




## Faculty Details proforma for DU College Web-site



|   |  |            |               |                         |                                       |   |
|---|--|------------|---------------|-------------------------|---------------------------------------|---|
| Title                                     | Dr   | First Name | <b>Pankaj</b> | Last Name               | <b>Khanna</b>                         | Photograph  |
| Designation                               | <b>Assistant Professor</b>   |            |               |                         |                                       |  |
| Address                                   | <b>Department of Chemistry<br/>Acharya Narendra Dev College<br/>(University of Delhi)<br/>Govindpuri, Kalkaji<br/>New Delhi-110019</b>   |            |               |                         |                                       |   |
| Phone No                                  |  |            |               |                         |                                       |   |
| Residence Mobile                          | <b>9818009250</b>  |            |               |                         |                                       |   |
| Email                                     | <a href="mailto:pankajkhanna@andc.du.ac.in">pankajkhanna@andc.du.ac.in</a><br><a href="mailto:kpankaj6@yahoo.co.in">kpankaj6@yahoo.co.in</a>                                       |            |               |                         |                                       |   |
| Web-Page                                  | <a href="http://wikieducator.org/User:Pankaj_K">http://wikieducator.org/User:Pankaj_K</a><br><a href="https://khannapankaj.wordpress.com/">https://khannapankaj.wordpress.com/</a> |            |               |                         |                                       |   |
| Educational Qualifications                |  |            |               |                         |                                       |   |
| Degree                                    | Institution  |            |               |                         | Year                                  |   |
| B.Sc.(H) Chemistry                        | <b>University of Delhi</b>   |            |               |                         | <b>1998</b>                           |   |
| M.Sc. Chemistry                           | <b>University of Delhi</b>   |            |               |                         | <b>2000</b>                           |   |
| Ph.D. Chemistry                           | <b>University of Delhi</b>   |            |               |                         | <b>2006</b>                           |   |
| PG Diploma Intellectual Property Rights   | <b>IGNOU</b>   |            |               |                         | <b>2011</b>                           |   |
| Two Year Diploma in Computer Applications | <b>NIIT</b>  |            |               |                         |                                       |   |
| Career Profile                            |  |            |               |                         |                                       |   |
| <b>Organisation/<br/>Institution</b>      | <b>Designation</b>   |            |               | <b>Duration</b>         | <b>Role</b>                           |   |
| Acharya Narendra Dev College (DU)         | Assistant Professor AGP 7000   |            |               | 2014 (Jul)-Present      | Teaching, Research and administrative |   |
| University of Delhi                       | Vice Chancellor's Fellow   |            |               | 2014                    | On Deputation                         |   |
| Acharya Narendra Dev College (DU)         | Assistant Professor AGP 7000   |            |               | 2009 (Aug)-2013         | Teaching, Research and administrative |   |
| Acharya Narendra Dev College (DU)         | Assistant Professor AGP 6000   |            |               | 2009 (April)-2009 (Aug) | Teaching and administrative           |   |
| Deen Dayal Upadhyaya College (DU)         | Assistant Professor AGP 6000   |            |               | 2006-2009               | Teaching                              |   |

|   |                              |           |          |
|---|------------------------------|-----------|----------|
| Shivaji College (DU)  | Assistant Professor AGP 6000 | 2005-2006 | Teaching |
| S.G.T.B. Khalsa College (DU)  | Lecturer                     | 2003-2004 | Teaching |
| <b>Administrative Assignments</b>   |                              |           |          |
| <ul style="list-style-type: none"> <li>• <b>Acted as a Jury Member for the assessment of the prestigious INSPIRE scholarship organized by DST, New Delhi, held on:</b><br/> 10-11 December 2016<br/> 6-7 December 2015<br/> 6-8 October 2014<br/> 8-10 October 2013<br/> 21-23 October 2012<br/> 14-16 August 2011</li> <li>• <b>Member of Committee for revision of various syllabi:</b> <ol style="list-style-type: none"> <li>i. <b>Co-convenor and Member of various committees under LOCF revision, Department of Chemistry, University of Delhi (2012).</b></li> <li>ii. <b>B.Sc. (Hons.) Chemistry erstwhile FYUP mode, Department of Chemistry, University of Delhi (2012).</b></li> <li>iii. <b>B.Sc. (Hons.) Chemistry Semester mode, Department of Chemistry, University of Delhi (2009).</b></li> <li>iv. <b>B.Sc. (Prog.) Chemistry Semester mode, Department of Chemistry, University of Delhi (2009).</b></li> <li>v. <b>Third Year Chemistry Course of the restructured B.Sc. (Prog.), Department of Chemistry, University of Delhi (2007).</b></li> </ol> </li> <li>• <b>SOL examination committee (Superintendent and Deputy Superintendent)</b></li> <li>• <b>Convener of IT committee (2012-2014(Jan.) and 2014(Sep.)-2016) (In-charge of college website)</b></li> <li>• <b>Convener of Abhikriya (The Chemistry Society, 2018-2020)</b></li> <li>• <b>Member of Central Purchase committee (2010-2013)</b></li> <li>• <b>Member of IT committee (2009-2012)</b></li> <li>• <b>Member of NSS committee (2010-2012 and 2018-2020)</b></li> <li>• <b>Member of Annual Events Management committee (2009-2010)</b></li> </ul> |                              |           |          |
| <b>Areas of Interest / Specialization</b>   |                              |           |          |
| <p><b>Specialization:</b></p> <ul style="list-style-type: none"> <li>• <b>Synthetic Organic and Natural Products Chemistry</b></li> </ul> <p><b>Research Interest:</b></p> <ul style="list-style-type: none"> <li>• <b>Synthesis of novel heterocyclic systems of medicinal interest and drug discovery</b></li> <li>• <b>Isolation and structure elucidation of natural compounds</b></li> <li>• <b>Interdisciplinary research for Chemistry education</b></li> </ul>  |                              |           |          |
| <b>Subjects Taught</b>  |                              |           |          |
| <p><b>Organic Chemistry Papers of B.Sc. (H) Chemistry and B.Sc. (Prog.)</b></p> <p><b>Intellectual Property Rights (SEC paper) of B.Sc. (H) Chemistry and B.Sc. (Prog.)</b></p>   |                              |           |          |

## Research Guidance

Undergraduate Research guidance under Innovation projects (2012 and 2015, DU), IEDC project (DST-ANDC) and ELITE-Summer Project (ANDC).

## Publications Profile

### Patents:

1. *Withania somnifera* plant extract and method of preparation thereof. Vijayalakshmi Ravindranath, Alok Gupta, Neha Sehgal, Subhash C. Jain, Suman Thakur and **Pankaj Khanna**.

PCT/IN2009/000430, Pub. No.: [WO/2010/013254](#), Pub. on **04.02.2010**

- i) **US Patent Granted** on 09.07.2013, No. [US 8,481,087 B2](#). Earlier Pub No. US20110229591 A1, Pub. on 22.09.2011.
- ii) **Chinese Patent Granted** on 17.10.2012, no. CN102076349 B. Earlier Pub No. CN102076349 A, Pub. on 25.05.2011.
- iii) Australian Patent, Pub No. [2009277963](#), Pub. On 13.01.2011
- iv) European Patent, Pub No. [2009787611](#), Pub. On 11.05.2011

### Research Papers Published:

| Year of Publication | Title   | Journal  | Co-author/s                                |
|---------------------|---|--|--|
| 2020                | Spiro-Indole-Coumarin Hybrids: Synthesis, ADME, DFT, NBO Studies and In Silico Screening through Molecular Docking on DNA G-Quadruplex        | <a href="#">ChemistrySelect, 2020, 5(11), 3420-3433</a>            | L. Khanna, S. Singhal and Subhash C. Jain. |
| 2019                | Recent trends in synthesis of benzimidazoles from o-phenylenediamine via nanoparticles and green strategies using transition metal catalysts. | <a href="#">J. Heterocycl. Chem., 2019, 56, 2702–2729.</a>         | S. Singhal and L. Khanna.                  |
| 2019                | Synthesis, DFT studies, molecular docking, antimicrobial screening and  | <a href="#">Heliyon, 2019, 5, e02596. doi:10.1016/j.heliyon.20</a> | S. Singhal and L. Khanna.                  |

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|------|--|--|---|
|      | UV fluorescence studies on ct-DNA for novel Schiff bases of 2-(1-aminobenzyl) benzimidazole.   | <a href="#">19.e02596</a>  |   |
| 2019 | Hepatic lipoprotein receptor related protein modulators as potential therapeutics for Alzheimer's disease (Poster proceedings)   | <a href="#">Alzheimer's &amp; Dementia, 2019 15, 7(suppl.), P271</a>                         | A. Ramachandran, K.V. Rupanagudi, M. Chand, S.C. Jain, H. Saranyallamathi, S.S. Thakur, V. Ravindranath       |
| 2018 | Protective effects of <i>Aporosa octandra</i> bark extract against D-galactose induced cognitive impairment and oxidative stress in mice.                              | <a href="#">Heliyon, 2018, 4, e00951. doi: 10.1016/j.heliyon.2018.e00951</a>                 | S.S. Panda, A.S. Girgis, A. Prakash, L. Khanna, E.M. Shalaby, N.G. Fawzy and S.C. Jain.                       |
| 2018 | A concise synthesis of 2-alkenyl-3-phenyl-4H-chromen-4-ones via novel C-C bond formation using sulfone as potential intermediate                                       | <a href="#">Ind. J. Chem., 2018, 57B, 945-954</a>  | L. Khanna and Subhash C. Jain.  |
| 2018 | Microwave Assisted Synthesis of Spiro Heterocyclic Systems: A Review.  | <a href="#">Curr. Org. Chem., 2018, 22, 67-84</a>  | L.Khanna, S.J. Thomas, A.M. Asiri and S.S. Panda.   |
| 2014 | Aqua mediated synthesis of spirocyclic compounds.  | <a href="#">Mini-Rev. Org. Chem., 2014, 11, 73-86</a>  | S.S. Panda, L. Khanna and S.C. Jain.  |
| 2013 | Synthesis of various s-s linked symmetric bisazaheterocycles: A Review.  | <a href="#">Mini-Rev. Org. Chem., 2013, 10, 268-280</a>                                      | L. Khanna, C.S. Panda and S.S. Panda.   |
| 2012 | Withania somnifera reverses Alzheimer's disease pathology by enhancing low density lipoprotein receptor-related protein in liver.<br><br><a href="#">The Telegraph</a> | <a href="#">Proc. Natl. Acad. Sci., 2012, 109(9), 3510-3515.</a><br><br>(Impact factor 9.58) | N. Sehgal, A. Gupta, R.K. Valli, S.D. Joshi, J.T. Mills, E. Hamel, S.C. Jain, S.S. Thakur and V. Ravindranath |

|      |   |  |  |
|------|---|--|--|
| 2012 | Biginelli Reaction: A Green Perspective.  | <a href="#">Curr. Org. Chem., 2012, 16(4), 507-520</a>                       | S.S. Panda and L. Khanna.                                |
| 2012 | Synthetic routes to symmetric bisbenzimidazoles: a review.  | <a href="#">Mini-Rev. Org. Chem., 2012, 9, 381-396</a>                       | L. Khanna and S.S. Panda.                                |
| 2009 | Synthesis of novel symmetrical and unsymmetrical bis-spiro[indole-indazolyl-thiazolidine]-2,4'-diones                           | <a href="#">Arkivoc, 2009, vii, 119-125</a>                                  | A. Saxena, L. Khanna, S. Bhagat and S.C. Jain            |
| 2008 | A facile synthesis of novel unsymmetrical bis-spiro[indole-pyrazolinyl-thiazolidine]-2,4'-diones                                | <a href="#">Arkivoc, 2008, xv, 54-64</a>                                     | M. Jain, R. Sakhuja, S. Bhagat and S.C. Jain             |
| 2006 | Synthesis of some novel bis-spiro[indole-pyrazolinyl-thiazolidine]-2,4'-diones  | <a href="#">Synth. Commun., 2006, 36,1863-1872</a>                           | M. Jain, A. Saxena, S. Bhagat, C. E. Olsen and S.C. Jain |
| 2006 | One pot facile synthesis of 5-alkyl-1,2-dihydro-spiro[4H-3,1-benzoxazine-2,3'[3H]indol]-4,2'-diones under microwave irradiation | <a href="#">Ind. J. Chem., 2006, 45B, 1504-1510</a>                          | A. Saxena, S. Bhagat, A. Gupta and S.C. Jain             |
| 2005 | Novel fluorinated spiro [indole-indazolyl-thiazolidine]-2,4'-diones: Design and synthesis                                       | <a href="#">Phosphorus, Sulfur, Silicon Relat Elem, 2005, 180, 1829-1839</a> | S.C. Jain, S. Bhagat, M. Jain and R. Sakhuja             |
| 2004 | One pot synthesis of novel 1,2-dihydro-5-methyl-spiro[4H-3,1-benzoxazine-2,3'[3H]indol]-4,2'-diones.                            | <a href="#">Ind. J. Chem., 2004, 43B, 2381-2385</a>                          | A. Saxena, R. Goswami, S. Bhagat, and S.C. Jain          |

#### Conference Organization/ Presentations

- Organized a One day Seminar** on Intellectual Property Rights, under the Star College Scheme (held at Acharya Narendra Dev College, University of Delhi, Delhi, on 7<sup>th</sup> November 2019).
- Member of the organizing committee** of two day symposium on 'Safety Measures and Laboratory Ethics' (under the DBT-STAR scheme, held at Acharya Narendra Dev College, University of Delhi, Delhi on 21<sup>st</sup>-22<sup>nd</sup> February, 2018).
- Organized a workshop** on 'Systematic Use of Digital Information in Academic Activities'

under the Star College Scheme, (held at Acharya Narendra Dev College, University of Delhi, Delhi, on 10th November 2017).

4. **Member of the organizing committee** of workshop on *Applications of Free/Open Source Software in Science Teaching & Research* (held at Acharya Narendra Dev College, Delhi on April 14-15, 2010).
5. **Member of the organizing committee** of workshop on *Free/Open Source Software* (held at South Campus, University of Delhi, Delhi, on April 16, 2010).
6. **Member of the organizing committee** of a workshop for B.Sc. (Hons.) Chemistry students on *Use of software to create chemistry documents* (held at Acharya Narendra Dev College, Delhi, on June 6-7 2011).

| Year of Publication | Title  | Conference  | Co-author/s   |
|---------------------|--|---|---|
| 2019                | Synthesis of potential antibacterial Schiff bases of 2-aminomethyl benzimidazole and their <i>in silico</i> pharmacokinetics, in vitro UV fluorescence binding studies with ct-DNA | 2019 International Conference on Nanospace Materials (ICNM 2019, University of Queensland, Australia from 1 <sup>st</sup> -4 <sup>th</sup> October 2019).                         | S. Singhal (Presenter) and L. Khanna  |
| 2017                | Designing a Virtual Chemistry Lab for Undergraduate Students   | 3 <sup>rd</sup> India International Science Festival under SYPOG-Young Scientist's Conclave, held at Anna University, Chennai (13 <sup>th</sup> - 16 <sup>th</sup> October 2017). | Neeti Misra, Vibha Gaur, Rahul Dwivedi, Manish Kumar Singh, Sagar Patwal, Sachin Kumar, Shivam Agarwal, Parag Jain, Gaurav Prakash, Kunaal Madaan, Palak Sharma, Shivani Goyal. |
| 2016                | An innovative undergraduate virtual chemistry laboratory: Design and Learning Outcomes   | 19 <sup>th</sup> CRSI National Symposium in Chemistry (University of North Bengal, Siliguri, Darjeeling, West Bengal, on 14 <sup>th</sup> -16 <sup>th</sup> July 2016).           | Neeti Misra, Vibha Gaur et al   |
| 2013                | Automating physical chemistry laboratory using sensors and data acquisition systems  | 15 <sup>th</sup> CRSI National Symposium in Chemistry NISER, Bhubaneswar, Banaras Hindu University, Varanasi, on Feb. 1-3 2013  | Rambir, Sachin, Amita, Amit Garg and Vishal Dhingra   |

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| 2011 | Synthesis of some coumaryl-spiroindoles of pharmaceutical interest  | 13th CRSI National Symposium in Chemistry NISER, Bhubaneswar, on Feb. 4-6 2011.       | Subhash C. Jain et al.                                    |
| 2010 | Synthesis of new molecules to discover drug candidates<br>The International Symposium on Trends in Drug Discovery and Development | 5-8 January 2010, New Delhi, India  | Subhash C. Jain et al.                                    |
| 2008 | A Clean, Benign and Aqua Mediated Synthesis of Pharamacologically Active Spiro Heterocycles                                       | The 12th Annual Green Chemistry and Engineering Conference (June 24-26, Washington DC | Subhash C. Jain (presenter), Siva Panda and Sunita Bhagat |

#### Research Projects (Major Grants/Research Collaboration)

- **Innovation Project**, “Designing a virtual chemistry lab for undergraduate students,” University of Delhi, 2015-16.
- **IEDC Project** (Innovation & Entrepreneurship Development Centre) “Development of Low-Cost disinfectant using cow urine,” under DST sponsored scheme, 2014-15.
- **Innovation Project**, “Mobile Phone as a real time sensor based undergraduate laboratory” University of Delhi, 2012-13.

#### Elite Projects (Co-mentor):

1. To extract the coloured component of Hibiscus rosa-sinensis flower and study its potency as a pH indicator, 2019 (with Dr Neeti Misra and Dr Kavita Mittal)
2. Detection of adulterants in milk from different sources & Synthesis of metal complexes of Schiff bases using sonication, 2019 (Dr Neeti Misra, Dr Kavita Mittal and Dr Leena Khanna, USBAS, GGSIP University)
3. Study and extraction of medicinally important plant *S. chirata* & examination of chemical adulteration in food items, 2018 (with Dr Neeti Misra and Dr Kavita Mittal)
4. Spectrophotometric studies of Turmeric extracts and review of its medicinal properties, 2017 (with Dr Neeti Misra and Dr Leena Khanna, USBAS, GGSIP University)
5. Synthesis of some heterocyclic compounds and a review on benzimidazole synthesis, 2017 (with Dr Shallu Sachdeva and Dr Leena Khanna, USBAS, GGSIP University)

#### Awards and Distinctions

- **Digital Literacy Champion:** By Campus of Open Learning, University of Delhi. Travel to **Edinburgh College, Edinburgh, Scotland** for further Training, July 2015.

- **Vice Chancellor's Fellowship**, University of Delhi- 2014
- **Best Poster Award and Certificate of Appreciation** for Research Display at the DU Convocation 2016, for the work done in Innovation Project ANDC-305, "Designing a Virtual Chemistry Lab for Undergraduate Students"
- Joint CSIR-UGC Examination for **J.R.F.**
- Awarded **Senior Research Fellowship** through CSIR.

#### Association With Professional Bodies

- **Reviewer of ChemistrySelect, a Wiley Journal**
- **Indian Society of Analytical Scientists**

#### Other Activities

1. **A resource person** for 'Workshop on Development, Enrichment and Review of e-content, Scripts and Video for School MOOCS on SWAYAM', organised by CIET, NCERT, New Delhi, from February 20-21, 2020.
2. Online Refresher Course in Chemistry for Higher Education Faculty under ARPIT, with an 'A' Grade (Nov 2018-Feb 2019).
3. **A resource person** for five days workshop on 'Development of guidelines for mentoring of schools by Higher Educational Institutions (HEIs) under Rashtriya Avishkar Abhiyan (RAA)', organised by DESM, NCERT, New Delhi, from 18th March-20th March 2019 and 25th March-28th March 2019.
4. The Research Based Pedagogy Tools workshop (RBPT-Level 2) for undergraduate science teachers organised by and held at IISER Pune, 17<sup>th</sup> - 19<sup>th</sup> January 2019.
5. **A resource person** for five days workshop on 'Development of guidelines for mentoring of schools by Higher Educational Institutions (HEIs) under Rashtriya Avishkar Abhiyan (RAA)', organised by DESM, NCERT, New Delhi, from 17th December-21st December 2018.
6. The pedagogy workshop (RBPT Level 1) for undergraduate science teachers organised by IISER Pune at Indian Institute of Technology, Gandhinagar, Gujarat, (10th - 13th December 2017).
7. **A resource person** in a five day workshop on "Development of e-Resources for Science at Secondary stage", held at and organized by NCERT, on 30<sup>th</sup> October – 3<sup>rd</sup> November 2017.
8. **A resource person** in a five day workshop on "Development of e-Resources for Science at Secondary stage", held at and organized by NCERT, on 13<sup>th</sup>– 17<sup>th</sup> February 2017.
9. A four week online course on "Teaching with Moodle", a Learn Moodle MOOC by Moodle HQ during January 2017.
10. **A resource person** in a session on "Blogging" at a workshop on "ICT integration in Chemistry" (organized and held at Hindu College, University of Delhi, Delhi, on October 9-10, 2015).
11. **A resource person** in a session on "Blogging" at a workshop on "ICT Usages for



- Teaching” (held at CPDHE, University of Delhi, Delhi, on September 1-8, 2015).
12. D-LITE program (The Digital Literacy and Innovation for Tomorrow’s Education) training under UKIERI at **Edinburgh College, Granton Campus, Scotland, UK**, on July 15-17, 2015.
  13. **A resource person** in various sessions of a weeklong workshop on “Trans disciplinary Training” (held at CPDHE, University of Delhi, Delhi on May 7-13, 2014).
  14. **A resource person** in some sessions of *Easy Now Techniques Workshop on Multimedia Content Development* (held at Acharya Narendra Dev College, Delhi on May 4-7, 2010).

**Online live lectures at CEC-UGC's EDUSAT network:**

1. [Stereochemistry I](#)
2. [Stereochemistry II](#)
3. [Stereochemistry III](#)
4. [Stereochemistry IV](#)
5. [Conformations](#)
6. [Electronic Displacements](#)
7. [Electronic Displacements II](#)
8. [Reaction Intermediates](#)
9. [Reaction Intermediates II](#)
10. [Acids and Bases \(with carbenes\)](#)
11. [Amino Acid, Peptides and Proteins](#)
12. [Amino Acid, Peptides and Proteins II](#)

Pankaj Khanna  
**(Dr Pankaj Khanna)**  
Signature of Faculty Member