

## Upendra Sharma, PhD (Organic Chemistry), FRSC

C-H Activation & Phytochemistry Laboratory

Chemical Technology Division

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### RESEARCH FOCUS

**Phytochemical Investigation of Medicinal Plants:** Our group mainly focuses on scientific validation of traditional knowledge on plants where we isolate marker compounds, use them as standards for quality control, and evaluate the respective biological activities. Developing innovative approaches, including a) Replacing traditionally used organic solvents for targeted extraction with eco-friendly and reusable **Natural Deep Eutectic Solvents (NADES)**; b) Developing a **Chemometric** Data Base for quality assurance of medicinal plants & c) **Biochemometric** Approach for the identification of putative marker compounds, to achieve these targets is the main goal.

**Synthesis of Bioactive Molecules via C-H Activation:** One of the aims of our group is to develop green and efficient catalytic methods for synthesizing bioactive molecules *via* C-H activation/functionalization. Mainly we focus on the functionalization of *N*-heterocycles by employing novel catalytic techniques with an in-depth study of the reaction mechanism. Recently we have initiated work on atroposelective C-H activation.

### PROFESSIONAL EXPERIENCE

|                               |   |
|-------------------------------|---|
| September 2021 to present     | Principal Scientist, CSIR-IHBT, Palampur, India   |
| September 2017 to August 2021 | Senior Scientist, CSIR-IHBT, Palampur, India      |
| September 2014 to August 2017 | Scientist, CSIR-IHBT, Palampur, India             |
| March 2014 to August 2014     | Postdoc Fellow, KAIST, South Korea                |
| May 2013 to March 2014        | Young Scientist-DST Fast Track, IIT Bombay, India |
| November 2012 to May 2013     | Research Assistant, IIT Bombay, India             |

### EDUCATION

|      |                           |                          |                                       |
|------|---------------------------|--------------------------|---------------------------------------|
| 2012 | Ph.D. (Organic Chemistry) | Awarded                  | GNDU, Amritsar/CSIR-IHBT, Palampur    |
| 2005 | M.Sc. (Chemistry)         | 1 <sup>st</sup> Division | DAV Collage Jalandhar, GNDU, Amritsar |
| 2002 | B.Sc. (Non-Medical)       | 1 <sup>st</sup> Division | Himachal Pradesh University           |

### AWARDS/FELLOWSHIPS/RECOGNITION

- NABL Assessor, ISO17025:2017 for testing (2024 on words)
- Involved in establishing and getting NABL accreditation of Chemical Technology Lab, CSIR-IHBT as per ISO17025:2017 for testing under Ayush Drug group (April 2025-April-2029)
- Member, Sports Promotion Board (SPB), CSIR (2025-)
- Fellow of Royal Society Chemistry (FRSC), London, UK.
- Life member of the Chemical Society of India
- Life Member of the Catalysis Society of India
- Life member of the Analytical Society of Analytical Scientists
- One Year Advance Promotion *i.e.*, Merit Promotion from Scientist to Senior Scientist
- Member, Early Career Advisory Board, *Science of Synthesis* (2021-2024)
- Member, Early Career Advisory Board, *Asian Journal of Organic Chemistry* (2020-)

- Member, Editorial Board, *Scientific Reports* (2024-)
- Manjushree Pal Memorial Award from Ethanopharmacology Society of India, Kolkata (2017)
- Thieme Chemistry Journal Award (2016)
- D S Kothari Postdoc Fellowship (2012)
- Fast Track Young Scientist project for three years (2012)
- Postdoc Fellowship KAIST, South Korea (2014)
- CSIR Junior/Senior Research Fellowship (2007, 2009)

#### HUMAN RESOURCE DEVELOPMENT

18 students awarded PhD degrees and 02 has submitted PhD thesis.

07 Research Associates, 25 project assistants, and 31 MSc/Mpharma trainees worked in the lab.

#### CSIR/INSTITUTIONAL RESPONSIBILITIES

- Member, Technical and Purchase Committee (2018-)
- Member, Students selection committee in Chemical Sciences (2015-2023)
- DAC Member, Ph.D. students enrolled in AcSIR, Ghaziabad-201002, India
- Member, Publication Committee (2023-)
- Member, Lab Health, Safety and Environment Management Committee (2023-)

#### PROJECT HANDLED: 27

Completed: 18

Current: 09

External Funded: 05

#### RESEARCH PUBLICATION: 208

Patents: 4

Citation: >6439

h-index: 40

i-10 index: 141

Book Edited: 01

Book Chapter: 12

Popular Hindi Article: 09

#### REPRESENTATIVE PUBLICATIONS IN LAST THREE YEARS

| Natural Product Chemistry                              | Organic Synthesis                                    |
|--|--|
| Sep Purif Technol. 2025; 354: 128699.                  | Chem. Asian J. 2025; doi.org/10.1002/asia.202401266. |
| Microchem. J. 2025; 208: 112620.                       | Coord Chem Rev. 2024; 499: 215453.                   |
| Fitoterapia, 2025; 180, 106279.                        | Trends in Chem., 2024; 6: 705.                       |
| Microchem. J. 2025; 208: 112137.                       | Org Lett. 2024; 26: 8515.                            |
| Trends in Chem., 2024; 6: 277.                         | J. Catal., 2024; 439: 115756.                        |
| J Ethanopharmacol. 2024; 320: 117385.                  | J Org Chem. 2024; 89: 15893.                         |
| Microchem. J. 2024; 205: 111210.                       | Org Lett. 2024; 26: 5027.                            |
| Fitoterapia, 2024; 175: 105925.                        | Org Chem Front. 2024; 11: 4986.                      |
| Nat Prod Res. 2024; DOI:10.1080/14786419.2024.2375318. | Chem Commun. 2024; 60: 5626.                         |
| Microchem J. 2024, 199: 110129.                        | J Org Chem. 2024; 89: 14880.                         |
| Nat Prod Res. 2024; 38: 440.                           | J. Catal., 2024; 438: 115673.                        |
| Phytochem Anal. 2024; 35: 1265.                        | Mol. Catal. 2024; 568: 114395.                       |
| Steroids 2023, 199: 109293.                            | Org. Biomol. Chem. 2024, 22, 6612.                   |
| Eur J Med Chem. 2023; 260: 115748.                     | Mol. Catal. 2023; 551: 113597                        |
| J Ethanopharmacol. 2023; 310: 116389.                  | Org Lett. 2023; 25: 2627.                            |
| J Cleaner Prod. 2023; 356: 135639.                     | Chem Commun. 2023; 59: 9646.                         |
| Ind Crops Prod. 2023; 202: 117040.                     | Chem Euro J., 2023, 29: e202301360.                  |
| Biomass Convers Biorefin. 2023; 13: 311.               | J Org Chem. 2023; 88: 2314.                          |

