2020:** Project Coordinator and Investigator of “Exploring diversity, functional dynamics and biotechnological applications of bacterial communities inhabiting hot water spring atop the Himalayan ranges at Manikaran, Himachal Pradesh, India”. Sponsored by Department of Biotechnology (DBT). Funds: 52.2 Lacs.
32. **2018-2021:** Project Coordinator and Investigator of “Remediation and reclamation of HCH dumpsite by using microbial bioremediation technology”. Sponsored by Department of Biotechnology (DBT) from April 2018 to September 2021. Funds: ₹113 Lacs.
33. **2020-2022:** Project Advisor of "Up-scaling and commercialization of 24-desmethyl rifampicin effective against major first line drug rifampicin resistant strains of *Mycobacterium tuberculosis*". Sponsored by Biotechnology Industry Research Assistance Council (BIRAC) from February, 2020 to February, 2022. Budget: 49 lacs
34. **2019-2022:** Project Investigator of “GIS-based mapping of microbial diversity across the Ganges for ecosystem services”. Sponsored by National Mission for Clean Ganga from August, 2019 to August 2022. Budget: 47.25 lacs

Research Project Mentored under Innovation Projects at University of Delhi

1. **2012-2013:** An easy identification of few pathogenic gamma/epsilon proteobacteria by exploring the internal features of their 16S rRNA genes. Mentored with Dr. Mansi Verma, Dr. P. S. Dhanaraj, Dr. Anju Kaicker, Mr. Dev Dutt, at Sri Venkateswar College, University of Delhi.
2. **2013-2014:** Comparative Codon and Amino Acid Usage Biasness within the Sequenced Genomes of Bacterial Phylum Firmicutes. Mentored with Dr. Devi Lal, at Ramjas College, University of Delhi.
3. **2015-2016:** Comparative genomics of Dengue virus to explore potential candidates for novel drug targets. Mentored with Dr. Devi Lal, at Ramjas College, University of Delhi.
4. **2015-2016:** Isolation of novel bacteria from garbage disposal landfills in Delhi, screening for antibiotics or secondary metabolites and genome sequencing. Mentored with Dr. Ajaib Singh, at Sri Venkateswar College, University of Delhi.

Training Courses/ International Conferences Organized

1. **2024:** Pre-Conference Workshop on “Genomics, Metagenomics and Bioinformatics in Microbial Ecology” organized by Indian Network for Soil Contamination Research (INSCR), IMiLi-SAC

& PhiXgen Pvt. in association with Acharya Narendra Dev College sponsored by International Society for Microbial Ecology (ISME) on 02nd April, 2024.

2. **2024:** Pre-Conference Workshop on “Art of Scientific Writing and Communication” organized by Indian Network for Soil Contamination Research (INSCR), IMiLi-SAC & PhiXgen Pvt. in association with Acharya Narendra Dev College sponsored by Federation of Microbiological Societies (FEMS) on 02nd April, 2024.
3. **2024:** One-day Workshop on “Art of Scientific Writing and Communication” sponsored by International Society for Microbial Ecology (ISME) organized by Acharya Narendra Dev College 13th February, 2024.
4. **2024:** 8th International Conference of Indian Network for Soil Contamination Research (INSCR) on “Exploring the Microbial World: Human Health and Environmental Sustainability” organized by Indian Network for Soil Contamination Research (INSCR), IMiLi-SAC & PhiXgen Pvt. in association with Acharya Narendra Dev College from 2nd to 5th April, 2024 at Conference Centre, University of Delhi.
5. **2023:** One-day Workshop on “Quantitative microbial ecology: Opportunities and Way-ahead” sponsored by International Society for Microbial Ecology (ISME) organized by IMiLi-SAC & PhiXgen Pvt. Ltd. in association with Acharya Narendra Dev College and Gargi College on 4th February, 2023.
6. **2023:** Celebrated “International Microorganisms Day” organized by Career Development Centre, Kirori Mal College under the aegis of Federation of Microbiological Societies (FEMS) on 18th September, 2023.
7. **2023:** Celebrated “International Microorganisms Day” organized by Ramjas College, University of Delhi under the aegis of IQAC on 19th September, 2023
8. **2023:** Biar Initiative: A School Outreach Program for Enrichment II (BI&SCOPE II)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLi), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS), Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 13th February 2023.
9. **2023:** Bani School Innovation Camp V (BaSIC V)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLi), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS), Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 13th February 2023.

- 10. 2023:** A One-day lecture series on “Antibiotics and Pharmaceuticals: The Wonder Natural Products” organized by Kirori Mal College under the aegis of Federation of Microbiological Societies (FEMS) on 24th February 2023.
- 11. 2022:** World Microbiome Day Poster Making Competition on theme “Microbes and Us” under International Microbiology Literacy Initiative Resources – Regional Office New Delhi (IMLIR-ROND) conducted by PhixGen Pvt. Ltd. in association with Deen Dayal Upadhyaya College, Gargi College, Kirori Mal College, Ramjas College, University of Delhi and PG Dept. of Zoology, Magadh University on June 27, 2022.
- 12. 2022:** Pre-conference workshop on “Art of Scientific Writing and Communication: How to publish in High Impact Journals” organized by Indian Network for Soil Contamination Research & PhiXgen Pvt. Ltd. under the aegis of Federation of European Microbiological Societies (FEMS) on November 8, 2022.
- 13. 2022:** Pre-conference Online Hands-on Workshop on “Genomics, Metagenomics & Bioinformatics in Microbial Ecology” organized by Indian Network for Soil Contamination & Research; PhiXgen Pvt. Ltd. under the aegis of International Society for Microbial Ecology (ISME) on November 7, 2022.
- 14. 2022:** Organized Workshop on “Art of Scientific Writing, Communication and Basics of Computational Biology” in association with International Society for Microbial Ecology (ISME) under the ISME Ambassador program conducted by Phixgen Pvt. Ltd. on June 13-14, 2022.
- 15. 2022:** Organized add on course on “Computational biology for (Meta) genomics analysis” under PhixGen Pvt. Ltd. from June 9, 2022 to June 27, 2022 organized by Gargi College, University of Delhi.
- 16. 2022:** One-day Workshop on “Bioinformatics- An in-silico approach to understand biological principles” organized by Chrysalis, The Zoological Society Maitreyi College, University of Delhi on March 16, 2022.
- 17. 2022:** Mentorship program for UG/PG in “Basic techniques of Molecular biology and Biotechnology” conducted by PhixGen Pvt. Ltd. from July 4, 2022 to July 20, 2022.
- 18. 2022:** Certificate course in Metagenomics & Bioinformatics organized by Internal Quality Assurance Committee (IQAC), Kirori Mal College, University of Delhi in association with PhixGen Pvt. Ltd. from July 1, 2022 to July 19, 2022.
- 19. 2022:** 7th International Conference of Indian Network for Soil Contamination Research (INSCR) on “Modulating the Environment with Microbes” organized by 10 colleges of the University of Delhi, CMP college Allahabad; Kolhan University, Jharkhand; KIIT University, Orissa; PG Department of Zoology, Magadh University; SoAS Dev Bhoomi Uttarakhand University from 7th to 11th November, 2022.

20. **2022:** “FEMS INAUGURAL AMBASSADOR PROGRAM” and workshop on bioinformatics organized by Federation of European Microbiological Societies (FEMS) in association with Miranda House, University of Delhi and PhixGen Pvt. Ltd. on June 15 -16, 2022.
21. **2022: Microbial Literacy Initiative:** An Outreach Program “Educate the children, secure the future” organized by Academy of Microbiological Sciences and Association of Microbiologists of India in association with Deen Dayal Upadhyaya College, Gargi College, Kirori Mal College, Ramjas College of University of Delhi and PhixGen Pvt. Ltd. at Vanasthali Public School, Noida on April 18, 2022.
22. **2021:** Organized Pre-conference workshop on “Hands on to Computational Biology for (Meta) Genomics Analysis” by Phixgen Pvt. Ltd. In association with International Society for Microbial Ecology (ISME) during the 61st Annual International Conference on “Microbial World: Recent Developments in Health, Agriculture & Environmental Sciences” on February 1-2, 2021.
23. **2021:** Organized Pre-conference workshop on “Hands on to Computational Biology for Genomics and Proteomics Analysis for Beginners” by Phixgen Pvt. Ltd. In association with International Society for Microbial Ecology (ISME) during the 6th Annual International Conference of Indian Network for Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” on November 14, 2021.
24. **2021:** Organized Pre-conference workshop on “Art of Scientific Writing and Communication” by Phixgen Pvt. Ltd. In association with American Society for Microbiology (ASM) during the 61st Annual International Conference on “Microbial World: Recent Developments in Health, Agriculture & Environmental Sciences” on February 2, 2021.
25. **2021:** Organized Pre-conference workshop on “Art of Scientific Writing and Communication” by Phixgen Pvt. Ltd. during the 6th Annual International Conference of Indian Network for Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” on November 15, 2021.
26. **2021:** Organized Annual International Conference of The Association of Microbiologists of India (AMI) and Indian Network for Soil Contamination Research (INSCR) on “Microbial World: Recent Developments in Health, Agriculture & Environmental Sciences” in association with The Energy and Resources Institute (TERI), Department of Zoology, UoD, Indian Agricultural Research Institute (IARI) & Indian National Science Academy (INSA) from February 3, 2021 to February 5, 2021.
27. **2021:** Organized Annual International Conference of Indian Network for Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” 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),

SGTB Khalsa College (DU), COCAS (PU) & PhixGen Pvt. Ltd., Gurugram from November 15 to 18, 2021.

28. **2021:** Organized 40 hours Academia-Industry Online Certificate Course on “(Meta) genomics and Bioinformatics jointly organized by Maitreyi College and PhixGen Pvt. Ltd on from September 17, 2021-November 07, 2021.
29. **2021:** Organized 15 days Bioinformatics Workshop on Computational Biology for (Meta) genomics Analysis under PhixGen Pvt. Ltd. From June 7, 2021 to June 26, 2021 organized by Gargi College, University of Delhi.
30. **2020:** Organized workshop for UG/PG students for three days on “Computational Biology for (Meta) Genomics Analysis” under INSA “Delhi local chapter’ for science week by Sri Venkateswara College, University of Delhi from 24th-26th February, 2020.
31. **2020:** Organized three weeks Academia-Industry Online Certificate Course in (Meta) genomics and Bioinformatics organized by Maitreyi College and PhixGen Pvt. Ltd on “Importance of Computational Biology in Genomics and Metagenomics” from June 27, 2020-July 16, 2020.
32. **2020:** Organized ten days training program (online) on “Role of Computational Biology in (Meta) Genomics” under Phixgen Pvt. Ltd. from July 1, 2020-July 10, 2020.
33. **2020:** Organized pre-symposium workshop on “Computational Biology for (Meta) Genomics Analysis for Beginners” in Southeast Asian Regional Symposium on Microbial Ecology (SARSME-2020) in association with Tribhuvan University, Kathmandu, Nepal on 12th February 2020.
34. **2020:** Organized pre-conference workshop (online) on “Health and Research in Current Scenario: with Special Emphasis on Covid-19 Virus Genomics and Pathogenicity” by Sri Venkateswara College under the aegis of ISME on July 14, 2020.
35. **2020:** Organized Add-on Course on Bioinformatics in association with Gargi College and Phixgen Pvt. Ltd., University of Delhi from July 20, 2020- July 30, 2020.
36. **2020:** Organized Workshop -2020 on “Hands-on to Computational Biology for (Meta) Genomics Analysis” under PhiXgen Pvt. Ltd. and INSA Delhi Local Chapter at Department of Zoology, University of Delhi held on February 19, 2020.
37. **2019:** Organized a Two-day workshop on “Hands-on to Computational Biology for (meta) genomic analysis” in association with Phixgen Pvt. Ltd., Department of Zoology and Department of Botany, Acharya Narendra Dev College under the aegis of DBT Star College Scheme from April 4-5, 2019.
38. **2019:** Organized Workshop -2019 on “Hands-on to Computational Biology for (Meta) Genomics Analysis” under PhiXgen Pvt. Ltd. at Ramjas College, University of Delhi in March, 2019.

39. **2019:** Organized Workshop -2019 on “Hands on to Computational Biology for (Meta) Genomics Analysis” under PhiXgen Pvt. Ltd. at Ramjas College, University of Delhi in April, 2019.
40. **2018:** Organized Workshop -2018 on “Hands on to Computational Biology for (Meta) Genomics Analysis” at Annual Conference of AMI-2018 under the aegis of International Society for Microbial Ecology (ISME) and Association of microbiologist of India (AMI) at University of Hyderabad on December 9, 2018.
41. **2018:** Organized Mini-Workshop -2018 on “Art of Publication and Communication” at Annual Conference of AMI-2018 under the aegis of International Society for Microbial Ecology (ISME) and Association of microbiologist of India (AMI) at University of Hyderabad on December 11, 2018.
42. **2018:** Organized Bani School Innovation Camp (BaSIC II)-2018 (Dream School) at Government Senior Secondary School (GSSS), Bani, Hamirpur (H.P.) under the aegis of University of Delhi, INSA Outreach Program, Association of Microbiologists of India (AMI), DBT Star College Project, Ramjas College, on March 7, 2018.
43. **2018:** Organized Workshop -2018 on “Hands-on to Computational Biology for (Meta) Genomics Analysis” at INSCR International Conference 2018 under the aegis of Kalinga Institute of Industrial Technology and PhiXgen Pvt. Ltd. at KIIT, Bhubaneswar on September 25, 2018.
44. **2018:** Organized ISME Ambassador Meet and Workshop -2018 on “Hands-on to Computational Biology for (Meta) Genomics Analysis” under the aegis of Kalinga Institute of Industrial Technology and International Society for Microbial Ecology (ISME) at KIIT, Bhubaneswar on May 3, 2018.
45. **2017:** Organized Pre-conference workshop on “Hands-on to Computational Biology for (Meta)Genomic analysis” under the aegis of the International Society for Microbial Ecology (ISME), Department of Zoology University of Delhi and Indian Network for Soil Contamination Research (INSCR) at Department of Zoology University of Delhi on September 26, 2017.
46. **2017:** Organized ISME-AMI-INSCR Pre-conference workshop -2017 on “Hands-on Computational Biology for (Meta) Genomics Analysis” under the aegis of Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR), and International Society for Microbial Ecology (ISME) at Babasaheb Bhimrao Ambedkar University, Lucknow on November 16, 2017.
47. **2017:** Organized INSCR International Conference 2017 (IIC-2017) on “Role of Microbe-Plant-Animal Interactions in Human Health” under the aegis of Department of Zoology University of

Delhi, Indian Network for Soil Contamination Research (INSCR) and Amity University, Noida at Department of Zoology University of Delhi from September 26-28, 2017.

- 48. 2017:** Organized AMI-INSCR Workshop on “Beginner’s Computational Tools for Genome and Metagenome Analysis” under the aegis of Association of Microbiologists of India (AMI) and Indian Network for Soil Contamination Research (INSCR) at Department of Zoology University of Delhi on October 13, 2017.
- 49. 2017:** Organized a workshop on “Hands on to Computational Biology for (Meta) Genomics Analysis” jointly organized under the aegis of Department of Environmental Studies and Department of Zoology at Department of Zoology University of Delhi on November 22, 2017.
- 50. 2016:** Organized National Workshop on Microbial Genomics and Metagenomics at Department of Zoology, University of Delhi under the aegis of IUMS-INSa (International Union of Microbiological Societies-Indian National Science Academy), AMI Delhi Unit, University of Delhi and INSCR (Indian Network for Soil Contamination Research) on September 22, 2016.
- 51. 2016:** Organized Bani School Innovation Camp (BaSIC)-2016 (Dream School) at Government Senior Secondary School (GSSS), Bani, Hamirpur (H.P.) under the aegis of University of Delhi, INSA Outreach Program and DBT Star College Project, Ramjas College, on December 23-24, 2016.
- 52. 2015:** Organized National workshop on “Renovating Bacterial Taxonomy with Bioinformatics” at Department of Zoology, University of Delhi in collaboration with National Bureau of Agriculturally Important Microorganisms (NBAIM), Mau, Uttar Pradesh (May 14 – May 15, 2015).
- 53. 2011:** Organized the Indo-Swiss Collaboration in Biotechnology (ISCB) International Conference entitled “Recent Trends in Developing Bioremediation Strategies for Hexachlorocyclohexane (HCH) & Other Chlorinated Contaminants at University of Delhi, Delhi (Feb 9 – Feb 11, 2011).
- 54. 2009:** Conducted Phase III meeting of Indo-Swiss Collaboration in Biotechnology (ISCB) “Environmental Risk and Bioremediation of Hexachlorocyclohexane Isomers” at the Department of Zoology, University of Delhi, Delhi on Nov 16, 2009.
- 55. 2008:** Organized the 49th Annual Conference of The Association of Microbiologists of India entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics & Metagenomics” at University of Delhi, Delhi (Nov 18 – Nov 20, 2008).

56. **2007:** Meet with Indo-Swiss Joint Research Program (ISJRP) Project partner Prof. Jan Roelof Van der Meer and Dr. Christelle Vagne held at the Department of Zoology, University of Delhi.
57. **2007:** Interactive meet between M.Sc. Life Sciences students from EPFL, Switzerland and M.Sc. and research scholars of University of Delhi organized at the department of Zoology, University of Delhi.
58. **2007:** First co-ordination meeting of Indo-Australian Collaboration in Biotechnology (IACB) “Enabling Technologies for the Enzymatic Bioremediation of Cyclic Organochlorine Residues”, with project partners from CSIRO (Australia) and IMTECH (India) at the Department of Zoology, University of Delhi (Sep 11- Sep 12, 2007).
59. **2006:** Workshop on Genetics, Genomics and Biotechnology for Zoology Teachers of University of Delhi at Department of Zoology, University of Delhi. Sponsored by University of Delhi (Aug 10 - Aug 12, 2006).
60. **2006:** Workshop on Genetics, Genomics and Biotechnology for Botany Teachers of University of Delhi at Department of Zoology, University of Delhi. Sponsored by University of Delhi (Dec 14 - Dec 15, 2006).
61. **2002:** Mini-Symposium on “Utilization of Microbes for the Development of Bioremediation Technologies organized at the Department of Zoology, University of Delhi, Delhi. Sponsored by Swiss Agency for Development Co-operation (SDC), Switzerland, and DBT, India (Oct 7 - Oct 8, 2002).
62. **2001:** Course Director of a Course on Recent Advances in Molecular Biology organized at the Department of Zoology University of Delhi and sponsored by the Center for Professional Development in Higher Education, University of Delhi (Apr 12 - May 2, 2001).
63. **1996:** Course Director of Short Term Scientist Training Course: “Genetic Manipulations of Antibiotic Producing-Gram Positive Bacteria”. Sponsored by Department of Biotechnology (Sep 25 – Oct 11, 1996).
64. **1995:** Course Director of a Course in Molecular Biology for Zoology Teachers at Center for Professional Development in Higher Education, University of Delhi (Feb – Mar, 1995).
65. **1994:** Course Director of Short Term Training Programme on “Techniques in Recombinant DNA Technology”. Sponsored by Department of Biotechnology, Govt. of India (Jul 25 – Oct 10, 1994).

Workshops Organized in Capacity of Ambassador to Indian Ocean Region, American Society for Microbiology (ASM)

1. **2012:** Organized workshop on Scientific Writing and Publishing at Department of Biotechnology, University of Kashmir, Srinagar on July 20, 2012.
2. **2012:** Organized workshop on Scientific Writing and Publishing at Department of Biotechnology, Jaypee Institute, Noida, Uttar Pradesh on September 29, 2012.
3. **2012:** Organized workshop on Scientific Writing and Publishing at Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar, Odisha at 53rd Annual AMI Conference on November 21, 2012.
4. **2013:** Organized workshop on Scientific Writing and Publishing at Sri Venkateswara College, University of Delhi, Delhi on February 20, 2013.
5. **2013:** Organized workshop on Culture of responsibility and Scientific Writing and Publishing at Maitreyi College, University of Delhi, Delhi on September 2, 2013.
6. **2013:** Organized workshop on Culture of responsibility and Art of Science Communication at Convention Centre, Jawaharlal Nehru University (JNU), Delhi on September 3, 2013.
7. **2013:** Organized workshop on Art of Science Communication at Ramjas College, University of Delhi, Delhi on September 4, 2013.
8. **2013:** Organized workshop on Art of Science Communication at CSIR-Institute of Genomics and Integrative Biology, Mall Road, Delhi on October 25, 2013.
9. **2013:** Organized workshop on the Art of Science Communication at Maharishi Dayanand University, Rohtak, Haryana on November 17, 2013.
10. **2013:** Organized workshop on Art of Science Communication at Panjab University, Chandigarh, Punjab on December 4, 2013.
11. **2013:** Organized workshop on the Art of Science Communication at Goa University, Goa on December 7, 2013.
12. **2014:** Organized workshop on Art of Science Communication at Modern College of Arts, Science and Commerce, Shivajinagar, Pune on January 22, 2014.

13. **2014:** Organized workshop on Art of Science Communication at Indian Institute of Technology (IIT) Roorkee, Uttarakhand on February 8, 2014.
14. **2014:** Organized workshop on Art of Science Communication at Sardar Patel University, Ahmedabad, Gujarat on February 22, 2014.
15. **2014:** Organized workshop on Art of Science Communication at Maharishi Dayanand University, Rohtak, Haryana on March 4, 2014.
16. **2014:** Organized workshop on Art of Science Communication at Amity University, Noida, Uttar Pradesh on March 26, 2014.
17. **2014:** Organized workshop on Art of Science Communication at International Guest House, University of Delhi, Delhi on March 31, 2014.
18. **2014:** Organized workshop on Art of Science Communication at Indian Institute of Toxicology Research, Lucknow on September 12, 2014.
19. **2014:** Organized workshop on Art of Science Communication at Department of Zoology, University of Delhi, Delhi on September 22, 2014.
20. **2014:** Organized workshop on Art of Science Communication at NIIT University, Neemrana, Rajasthan on September 30, 2014.
21. **2014:** Organized workshop on Art of Science Communication at Tamil Nadu Agricultural University, Coimbatore on November 12, 2014.
22. **2014:** Organized workshop on Art of Science Communication at KIIT University, Bhubaneswar, Odisha on December 13, 2014.
23. **2015:** Organized workshop on Art of Science Communication at Indian Institute of Home Economics, University of Delhi on April 13, 2015.
24. **2015:** Organized workshop on Art of Science Communication at Department of Botany, Gauhati University Guwahati, Assam on April 20, 2015.
25. **2015:** Organized workshop on Art of Science Communication at Thapar University, Patiala on April 25, 2015.
26. **2015:** Organized workshop on Art of Science Communication at Department of Biotechnology, Jammu University, Jammu on June 20, 2015

Patents

1. **Lal, R. (1999)** Cloning vector and a process for the preparation thereof. US patent No 005985560A page 1-25.
2. **Lal, R and Mahmud, T. (2012)** Antibacterial compounds against drug resistant bacteria. (India: BT/BPFC/04/36/2011)
3. **Lal, R and Mahmud, T. (2012)** Antibacterial compounds against drug resistant bacteria. PCT/IB2014/059989. (Russia)
4. **Lal, R and Mahmud, T. (2018)** Antibacterial compounds against drug resistant bacteria. PCT/IB2014/059989. (Russia)

Publications

A. Books

1. Sobti, R.C. Kuhad, R.C. **Lal, R.** and Rishi, P. (eds.) *Role of Microbes in Sustainable Development*, Springer Singapore, 713 pp, 2023
2. **Lal, R.** (ed.) *An Introduction to Biotechnology: A Genetic Manipulation Perspective*, I.K. International Publishing House Pvt. Ltd., New Delhi, 207 pp, 2016.
3. **Lal, R** and Lal, S. *Genetic Engineering of Plants for Crop Improvement*, CRC Press, Florida, 225 pp, 1993.
4. **Lal, R** and Lal, S. *Crop Improvement Utilizing Biotechnology*, CRC Press, Florida, USA, 359 pp, 1989.
5. **Lal, R** and Lal, S. (ed.) *Pesticides and Nitrogen Cycle*, CRC Press, Florida, USA, 1988.
Vol. 1. *Ecological and Methodological Aspects*, 138 pp.
Vol. 2. *Nitrogen Mineralization*, 153 pp.
Vol. 3. *Nitrogen Fixation*, 170 pp.
6. **Lal, R.**(ed.) *Insecticide Microbiology*, Springer Verlag, Berlin & Heidelberg. 268 pp. 1984.

B. Research Publications

• 2024

1. Singhvi, N. Talwas, C. Nagar, Shekhar, Nagar, Verma, H. Kaur, J. Mahato, N.K. Ahmad, N. Mondal, K. Gupta, V. **Lal, R.** 2024 Insights into the radiation and oxidative stress mechanisms in genus *Deinococcus*. *Comput Biol Chem.* (Accepted)
2. Bhargav, V. Gupta, S. Lata, P. and **Lal, R.** 2024 SeqCode: A Nomenclatural Code for Prokaryotes. *Indian J Microbiol.* (Accepted)
3. Kaur, J. Verma, H. Lata, P. Dhinra, GG. **Lal, R.** 2024. In silico analysis of the phylogenetic and physiological characteristics of *Sphingobium indicum* B90A: a hexachlorocyclohexane degrading bacterium. *Current Microbiology* (Accepted).

4. Mueller, M. Bialas, E. Sturm, I. Sood, U. **Lal, R.** and Bechthold, A. 2024. Genomic modifications for enhanced antibiotic production in rifamycin derivative-producing *Mycolatopsis mediterranei* S699 strains: Focusing on rifQ and rifO genes. *Front. Antibiot.* (10.3389/frabi.2024.1399139)
5. Phian, S. Verma, H Singh, DN. Singh, Y. **Lal, R.** and Dogra C. 2024. Comparative genomics reveal unique markers to monitor by routine PCR assay bioinoculant of *Sphingobium indicum* B90A in hexachlorocyclohexane (HCH) contaminated soils. *Indian J Microbiol.* (Accepted)
6. Timmis, K. Hallsworth, J.E. McGenity, T.J.**Lal, R.**.....*et.al.* 2024. A concept for international societally relevant microbiology education and microbiology knowledge promulgation in society. *Microb. Biotechnol.*, 17: e14456. <https://doi.org/10.1111/1751-7915.14456>
7. Dagar, J., Maurya, S., Antil, S. Abraham, J. S. **Lal, R.** Makhija, S. and Toteja, R. 2024. Symbionts of Ciliates and Ciliates as Symbionts. *Indian J Microbiol.* <https://doi.org/10.1007/s12088-024-01203-y>
8. Sood, U., Muller, M., Lan, T., Garg, G., Singhvi, N., Hira, P., Singh, P., Nigam, A., Verma, M., Lata, P., Kaur, H., Kumar, A., Rawat, C.D., Lal, S., Aldrich, C.C., Bechthold, A. and **Lal R.** 2023. *Mycolatopsis mediterranei*: a sixty-year journey from strain isolation to unlocking its potential of rifamycin analogue production by combinatorial biosynthesis. *J. Nat. Prod.* <https://doi.org/10.1021/acs.jnatprod.3c00686>
9. Abraham, J. S. Somasundaram, S. Maurya, S. Sood, U. **Lal, R.** Toteja, R. and Makhija, S. 2024. Insights into freshwater ciliate diversity through high throughput DNA metabarcoding, *FEMS Microbes*, Volume 5, 2024, xtae003, <https://doi.org/10.1093/femsmc/xtae003>

• 2023

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13. **Lal, R.,** Saxena, D.M. and Agarwal, H.C. 1982. Bioconcentration of DDT and its metabolites in a ciliate protozoan *Tetrahymena pyriformis* and its relationship with their octanol/hexane, water partition coefficients, in *Proceedings Pesticides Residues in the Environments in India*. (Editors: Edwards, C. A., Veeresh, G. K. and Krueger, H. R.). University of Agricultural Sciences, Bangalore. 495-507.

D. Other Publications/ Reports/ Editorials/ News and Views

1. Lal, D., Nayyar, N., Kohli, P., and **Lal, R.** 2013. "Cupriavidus metallidurans: A Modern Alchemist" (News and Views). *Indian J. Microbiol.* **53**: 114-115.
2. **Lal, R.** 2012. Editorial on "Individual Genome Assembly from Metagenome : Resolving the Unknown Genotypic Microdiversity at the Sharpened Focus" *Indian J. Microbiol.* **52**: 1-2.
3. Negi, V., Kumar, R., Verma, H., Sangwan, N., **Lal, R.** 2012. News and Views on "Titan Cells: Barriers to Phagocytosis". *Indian J. Microbiol.* **52**: 516.
4. Ahmad, S., Anand, S., **Lal, R.** 2012. "Skin commensals regulate skin immunity" (News and Views). *Indian J. Microbiol.* **52**: 517-518.

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6. Dwivedi, V. And **Lal, R.** 2011. "Gut-Brain Communication is Influenced by Gut Microbes." (News and Views). *Indian J. Microbiol.* **51**: 239.
7. **Lal, R.** 2011. Editorial on "Human Body: A virtual zoo of Bacteria". *Indian J. Microbiol.* **51**: 1.
8. **Lal, R.** 2011. Editorial on "The New Science of Metagenomics: Fourth Domain of Life". *Indian J. Microbiol.* **51**: 245-246.
9. Lal, D. and **Lal, R.** 2011. "Wrong sequences in Databases: Whose Fault?." (News and Views). *Indian J. Microbiol.* **51**: 413.
10. Lal, D. and **Lal, R.** 2011. "Discovering Metabolic Products of Cryptic Biosynthetic Pathways." (News and Views). *Indian J. Microbiol.* **51**: 414.
11. **Lal, R.** 2011. Editorial on "First Impact Factor of Indian Journal of Microbiology". *Indian J. Microbiol.* **51**: 415.
12. Lal, D and **Lal, R.** 2011. Opinion article on "The Rise of Open Access". *Indian J. Microbiol.* **51**: 416-417.
13. **Lal, R.** 2010. Editorial on "Microbiology in Space". *Indian J. Microbiol.* **50**: 1.
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16. **Lal, R.** 2010. Editorial on "Bringing life into a bacterium through synthetic genome: What next?" *Indian J. Microbiol.* **50**: 123-124.
17. Anand S. and **Lal, R.** 2010. "The dawn of the era of synthetic life" (News and Views). *Indian J. Microbiol.* **50**: 249.
18. **Lal, R.** 2010. Editorial on "Microbiology and Biotechnology Education in India" *Indian J. Microbiol.* **50**: 251-252.
19. Kaur, J., Niharika, N., Lata, P. and **Lal, R.** 2010. "Biofilms: united we stand, divided we fall." (News and Views). *Indian J. Microbiol.* **50**: 364.
20. Saxena, A., Dua, A., Sangwan, N. and **Lal, R.** 2010. "Bacterial nanowires: a new mode of communication". (News and Views). *Indian J. Microbiol.* **50**: 144.
21. **Lal, R.** 2009. Editorial on "Two years of Springer-INJM association" *Indian J. Microbiol.* **49**: 1.
22. **Lal, R.** 2009. Editorial on "Indian Journal of Microbiology: Striving for Excellence" *Indian J. Microbiol.* **49**: 107.
23. Kumari, K., Sharma, P. and **Lal, R.** 2009. Swine flu virus H1N1: a threat to human health (News and Views). *Indian J. Microbiol.* **49**: 201.
24. **Lal, R.** 2009. Editorial on "Interface between Microbiology and Systems Biology." *Indian J. Microbiol.* **49**: 203.
25. Kaur, J. and **Lal, R.** 2009. Cold drink cans contaminated with rat urine can kill. (News and Views). *Indian J. Microbiol.* **49**: 294.
26. **Lal, R.** 2008. Editorial on "Biodegradation and Bioremediation". *Indian J. Microbiol.* **48**: 1-2.
27. **Lal, R.** 2008. Editorial on "Bacterial diversity, Genomics and Metagenomics" *Indian J. Microbiol.* **48**: 151.
28. **Lal, R.** 2008. Editorial on "49th AMI conference: a unique opportunity for microbiologists." *Indian J. Microbiol.* **48**: 298.

29. **Lal, R.** 2008. Editorial on “Reaching new dimensions: the 49th Annual AMI Conference” *Indian J. Microbiol.* **48**: 409.
30. **Lal, R.** 2007. Editorial on “Microbial diversity, systematic research and microbial culture collection facility in India.” *Indian J. Microbiol.* **47**: 1-2.
31. **Lal, R.** 2007. Editorial on “Publishing Indian Journal of Microbiology in cooperation with Springer: a milestone for the Association of Microbiologists of India”. *Indian J. Microbiol.* **47**: 97.
32. **Lal, R.** 2007. Editorial on “Changing Winds in Indian Journal of Microbiology (INJM)” *Indian J. Microbiol.* **47**: 185.
33. **Lal, R.** 2007. Editorial on “Revolution in DNA sequencing techniques”. *Indian J. Microbiol.* **47**: 278.
34. **Lal, R.** 2006. “Editorial” *Indian J. Microbiol.* **46**: 1.
35. **Lal, R.** 2006. Editorial on “11th ISME meeting, Vienna, August 2006.” *Indian J. Microbiol.* **46**: 1.
36. **Lal, R.,** Jit, S., Verma, M., Dadhwal. M., Singh, A., Prakash, O., Sharma, P. and Khanna, M. 2006. Nanoorganisms: Smallest form of life got smaller. *Indian J. Microbiol.* **46**: 413.
37. **Lal, R.,** Sharma, P., Kumari, H., Kumar, M., Kumari, K., Gupta, S.K., Malhotra, S. and Kumari, R. 2006. Metagenomics: You are what your Bacteria eat! (Research News) *Indian J. Microbiol.* **46**: 414.
38. **Lal, R.** 2006. Editorial on “The 47th AMI Conference and decision of Co-publication of IJM by AMI and Springer”. *Indian J. Microbiol.* **46**: 1
39. **Lal, R.** 2005. Gross Violation (Investigation), *Down to Earth.* **63**: 36-38.
40. **Lal, R.** 1987. Pesticide residues in food commodities and their interaction with microorganisms. A resume of the work done at Sri Venkateswara College, Dhaula Kuan, New Delhi. *Zoology.* **1**: 87-92.

CONFERENCES

Chairperson of Conference Sessions

1. Chaired a session at “International Symposium on Ciliate Biology (ISCB 2007)” at SGTB Khalsa College, University of Delhi, Delhi on February 7, 2007.
2. Chaired a session on Microbial Diversity at Association of Microbiologists of India (AMI) conference (Microbes: Biofactories of the Future), Department of Biotechnology, Indian Institute of Technology (IIT) Madras, Chennai, India on December 20, 2007.
3. Chaired a session “The Climate Change Challenge: the common destiny for the North and the South” in the Conference Strengthening Cooperation between Germany and India International Humboldt Kolleg on Adaptive Management of Ecosystem: The Knowledge Systems of Societies for Adaptation and Mitigation of Impacts of Climate Change held at Institute for Social and Economic Change, Bangalore, India from October 19-21, 2011.
4. Chaired a session “Environmental Microbiology” in the 52th Annual Conference of the Association of Microbiologists of India entitled “International Conference on Microbial Biotechnology for Sustainable Development” held at Panjab University, Chandigarh, India from November 3-6, 2011.

5. Chaired a session on Assortment of Microbial Consortia at National Symposium on “Microbes in Health and Agriculture” held at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India on March 13, 2012.
6. Chaired a session “Evaluation and Assessment” in the Academic Congress of University of Delhi held at Conventional Hall, University of Delhi, Delhi, India on September 7, 2012.
7. Chaired a session on Environmental Biotechnology at Asian congress on Biotechnology held under the aegis of Asian Federation of Biotechnology, hosted by Indian Institute of Technology (IIT), Delhi, India from December 15-19, 2013.
8. Chaired a session at “National Conference on understanding the mechanism and challenges of complex diseases” held at Shaheed Rajguru College of Applied Sciences for Women, University of Delhi, Delhi, India on November 30, 2014.
9. Chaired a session at “Emerging Trends in Host Microbe Interactions” (ETHMI) held at DAV College, Jalandhar, Punjab on April 18, 2015.
10. Chaired a session at “Microbial Ecology and Bioinformatics Analysis” at the Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China on July 14, 2016.
11. Chaired a session on “Daily and Seasonal Rhythms” in “International Symposium on Biologicxal Timing and Health Issues in the 21st century” held at the Department of Zoology, University of Delhi on February 21, 2017.
12. Chaired a plenary lecture by Dr. Ruchi Gupta on “Early diet and environment’s impact on microbiome and development of allergies” in INSCR International Conference held at University of Delhi on September 27, 2017.
13. Chaired a plenary lecture by Dr. Anil Koul on “Discovery and Development of SIRTURO-A new drug for drug-resistant tuberculosis-Harnessing value of Innovation” in INSCR International Conference held at University of Delhi on September 27, 2017.
14. Chaired a session on Environmental Biotechnology in INSCR International Conference 2018 held at KIIT University, Bhubaneswar on 27th September 2018.
15. Chaired a session on “Art of scientific writing and communication” presented in ISME-AMI Mini-Workshop on “Art of Publication and Communication” at AMI-2018 at University of Hyderabad on December 11, 2018.
16. Chaired Session on Scientific writing and communication on 13th Feb 2020 at SARSME-2020 in Pokhara, Nepal.
17. Chaired plenary lectures by Dr. Jack Gilbert and Dr. Mitch Schulte on November 15th, 2021 in 6th Annual International Conference of INSCR held online.
18. Chaired special session on “Microbiology for Science and Society” in 6th Annual International Conference of INSCR held online on November 18, 2021.
19. Chaired plenary lecture by Prof. Rino Rappuoli on April 2nd, 2024 in 8th Annual International Conference of INSCR held at Conference Centre, University of Delhi

20. Chaired special session on “Microbial Literacy in Society” in 8th Annual International Conference of INSCR held at Conference Centre, University of Delhi on April 3rd, 2024.

Presentations and Participations

1. Saini, A., Reddy, B. V. P., **Lal, R.**, and Saxena, D. M. “Response of Blue-Green Algae *Anabaena* to Organochlorine, Organophosphorus and Carbamate Insecticides”. Presented at All India Cell Biology Conference held at Delhi, India from December 25-27, 1982.
2. Lal, S., and **Lal, R.** “Effects of DDT, Fenitrothion and Chlorpyrifos on Blue-Green Algae”. Presented at the International Conference of Pesticide Toxicity, Safety and Risk Assessment held at Lucknow, India in October 1984.
3. **Lal, R.**, and Lal, S. “Detoxification of Pesticide Residues Utilizing Microbial Biotechnology”. Presented at National Symposium on “Role of Biotechnology in Crop Protection” held at Bidhan Chandra Krishi Vishwavidyalaya, Kalyani, West Bengal, India from January 23-35, 1987.
4. **Lal, R.** “Manipulations of Catabolic Genes for the Degradation and Detoxification of Xenobiotics”. Presented at Micon International 1994 and 35th Annual Conference of Association of Microbiologists of India (AMI) held at Defense Food Research Laboratory, Mysore, India from November 9-12, 1994.
5. Johri, A. K., **Lal, R.**, and Saxena, D. M. “Kinetics of Degradation of α -, β -, γ - and δ - HCH by *Sphingomonas paucimobilis*”. Presented at International Symposium on “Biodegradation of Organic Pollutants” held at Mallorca from June 29-July 3, 1996.
6. Kaur, H., Khanna, M., Khanna, R., Dhingra, N., and **Lal, R.** “Development of Cloning Vector and an Efficient Transformation System for *A. mediterranei* and Cloning of Rifamycin Biosynthetic Gene(s)”. Presented at the International Symposium on “Biology of Actinomycetes” held at China on May 27, 1997.
7. **Lal, R.** “Bringing Industrial Species of *Amycolatopsis* within the Scope of Recombinant DNA Techniques”. Presented at 38th Annual Meeting of Microbiologists of India (AMI) and Conference on “Microbes in Sustainable Development” held at New Delhi, India from December 12-14, 1997.
8. Dua, M., Tuteja, D., Saxena, D. M. and **Lal, R.** “Cloning and Sequencing of a Dehalogenase Gene from *Sphingomonas paucimobilis*” Presented at 42nd OHOLO Conference on “Novel Approaches for Bioremediation of Organic Pollution” held at Eilat, Israel from May 3-7, 1998.
9. Tuteja, D., Dua, M., Khanna, R., Dhingra, N., Kaur, H., Khanna, M., Saxena, D. M., and **Lal, R.** “Development of Cloning Vectors and Transformation System for *Amycolatopsis mediterranei* and its Related Species”. Presented at 8th International Symposia on “Genetics of Industrial Microorganisms (GIM -98)” held at Jerusalem, Israel from June 28-July 2, 1998.
10. **Lal, R.** “Antibiotics Relevant to Mycobacterial Infection”. Presented at Indo-Swiss workshop on “Genome Organization of Mycobacteria and Immunology of Leprosy” held at International School Kodaikanal, Tamil Nadu, India from September 7-11, 1998.

11. Dua, M., and **Lal, R.** "Molecular Approaches for the Degradation of Chlorinated Hydrocarbons". Presented at the National Symposium on "Role of Microbes in the Management of Environmental Pollution" held at Panjab University, Chandigarh, India from November 13-14, 1998.
12. **Lal, R.** "Engineering Complex pPlyketides: How to Begin." Presented at Central Institute of Medicinal and Aromatic Plants, Lucknow, India on September 8, 1999.
13. **Lal, R.** "Molecular Techniques and Growth of Biotechnology". Presented in a workshop on Applied Biotechnique held at Department of Zoology, Kurukshetra University, Kurukshetra, India from January 23-25, 2000.
14. Kumari, R., and **Lal, R.** "Swapping of Acyltransferase Domain of Rifamycin Biosynthetic Gene Cluster in *Amycolatopsis mediterranei*". Presented in International Conference, "Microbial Biotechnology, Trade and Public Policy", Osmania University, Hyderabad, India from July 15-17, 2000.
15. Kumari, R., Dhingra, G., and **Lal, R.** "Engineering Rifamycin Biosynthetic Gene clusters in *Amycolatopsis mediterranei*" Presented at Micro biotech, 2000, 41st Annual Conference of Microbiologists of India (AMI) held at Birla Institute of Scientific Research, Jaipur, India.
16. Raina, V., Kumari, R., Dhingra, G., Suar, M., Bala, S., Lal, S., and **Lal, R.** "Cloning, Characterization and Expression of genes in *Sphingomonas paucimobilis* Responsible for the Degradation of HCH Isomers". Presented at Micro biotech 2000, 41st Annual Conference Microbiologists if India (AMI) held at Birla Institute of Scientific Research, Jaipur, India.
17. **Lal, R.** "Problem Posed by Pesticide Residues in India and Development of Bioremediation Technologies". Presented at Metabolic Engineering for Environmental Amelioration held at TIET, Thapar Technology Campus, Patiala, India from April 8-9, 2002.
18. **Lal, R.** "The Global Residue Problem and Potential of *Sphingomonas paucimobilis* for Developing Bioremediation Technology" Presented at the Mini symposium held at Department of Zoology, University of Delhi, Delhi, India.
19. **Lal, R.** "Problem Posed by Pesticide Residues in India and Need for Development of Bioremediation Technologies". Presented at National Conference on Soil- Elixir of Life held at TIET, Thapar Technology Campus, Patiala, India from February, 26-27, 2003.
20. **Lal, R.** "Problem Posed by Pesticide Residues in India and Need for Development of Bioremediation Technologies". Presented at Palampur, Himachal Pradesh, India on September 24, 2003.
21. **Lal, R.** "Diversity and Evolution of *lin* Genes in Hexachlorocyclohexane Degrading *Sphingomonas paucimobilis* Strains and their Use in Bioremediation". Presented at 'Bioconvergence' Thapar Institute of Engineering Technology, Patiala, India from November 18-20, 2004.

22. **Lal, R.** “Problems Posed by Pesticide Residues in India and Need for Developing Bioremediation Technologies”. Presented at the Department of Zoology, Aligarh Muslim University, Aligarh, India from December 21, 2004.
23. **Lal, R.** “Problems Posed by Pesticide Residues in India and Need for Developing Bioremediation Technologies”. Presented at IGIB, Delhi, India from December 29, 2004.
24. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Swami Shradhanand College, University of Delhi, India on January 27, 2005.
25. **Lal, R.** “Diversity and Evolution of *lin* Genes in Hexachlorocyclohexane degrading *Sphingobium indicum* B90A, *Sphingobium japonicum* UT26 and *Sphingobium francense* Sp+”. Presented at ‘International Microbial Diversity Conference’ held at University of Delhi (South Campus), India from April 16-18, 2005.
26. **Lal, R.** “Use of Agriculturally Important Organisms in Bioremediation of HCH Residues”. Presented at NBAIM (National Bureau of Agriculturally Important Microorganisms), Uttar Pradesh, India on April 25, 2005.
27. **Lal, R.** “Use of Molecular and Biochemical Tools for characterization of Agriculturally Important Microorganisms with Special Reference to the Genus *Sphingomonas*”. Presented at NBAIM (National Bureau of Agriculturally Important Microorganisms), Uttar Pradesh, India on April 25, 2005.
28. **Lal, R.** “Problems Posed by HCH Residues in India and Development of Bioremediation Technologies” Presented at 8th International HCH and Pesticide Forum, Sofia, Republic of Bulgaria from May 26-29, 2005.
29. **Lal, R.** “Microbial Diversity and Environmental Biotechnology”. Presented at the Brain Storming Session on Emerging Areas in Plant and Environmental Biotechnology - An Action Plan for Institute of Life Sciences (ILS), Bhubaneshwar, India from June 14-15, 2005.
30. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. presented at DAV School, Shrista Vihar, Delhi, India in September 2006.
31. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Ramjas College, University of Delhi, Delhi, India in September 2006.
32. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Atma Ram Sanatan Dharam College, University of Delhi, Delhi, India in November 2006.
33. **Lal, R.** “Genome Sequencing of Rifamycin Producing Actinomycete *Amycolatopsis mediterranei* S699”. Presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India on December 7, 2006.
34. **Gupta, S. K., and Lal, R.** “Selective Isolation and Partial Characterization of *sphingomonads* from Oil Contaminated Dump Sites”. Presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India on December 7, 2006.

35. Kumar, M., Kumari, K., Ravi, V., Khurana, P., Khurana, J. P., Tyagi, A. K., and **Lal, R.** "Genome Sequencing of Rifamycin Producing Actinomycete *Amycolatopsis mediterranei* S699". Presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India on December 8, 2006.
36. Singh, A., and **Lal, R.** "Horizontal Gene Transfer of *lin* Genes among *sphingomonads*: A Case For Bioaugmentation", presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India on December 8, 2006.
37. Sharma, P., Kumari, H., Roelof van der Meer, J., Vogne, C., and **Lal, R.** "Isolation and Characterization of Novel σ^{54} -Dependent Transcription Regulators from Contaminated Sites in India for Developing Biosensors", presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India December 8, 2006.
38. Prakash, O., Kumari, K., and **Lal, R.** "*Pseudomonas delhiensis* sp. nov., From Fly Ash Dumping Site of Thermal Power Plant, Delhi, India", presented at AMI conference (Microbiology: The Challenges Ahead), Barkatullah University, Bhopal, India on December 8, 2006.
39. **Lal, R.** "Biotechnology: Introduction, Application and Opportunities". Presented at 'Biotechnology - The Emerging Scenario in Indian Society', South Campus, University of Delhi, Delhi, India on December 22, 2006.
40. **Lal, R.** "Diversity, Divergence and Distribution of Hexachlorocyclohexane (HCH) Degrading *lin* Genes Among *Sphingomonads*". Presented at 'Cell Biology conference' organized by Department of Zoology, University of Delhi, Delhi, India on February 3, 2007.
41. **Lal, R.** "Biotechnology: Introduction, Applications and Opportunities". Presented at Hansraj College, University of Delhi, Delhi, India on February 10, 2007.
42. **Lal, R.** "Bioremediation of Hexachlorocyclohexane (HCH) Contaminated Sites". Presented at TERI, Delhi, India on March 13, 2007.
43. **Lal, R.** "Bacterial Taxonomy". Presented at national training Programme on Phylogenetics: Basic concepts and construction of phylogenetic trees" at NBAIM, Mau, India on September 16, 2007.
44. **Lal, R.** "Biotechnology: Introduction, Application, Biosafety and Environmental Concerns". presented at national workshop on "Environmental and biosafety related issues in the field of Biotechnology" at KIIT school of Biotechnology, KIIT University, Orissa, India on September 29, 2007.
45. **Lal, R.** "Biotechnology: Introduction, Applications and Opportunities". Presented at "Workshop on Biotechnology Education & Hands-on-Training on Applications of Polymerase chain reaction and DNA sequencing", Dolphin (PG) Institute of Biomedical & Natural Sciences, Dehradun, India on October 6, 2007.
46. **Lal, R.** "Biotechnology: Introduction, Applications and Opportunities". Presented at Ramjas College, University of Delhi, Delhi, India on October 24, 2007.

47. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Miranda House, University of Delhi, Delhi, India on November 15, 2007.
48. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Deshbandhu College, University of Delhi, Delhi, India on November 28, 2007.
49. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Maitreyi College, University of Delhi, Delhi, India on November 29, 2007.
50. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Shaheed Rajguru College of Applied Sciences, University of Delhi, Delhi, India on December 11, 2007.
51. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Swami Shradhanand College, University of Delhi, Delhi, India on December 14, 2007.
52. **Lal, R.** “Deciphering the Role of *lin* Genes in Degradation of Hexachlorohexane (HCH) Isomers in *Sphingobium indicum* B90A and its Potential for bioremediation”. Presented at conference on “Trends in Cellular and Molecular Biology” at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India on January 7, 2008.
53. **Lal, R.** “Bio-safety Guidelines”. Presented at ARA Health care Pvt. Ltd., Gurgaon, India on January 22, 2008.
54. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at conference on “Application of Biotechnology in Environment” at International College for girls, Jaipur, India on February 5, 2008.
55. **Lal, R.** “Problem Posed by Hexachlorocyclohexane Residues and Development of Bioremediation Technologies Role of Environmental Genomics and Metagenomics”. Presented at conference on “Application of Biotechnology in Environment” at International College for Girls, Jaipur, India on February 5, 2008.
56. **Lal, R.** “Problem Posed by Hexachlorocyclohexane Residues and Development of Bioremediation Technologies Role of Environmental Genomics and Metagenomics”. Presented at Department of Environmental Science, University of Delhi, Delhi, India on February 12, 2008.
57. **Lal, R.** “Sanger/Pyrosequencing Hybrid Approach Genome Sequence of the Rifamycin Producing Actinomycete *Amicolatopsis mediterranei* S699”. Presented at Botany Department, University of Delhi, Delhi, India on February 18, 2008.
58. **Lal, R.** “Problem Posed by Hexachlorocyclohexane Residues and Development of Bioremediation Technologies Role of Environmental Genomics and Metagenomics”. Presented at CPDHE, University of Delhi, Delhi, India on February 26, 2008.
59. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at conference on “Application of Biotechnology in Environment” at National Conference on “Recent Advances in Life Sciences” at Merrut College, U.P., India on February 28, 2008.
60. **Lal, R.** “Problem Posed by Hexachlorocyclohexane Residues and Development of Bioremediation Technologies Role of Environmental Genomics and Metagenomics”. Presented at

National Symposium on “Contemporary Environmental Problems and Biotechnological Applications in their management” at School of environmental sciences, Jawaharlal Nehru University, New Delhi, New Delhi, India on March 7, 2008.

61. **Lal, R.** “Sanger/Pyrosequencing Hybrid Approach Genome Sequence of the Rifamycin Producing Actinomycete *Amycolatopsis mediterranei* S699”. Presented at Ramjas College, University of Delhi, Delhi, India on March 10, 2008.
62. **Lal, R.** “Biotechnological Approaches for Cleaner Environment” Presented at Nagpur University, Nagpur, India on March 13, 2008.
63. **Lal, R.** “Diversity, Divergence and Distribution of HCH (Hexachlorocyclohexane) Degrading *lin* Genes Among *Sphingomonads*: Potential for Bioremediation” Presented at National Symposium on “Recent Trends in Modern Biology” at University of Pune, Maharashtra, India on March 15, 2008.
64. **Lal, R.** “Cloning Vector and a Process for the Preparation there of US Patent No 005985560A”. Presented at M/S Lupin Ltd., Mumbai, India on July 25, 2008.
65. **Lal, R.** “Discussion and Interaction-Bacterial Taxonomy”. Presented at Workshop: SOP for Isolation of Bacteria from Environmental Samples, NEERI, Nagpur, India on July 30-31, 2008.
66. **Lal, R.** “Development of Bioremediation Technologies for the Decontamination of Hexachlorocyclohexane”. Presented at 12th International Symposium on Microbial Ecology (ISME) on “Microbial Diversity - Sustaining the Blue Planet” held at Cairns, Australia from August 17-22, 2008.
67. **Lal, R.** “Development of Bioremediation Technologies for the Decontamination of Hexachlorocyclohexane”. Presented at CSIRO Canberra, Australia from August 23rd to September 8th, 2008.
68. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at conference on “Application of Biotechnology in Environment” at Kirorimal College, University of Delhi, Delhi, India on September 25, 2008.
69. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at conference on “Application of Biotechnology in Environment” at D. A. V. College, Jalandhar, India on September 27, 2008.
70. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities” & “Problems of Pesticide Residues in India and Development of Bioremediation Technologies”. Presented at Summer School on “Recent trends in Biotechnology” at Department of Botany and Microbiology, Gurukul Kangri Vishwavidyalaya, Haridwar, India on September 28, 2008.
71. **Lal, R.** “DNA Sequencing: Introduction and Applications”. Presented at Miranda house, University of Delhi, Delhi, India on October 10, 2008.
72. **Lal, R.** “Highlights of Teaching & Research Programmes”. Presented at Scientific Colloquium between Department of Zoology, University of Delhi, Delhi and National Institute of

Genetics, Sokendai, Japan at Department of Zoology, University of Delhi, Delhi, India on October 22, 2008.

73. **Lal, R.** “Agricultural Sustainability through Microbial Biotechnology: Novel and Innovative Concepts”. Presented at National Academy of Agricultural Sciences, NASC Complex, New Delhi, India on November 11, 2008.
74. **Lal, R.** “Development of Bioremediation Technologies for Decontamination of Hexachlorocyclohexane (HCH)”. Presented at Deshbandhu College, University of Delhi, Delhi, India on December 5, 2008.
75. **Lal, R.** “Development of Bioremediation Technologies for Decontamination of Hexachlorocyclohexane (HCH)” Presented at the 4th Indo-Italian Seminar on Green Chemistry and Natural Products at Department of Chemistry, University of Delhi, Delhi, India on December 6, 2008.
76. **Lal, R.** “Molecular Analysis of Agrocin Producing *Agrobacterium radiobactor* for Biological Control of Crown Gall in Stone Fruits”. Presented at University of Horticulture & Forestry, Solan, Himachal Pradesh, India on December 13, 2008.
77. **Lal, R.** “Microbial Degradation of Hexachlorocyclohexane (HCH) and Prospects for Bioremediation”. Presented at International Conference on Changing Environmental Trends and Sustainable Development at Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India on February 9, 2009.
78. **Lal, R.** “Biotechnology: Introduction, Applications and Opportunities”. Presented at Ramjas College, University of Delhi, Delhi, India on February 25, 2009.
79. **Lal, R.** “From *lin* Genes and Genomics to Metagenomics: An Approach for Bioremediation of Hexachlorocyclohexane (HCH)”. Presented at Madurai Kamraj University, Tamil Nadu, India on March 11, 2009.
80. **Lal, R.** “Exploring *lin* Genes, Community Genomes from HCH Dumpsite at Lucknow: Prospects for Bioremediation”. Presented at the symposium on, “Functional Biology: Comparative Aspects” at the University of Lucknow, India on March 21, 2009.
81. **Lal, R.** “Development of Bioremediation Technologies for Decontamination of Hexachlorocyclohexane (HCH)”. Presented at the International Conference on Microbial Biotechnology, “Microcon 2009: Microbes for Sustainability of Mankind.” Panjab University, Chandigarh, India on March 3, 2009.
82. **Lal, R.** “From Developing Cloning Vectors to Engineering Rifamycin Biosynthetic Gene Cluster in *Amycolatopsis mediterranei*: An incomplete story”. Presented at Oregon State University, Corvallis, U. S. A on June 2, 2009.
83. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at the Refresher Course in Biotechnology and its Applications” at the Centre for

Professional Development in Higher Education (CPDHE), University of Delhi, Delhi, India on July 20, 2009.

84. **Lal, R.** “Genomic Analysis for Soil Contaminants”. Presented at Technical meeting of AINP on soil biodiversity-biofertilizers, CRIDA, Hyderabad, India on July 25, 2009.
85. Watson, A., Forter, M., **Lal R.**, Jopkova, M., Joao, T., LiY, Roland W., and John V. “Global Mapping of Former HCH Production Sites and Their Waste Dumps”. Presented at 10th International HCH and Pesticides Forum, Brno, Czech Republic on September 7, 2009.
86. **Lal, R.** “Microbial Degradation of Hexachlorocyclohexane (HCH) & Prospects for Bioremediation”. Presented at 10th International HCH and Pesticides Forum, Brno, Czech Republic on September 9, 2009.
87. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Miranda House, University of Delhi, Delhi, India on September 14, 2009.
88. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at the inaugural function of Zoological Society, Shivaji College, University of Delhi, Delhi, India on September 29, 2009.
89. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Deshbandhu College, University of Delhi, Delhi, India on November 6, 2009.
90. **Lal, R.** “The problem of Hexachlorocyclohexane (HCH) contamination and its possible solutions for the developing world”. Presented at 4th Indo-Japan International symposium on “Nanotechnology and healthcare in the developing world” at Biyani girls college, Jaipur, India on September 21, 2009.
91. **Lal, R.** “Mining *lin* genes from Hexachlorocyclohexane (HCH) Dumpsite & Developing Enzymatic Bioremediation Technologies”. Presented during the winter school on “Bioprospecting for Microorganisms with Agriculturally Important Traits Using Polyphasic Approaches” at the Indian Agricultural Research Institute (IARI), New Delhi, India on November 27, 2009.
92. **Lal, R.** “From Developing Cloning Vectors to Engineering Rifamycin Biosynthetic Gene Cluster in *Amycolatopsis mediterranei*: An incomplete Story”. Presented at an International seminar on “Current Trends in Pharmaceutical Research: Focus on Orphan Diseases” organized by NIPER Hajipur, Patna, India and Department of Chemistry, University of Delhi on January 10, 2010.
93. **Lal, R.** “Development of Bioremediation Technology for Decontamination of Hexachlorocyclohexane (HCH)”. Presented a keynote lecture during the symposium on “Animal Biodiversity: Physiological aspects of environmental strategies” organized by the Department of Zoology, M. M. H. College, Ghaziabad, U.P., India on February 19, 2010.
94. **Lal, R.** “Microbial Degradation of Hexachlorocyclohexane (HCH) and Prospects for Bioremediation” and “Developing Enzymatic Bioremediation Technology for the Decontamination of Organochlorine Pesticide – Hexachlorocyclohexane (HCH)”. Presented as a

chief guest during a seminar on “Recent Trends in Bioremediation” organized by the Department of Biochemistry, Gulbarga University, Gulbarga, Karnataka, India on March 5-6, 2010.

95. **Lal, R.** “Hexachlorocyclohexane (HCH): Possible Solutions and Challenges Ahead”. Presented in a seminar on “Current Scenario of Microbial Technology” organized by the Department of Microbiology, Guru Nanak Dev University, Amritsar, Punjab, India on March 18, 2010.
96. **Lal, R.** “Use of Microbes for Developing a Bioremediation Technology for the Decontamination of Hexachlorocyclohexane (HCH)”. Presented in a seminar on “Microbes, Metabolites and their Applications ” organized by the Department of Microbiology, Panjab University, Chandigarh, India on March 27, 2010.
97. **Lal, R.** “Microbial Degradation of Hexachlorocyclohexane (HCH) and Prospects for Bioremediation”. Presented at National conference on recent trends in biotechnology in environmental management organized by the Department of Zoology, Osmania University College for Women, Hyderabad, India on April 10, 2010.
98. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented a keynote lecture in a workshop “Upgrading Lab Skills in Science” at Maitreyi College, University of Delhi, Delhi, India on June 24, 2010.
99. **Lal, R.** “Biotechnology-From Gene to Genomes to Synthetic Biology-Introduction, Application, Opportunities and Misconceptions”. Presented at the Centre for Professional Development in Higher Education (CPDHE), University of Delhi, Delhi, India on July 27, 2010.
100. **Lal, R.** “Biotechnology-From Gene to Genomes to Synthetic Biology-Introduction, Application, Opportunities and Misconceptions”. Presented at the Department of Biotechnology, IIT Roorkee, Uttarakhand, India on July 31, 2010.
101. **Lal, R.** “Role of Microbiology in the Development of Biotechnology Discipline”. Presented in a colloquium on Microbial Technology for Human benefits at Faculty of Life Sciences, Maharshi Dayanand University, Rohtak, Haryana, India on August 7, 2010.
102. **Lal, R.** “Genetic Manipulations in the Polyketide Synthase (PKS) Gene Cluster of *Amycolatopsis mediterranei* S699 to Produce Rifamycin B Analogues”. Presented at the 4th Indo - Italian Seminar on “Green Chemistry and Natural Products” at Department of Chemistry, University of Delhi, Delhi, India on November 17, 2010.
103. **Lal, R.** “Bioremediating Hexachlorocyclohexane (HCH): Possible Solutions and Challenges Ahead”. Presented at the Shri Ram Institute for Industrial Research, 19, University Road, Delhi, India on November 22, 2010.
104. **Lal, R.** “Sequencing Bacterial Genomes Using Different Sequencing Platforms with Reference to Our Experience with Genomes of *Amycolatopsis mediterranei* S699, *Sphingobium indicum* B90A & *Thermus manikarensis* RLM”. Presented in a session on Microbial Biotechnology/Nanotechnology at 51th Annual Conference of the Association of Microbiologists

of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India on December 16, 2010.

105. **Lal, R.** “Bioremediating Hexachlorocyclohexane (HCH): Possible Solutions and Challenges Ahead”. Presented in a session on Bioremediation Technology- Recent advances at Department of life sciences, University of Mumbai, India on December 20, 2010.
106. **Lal, R.** “Merging Genomics and Metagenomics”. Presented at Department of Microbiology, Panjab University, Chandigarh, India on January 11, 2011.
107. **Lal, R.** “Merging Genetics, Genomics and Metagenomics for Developing Bioremediation Technology for the Decontamination of Hexachlorocyclohexane”. Presented at Indo-Swiss Collaboration in Biotechnology (ISCB) International Conference entitled “Recent Trends in Developing Bioremediation Strategies for Hexachlorocyclohexane (HCH) & Other Chlorinated Contaminants” held at University of Delhi, Delhi, India on February 9, 2011.
108. **Lal, R.** “Merging Genetics, Genomics and Metagenomics for Developing Bioremediation Technology for the Decontamination of Hexachlorocyclohexane”. Presented at International Symposium on Omics Approach to Microbes (ISOAM) held at National Environment Engineering Research Institute (NEERI), Nagpur, India on February 18, 2011.
109. **Lal, R.** “Using Genetics, Genomics and Metagenomics Approach for Developing Bioremediation Technology for the Decontamination of Hexachlorocyclohexane”. Presented at BioAsia - The Global Bio Business Forum held at Hyderabad, India on February 23, 2011.
110. **Lal, R.** “Biotechnology: Introduction, Applications and Misconceptions”. Presented at Star College Programme held at Sri GuruTeg Bahadur Khalsa College, University of Delhi, Delhi, India on August 3, 2011.
111. **Lal, R.** “Decontamination of Hexachlorocyclohexane (HCH) Contaminated Sites by Bioaugmentation, Biostimulation and Enzymatic Approaches”. Presented at seminar entitled “Trends in Microbial Bioremediation of Contaminated soil” held at Department of Microbiology, Orissa University of Agriculture and Technology, Bhubaneswar, Odisha, India on September 24, 2011.
112. **Lal, R.** “Managing Hexachlorocyclohexane (HCH) Pollution at HCH Dumpsites”. Presented at technical session “Natural Capital: Resource Use and Management for Sustainable Livelihood: Global Climate Change, Mitigation and Adaptability” held at Institute for Social and Economic Change, Bangalore, India on October 21, 2011.
113. **Lal, R.** “Use of Bioremediation to Reduce Hexachlorocyclohexane (HCH) Contamination from Soil: Problems and Solutions. Presented at a workshop held under the aegis of Indian Network for Soil Contamination Research (INSCR) at Department of Zoology, University of Delhi, Delhi, India on October 29, 2011.

114. **Lal, R.** “Comparative Metagenomics Analysis to Understand Taxonomic and Functional Fingerprints of Soil Microbial Communities across a Hexachlorocyclohexane (HCH) Gradient”. Presented in a session on Environmental Microbiology at 52th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Conference on Microbial Biotechnology for Sustainable Development” held at Panjab University, Chandigarh, India on November 6, 2011.
115. **Lal, R.** “Role on Genetics, Genomics and Metagenomics in Developing Bioremediation Strategies for Hexachlorocyclohexane Decontamination”. Presented in a session on Agriculture and Environmental Biotechnology at conference held at Arni University, ETMBN, Kangra, Himachal Pradesh, India on November 30, 2011.
116. **Lal, R.** “Use of Microbes for Developing a Bioremediation Technology for the Decontamination of Hexachlorocyclohexane (HCH)”. Presented in a session at a conference entitled “International symposium on Current Trends in Environmental Toxicology” held at 31st Annual Conference of Society of Toxicology (STOX), India on December 22-24, 2011.
117. **Lal, R.** “Biotechnology: Applications, Opportunities and Misconception”. Presented in a National level seminar entitled “Scientific Developments for Human Welfare: Promises and Concerns” held at Jata Vidya Mandir Ganpat Rai Rasiwasia (P.G) College, Charki Dadri (Bhiwani), India on February 10-11, 2012.
118. **Lal, R.** “Metagenomic Approach for the Remediation of Hexachlorocyclohexane (HCH) from the HCH Dumpsite”. Presented in a session on Biotechnological Approaches in Urban Green Spaces Management at 1st Biennial International Congress on Urban Green Spaces” held at India International Center, New Delhi, India from March 5-7, 2012.
119. **Lal, R.** “Metagenomic Approach for the Remediation of Hexachlorocyclohexane (HCH) from the HCH Dumpsite”. Presented in a National symposium on “Microbes in Health and Agriculture” held at School of Life Sciences, Jawaharlal Nehru University, New Delhi, India on March 13, 2012.
120. **Lal, R.** “Metagenomic Approach for the Remediation of Hexachlorocyclohexane (HCH) from the HCH Dumpsite”. Presented in a National Workshop on “Microbial Diversity: Exploration and Perspectives Symposium” held at Department of Environmental Science, Maharshi Dayanand University, Rohtak, Haryana, India from May 3-12, 2012.
121. **Lal, R.** “Metagenomic Analysis and its Prospects for Discovery of Novel Natural Products/Environmental Remediation”. Presented at Jaypee Institute of Information Technology, Noida, India on May 7, 2012.
122. **Lal, R.** “Genetic Manipulation of *Amycolatopsis mediterranei* S699 for the Production of Rifamycin Analogs”. Presented at Oregon State University, Corvallis, U.S.A on June 14, 2012.
123. **Lal, R.** “Microbiology Research in India: Current Status”. Presented at American Society for Microbiology (ASM) at San Francisco, U. S. A on June 16, 2012.

124. **Lal, R.** “Using Genetics, Genomics and Metagenomics Approaches for Developing Bioremediation Technologies for the Decontamination of Hexachlorocyclohexane (HCH) Contaminated Sites”. Presented at Department of Soil and Environmental Geochemistry, Stanford University, U. S. A on June 20, 2012.
125. **Lal, R.** “Biotechnology-Applications and Misconception”. Presented at Inspire Internship Camp organized by Department of Microbiology, College of Basic Sciences, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, India on July 28, 2012.
126. **Lal, R.** “Combinatorial Biosynthetic Approach for Generation of Novel Rifamycin Analogs”. Presented in symposium “Microbes: Molecular Ecology and Systematics” at National Centre for Cell Science, Pune, India on September 6, 2012.
127. **Lal, R.** “Biotechnological – Opportunities, Applications and Misconceptions”. Presented in the INSPIRE Internship Camp at Department of Microbiology, College of Basics Sciences, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishwavidyalaya, Palampur, India on October 21, 2012.
128. Sangwan, N., Lata, P., Nayyar, N., and **Lal, R.** “Comparative Metagenomic Analysis of Soil Microbial Communities Across three Hexachlorocyclohexane Contamination Levels”. Paper presented in the 53rd Annual Conference of Association of Microbiologists of India (AMI) entitled “Microbial World: Recent Innovations and Future Trends” held at KIIT University, Bhubaneswar, India from November 22-25, 2012.
129. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei* to Overcome the Problem of MDR Strains of *Mycobacterium tuberculosis*”. Presented at Chemistry Department, University of Delhi, Delhi, India on January 8, 2013.
130. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities & Misconceptions”. Presented in a workshop on “Techniques in Biotechnology” held at Miranda house, University of Delhi, Delhi, India on January 9, 2013.
131. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented on the occasion of Zoology Festival, at Hansraj College, University of Delhi, Delhi, India on February 4, 2013.
132. **Lal, R.** “Application of Genetics, Genomics and Metagenomics for Hexachlorocyclohexane Bioremediation”. Presented in the National Conference of the Department of Botany at Deen Dayal Upadhyay College, University of Delhi, Delhi, India on February 4, 2013.
133. **Lal, R.** “Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei*”. Presented in National Symposium on "Recent Trends in Innovative Research" organized at Sri Venkateswara College, University of Delhi, Delhi, India on February 6, 2013.

134. **Lal, R.** “Application of Genetics, Genomics and Metagenomics for Hexachlorocyclohexane Bioremediation”. Presented in the Eco Club Meet at Rajdhani College, University of Delhi, Delhi, India on March 21, 2013.
135. **Lal, R.** “Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei*”. Presented in National Conference on “Applications of Natural Products for Human Health and Bioremediation of Pollutants” at Department of Zoology, University of Rajasthan, Jaipur, India on March 23, 2013.
136. **Lal, R.** “How Indian Youth can Exploit Opportunities in the 20th Century”. Presented at Ahlcon International Public School, Mayur Vihar, Delhi, India on April 19, 2013.
137. **Lal, R.** “Biotechnology: A discipline that primarily belongs to Chemists”. Presented at Short Term Course on “Advance Techniques in Material Characterization” organized by Department of chemistry at National Institute of Technology, Hamirpur, India from May 20-24, 2013.
138. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei* to Overcome the Problem of MDR Strains of *Mycobacterium tuberculosis*”. Presented at Institute of Pharmaceutical Science, University of Freiburg, Germany on July 10, 2013.
139. **Lal, R.** “Problems Posed by Hexachlorocyclohexane: Applications of Genetics, Genomics and Metagenomics for Hexachlorocyclohexane Bioremediation“. Presented at Helmholtz Centre for Environmental Research-UFZ, University of Leipzig, Germany on July 15, 2013.
140. **Lal, R.** “Hexachlorocyclohexane: Toxicity, Exposure and Application of Genetics, Genomics and Metagenomics for Bioremediation”. Presented at 8th Biyani International Conference, Biyani Girls College, Jaipur, India on September 23, 2013.
141. **Lal, R.** “Role of Genetics, Genomics and Metagenomics for Hexachlorocyclohexane Bioremediation at the HCH Dumpsite” and “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei*”. Presented at the Department of Biotechnology and Bioinformatics Centre, Himachal Pradesh University, Shimla, India on October 5, 2013.0
142. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei* to Overcome the Problem of MDR Strains of *Mycobacterium tuberculosis*”. Presented at the University School of Biotechnology, Guru Gobind Singh Indraprastha University, Delhi, India on October 23, 2013.
143. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei*”. Presented in the 54th Annual Conference of Association of Microbiologists of India (AMI) held at Maharshi Dayanand University, Rohtak, Haryana, India from November 17-20, 2013.

144. **Lal, R.** “Community Wide Insights from the Seldom Microbial Dynamics Enriched Across the Himalayan Hot Springs”. Presented at Maharshi Dayanand University, Rohtak, Haryana, India from November 17-20, 2013.
145. **Lal, R.** “Community Microbial Dynamics Enriched Across the Himalayan Hot Springs at Manikaran, Himachal Pradesh”. Presented at Department of Microbiology, Panjab University, Chandigarh, India on December 4, 2013.
146. **Lal, R.** “Community Microbial Dynamics Enriched Across the Himalayan Hot Springs at Manikaran, Himachal Pradesh”. Presented at Department of Biotechnology, Goa University, Goa, India on December 7, 2013.
147. **Lal, R.** “Hexachlorocyclohexane Contamination and Solutions: Emerging Model to Study Evolution of Catabolic Genes and Molecular Phylogenetics”. Presented at “Asian congress on Biotechnology” held under the Aegis of Asian Federation of Biotechnology, hosted by Indian Institute of Technology (IIT), New Delhi, India on December 18, 2013.
148. **Lal, R.** “Community Wide Insights from the Seldom Microbial Dynamics Enriched Across the Himalayan Hot Springs at Manikaran”. Presented at Indian Institute of Technology (IIT), Roorkee, Uttarakhand, India on February 8, 2014.
149. **Lal, R.** “Community Genomics of the Himalayan Hot Springs at Manikaran”. Presented at Sardar Patel University, Ahmedabad, Gujrat, India on February 22, 2014.
150. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Polyketide Biosynthetic Gene Cluster of *Amycolatopsis mediterranei* to Overcome the Problem of MDR Strains of *Mycobacterium tuberculosis*”. Presented at Chemistry Department, University of Delhi, Delhi, India on March 4, 2014.
151. **Lal, R.** “India Now and Then”. Presented at Deshbandhu College, University of Delhi, Delhi, India on March 12, 2014.
152. **Lal, R.** “Metagenomics of the Himalayan Hot Springs at Manikaran”. Presented at Deshbandhu College, University of Delhi, Delhi, India on March 12, 2014.
153. **Lal, R.** “Community Genomics of the Himalayan Hot Springs at Manikaran”. Presented at Amity Institute of Microbial Technology, Amity University, Noida, Uttar Pradesh, India on March 26, 2014.
154. **Lal, R.** “Modification of Rifamycin Polyketide Backbone in *Amycolatopsis mediterranei* Leads to Production of New Rifamycin B Analogs with an Improved Drug Activity Against Rifampicin-Resistant *Mycobacterium tuberculosis* Strains”. Presented at 9th Symposium on “Frontiers in Biomedical Research (FBR-2014)” at Conference Hall, University of Delhi, Delhi, India on April 14, 2014.
155. **Lal, R.** “Isolating the Natural Existing Hexachlorocyclohexane Dehydrochlorinase (linA) and Haloalkane Dehalogenase (linB) Variants from Hexachlorocyclohexane Contaminated Dumpsite

- by Using Metagenomic Approach”. Presented at “Life Sciences-DST Meeting” at University of Hyderabad, Hyderabad, India on May 11, 2014.
156. **Lal, R.** “Modification of Rifamycin Polyketide Backbone in *Amycolatopsis mediterranei* Leads to Production of New Rifamycin B Analogs with an Improved Drug Activity Against Rifampicin-Resistant *Mycobacterium tuberculosis* Strains”. Presented at Indian Institute of Toxicology Research (IITR), Lucknow, India on September 12, 2014.
 157. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Department of Zoology, Miranda House, University of Delhi, Delhi, India on September 17, 2014.
 158. **Lal, R.** “Modification of Rifamycin Polyketide Backbone in *Amycolatopsis mediterranei* Leads to Production of New Rifamycin B Analogs with an Improved Drug Activity Against Rifampicin-Resistant *Mycobacterium tuberculosis* Strains”. Presented at Department of Zoology, University of Delhi, Delhi, India on September 22, 2014.
 159. **Lal, R.** “Modification of Rifamycin Polyketide Backbone in *Amycolatopsis mediterranei* Leads to Production of New Rifamycin B Analogs with an Improved Drug Activity Against Rifampicin-Resistant *Mycobacterium tuberculosis* Strains”. Presented at NIIT University, Neemrana, Rajasthan, India on September 30, 2014.
 160. **Lal, R.** “Community-Wide Insights of Stressed Niches Using Metagenomic Approach”. Presented at BRD School of Biosciences, Sardar Patel University, Vidyanagar, Gujarat, India on October 11, 2014.
 161. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Dolphin (P.G.) Institute of Biomedical and Natural Sciences, Dehradun, Uttarakhand, India on October 16, 2014.
 162. **Lal, R.** “Genetic Manipulations of *Amycolatopsis mediterranei* Polyketide Synthase Gene Cluster for the Production of a Novel Rifamycin Analogue, 24-Desmethylrifamycin Effective Against MDR Strains of *Mycobacterium tuberculosis*”. Presented at Panjab University, Chandigarh, India on October 31, 2014.
 163. **Lal, R.** “Modifying Rifamycin Polyketide Backbone in *Amycolatopsis mediterranei* to Produce a Novel Analog, 24-Desmethylrifamycin Effective Against MDR Strains of *Mycobacterium tuberculosis*”. Presented at 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India on November 13, 2014.
 164. **Lal, R.** “Community Genomics of the Himalayan Hot Springs at Manikaran”. Presented at KIIT University, Bhubaneswar, Odisha, India on December 13, 2014.
 165. **Lal, R.** “Production of Rifamycin Analogs by Genetic Manipulation of Rifamycin Biosynthetic Gene Cluster of *Amycolatopsis mediterranei* S699”. Presented in “Bioworld 2014:

Proteins Structure and Function” held at Kusuma School of Biological Sciences, Indian Institute of Technology, Delhi, New Delhi, India on December 14, 2014.

166. **Lal, R.** “Genetic Manipulation of the Polyketide Synthase Gene Cluster of *Amycolatopsis mediterranei* S699 to Produce Rifamycin B Analogues”. Presented at the National Conference on “Understanding the Mechanism and Challenges of Complex Diseases” held at Shaheed Rajguru College of Applied Sciences for Women, University of Delhi, Delhi, India on December 30, 2014.
167. **Lal, R.** “Community Wide Insights of Stressed Niches Using Metagenomic Approach”. Presented at Panjab University, India on January 22, 2015.
168. **Lal, R.** “Community Wide Insights of Stressed Niches Using Metagenomic Approach”. Presented at KIIT University, Bhubaneswar, Odisha, India as a keynote speaker on February 9, 2015.
169. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Christ College, Rajkot, Gujarat, India on February 22, 2015.
170. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Maitreyi College, University of Delhi, Delhi, India on February 26, 2015.
171. **Lal, R.** “Microbial Diversity: Polyphasic Approach and Beyond! A Journey from Taxonomy to Genomics to Metagenomics”. Presented at training course “Microbial Systematics: Soil to Sequences” organized by MTCC and CSIR-IMTECH, Chandigarh, India on March 9, 2015.
172. **Lal, R.** “Discovery and Development of a Novel Analog of Rifamycin B Effective Against MDR Strains of *Mycobacterium tuberculosis*”. Presented at UGC sponsored Workshop at the Department of Biotechnology, Maharshi Dayanand University, Rohtak, Haryana, India on March 26, 2015.
173. **Lal, R.** “Biotechnology: Introduction, Application, Opportunities and Misconceptions”. Presented at Basic Sciences Refresher Course at Jamia Milia Islamia University, Delhi, India on May 20, 2015.
174. **Lal, R.** “Scientific Literature and Communication Skills” Presented at Basic Sciences Refresher Course at Jamia Milia Islamia University, Delhi, India on May 20, 2015.
175. **Lal, R.** “Predator-Prey Dynamics of Novel Genotypes Enriched Across Arsenic Rich Himalayan Hot Springs”. Presented in the “World Congress and Expo on Applied Microbiology” held at Frankfurt, Germany from August 18-20, 2015.
176. **Lal, R.** “Genetic Manipulation of Polyketide Synthase Gene Cluster of *Amycolatopsis mediterranei* S699 to Produce Rifamycin B Analogs”. Presented in National Seminar on “Innovative Advance Research in Biomedical & Environment Dynamics” held at Dyal Singh College, University of Delhi, Delhi, India on October 10, 2015.
177. **Lal, R.** “Community Wide Insights of Stressed Niches Using Metagenomic Approach”. Presented at 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India on December 7, 2015.

178. **Lal, R.** “Community Wide Insights into Stressed Niches using Metagenomics Approach”. Presented at Anand, Gujarat, India on February 10, 2016.
179. **Lal, R.** “India Now and Then” Presented at Central Institute of Medicinal and Aromatic Plants, Lucknow under INSA (India National Science Academy) Lucknow Chapter on February 26, 2016.
180. **Lal, R.** “Microbial Diversity: Polyphasic Approach and Beyond! A Journey from Taxonomy to Genomics to Metagenomics to System Biology” at Microbial Type Culture Collection (MTCC), Chandigarh, India on March 8, 2016.
181. **Lal, R.** “Extreme Environments Spearheading Metagenomics” at Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China on July 13, 2016.
182. **Lal, R.** “Biotechnology: Realization of the Dream of Geneticists, Applications, Opportunities and Misconceptions” in National Symposium on Nanobiotechnology and Microbial Technology held at Chandigarh college of Technology, Mohali, Punjab & Association of Microbiologists of India, Chandigarh unit on August 23, 2016.
183. **Lal, R.** "Community wide insights into stressed niches using metagenomic approach". Presented as a keynote speaker at BISMis (Bergey's International Society for Microbial Systematics) 2016 at MCC, Pune on September 13, 2016.
184. **Lal, R.** "Genomics to metagenomics". Presented at a workshop on Microbial Genomics and Metagenomics held under the aegis of IUMS-INSa (International Union of Microbiological Societies-Indian National Science Academy) and AMI Delhi Unit, University of Delhi and INSCR (Indian Network for Soil Contamination Research) held at Department of Zoology, University of Delhi on September 22, 2016.
185. **Lal, R.** “Extreme Environments: A Suitable Target to Genomics and Metagenomics” at Vellore Institute of Technology (VIT), Vellore on October 17, 2016.
186. **Lal, R.** “Taxo-genomics: Moving beyond polyphasic approach” presented in International Symposium on “Microbial Resource Center and Conservation of Microbial Diversity” held at MTCC, CSIR-IMTECH, Chandigarh on November 8, 2016.
187. **Lal, R.** “The Microbiome Revolution: Vision for Future” presented in National Conference on “Evolving New Horizons of Zoological Sciences in Human welfare” held at Kurukshetra University, Kurukshetra on November 23, 2016.
188. **Lal, R.** “Biotechnology: From Genes to Genomics and metagenomics” presented at Himachal Pradesh University, Shimla on November 14, 2016.
189. **Lal, R.** “Development of 24-desmethylrifamycin B – a novel analog of Rifamycin B effective against Multi-Drug Resistant *Mycobacterium tuberculosis*” at the ASM-AMI joint session in the 57th AMI (Association of Microbiologists of India) Annual Conference-2016 held at Gauhati University, Guwahati, Assam on November 25, 2016.

190. **Lal, R.** “Microbial genomics to metagenomics: A paradigm shift” presented as a keynote speaker at the 57th AMI (Association of Microbiologists of India) Annual Conference-2016 held at Gauhati University, Guwahati, Assam on November 26, 2016.
191. **Lal, R.** “Biotechnology: From genes to genomics and metagenomics” presented in session “CADD: Computer aided drug designing” at NIT and N.S.C.B.M. Government College, Hamirpur, H.P. on December 12, 2016.
192. **Lal, R.** “India now and then” presented in Bani School Innovation Camp (BaSIC)-2016 (Dream School) held under University of Delhi, INSA Outreach Program and DBT Star College Project, Ramjas College at Government Senior Secondary School, Bani, Hamirpur, H.P. on December 23-24, 2016.
193. **Lal, R.** “New twist in study of plant and animal biology in the light of metagenomics: vision for future” presented as a keynote speaker at the International Conference and Outreach program on “Environment and Ecology; Sustainability and Challenges (ENCON-2017)” held at Conference Center, University of Delhi and Organized by SV College, University of Delhi, Delhi on January 4, 2017.
194. **Lal, R.** “Scientific Innovations that Changed the World and INDIA: Then (Before 1990) and Now” presented an inspiring talk in DST sponsored 7th INSPIRE Program at Asian Educational Institute, Patiala on January 10, 2017.
195. **Lal, R.** “Scientific Innovations that Changed the World and INDIA: Then (Before 1990) and Now” presented an inspiring talk in DST State Govt. Jammu & Kashmir sponsored program for undergraduate students at Jammu University, J & K on January 20, 2017.
196. **Lal, R.** “Unlimited world of microbes with limitless applications” presented an inspiring talk in Gargi College on February 8, 2017.
197. **Lal, R.** “Scientific Innovations that changed the world” and “India: Then and Now” presented as guest speaker in NASI-BHU Teacher’s Training workshop held at Banaras Hindu University, Varanasi on February 10, 2017.
198. **Lal, R.** “Microbiology: Then and Now” presented as subject lecture in Deen Dayal Upadhyaya College, University of Delhi, Delhi on February 15, 2017.
199. **Lal, R.** “Insights into microbial interactions using metagenomics: Discerning Ally and Foe” presented as invited talk in International Conference on Microbial Biotechnology (Microcon 2017: The Science Spring) at Punjab University, Chandigarh, India on February 17, 2017.
200. **Lal, R.** “Insights into microbial interactions using metagenomics: Discerning Ally and Foe” presented as subject lecture in Department of Microbiology at Guru Nanak Dev University, Amritsar on February 20, 2017.
201. **Lal, R.** “New Horizons in Microbial Interactions through Metagenomics Revolutions” presented as Plenary lecture in National Symposium on Issues and Challenges in Ecological

Sciences (ICES-2017) at Department of Botany, Institute of Science, Banaras Hindu University, Varanasi on February 23, 2017.

202. **Lal, R.** “Pursuit of Bacterial Taxonomy, Genomics and Metagenomics” presented as guest lecture at Faculty of Life Sciences and Biotechnology at South Asian University, Delhi on March 3, 2017.
203. **Lal, R.** “Recognizing and Evading Publishing in Predatory Journals: Our Experience” presented in National Seminar on “Identifying and Avoiding Publishing in Predatory Journals: A liaison of Researchers” at Department of Botany, University of Delhi on March 18, 2017.
204. **Lal, R.** “Biotechnology: Introduction, Advances and Career Options” presented as Expert lecture in National Conference on “Advances in Basic and Applied Sciences (ABAS-2017)” at School of Basic and Applied Science, Career Point University, Hamirpur on April 7, 2017.
205. **Lal, R.** “Combating antibiotic resistance against Tuberculosis” presented as Guest Lecture in one day ASM-CME on “Antibiotic Resistance: Renewed Fears” at Multipurpose Hall, India International Centre, New Delhi on April 16, 2017.
206. **Lal, R.** “Unlimited World of Microbes with Limitless Applications” presented as Chief Guest Address in Add on Course on "Biotechcellence: Insights and Innovations" at Gargi College, University of Delhi, on August 23, 2017.
207. **Lal, R.** “New twist in microbiology in the light of metagenomics: Vision for Future” and “A journey from bacterial polyphasic approach to genomics and metagenomics” presented as in MSM Metagenome informatics workshop organized by the Malaysian Society for Microbiology from 13th -16th September, 2017 at the School of Biosciences and Biotechnology, University Kebangsaan, Malaysia.
208. **Lal, R.** “Can we do biology without microbiology” delivered a lecture at Miranda House College, University of Delhi, on September 18, 2017.
209. **Lal, R.** “Metagenomic analysis of stressed bacteria and genes from the hexachlorocyclohexane (HCH) dumpsite and Manikaran hot springs” presented as plenary lecture in INSCR International Conference 2017 at University of Delhi, on September 27, 2017.
210. **Lal, R.** “Reaching the Unreached through Genomics and Metagenomics” presented as guest lecture in National Conference on Biotechnology: Exploring through Innovations (BETI) - 2017 at Department of Biotechnology, Central University of Haryana, Mahendergarh, on November 13, 2017.
211. **Lal, R.** “Reaching the Unreached through Genomics and Metagenomics” presented a lecture in DBT sponsored Short-term Training Course on “Application of metagenomic tools for bioremediation towards environmental restoration” at Amity Institute of Biotechnology on November 14, 2017.

212. **Lal, R.** “Role of Computational Biology and Bioinformatics in Microbiology” presented in ISME-AMI-INSCR Pre-conference workshop at Babasaheb Bhimrao Ambedkar University, Lucknow on November 16, 2017.
213. **Lal, R.** “Metagenomic approaches to evaluate soil biodiversity and productivity” presented as invited talk in 58th Annual Conference of Association of Microbiologists of India (AMI-2017) & International Symposium of Sustainable Development: Scope and Applications (MSDSA-2017) at Babasaheb Bhimrao Ambedkar University, Lucknow on November 18, 2017.
214. **Lal, R.** “Genetic manipulation of polyketide synthase gene cluster of *Amycolatopsis mediterranei* S699 produce rifamycin B analogs” presented as keynote lecture in 86th Conference of Society of Biological Chemists at Convention Centre, Jawaharlal Nehru University, New Delhi on November 19, 2017.
215. **Lal, R.** “Reaching the Unreached through Genomics and Metagenomics” presented as plenary lecture in 2nd Himachal Pradesh Science Congress (HPSC) 2017-18. Science and Technology for Sustainable Livelihood in Indian Himalayan Region organized by Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE) at Shimla on November 20, 2017.
216. **Lal, R.** “Scientific Innovations that changed the world and India: Then (Before 1990) and Now” presented as invited lecture (Mentor) in 6th DST INSPIRE Internship Camp at Punjab University Campus, Chandigarh on November 21, 2017.
217. **Lal, R.** “Role of Computational Biology and Bioinformatics in Microbiology” in workshop on “Hands on to Computational Biology for (Meta) Genomics Analysis” jointly organized under the aegis of Department of Environmental Studies and Department of Zoology at Department of Zoology University of Delhi on November 22, 2017.
218. **Lal, R.** “Exploring the Unseen and Unreached through Genomics and Metagenomics” presented in Continuing Education Program on “Genomics and Proteomics: Methods and Applications” at Department of Molecular Biology, Defense Institute of Physiology and Allied Sciences, DRDO, Delhi on November 28, 2017.
219. **Lal, R.** “Exploring the Unseen and Unreached through Genomics and Metagenomics” presented as inaugural lecture in a training course on "Microbial Systematics V2.0" organized by Microbial Type Culture Collection and Gene Bank (MTCC) located at CSIR-Institute of Microbial Technology (CSIR-IMTECH) on December 11, 2017
220. **Lal, R.** “Microbiome: Exploring the role of microbiota in environmental cleaning, bio-product formation and human health” presented as plenary talk in UGC National Conference on “Current Trends in Biological Sciences-II (CTBS-2018)” organized by Post Graduate Department of Biosciences, Sardar Patel University, Gujarat on February 9, 2018.
221. **Lal, R.** “Role of Computational Tools in Biology: Can we do biology without Computational Tools and Microbiology?” presented in the workshop titled “Computational biology and its role in

genomics and metagenomics” organized by Life Sciences Society by Hansraj College, University of Delhi, Delhi on February 15, 2018.

222. **Lal, R.** “Microbiome: Exploring the role of microbiota in environmental cleaning, bio-product formation and Human health” presented as invited lecture in 30th All India Congress of Zoology and National Seminar on ‘Advances in Zoology for Sustainable Development’ organized by Department of Zoology, Kurukshetra University, Kurukshetra on February 16, 2018.
223. **Lal, R.** “Management of Research, Laboratory, and Students: Our Experience.” presented in Symposium on “Safety measures and Laboratory Ethics”, organized by Acharya Narendra Dev College, under DBT Star College scheme on February 21-22, 2018.
224. **Lal, R.** “Beyond DNA Barcoding: Microbial Fingerprints through Genomics and Metagenomics” presented as inaugural lecture in “Hands on Training on “DNA Barcoding in Assessment of Faunal Diversity” organized by Zoological Survey of India, Headquarters, Kolkata on March 5, 2018.
225. **Lal, R.** “Major Discoveries in Science and their Impact on Daily life” presented in Bani School Innovation Camp II (BaSIC-II) 2018 held under University of Delhi, INSA Outreach Program, Association of Microbiologists of India (AMI), DBT Star College Project, Ramjas College at Government Senior Secondary School on March 7, 2018.
226. **Lal, R.** “Microbiome and its implications” presented in Annual fest of zoological society of Sri Venkateswara College, University of Delhi on March 13, 2018.
227. **Lal, R.** “The Emergent Microbiome: A Revolution in Biological Sciences” presented as resource person in “Recent Trends in Biology- 2018” organized by Department of Zoology, Savitribai Phule Pune University, Ganeshkhind, Pune- 411007, (M.S.) India on March 23, 2018.
228. **Lal, R.** “Role of Microbiome in Human Health, Environment Cleaning and Tapping Exceptionally Unusual Microbial Diversity from Hot Springs” presented in Annual Festival “ZOOPHORESIS”, Insectopedia, organized by Ramjas College, University of Delhi on March 24, 2018.
229. **Lal, R.** “A new science of Microbiome: Implications in health, environment cleaning and industry” presented as guest lecture at Sardar Bhagwan Singh Post Graduate Institute of Biomedical Science and Research, Dehradun on March 30, 2018.
230. **Lal, R.** “From ciliate protozoans to bacterial diversity, genomics and metagenomics” presented as inaugural lecture in International Symposium on Ciliate Biology (ISCB-2018) at Indian Habitat Centre organized by Khalsa College, University of Delhi on April 4, 2018.
231. **Lal, R.** “Role of Computational Biology in Microbiology” presented in ISME Ambassador Meet and Workshop -2018 on “Hands on to Computational Biology for (Meta) Genomics Analysis” at KIIT, Bhubaneswar on May 3, 2018.
232. **Lal, R.** “The Microbiome: It’s Impact on Environment, Human Health and Society” Lecture at PDM University on September 14, 2018.

233. **Lal, R.** “The Microbiome: Its Impact on Environment, Human Health and Society” Plenary lecture at INSCR International Conference 2018 at KIIT University on 26th September 2018.
234. **Lal, R.** “Scientific discoveries: from failure to success” lecture at BaSIC III at Bani School, Himachal Pradesh on October 15, 2018.
235. **Lal, R.** “The Microbiome Power: How Clean is Too Clean” lecture at ARSD College, university of Delhi on October 18, 2018.
236. **Lal, R.** “The Microbiome Science: A Vision for the Future” lecture at 23rd Refresher Course in Life Sciences & Biotechnology at JNU on October 25, 2018.
237. **Lal, R.** “Role of Computational Biology in Microbiology” presented in Workshop -2018 on “Hands on to Computational Biology for (Meta) Genomics Analysis” at AMI-2018 at University of Hyderabad on December 9, 2018.
238. **Lal, R.** “Harnessing microbiome research is crucial for resolving grand challenges and attaining sustainable development” presented in ISME-AMI Joint Session on “Microbial Ecology in the era of next generation sequencing” at AMI-2018 at University of Hyderabad on December 10, 2018.
239. **Lal, R.** “Art of scientific writing and communication” presented in ISME-AMI Mini-Workshop on “Art of Publication and Communication” at AMI-2018 at University of Hyderabad on December 11, 2018.
240. **Lal, R.** “The Journey of Development of 24-desmethylrifamycin B by Genetic Manipulation of the Polyketide Synthase Gene Cluster of *Amycolatopsis mediterranei* S699 : A Tale of 25 Years” at South Dakota State University, USA on April 7, 2019.
241. **Lal, R.** “Towards Developing Bioremediation Technology for the Decontamination of HCH isomers at the HCH Dumpsites: A Tale of 25 Years” in BIOTIKOS 2019, at TERI, Delhi on April 17, 2019.
242. **Lal, R.** “Entrepreneurships in India: Success and Limitations.” In One Day Workshop On “Entrepreneurship ideas to action (EI-A-2019): Workshop for Enhancing Women Entrepreneurship” at Maharshi Dayanand University, Rohtak on April 27, 2019.
243. **Lal, R.** “The Microbiome Science: Vision for the Future” at All India Institute of Medical Sciences, New Delhi on May 2, 2019.
244. **Lal, R.** “The Journey of Development of 24-desmethylrifamycin B by Genetic Manipulation of the Polyketide Synthase Gene Cluster of *Amycolatopsis mediterranei* S699 along with proteomics and interatomic analysis: A Tale of 30 Years” at University of Freiburg, Germany on June 19, 2019.
245. **Lal, R.** “Role of Computational Biology in Microbiology” presented in Workshop on “Hands on to Computational Biology for (Meta) Genomics Analysis” at Maitreyi College, University of Delhi on August 8, 2019.

246. **Lal, R.** "Experience Sharing: Starting Bio-entrepreneurship by a Professor with Fellow colleagues as Co-Founders" invited lecture at Pt Ravi Shankar Shukla University at Raipur on August 29, 2019.
247. **Lal, R.** "The Microbiome Science: Vision for the Future" invited lecture at Miranda House, University of Delhi on September 19, 2019.
248. **Lal, R.** "Microbial Diversity under Extreme Environments: At the HCH Dumpsite and Hot springs located atop the Himalayan Ranges in Manikaran in Himachal Pradesh, India" at Chinese Association of Microbial Ecology, The 2019 Annual Conference, the 4th Youth Summit and the 1st International Forum for Advanced Microbial Ecology, from Oct 28 - 31, 2019 at Changsha China.
249. **Lal, R.** "Role of JP Khurana in Enriching my Personal and Professional Life" at Mini symposium and felicitation ceremony at Department of Plant Molecular Biology, University of Delhi on November 1, 2019.
250. **Lal, R.** "Experience Sharing: Starting Bio-entrepreneurship by a Professor with Fellow colleagues as Co-Founders" at Hansraj College, University of Delhi on November 11, 2019.
251. **Lal, R.** "Role of Computational Biology in Microbiology" presented in pre-conference workshop on "Hands on to Computational Biology for (Meta) Genomics Analysis" at AMI International Conference at Central University of Haryana, Mahendergarh from November 14-18, 2019.
252. **Lal, R.** "Experience Sharing: Starting Bio-entrepreneurship by a Professor with Fellow colleagues as Co-Founders" presented at AMI International Conference at Central University of Haryana, Mahendergarh from November 14-18, 2019.
253. **Lal, R.** "Assessment and remediation of HCH contaminated sites" presented in CPCB training programme at TERI GRAM, Gurugram, on November 21, 2019.
254. **Lal, R.** "Role of Computational Biology in Microbiology" presented in pre-symposium workshop on "Computational Biology for (Meta) Genomics Analysis for Beginners" in Southeast Asian Regional Symposium on Microbial Ecology (SARSME-2020) organized by Tribhuvan University at Pokhara, Nepal on Feb 12, 2020.
255. **Lal, R.** "24-desmethylrifamycin B analogue from *Amycolatopsis mediterranei*: success and limitation" presented at Southeast Asian Regional Symposium on Microbial Ecology (SARSME-2020) organized by Tribhuvan University at Pokhara, Nepal on Feb 13, 2020.
256. **Lal, R.** "Role of Computational Biology in Microbiology" presented in Workshop -2020 on "Hands on to Computational Biology for (Meta) Genomics Analysis" under Science day under the aegis of INSA at Department of Zoology, University of Delhi on Feb 19, 2020.
257. **Lal, R.** "Role of Computational Biology in Microbiology" presented in workshop for UG/PG students for three days on "Computational Biology for (Meta) Genomics Analysis" under INSA

“Delhi local chapter’ for science week organized by Sri Venkateswara College, University of Delhi on 4th March, 2020.

258. **Lal, R.** “COVID-19 Outbreak: Genomic Insights of Rapidly Evolving SARS-CoV-2 Viruses” - a webinar presented at NEERI Foundation Day Celebration on April 8, 2020.
259. **Lal, R.** “Understanding the Genomes of Covid-19 Viruses for the Speedy Development of Drugs and Vaccine” – a webinar for the Add-on course of Medical biotechnology delivered at Miranda House College, University of Delhi, Delhi-110007 on April 16, 2020.
260. **Lal, R.** “Lockdown During the SARS-CoV-2 Epidemic: Managing Professional and Personal Life”- a webinar presented at International Society for Microbiology (ISME), South Asian ISME ambassadors’ Meeting held on May 18, 2020.
261. **Lal, R.** “Importance of Computational Biology in Genomics and Metagenomics” presented in Academia-Industry Online Certificate Course in (Meta) genomics and Bioinformatics organized by Maitreyi College and PhixGen Pvt. Ltd. on June 27, 2020.
262. **Lal, R.** "Importance of Computational Tools in Exploring Microbial Diversity, Genomics and Metagenomics: Our Experience of Two Decades" at short term summer course for UG students of University of Delhi on " Bioinformatics: An Introduction for Beginners" organized by Miranda House on June 29, 2020.
263. **Lal, R.** “Role of Computational Biology in (Meta)Genomics” presented in 10 days training program on "Genomics and metagenomics: Hands on training experience on data analyses” conducted by Phixgen Pvt. Ltd. on July 1, 2020.
264. **Lal, R.** “Epidemiology, Detection, Treatment and Comparative Genomics of SARS-CoV-2 and Managing Personal and Professional Life During Covid-19 Pandemic and Lockdown” presented in webinar under DBT Star College Scheme to create awareness about the current situation of the Pandemic COVID 19 organized by Shivaji College on July 9, 2020.
265. **Lal, R.** “Rapid Evolution of SARS-CoV2 Genome and its Consequences” presented in hands on pre-conference workshop on “Health and Research in Current Scenario: with Special Emphasis on Covid-19 Virus Genomics and Pathogenicity” organized by Sri Venkateswara College under the aegis of ISME on July 14, 2020.
266. **Lal, R.** “SARS-CoV2: Epidemiology, Diagnosis, Detection Methods, Treatments and Managing Family Life during Lockdown” presented in International E-conference on “Health and Research in Current Scenario: with Special Emphasis on Covid-19 Virus Genomics and Pathogenicity” organized by Sri Venkateswara College under the aegis of ISME on July 17, 2020.
267. **Lal, R.** “Epidemiology, Detection, Treatment and Comparative Genomics of SARS CoV-2 and managing personal and professional life during COVID Lockdown” presented in online lecture series-webinar organized by AMI-Chandigarh Unit and Department of Microbiology, Panjab University on July 18, 2020.

268. **Lal, R.** “Role of Computational Biology in Microbiology” presented in Add-on Course on Bioinformatics organized by Gargi College, University of Delhi on July 20, 2020.
269. **Lal, R.** “Epidemiology, Detection, Treatment, Transmission and Comparative Genomics of SARS CoV-2 and managing personal and professional life during COVID-19 pandemic and lockdown” presented in Two Week Online Refresher Course on Basic Sciences conducted by the UGC-Human Resource Development Centre (HRDC) and Guru Nanak Dev University, Amritsar (GNDU) on September 22, 2020.
270. **Lal, R.** “Emerging Evidence linking the Gut Microbiome to neurological disorders” presented in International E-Conference on “NeuroEunoia2020: A neuroscience Affair” organized by Gargi College, University of Delhi on October 16, 2020.
271. **Lal, R.** “Role of Computational Biology in Microbiology” presented in Certificate Program in Bioinformatics & Computational Biology” organized by Sri Venkateswara College, University of Delhi on October 24, 2020.
272. **Lal, R.** “Microbial biodiversity at Extreme Environments: at the HCH Dumpsite and Hot springs located atop the Himalayan Ranges in Manikaran in Himachal Pradesh” presented in 6th India International Science Festival (IISF-2020): Biodiversity Conclave on December 23, 2020.
273. **Lal, R.** “Role of Microbiology in Society: Our Journey & Experiences” presented in Pre-conference workshop on “Hands on to Computational Biology for (Meta)Genomics Analysis” by Phixgen Pvt. Ltd. In association with International Society for Microbial Ecology (ISME) during the 61st Annual International Conference on “Microbial World: Recent Developments in Health, Agriculture & Environmental Sciences” on February 1-2, 2021.
274. **Lal, R.** “Discovering Microbes/Microbiome and Health” presented in Annual International Conference of The Association of Microbiologists of India (AMI) and Indian Network for Soil Contamination Research (INSCR) on “Microbial World: Recent Developments in Health, Agriculture & Environmental Sciences” in association with The Energy and Resources Institute (TERI), Department of Zoology, UoD, Indian Agricultural Research Institute (IARI) & Indian National Science Academy (INSA) from February 3, 2021 to February 5, 2021.
275. **Lal, R.** “Creating Research Ambience and Aptitude among students - Challenges and Benefits: My Experience of Four Decades” presented in Faculty Development Program on “One Week Online FDP on “NEP 2020: Inculcating Research Culture in Teaching and Learning Process” organized by Department of Microbiology, Central University of Rajasthan on February 26, 2021.
276. **Lal, R.** “Importance of Computational Biology in Microbiology” presented in 15days bioinformatics workshop on Computational Biology for (Meta) genomics Analysis organized by Gargi College and PhiXgen Pvt. Ltd. on June 7, 2021.

277. **Lal, R.** “Human Microbiome and Health: Communicating Complex Subjects with Concerned Teachers/ Public/ Society and Children” presented in Plant Science Lecture Series organized by Department of Plant Sciences, University of Hyderabad on July 12, 2021.
278. **Lal, R.** “Human Microbiome and its implications” presented in Panel Discussion on Microbiomes and Human Health hosted by Chitkara University under the aegis of The Indian Science Congress Association in collaboration with Chandigarh forum for science & technology Communication & Association of Microbiologists of India (AMI) on September 11, 2021.
279. **Lal, R.** “Microbiome: The Garden Within You” presented under theme Microbial Literacy Initiative in MICROSPHERE 2021: An International Outreach Program on occasion of International Microorganism Day on September 17, 2021.
280. **Lal, R.** “Importance of Computational Biology in Data Analysis” presented in Academia-Industry Online Certificate Course on “(Meta) genomics and Bioinformatics jointly organized by Maitreyi College and PhixGen Pvt. Ltd on September 17, 2021.
281. **Lal, R.** “NEP 2020: Benefits and Opportunities” presented in One Week Faculty Development Programme for Teachers of Higher Education Institutions and Research Scholars on “Indian Knowledge System: Concerns, Approaches and Applications in NEP-2020” organized jointly by Teaching Learning Centre for Social Science, Dr. Harisingh Gour Vishwavidyalaya, Sagar-Madhya Pradesh, Mata Sundri College for Women, University of Delhi, Delhi and Mahatma Gandhi Kashi Vidyapeeth, Varanasi, Uttar Pradesh on September 18, 2021.
282. **Lal, R.** “The Microbiome: Its Impact on Human Health, Environment and Society” presented in 2-Week Online Refresher Course in Basic Science (Interdisciplinary) organized by The Human Resource Development Centre, Jamia Millia Islamia on October 6, 2021.
283. **Lal, R.** “Microbiome: Its implications on Human Health, Agriculture and Society” presented in XV Agricultural Science Congress on “Energy and Agriculture: Challenges in 21st Century” organized by Institute of Agricultural Sciences, BHU on November 16, 2021.
284. **Lal, R.** “Microbiome and Human Health: Societal Perspective” presented in Annual International Conference of Indian Network for Soil Contamination Research (INSCR) on “Microbes in Sustainable Development” 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), SGTB Khalsa College (DU), COCAS (PU) & PhiXgen Pvt. Ltd., Gurugram on November 18, 2021.
285. **Lal, R.** “Microbiome: Human Health, Environment and Society” presented as invited talk at Department of Biotechnology, IMS Engineering College, Ghaziabad on December 9, 2021.
286. **LaL, R.** “Role of Genomics, Metagenomics and Computational Biology in Understanding Microbial Community Structure and Functions” presented as inaugural talk in one-day workshop

on Bioinformatics-an in-silico approach to understand biological principles, organized by Maitreyi College, University of Delhi on March 16, 2022.

287. **Lal, R.** “Microbes & Us” presented in Microbial Literacy Initiative: An Outreach Program “Educate the children, secure the future” organized by Academy of Microbiological Sciences and Association of Microbiologists of India in association with Deen Dayal Upadhyaya College, Gargi College, Kirori Mal College, Ramjas College of University of Delhi and PhixGen Pvt. Ltd. at Vanasthali Public School, Noida on 18th April, 2022.
288. **Lal, R.** Microbiome Literacy for Better Management of Human Health, Environment and Societal Problems under the aegis of Microbiology Society of India on September 5, 2022, organized on the Occasion of Teachers day by SAS Free Polyclinic PERCH, Chandigarh.
289. **Lal, R.** Role of Human Microbiome in Health and Diseases: Children and Societal Perspective presented in MICROSPHERE 2.0, An international outreach program under the aegis of International Microbiology Literacy Initiative - South Asian Centre (IMiLI-SAC) at PhiXgen Pvt. Ltd. and Indian Network For Soil Contamination Research (INSCR), Federation of European microbiological societies (FEMS) & International Society for Microbial Ecology (ISME) on September 17, 2022.
290. **Lal, R.** Microbiome and Human Health: Societal Perspective presented in Special Session on “Child Centric Microbiology” organized by Association of Microbiologists of India & Academy of Microbiological Sciences (MSCTFP-2022) at University of Mysore, Mysuru (Karnataka) on September 21, 2022
291. **Lal, R.** Role of Computational Biology in Microbial Ecology presented in Pre-Conference Hands-on Workshop on “Genomics Metagenomics & Bioinformatics in Microbial Ecology” organized by Indian Network for Soil Contamination & Research; PhiXgen Pvt. Ltd. under the aegis of International Society for Microbial Ecology (ISME) on November 7, 2022.
292. **Lal, R.** Components of a Manuscript and their Importance presented in Pre-conference workshop on “Art of Scientific Writing and Communication: How to publish in High Impact Journals” organized by Indian Network for Soil Contamination Research & PhiXgen Pvt. Ltd. under the aegis of Federation of European Microbiological Societies (FEMS) on November 8, 2022.
293. **Lal, R.** Microbial Literacy Mission under International Microbial Literacy Initiative in South Asia Center: Our Vision, Mission and Efforts presented in 7th International Conference of Indian Network for Soil Contamination Research (INSCR) on “Modulating the Environment with Microbes” organized by 10 colleges of the University of Delhi, CMP college Allahabad; Kolhan University, Jharkhand; KIIT University, Orissa; PG Department of Zoology, Magadh University; SoAS Dev Bhoomi Uttarakhand University from 7th to 11th November, 2022.
294. **Lal, R.** Role of Computational Biology in Microbial Ecology: Human Health, Environment, and Societal Perspective. Presented in the workshop entitled, Hands on Bioinformatics Workshop

on Plant and Microbial Genomics, Organized by the School of Biotechnology, University of Jammu from 23rd-30th January, 2023.

295. **Lal, R.** Science for Wellbeing: In Spirit and Practice: Microbiome/Microbiological Sciences for Personal, Community, National, and Global Wellbeing presented in the conference "Two-Day International Multidisciplinary Conference on REVISITING WELLBEING: PERSPECTIVES, CHALLENGES AND THE ROAD AHEAD, held at Gargi College, University of Delhi from 1-2 February, 2023.
296. **Lal, R.** "Role of genomics and metagenomics in microbial ecology" presented in one day workshop on "Quantitative microbial ecology: Opportunities and Way-ahead" sponsored by International Society for Microbial Ecology (ISME) organized by IMiLI-SAC & PhiXgen Pvt. Ltd. in association with Acharya Narendra Dev College and Gargi College on 4th February, 2023.
297. **Lal, R.** India Then and Now. presented in Bani School Innovation Camp V (BaSIC V)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLI), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS), Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 13th February 2023.
298. **Lal, R.** Microbiology/Microbiome for Human Health, Mental Wellbeing and Living a Meaningful Life. presented in Bani School Innovation Camp V (BaSIC V)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLI), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS), Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 13th February 2023.
299. **Lal, R.** India Then and Now presented in Biar Initiative: A School Outreach Program for Enrichment II (BI&SCOPE II)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLI), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS), Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 14th February 2023.
300. **Lal, R.** Microbiology/Microbiome for Human Health, Mental Wellbeing and Living a Meaningful Life. presented in Biar Initiative: A School Outreach Program for Enrichment II (BI&SCOPE II)- An Initiative by the INSA Outreach Program and University of Delhi organized under the aegis of International Microbiology Literacy Initiative (IMiLI), International Society for Microbial Ecology (ISME), Federation of European Microbiological Societies (FEMS),

Association of Microbiologists of India (AMI), Indian Network for Soil Contamination Research (INSCR) & Phixgen Pvt. Ltd. at Govt. Senior Secondary School, Bani, Hamirpur, Himachal Pradesh, India on 14th February 2023.

301. **Lal, R.** Combinatorial Biosynthetic Approaches to produce Rifamycin B analogs in *Amycolatopsis mediterranei*: Potential and Problems, presented in a seminar entitled, " One day Lecture Series on “Antibiotics an Pharmaceuticals: The Wonder Natural Products”24th February 2023, at Kirorimal College University of Delhi, Delhi
302. **Lal, R.** Combinatorial approaches to produce rifamycin analogs in *Amycolatopsis* presented in a one-day lecture series on “Antibiotics and Pharmaceuticals: The Wonder Natural Products” organized by Kirori Mal College under the aegis of Federation of Microbiological Societies (FEMS) on 24th February 2023.
303. **Lal, R.** Microbiome for personal, community, national and Global Wellbeing presented in the National Seminar on, Emerging Trends in Biological Sciences: A North East India Perspective, Organized by the Department of Biotechnology and Bioinformatics, North Eastern Hill University Shillong, Meghalaya, India from 28th February to 1st March, 2023).
304. **Lal, R.** Combinatorial biosynthetic approaches and bioprocess development for the production of Rifamycin B analogues presented as keynote lecture in Advanced E-SDP on Entrepreneurship Skill Development on Enzyme Bioprocessing (Sponsored by DC (MSME), Govt. of India, New Delhi) at CSIR-IHBT, Palampur (HP) from 13th -17th March, 2023.
305. **Lal, R.** Role of Microbiome in Maintaining Human Health, Environment & Global Peace presented webinar in BIOTIKOS organized by Department of Biotechnology, TERI School of Advance Studies, New Delhi on 29th April, 2023.
306. **Lal, R.** Microbial Literacy for Better Human Health, Environmental Protection and Global Peace: Our Mission and Initiative presented under FEMS Education Group Symposium in FEMS 10th Congress of European Microbiologists on 11th July, 2023.
307. **Lal, R.** Combinatorial Biosynthesis Approaches to Manipulate rif PKS Gene Cluster of *Amycolatopsis mediterranei* for the Production of Rifamycin B Analogues Effective Against *Mycobacterium tuberculosis* presented in 2nd International Conference on Biotechnology and Bioinformatics organized by Department of Biotechnology and Bioinformatics, Jaypee University of Information Technology, Waknaghat Solan Himachal Pradesh on 12th July, 2023.
308. **Lal, R.** Combinatorial Biosynthesis Approaches to Manipulate *rif* PKS Gene Cluster for the Production of Rifamycin B Analogues Effective Against *Mycobacterium tuberculosis* presented as invited lecture at Albert-Ludwigs-Universität Freiburg, *Institut für Pharmazeutische Wissenschaften, Pharmazeutische Biologie und Biotechnologie, Germany* on 18th July, 2023.
309. **Lal, R.** Transforming World through Microbial Literacy for better Human Health, Environmental Protection and Global Peace:

Our Mission and Objectives under IMiLI presented as invited lecture in Online Refresher Course In Basic Sciences organized by UGC Human Resource Development Centre, RTM Nagpur University, Nagpur on 23rd August, 2023.

310. **Lal, R.** Transforming World through Microbial Literacy for better Human Health, Environmental Protection and Global Peace: Our Mission and Objectives under IMiLI presented as invited lecture in Celebration of International Microorganisms Day and Microbiology in Career Development at Kirori Mal College, University of Delhi on 18th September, 2023.

311. **Lal, R.** Transforming World through Microbial Literacy for better Human Health, Environmental Protection and Global Peace: Our Mission and Objectives under IMiLI presented as invited lecture in Celebration of International Microorganisms Day and Inaugural Ceremony of The Life Sciences Society-Genesis at Ramjas College, University of Delhi on 19th September, 2023.

312. **Lal, R.** Transforming World through Microbial Literacy for better Human Health , Environmental Protection and Global Peace : Our Mission and Initiatives presented as plenary lecture in Second South Asian Symposium on Microbial Ecology (SASME2023) organized by Tribhuvan University Nepal at Kathmandu, Nepal from 1st – 3rd November, 2023.

313. **Lal, R.** Developing Himachal and India: Now and Then Report presented as invited lecture in Udgam Festival 2024 organized by Pradesh Public International School of Science, Bani, Himachal Pradesh, India on 25th January, 2024.

314. Sood, U. Kumar, A. Lata, P. and **Lal, R.** Microbial Diversity at the Hexachlorocyclohexane Dumpsite and Manikaran and Kheer Ganga Hot springs located atop the Himalayan Ranges in Himachal Pradesh, India, presented as invited lecture in International Conference on Biodiversity and Geochemistry of Deep and Extreme Earth Systems organized by Indian Institute of Technology Kharagpur, India from 1st-3rd February, 2024.

315. **Lal, R.** *Amycolatopsis mediterranei*: a thirty-five-year journey from developing cloning vectors to unlocking its potential of rifamycin analogue production by combinatorial biosynthesis, presented as invited lecture at CSIR-Indian Institute of Chemical Biology (CSIR–IICB), Kolkata on 3rd February, 2024.

316. **Lal, R.** Introduction to ISME Ambassador Activities presented in One-day workshop on “Scientific Writing and Communication” organized by Acharya Narendra Dev College sponsored by International Society for Microbial Ecology on 13th February, 2024.

317. **Lal, R.** Role of Science in Developing Bharat/India presented as invited lecture in National Science Day organized by Kumaun University on 28th February, 2024.

318. **Lal, R.** Harnessing Marine Microbiome for Biotechnological Applications and Ecosystem Services presented as invited lecture in National Conference on Blue Economy organized by KIIT University, Bhubaneswar on February 19th, 2024
319. **Lal, R.** Role of Computational Biology in Microbial Ecology: Human Health, Environment, and Societal Perspective presented as Keynote Lecture in 6th National Conference on Contemporary Developments at the Biotech-Bioinformatics Interface (NCBB 2K24) organized by Veer Narmada South Gujarat University (VNSGU), Surat on 23rd March, 2024.
320. **Lal, R.** Importance of Scientific Writing and Communication presented as Keynote lecture in A pre-conference workshop on “Art of Scientific Writing and Communication” organized by the Federation of European Microbiological Societies (FEMS) & Indian Network for Soil Contamination Research (INSCR) in collaboration with Acharya Narendra Dev College (ANDC), University of Delhi on 2nd April, 2024.
321. **Lal, R.** Role and Importance of Computational Biology in Microbial Ecology presented as Keynote lecture in A pre-conference workshop on “Genomics, Metagenomics & Bioinformatics in Microbial Ecology” organized by the International Society for Microbial Ecology (ISME) & Indian Network for Soil Contamination Research (INSCR) in collaboration with Acharya Narendra Dev College (ANDC), University of Delhi on 2nd April, 2024.
322. **Lal, R.** *Amycolatopsis mediterranei*: A Powerhouse for the generation of rifamycin B analogues Effective Against MDR Strains of Mycobacterium tuberculosis presented as Keynote lecture in 8th International Conference of Indian Network for Soil Contamination Research (INSCR) in collaboration with Acharya Narendra Dev College (ANDC) at Conference Centre, University of Delhi on 3rd April, 2024.
323. **Lal, R.** Microbial Literacy Initiative for Viksit Bharat through IMiLI: Healthy Society, Environmental Protection and Global Peace presented as Keynote lecture in 8th International Conference of Indian Network for Soil Contamination Research (INSCR) in collaboration with Acharya Narendra Dev College (ANDC) at Conference Centre, University of Delhi on 3rd April, 2024.
324. **Lal, R.** Biotechnology: Introduction, Applications and Misconceptions lecture presented as Visiting Professor at Department of Biotechnology, Bhimtal Campus, Kumaun University on April 15th, 2024.
325. **Lal, R.** Microbial Literacy for Better Human Health, Environmental Protection and Global Peace: Our Mission and Objectives Under IMiLI lecture presented as Visiting Professor at Department of Biotechnology, Bhimtal Campus, Kumaun University on April 15th, 2024.
326. **Lal, R.** Biotechnology: Introduction, Applications and Misconceptions lecture presented as Visiting Professor at Department of Zoology, DSB Campus, Kumaun University on April 16th, 2024.

327. **Lal, R.** Microbial Literacy for Better Human Health, Environmental Protection and Global Peace: Our Mission and Objectives Under IMiLI lecture presented as Visiting Professor at Department of Zoology, DSB Campus, Kumaun University on April 16th, 2024.
328. **Lal, R.** Microbial Literacy for Better Human Health, Environmental Protection and Global Peace: Our Mission and Objectives Under IMiLI presented as Keynote lecture in National Conference on Microbial Innovations and Challenges: Opportunities for Sustainability (MICROS 2024) organized by Graphic Era University, Dehradun from 3rd-4th May, 2024.

Poster Presentations

1. Kumari, R., Dhingra, G., Kaur, H., Tuteja, D., Khanna, R., Dhingra, N., Lal, S., Saxena, D.M., and **Lal, R.** Poster presented in “Biologie Bakterieller Naturstoffproduzenten” held in Bonn, Germany from September 24 -26, 2000.
2. Kumari, R., Subudhi, S., Suar, M., Dhingra, G., Raina, V., Dogra, C., Lal, S., Roelof van der Meer, J., Holliger, C., and **Lal, R.** “Cloning and Characterization of *lin* Genes Responsible for the Degradation of Hexachlorocyclohexane Isomers in *Sphingomonas paucimobilis* strain B90”. Poster presented at the Mini- Symposium held in Department of Zoology, University of Delhi, Delhi, India from October 7-8, 2002.
3. Malhotra, S., Sharma, P., Kumari, R., Prakash, O., Dadhwal, M., Singh, A., Gupta, S., Arora, M., Kumari, K., Kumari, H., Sharma, P., Suar, M., Raina, V., Dogra, C., Pal, R., Lal, S., Roelof van Der Meer, J., Holliger, C., Kohler, H. P. E., Buser, H. R., and **Lal, R.** “Diversity, Distribution and Divergence of *lin* Genes in Hexachlorocyclohexane-Degrading Sphingomonads”. Poster presented at 11th International Symposium on Microbial Ecology (ISME), Vienna, Austria from August 20- 25, 2006.
4. Bala, K., Sharma, P., and **Lal, R.** “*Sphingobium quisquiliarum* sp. nov., P25^T a Hexachlorocyclohexane (HCH) degrading bacterium isolated from HCH contaminated soil.” Poster presented in the 49th Annual Conference of the Association of Microbiologists of India entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
5. Nigam, A., Jit, S., and **Lal, R.** “Taxonomical Characterization of *Sphingomonas histidinilytica* sp. nov., isolated from Hexachlorocyclohexane (HCH) dumpsite, India.” Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
6. Verma, M., Kumar, M., Kaur, J., Dadhwal, M., and **Lal, R.** “*Devosia albogilva* sp. nov., *Devosia chinhatensis* sp. nov., and *Devosia crocina* sp. nov., isolated from Hexachlorocyclohexane (HCH) dumpsite.” Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
7. Gupta, S. K., Lal, D., Garg, N., and **Lal, R.** “Monitored Natural Attenuation (MNA): A case of decontamination of Hexachlorocyclohexane (HCH) contaminated site”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International

Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.

8. Gupta, S. K., Lal, D., and **Lal, R.** “*Novosphingobium panipatensis* sp. nov., and *Novosphingobium mathurensense* sp. nov., from oil contaminated soil”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
9. Khanna, M., Solanki, R., and **Lal, R.** “*Streptomyces chromogiensis* and *Streptomyces antibiotiensis*, two novel species from a sanitary landfill soil”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
10. Verma, M., Kaur, J., Kumar, M., Anand, S., Kumari, K., Ravi, V., Raghuvanshi, S., Khurana, P., Tyagi, A. K., and **Lal, R.** “Assembly and Targeted Genome Sequencing of Rifamycin producing Actinomycete *Amycolatopsis mediterranei* S699”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
11. Singh, A., and **Lal, R.** “Evidence for *in situ* Horizontal Transfer of *linB* Gene among sphingomonads indigenous to HCH contaminated soil.”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
12. Jit, S., Nigam, A., and **Lal, R.** “A study on vertical distribution of *linA* and *linB* and community structure in Hexachlorocyclohexane (HCH) contaminated soil”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
13. Kumari, H., Vogne, C., Sharma, P., Jindal, S., Malhotra, J., Roelof Van der Meer, J., and **Lal, R.** “Characterization of σ^{54} Dependent Transcriptional Activator Protein HbpR and Isolation of Novel Members of the XylR/DmpR Subclass from Environmental Samples”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
14. Dadhwal, M., Singh, A., Prakash, O., Gupta, S. K., Kumari, K., Sharma, P., Jit, S., Verma, M., Holliger, C., and **Lal, R.** “Proposal of Biostimulation for Hexachlorocyclohexane (HCH)-decontamination and Characterization of culturable bacterial community from High-dose point HCH-contaminated soils”. Poster presented in the 49th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics” held at University of Delhi, Delhi, India from November 18-20, 2008.
15. **Lal, R.** “Microbial degradation of Hexachlorohexane (HCH) and prospects for bioremediation” Poster presented in the 3rd Congress of European Microbiologists – FEMS 2009 conference at Gothenburg, Sweden from June 28 – July 2, 2009.

16. Verma, M., Kaur, J., Kumar, M., Anand, S., Kumari, K., Ravi, V., Raghuvanshi, S., Khurana, P., Khurana, J. P., Tyagi, A. K. and **Lal, R.** “High quality draft genome sequence and comparative genomics of *Amycolatopsis mediterranei* S699”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
17. Jit, S., Geueke, B., Sharma, P., Kumari, K., Bala, K., Poiger, T., Renstch, D., Kohler, H. P., Holliger, C. and **Lal, R.** “Metabolism of α -, δ -, and γ - HCH (Hexachlorocyclohexane) by HCH dehydrochlorinase: *linA1* and *linA2*”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
18. Bala, K., Sharma, P., Kumari, K., Jit, S., Geueke, B., Niharika, N., Garg, N., Kohler, H. P., Poiger, T., Renstch, D., Kunz, P., Holliger, C., and **Lal, R.** “Purification of ϵ HCH (Hexachlorocyclohexane); Role of *linA* (HCH Dehydrochlorinase) and *linB* (HCH Haloalkane Dehalogenase) in its transformation. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
19. Verma, M., Lal, D., Kaur, J., Saxena, A., Kaur, J., Anand, S., and **Lal, R.** “Understanding phylogeny of Actinobacteria in the light of complete genome sequences”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
20. Nigam, A., Yang, J., Almabruk, K., Mahmud, T., and **Lal, R.** “Genetic manipulations of the polyketide synthase (PKS) gene cluster of *Amycolatopsis mediterranei* S699 to produce Rifamycin B analogues”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
21. Jindal, S., Kaur, J., Kumari, K., and **Lal, R.** “Mining diversity of haloalkane dehalogenase (*linB*) from Hexachlorocyclohexane (HCH) dumpsite using genomic & metagenomic approaches”. Poster presented in the 51th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
22. Garg, N., Lal, D., Lata, P., Saxena, A., Sangwan, N., Bala, K., Jit, S., and **Lal, R.** “Bioremediation of HCH contaminated soil by biostimulation and bioaugmentation via application of HCH-degrading consortium”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
23. Malhotra, J., Jindal, S., Anand, S., Dua, A., Rao, D. L. N. and **Lal, R.** “Soil health assessment of pesticide polluted sites using culture independent and dependent approaches”. Poster presented

in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.

24. Anand, S., Lata, P., Dua, A., Verma, M., Kaur, J., and **Lal, R.** “Genome sequencing of a Hexachlorocyclohexane (HCH) degrading bacterium *Sphingobium indicum* B90A using solexa in conjunction with pyrosequencing”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
25. Niharika, N., Bala, K., Dhiman, K., Sharma, P., Upadhyay, A. K., Panda, A. K., and **Lal, R.** “Enhancing the activity of *linA* (Hexachlorocyclohexane dehydrochlorinase) by refolding, site-directed mutagenesis and screening its natural variants for better HCH degrading potential”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
26. Kaur, J., Sharma, P., Kumari, K., Jindal, S., Bala, K., Niharika, N., Pandey, G., Pandey, R., Oakeshott, J. G., Russell, R., and **Lal, R.** “Development of high-throughput colorimetric assay for screening better *linA* (Dehydrochlorinase) and *linB* (Haloalkane dehalogenase) variants”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
27. Anand, S., Bala, K., Saxena, A., and **Lal, R.** “Taxonomical characterization of *Microbacterium amylolyticum* sp. nov., Isolated from industrial soil”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
28. Jindal, S., Dua, A., and **Lal, R.** “*Sphingopyxis indica* sp. nov., Isolated from a high dose point Hexachlorocyclohexane (HCH) contaminated dumpsite”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
29. Nigam, A., Sangwan, N., Garg, N., Niharika, N., Verma, M., Kaur, J., Khurana, P., Khurana, J. P., Rajagopal, R., and **Lal, R.** “Assembly and targeted genome sequencing of *Thermus manikarensis* RLM”. Poster presented in the 51st Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.
30. Singh, A. K., Dwivedi, V., Jit, S., Lata, P., Niharika, N., Kaur, J., Bala, K., Garg, N., Lal, D., Weber, R., and **Lal, R.** “Assessment of HCH (Hexachlorocyclohexane) contaminated from the last lindane production plant operating in India”. Poster presented in the 51th Annual Conference of the Association of Microbiologists of India (AMI) entitled “International Symposium on Recent

Advances in Cross-disciplinary Microbiology: Avenues & Challenges” held at Birla Institute of Technology, Mesra, Ranchi, India from December 14-17, 2010.

31. Jit, S., Lata, P., Niharika, N., Kaur, J., Geuke, B., Kumari, K., Bala, K., Weber, R., Poiger, T., Renstch, D., Kunz, P., Kohler, H. P., Holliger, C., and **Lal, R.** “Assessment of HCH (Hexachlorocyclohexane) & it’s metabolites contamination from the last lindane production plant operating in India”. Poster presented in the Indo-Swiss Collaboration in Biotechnology (ISCB) International Conference entitled “Recent Trends in Developing Bioremediation Strategies for Hexachlorocyclohexane (HCH) & Other Chlorinated Contaminants” held at University of Delhi, India from February 9-11, 2011.
32. Bisht, H., Jindal, S., Lal, D., Jit, S., Nigam, A., Sharma, P., Kumari, K., and **Lal, R.** “Bacterial diversity and Real time PCR based assessment of *linA* (dehydrochlorinase) and *linB* (haloalkane dehalogenase) gene distribution at Hexachlorocyclohexane (HCH) contaminated sites”. Poster presented in the Indo-Swiss Collaboration in Biotechnology (ISCB) International Conference entitled “Recent Trends in Developing Bioremediation Strategies for Hexachlorocyclohexane (HCH) & Other Chlorinated Contaminants” held at University of Delhi, India from February 9-11, 2011.
33. Anand, S., Lata, P., Dua, A., Verma, M., Kaur, J., and **Lal, R.** “A Deeper Insight of *Sphingobium indicum* B90A, a Hexachlorocyclohexane (HCH) Degrading Bacterium in Light of its Genome Sequence”. Poster presented in the Indo-Swiss Collaboration in Biotechnology (ISCB) International Conference entitled “Recent Trends in Developing Bioremediation Strategies for Hexachlorocyclohexane (HCH) & Other Chlorinated Contaminants” held at University of Delhi, India from February 9-11, 2011.
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Thermus sp. Strain RL, Isolated from a Hot Water Spring Located atop the Himalayan Ranges at Manikaran, India”. Poster presented in the 53rd Annual Conference of Association of Microbiologists of India (AMI) entitled “Microbial World: Recent Innovations and Future Trends” held at KIIT University, Bhubaneswar, India from November 22-25, 2012.

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96. Nayyar, N., and **Lal, R.** “Enantioselectivity and kinetics of seven Hexachlorocyclohexane dehydrochlorinase (linA) mutants”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
97. Kohli, P., Lui, Y., Richnow, H.H., and **Lal, R.** “Field and in-vitro determination of carbon stable isotope fractionation (¹³C/¹²C) during aerobic degradation of Hexachlorocyclohexane: SIA implementation for bioremediation”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
98. Singh, P., Saxena, A., Kumari, R., Mukherjee, U., and **Lal, R.** “Genetic manipulation of the polyketide backbone of Rifamycin B in *Amycolatopsis mediterranei* S699 by combinatorial biosynthesis”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
99. Sharma, A., Sangwan, N., Negi, V., Kohli, P., and **Lal, R.** “Pan-genome dynamics across *Pseudomonas* gene complements”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.

100. Tripathi, C., Dwivedi, V., Mahato, N.K., and **Lal, R.** “Genome structure complexity, phylogenetic relationships and comparative genomics of the bacterial genus *Thermus*”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
101. Mahato, N.K., Tripathi, C., Verma, H., Singh, N., and **Lal, R.** “Draft genome sequence of an extremophile *Deinococcus* sp. Strain RL-An insight into resistance to environmental hazards”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
102. Kumari, R., Saxena, A., Mukherjee, U., Singh, P., and **Lal, R.** “Draft genome sequence rifamycin producer *Amycolatopsis rifamycinica* 46095 and an insight into the polyketide biosynthesis gene cluster”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
103. Gupta, V., Maji, A., Misra, R., Sharma, A., Mahato, N.K., Sood, U., Hira, P., Sharma, E., Shakarad, M., Khurana, J.P., **Lal, R.**, and Singh, Y. “Effects of DOTS regimens on gut microbiota of TB patient of Indian cohort: an insight to microbial interaction with disease and antibiotics”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
104. Rani, P., Verma, H., and **Lal, R.** “Taxonomical characterization of *Sphingopyxis* sp. Nov. R11H, isolated from HCH contaminated soil”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
105. Sood, U., Singh, P., Kumari, R., Mukherjee, U., Saxena, A., Shakarad, M., and **Lal, R.** “Draft Genome Sequence of *Amycolatopsis mediterranei* DSM 46096, producer of Rifamycin derivatives”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
106. Hira, P., Sharma, A., Shakarad, M., and **Lal, R.** “Draft genome sequence of *Cellulosimicrobium* sp. MM, isolated from Arsenic rich microbial mat of a Himalayan hotspring”. Poster presented in the 55th Annual Conference of Association of Microbiologists of India (AMI) held at Tamil Nadu Agricultural University, Coimbatore, India from November 12-14, 2014.
107. Verma, H., Kumar, R., Oldach, P., Sangwan, N., Khurana, J.P., Gilbert, J.A., and **Lal, R.** “Comparative genomic analysis of nine *Sphingobium* strains: Insights into their Evolution and Hexachlorocyclohexane (HCH) Degradation Pathway”. Poster presented in the 6th FEMS congress, held at MECC Maastricht, Netherlands from June 7-11, 2015.
108. Singh, P., Kumari, R., Mukherjee, U., Hira, P., Sood, U., and **Lal, R.** “Genetic manipulation of rifamycin polyketide biosynthetic gene cluster of *Amycolatopsis mediterranei* S699 for production of Rifamycin B analogs”. Poster presented in the World Congress and Expo on Applied Microbiology, held at Frankfurt, Germany from August 18-20, 2015.
109. Kumari, R., Kumar, R., Singh, P., Mukherjee, U., Sood, U., Hira, P., and **Lal, R.** “Comparative genomic analysis of genus *Amycolatopsis*: Revealing their phylogeny, functional attributes and

potential to produce variety of secondary metabolites”. Poster presented in the World Congress and Expo on Applied Microbiology, held at Frankfurt, Germany from August 18-20, 2015.

110. Verma, H., Bajaj, A., Kumar, R., Rani, P., and **Lal, R.** “Whole genome sequence of *Sphingobium indicum* B90A: reveals its plasmid organization and IS mediated rearrangements”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
111. Kumar, R., Kohli, P., Bajaj, A., Yaqing, L., Wu, L., Richnow, H.H., and **Lal, R.** “Carbon Stable Isotope Fractionation (CSIA) of α - Hexachlorocyclohexane (HCH) During Enzymatic Degradation with LinA Variants”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
112. Negi, V., Singh, Y., Schumann, P., and **Lal, R.** “*Corynebacterium pollutisoli* VDS11^T isolated from Hexachlorocyclohexane contaminated soil at Ummari, Lucknow, India”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
113. Nayyar, N., Fleischmann, T., Kohler, H.P., and **Lal, R.** “Enantioselectivity and Kinetics of Seven Hexachlorocyclohexane Dehydrochlorinase (LinA) Mutants”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
114. Kohli, P., Lui, Y., Richnow, H.H., and **Lal, R.** “Field and in-vitro determination of carbon stable isotope fractionation (¹³C/¹²C) during aerobic degradation of Hexachlorocyclohexane: CSIA implementation for bioremediation”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
115. Tripathi, C., Kamra, K. and **Lal, R.** “Whole genome sequencing of thermal spring dweller *Thermus parvatiensis* strain RL, by single molecule real time (SMRT) sequencing approach”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
116. Gupta, V., Haider, S., Bruno, L.S., Singh, Y., and **Lal, R.** “Pan-genome dynamics of four novel *Acinetobacter* symbionts and their topological characteristics of protein interaction network”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
117. Mahato, N. K., Tripathi, C., Nayyar, N., Singh, A.K., and **Lal, R.** “Taxonomical characterization of *Pontibacter ummariensis* sp. nov. NKM1^T, isolated from a hexachlorocyclohexane contaminated soil”. Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
118. Kumari, R., Singh, P., Kumar, R., Sood, U., Hira, P., and **Lal, R.** “Comparative Genomic Analysis of genus *Amycolatopsis*: Revealing their Phylogeny, Functional Attributes and Potential to Produce Variety of Secondary Metabolites”. Poster presented in the 56th Annual

Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.

119. Singh, P., Kumari, R., Saxena, A., Hira, P., Sood, U., and **Lal, R.** "Genetic Manipulation of the Rifamycin B Polyketide Synthase gene cluster in *Amycolatopsis mediterranei* S699". Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
120. Sharma, A., Gilbert, J. A., and **Lal, R.** "(Meta)genomic insights into the pathogenome of *Cellulosimicrobium cellulans*". Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
121. Sood, U., Rao, D. L. N., **Lal, R.**, and Shakarad, M. "Complete genome sequence of *Pseudomonas aeruginosa* Psf 2, harboring a plasmid, isolated from chilli field located at Andhra Pradesh, India". Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
122. Hira, P., Rao, D. L. N., **Lal, R.**, and Shakarad, M. "Complete genome sequence and analysis of *Pseudomonas fluorescens* PsChi, isolated from Chilli crop fields located at Lakhmipur, Assam". Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
123. Singhvi, N., Puri, A., Kumari, R., Singh, P., Sood, U., Hira, P., Saran, S., Saxena, R. K., and **Lal, R.** "Production of 24-desmethyrlrifamycin B from *Amycolatopsis mediterranei* mutant strain using fermentation". Poster presented in the 56th Annual Conference of Association of Microbiologists of India (AMI) held at Jawaharlal Nehru University, Delhi, India from December 7-10, 2015.
124. Tripathi, C., Mahato, N. K., Singh, A. K., Kamra, K., Korpole, S., and **Lal, R.** "Characterization of and genomic insights into a biofilm forming and arsenic resistant bacterium *Lampropedia cohaerens* CT6^T isolated from the hot springs of Manikaran, India". Poster presented in Microbiology Society Annual Conference held at Liverpool, U.K. from March 21-24. 2016.
125. Kaur, H., Rani, P., Kaur, S., Narula, L., Kamra, K., **Lal, R.** and Warren A. "Comparison of fresh water ciliated protist communities from two locations along Najafgarh Drain, Delhi, India and their correlation with physico-chemical parameters". Poster presented in International Scientific Forum" PROTIST"2016 held in Moscow, Russia from June 6-10, 2016.
126. Kamra, K., Kaur, H., Tripathi, C., Kaur, S., Narula, L., **Lal, R.** and Warren, Alan. "Correlation between freshwater ciliated protist communities and their micro-ecology". Poster presented in International Scientific Forum" PROTIST 2016, held in Moscow, Russia from June 6-10, 2016.
127. Bajaj, A., Puri, A., Verma, H., Singh, Y. and **Lal, R.** "Exploring Chemically contaminated sites for microbial applications: Isolation, characterization and biochemical assessment of bacterial pigments and genome based analysis of its bio-synthetic pathway". Oral Presentation at 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 27-27, 2016.
128. Kumar, R., Nagar, S., Puri, A., Bajaj, A., Gupta, V., Mahato, N.K., Sood, U., Negi, R.K., Shakarad, M.K., Singh, Y. and **Lal, R.** "Comparative Genomic Analysis of

genus *Parapedobacter*: Insights into the genetic attributes and genomic characteristic traits". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.

129. Nayyar, N., Kohli, P., Mahato, N.K. and **Lal, R.** "A novel bacterial strain (PB3T), belonging to the genus *Pontibacter*, isolated from a pond sediment contaminated with Hexachlorocyclohexane (HCH)." Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
130. Negi, V. and **Lal, R.** "Metagenomic analysis of pond sediment to comprehend complex microbial interactions". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
131. Gupta, V., Haider, S., Sood, U., Gilbert, A.J., Ramjee, M., Forbes, K., Singh, Y., Lopes, S.B. and **Lal, R.** "Comparative genomic analysis of sheep gut *Acinetobacter* symbionts: using system biology and comparative genomics approach". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
132. Singh, P., Kumari, R. And **Lal, R.** "Genetic Manipulation of the acyl transferase domain of Rifamycin Polyketide Synthase gene cluster for producing rifamycin B analog in *Amycolatopsis mediterranei* S699". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
133. Mahato, N.K., Sharma, A., Singh, Y. and **Lal, R.** "Comparative metagenomic analyses of an Indian Hot Water Spring Showed Temperature Driven Community and Functional Dynamics". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
134. Kumari, R., Singh, P., Talwar, C., Negi, R.K. and **Lal, R.** "Comparative Genomic Analysis of genus *Tessaracoccus*: Revealing their niche specific adaptations". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
135. Tripathi, C., Mahato, N.K., Rani, P., Singh, Y., Kamra, K. and **Lal, R.** "Whole genome analysis of *Lampropedia cohaerens*., a biofilm forming bacterium isolated from hot spring microbial mats at Manikaran, India." Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
136. Rani, P., Kamra, K., and **Lal, R.** "Genome Mining and Functional Profiling of a Rhizobacterium : *Pseudomonas fluorescens* Pt14". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
137. Hira, P., Rao, D. L. N., **Lal, R.** and Shakarad, M. "Comparative genomic study of *Pseudomonas fluorescens* : Insights into their heterogeneity and colonization strategies". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.

138. Sood, U., Rao, D.L.N., **Lal, R.** and Shakarad M. "Comparative genomic analysis of outlier strains of *Pseudomonas aeruginosa*: Evidence of incorporation of Type Vc secretion system." Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
139. Puri, A., Bajaj, A., Verma, H., Singh, Y. and **Lal, R.** "Taxo-genomic characterization of carotenoid producing bacterium *Paracoccus* sp. novel strain AK26". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
140. Khurana, H., Talwar, C., Nagar, S., **Lal, R.**, Singh, Y. and Negi, R.K. "Exploring the gut microbial diversity of an endangered fish species *Tor putitora* (Ham.) across the Himalayan ranges through culture-dependent and culture-independent approach". Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
141. Mishra, H., Tripathi, C. and **Lal, R.** "Comparative genomics as a tool for deciphering environment driven evolution in bacteria." Poster presented in the 57th Annual Conference of Association of Microbiologists of India (AMI) held at Gauhati University, Guwahati, India from November 24-27, 2016.
142. Negi, V., Mahato, N.K. and **Lal, R.** "Metagenomic analysis of pond sediment to comprehend complex microbial interactions". Poster presented in 3rd Thunen Symposium on soil metagenomics held at the Johann Heinrich Von Thunen-Institut, Braunschweig, Germany from December 14-16, 2016.
143. Kumar, R., Lal, R. "Comparative genomic analysis reveals environment and habitat specific gene diversity within genus *Novosphingobium*". Poster presented in 7th World on Microbiology held at Valencia, Spain on November 28-29, 2016.
144. Mahato, N.K., Sharma, A., Singh, Y., Lal, R. "Insights into temperature modulated community dynamics of an arsenic rich Himalayan geothermal spring". Poster presented in 7th Congress of European Microbiologists (FEMS-2017) held at Valencia, Spain in July, 2017.
145. Puri, A., Bajaj, A., Singh, Y. and **Lal, R.** "Insights into the environmental stress response linked genome content of *Paracoccus* sp. novel strain AK26 isolated from chemically contaminated environment". Poster presented in the INSCR-International Conference (IIC)- 2017 held at University of Delhi, Delhi, India from September 26- 28, 2017.
146. Dhingra G, Verma H and **Lal R.** "Genome analysis of *Sphingopyxis flava* R11H^T: An overview of genetic attributes" Poster presented in the IIC-2017 held at University of Delhi, Delhi, India from September 26-28, 2017.
147. Rani, P., Mahato, N.K., Kamra, K., Singh, Y. and **Lal, R.** "Taxonomical characterization of *Pedobacter* sp. nov. PR1^T, isolated from Hexachlorocyclohexane contaminated Soil". Poster presented in the INSCR International Conference-2017 held at University of Delhi, Delhi, India from September 26- 28, 2017.
148. Talwar, C., **Lal, R.** and Negi R. K. "Comparative genomic analysis of predatory bacteria of genus *Bdellovibrio*". Poster presented in the INSCR International Conference - 2017 held at University of Delhi, Delhi, India from September 26- 28, 2017.

149. Singh, A.K., Kohli, P., Mahato, N.K. and **Lal, R.** "*Paracoccus sordidisoli* sp. nov., isolated from hexachlorocyclohexane (HCH) contaminated soil". Poster presented in the INSCR International Conference 2017 Hosted and Organized by The University of Delhi in Partnership with INSCR (Indian Network for Soil Contamination Research) Theme: Role of Microbe-Plant-Animal Interactions in Human Health from September 26- 28, 2017.
150. Sharma, M., Khurana, H., Verma, H., Negi, R.K. and **Lal, R.** "Genome based species identification of *Bacillus* strain RL isolated from cattle faeces" Poster presented in the INSCR International Conference (IIC-2017) held at University of Delhi, Delhi, India from September 26-28, 2017.
151. Nagar, S., Mahato, N.K., Kumar, R., Sood, U., Gupta, V., Shakarad, M.N., Singh, Y., **Lal, R.** and Negi, R.K. "Framing the diversity and functional dynamics of sulphur contaminated site Kheer Ganga in Northern Himalayas, Himachal Pradesh, India by using metagenomic approach". Poster presented in the Indian Network of Soil Contamination and Research (INSCR) conference held at Delhi University, Delhi, India from September 26-28, 2017.
152. Singhvi, N., **Lal, R.**, and Singh, Y. "The Binding affinities as well as interaction of rifamycin analogues with RNA polymerase". Poster presented in the INSCR International Conference (IIC) held at University of Delhi, Delhi, India from September 26-28, 2017.
153. Singh, P., Kumari, R. And **Lal, R.** "Production of rifamycin analogs by genetic manipulation of *Amycolatopsis Mediterranei* S699". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
154. Rani, P., Mahato N. K. and **Lal, R.** "Genome analysis of *Luteimonas tolerans* UM1 isolated from hexachlorocyclohexane dumpsite". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
155. Mahato, N.K., Kumar, R., Nagar, S., Negi, R.K.; Singh, Y. and **Lal, R.** "Understanding Niche Specific adaptations to polyextremophily using comparative genomic analysis of Genus *Deinococcus*". Poster presented at the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16-19, 2017.
156. Tripathi, C., Dwivedi, V., Kamra, K. and **Lal, R.** "Co-evolution of natural competence and viral defense mechanism in thermophilic genus *Thermus*". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16-19, 2017.
157. Gupta, V., **Lal, R.**, Singh, Y. "Comparative genomics of outbreak associated Croatian *Acinetobacter baumannii* clones CRO1, CRO2 and CRO3 using phylogenomics, core-pan dynamics, antimicrobial resistance and host pathogen interaction approach". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
158. Hira, P., Sood, U., **Lal, R.**, and Shakarad, M. "Plant growth promoting potential of *Pseudomonas fluorescens*: Plant Guardians". Poster presented in the 58th Annual Conference of Association

of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16-19, 2017.

159. Sood, U., **Lal, R.**, and Shakarad, M. " Functional differences between the classical and outlier strains of *Pseudomonas aeruginosa*". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
160. Puri, A., Bajaj, A., Singh, Y and **Lal, R.** "Genome mapping of ubiquinone biosynthetic pathway from *Paracoccus* sp. strain AK26 for its application in therapeutics". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
161. Khurana, H., Nagar, S., Talwar, C., **Lal, R.** and Negi, R.K. "Meta(genomic) analysis of gut microbial community of fish *Tor putitora* (Ham.)". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16-19, 2017.
162. Talwar, C., Negi, R.K. and **Lal, R.** "Insights into the predatasome of *Bdellovibrio* through comparative genomics". Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
163. Sharma, M., Khurana, H., Verma, H., Negi, R.K. And **Lal, R.** "Comparative analysis of strains belongs to *Bacillus* genus and insights into conserved and flexible gene complement" Poster presented in the 58th Annual Conference of Association of Microbiologists of India (AMI) held at Babasaheb Bhimrao Ambedkar University, Lucknow, India from November 16- 19, 2017.
164. Singhvi, N., Singh, P., Gupta V., Dhingra GG., Prakash, O., Singh RK., Shakarad M., Singh, Y and **Lal, R.** "Time scale interactomics analysis to decipher the role of genes involved in rifamycin production in genetically modified *Amycolatopsis mediterranei* S699" Poster presented in the 3rd INSCR International Conference 2018 at KIIT University, Bhubaneswar, Odisha from September 26-27, 2018.
165. Nagar, S., Talwar, C., Mahato, N. K., Shakarad, M. N., Singh, Y., **Lal R.**, and Negi, R. K. "Metagenomic Assessment Of The Diversity And Functional Attributes Of The Microbial Communities In Hotsprings Around Manikaran Atop Northern Himalayas, Himachal Pradesh, India". Presented at INSCR Internation Conference 2018 (IIC), held at KIIT University, Bhubaneshwar, Orissa, India from September 26-27, 2018.
166. Sharma M., Budhraj R., Singh D. N., Sood U., Adrian L., Richnow H. H., Rawat C. D., Negi R. K., and **Lal, R.** "Comparative proteome analysis of *sphingobium indicum* b90a in presence of different isomers of hexachlorocyclohexane". Presented at INSCR International conference (IIC-2018) held at KIIT, Bhubaneshwar, India from September 26-27, 2018.
167. Talwar, C., Dhingra, G.G., Verma, H., **Lal, R.** and Negi, R.K. "Predatory lifestyles of *Bdellovibrio* and the role of outer membrane proteins". Presented at INSCR International Conference (IIC), 2018 held at KIIT School of Biotechnology, KIIT University, Bhubaneswar, Odisha, India from September 26-27, 2018.
168. Sharma, M., Budhraj R., Singh, D. N., Sood, U., Adrian, L., Richnow, H. H., Rawat, C. D., Negi, R. K., and **Lal, R.** "Comparative proteome analysis of *sphingobium indicum* b90a: An

insite into the stress management mechanism throughout detoxification of hexachlorocyclohexane”. Presented at AMI-2018 held at the University of Hyderabad, from December 10-12, 2018.

169. Nagar, S., Talwar, C., Shakarad, M. N., **Lal R.**, and Negi, R. K. “Reconstruction of multiple draft metagenome-assembled genomes from the metagenome revealing ancestral gene order of hot spring in and around Manikaran, Himachal Pradesh, India.” Presented at AMI-2018 held at the University of Hyderabad, from December 10-12, 2018.
170. Talwar, C., Nagar, S., **Lal R.**, and Negi, R. K. “Metagenomic analysis of control of pathogenesis by *Aeromonas salmonicida* and shift in gut microbiome in *Labeo rohita* using *Bdellovibrio*”. Presented at AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
171. Dhingra, G. G., Verma, H., Talwar C., Negi, R. K., **Lal, R.** “Insight into the predation mechanism by *Bdellovibrio* sp. ”. Presented at AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
172. Singhvi, N., Singh, P., Gupta V., Dhingra GG., Prakash, O., Singh RK., Shakarad M., Singh, Y and **Lal, R.** "Deciphering the role of genes involved in rifamycin production in genetically modified *Amycolatopsis mediterranei* S699 using interactomics analysis". Poster/oral presented in the AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
173. Singh, P., Singhvi, N., Gupta V., Dhingra GG., Prakash, O., Singh RK., Shakarad M., Singh, Y and **Lal, R.** "Whole cell protein expression analysis of *Amycolatopsis mediterranei* S699 at different growth phases during fermentation." Poster/oral presented in the AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
174. Gupta, V., Haider, S., Singhvi, N., Lopes, B. S., Singh, Y., **Lal, R.** “Comparative genomics of outbreak associated carbapenem resistant Croatian *Acinetobacter baumannii* clones using in-silico host pathogen interaction approach”. Poster presented in the AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
175. Sood, U., Singh, D. N., Hira, P., **Lal, R.**, Shakarad, M. “Production of mono-rhamnolipid and pyocyanin from CR-1 a less virulent strain of *Pseudomonas aeruginosa*” Poster presented in the AMI-2018 held at University of Hyderabad, from December 10-12, 2018.
176. Singh, P., **Lal, R.** “A novel bacterial strain NP1^T belonging to the genus *Pontibacter*, isolated from soil contaminated with Hexachlorocyclohexane” Poster presentation at inter-college science festival at Deen Dayal Upadhyaya College on March 11-12, 2019.
177. **Lal, R.** “Diversity and dynamics of microbiome of hot-water springs situated atop the Himalayan ranges at Manikaran and Kheer Ganga in Himachal Pradesh” poster presented at 18th International Symposium on Microbial Ecology (ISME18) in Lausanne, Switzerland from 14-19 August 2022.
178. Sood, U. and **Lal, R.** “The role of genomics in resolving classification anomalies of bacterial genera” poster presented at 18th International Symposium on Microbial Ecology (ISME18) in Lausanne, Switzerland from 14-19 August 2022.
179. Lata, P., Gupta, S., Bhargava, V. and **Lal, R.** “Creating a standardized system for naming and classifying uncultivated prokaryotes: The Development of the SeqCode” Poster presented at 10th Congress of European Microbiologists (FEMS2023) in Hamburg, Germany from 9-13 July 2023.

180. Nagar, S., and **Lal, R.** “Generalists or specialists: Integrated approaches to decipher fundamental functional ecology and insights in habitat specific alterations” Poster presented at 10th Congress of European Microbiologists (FEMS2023) in Hamburg, Germany from 9-13 July 2023.
181. Kumar, A., Sood, U., Rawat, C.D. and **Lal, R.** “Genome attributes in psychrophilic, mesophilic and thermophilic strains” Poster presented at Second South Asian Symposium on Microbial Ecology (SASME2023) in Kathmandu, Nepal from 1-3 November 2023.