

Upendra Sharma, PhD (Organic Chemistry), FRSC, Professor (AcSIR)

C-H Activation & Phytochemistry Laboratory

Chemical Technology Division

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RESEARCH FOCUS

Discovery of New Molecules from Medicinal and Aromatic Plants and Development of CRMs/BNDs: Our group aims to discover new molecules from plants, evaluate their biological potential, and develop them as CRMs/BNDs.

Phytochemical Investigation of Medicinal Plants: Our group primarily focuses on validating traditional plant knowledge by isolating marker compounds, using them as quality-control standards, and evaluating their 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 **Chemomatrix** Database for quality assurance of medicinal plants & c) **Biochemomatrix** Approach for the identification of putative marker compounds, to achieve these targets is the main goal.

Asymmetric Synthesis of Bioactive Molecules via C-H Activation: One of our group's aims is to develop green, efficient catalytic methods for the asymmetric synthesis of bioactive molecules *via* C-H activation/functionalization. We mainly focus on the functionalization of *N*-heterocycles using novel catalytic techniques, with an in-depth study of the reaction mechanism.

PROFESSIONAL EXPERIENCE

September 2021 to present	Scientist E, CSIR-IHBT, Palampur, India
September 2017 to August 2021	Scientist D, CSIR-IHBT, Palampur, India
September 2014 to August 2017	Scientist C, 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	MSc. (Chemistry)	1 st Division	DAV Collage Jalandhar, GNDU, Amritsar
2002	B.Sc. (Non-Medical)	1 st Division	Himachal Pradesh University

AWARDS/FELLOWSHIPS/RECOGNITION

- Appreciation Award for the best Scientific Contribution for the year 2025-2026.
- One Year Advance Promotion, *i.e.*, Merit Promotion from Scientist to Senior Scientist
- Fellow, Royal Society of Chemistry (FRSC), London, UK.
- 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 the 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)
- Souvenir for the best work in the area of science through Hindi medium for the year 2022-23, 2023-24 & 2024-25.
- NABL Assessor, ISO17025:2017 for testing (2024-)

- Involved in establishing and getting NABL accreditation of Chemical Technology Lab, CSIR-IHBT, as per ISO17025:2017 for testing under Ayush Drug group (2025-2029)
- Master Trainer for Rastrya Karoyogi Jan Seva Program (2025-)
- Member, Sports Promotion Board (SPB), CSIR (2025-)

HUMAN RESOURCE DEVELOPMENT

23 students awarded PhD degrees.

10 Postdoc/Research Associates, 26 Project Assistants, 37 MSc/MPharma trainees worked in the lab and 16 trained in HPLC

MEMBERS OF PROFESSIONAL SOCIETY

- Fellow, Royal Society of Chemistry (FRSC), London, UK
- Life Member, Chemical Research Society of India (CRSI)
- Life Member, Catalysis Society of India (CSI)
- Life Member, Analytical Society of Analytical Scientists

PROJECT HANDLED: 31

Completed: 24

Current: 07

External Funded: 12

RESEARCH PUBLICATION: 227

Patents: 5

Citation: >7670

h-index: 43

i-10 index: 170

Book Edited: 01

Book Chapter: 13

Popular Hindi Article: 14

Invited/Oral Presentations: 44

REPRESENTATIVE PUBLICATIONS IN LAST THREE YEARS

Natural Product Chemistry	Organic Synthesis
Food Res Int. 2026; 225: 117931.	Org Lett. 2026; 28: 6177.
J. Food Compos. Anal. 2026; 153: 109031.	Chem Commun. 2026; 62: 4963.
Microb Pathog. 2026; 211: 108220.	Chem Commun. 2025; 61: 17416.
Sep Purif Technol. 2025; 354: 128699.	Chem. Asian J. 2025; 20: e202401266.
Food Bioscience, 2025; 71: 107377.	Org. Biomol. Chem. 2025, 23: 2572.
Nat Prod Res. 2025; 39: 4006..	Coord Chem Rev. 2024; 499: 215453.
Nat Prod Res. 2024; 39: 5126..	Trends in Chem., 2024; 6: 705.
Microchem. J. 2025; 208: 112620.	Org Lett. 2024; 26: 8515.
Fitoterapia, 2025; 180, 106279.	J. Catal., 2024; 439: 115756.
Microchem. J. 2025; 208: 112137.	J Org Chem. 2024; 89: 15893.
Trends in Chem., 2024; 6: 277.	Org Lett. 2024; 26: 5027.
J Ethanopharmacol. 2024; 320: 117385.	Org Chem Front. 2024; 11: 4986.
Microchem. J. 2024; 205: 111210.	Chem Commun. 2024; 60: 5626.
Fitoterapia, 2024: 175: 105925.	J Org Chem. 2024; 89: 14880.
Microchem J. 2024, 199: 110129.	J. Catal., 2024; 438: 115673.

