CENTRAL UNIVERSITY OF JAMMU

First Name	Akshay	**Middle Name**		**Last Name**	Kumar	**Photograph**
Title & Designation		Assistant Professor				
Address		Department of Chemistry and Chemical Sciences, Central University of Jammu, Bagla, Rahya-Suchani, District Samba-181143, Jammu and Kashmir (India)				
Phone Number						
Mobile		9888766361				
Email		akshay.che@cujammu.ac.in				
Web-Page						

Educational Qualifications:

Degree	Institution	Year
Ph. D. (*Organic Chemistry*) **Thesis titled:** *Development of Primary Amine-Based Organocatalysts for Asymmetric Carbon-Carbon Bond Formation*	Guru Nanak Dev University, Amritsar	**2008-2013**
M. Sc. Chemistry	Guru Nanak Dev University, Amritsar	**2005-2007**
B.Sc. (*Non*-Med.)	BBN Degree College, Chakmoh (*HPU, Shimla*)	**2002-2004**

- Qualified **NET** (***JRF-CSIR***) in **2007**
- Qualified **GATE** in **2007**

Career Profile:

- March 2023-Till date: Assistant Professor, Central University of Jammu
- August 2014-March 2023: Assistant Professor, DAV University, Jalandhar
- January 2014- May 2014: Assistant Professor at GGSW University, Fatehgarh Sahib.
- April 2013 – January 2014: Research Associate, Guru Nanak Dev University, Amritsar
- July 2007 - January 2008: Trainee Research Associate at Ind. Swift (*Pharmaceutical Company*), R & D Centre, Mohali

Administrative Assignments:

- **Deputy Director**, UGC-Malaviya Mission Teacher Training Centre (*MMTTC*), Central University of Jammu, *w.e.f.* Oct. 2023
- **Department Examination coordinator**, *w.e.f.* 2024
- **Member** of purchase committee of the Department, *w.e.f.* 2026
- **Member** of Research Advisory Committee (*RAC*) for Ph.d. Scholar.

Areas of Interest / Specialization:

- ❖ Synthetic Organic Chemistry
- ❖ Asymmetric Organocatalysis

Subjects Taught:

- ➢ **Ph.D**
  Characterization Techniques
- ➢ **Integrated B.Sc. (Hons) M.Sc. Chemistry**
  Organic Chemistry, Reagents, photochemistry and heterocyclic chemistry, Organic synthesis and reaction mechanism, Laboratory Safety and Utility Tools, Organic Chemistry Lab, Inorganic Chemistry Lab.

Research Guidance:

- Ph.D. :- **1** Awarded; **1** ongoing (*as a co-supervisor*)
- Project :- **23** Students (*Guided at M.Sc. level*)

Publications Profile:

Research paper

1. Environmental Remediation: Removal of Binary of Cationic and Anionic Dyes Using Nickel-Doped Calcium Ferrite 800 ^{o}C Photocatalyst. Sharanjeet Kaur, Ankush Gupta, Harminder Singh, Simran Jolly, Madhu Bala, Anshul Bansal, **Akshay Kumar**, *ChemistrySelect*, **2025**, 10, e04717.
2. Advances in the Chemical Transformations Involving Nitroalkenes Embedded in Heterocyclic Framework. Mukesh Kumar, Mritunjay, Sandeep Kumar, Ankush Gupta, Shubham Sharma, Pushpinder Singh, **Akshay Kumar,** *Asian Journal of Organic Chemistry*, **2025**, *14*, e202500140
3. Efficient sunlight-driven environmental remediation: In^{3+}-doped $LaFeO_3$ nanoparticles for binary dye degradation in water. Simran Jolly, Ankush Gupta, Sharanjeet Kaur, **Akshay Kumar**, Shelly Garg, *Ceramics International*, **2025**, *51*, 23586
4. Exploring the Impact of Ionic Liquids on Pyrazole Derivatives Synthesis: A Critical Review Shubham Sharma, Pooja Sharma, Bharti Budhalakoti, **Akshay Kumar**, Kuldeep Singh, Rupender Kumar Kamboj, Kanchna Bhatrola, *ChemistrySelect*, **2024**, 9, e202401925
5. DBU-Catalyzed Vinylogous Reaction of 3-Cyano-4-methylcoumarins with 3-Arylsulfonyl-3-indolyloxindoles. Mritunjay, Shubham Sharma, Pushpinder Singh, Ankush Gupta, Virender Singh, Lakhmir Singh, **Akshay Kumar**, *ChemistrySelect*, **2024**, 9, e202402133
6. Phytoremediation: An emerging green technology for dissipation of PAHs from soil. Harleen Kaur, **Akshay Kumar**, Shayla Bindra, Ashish Sharma, *Journal of Geochemical Exploration*, **2024**, 259, 107426
7. Quantum dots: A Tool for the Detection of Explosives/nitro derivatives. Ankush Gupta, Sharanjeet Kaur, Harminder Singh, Shelly Garg, **Akshay Kumar**, Ekta Malhotra, *Analytical Methods*, **2023**, *15*, 6362

8. Recent development in asymmetric organocatalytic domino reactions involving 1,6-addition as a key step. Yaseen Hussain, Tamanna, Manisha Sharma, **Akshay Kumar**, Pankaj Chauhan, *Organic Chemistry Frontier*, **2022**, 9572
9. Free Amine, Hydroxyl and Sulfhydryl Directed C-H Functionalization and Annulation: Application to Heterocycle Synthesis. Sandeep Kumar, **Akshay Kumar**, Dharminder Sharma, Pralay Das, *Chemical Record*, **2022,** e202100171
10. Candida antarctica lipase-B-catalyzed kinetic resolution of 1,3-dialkyl-3-hydroxymethyl oxindoles. Naveen Kumar, **Akshay Kumar**, Subash Chandra Sahoo, Swapandeep Singh Chimni, *Chirality*, **2020**, 321377
11. Experimental and DFT Studies of Organocatalytic Microwave-Assisted Reaction of Isatin Derivatives with Dinitrotoluenes Jasneet Kaur, Nasrul Islam, **Akshay Kumar**, Swapandeep Singh Chimni, Asian *Journal of Organic Chemistry*, **2017**, *6*, 575-582,
12. Organocatalytic enantioselective synthesis of C3 functionalized indole derivatives, Jasneet Kaur, Nasrul Islam, **Akshay Kumar**, Vimal Kumar Bhardwaj, Swapandeep Singh Chimni, *Tetrahedron*, **2016**, *72*, 8042-8049
13. Organocatalytic enantioselective synthesis of N-alkyl/aryl-3-alkyl-pyrrolidine-2,5-dione in brine. Suhel Mahajan, Pankaj Chauhan, **Akshay Kumar**, Swapandeep Singh Chimni, *Tetrahedron Asymmetry*, **2016**, *27*, 1145-1152
14. Catalyst-Free Synthesis of 3-Aryl-3-hydroxy-2-oxindole Derivatives by Using Water as the Solvent: Experimental and DFT Studies. Naveen Kumar, Jasneet Kaur, **Akshay Kumar**, Nasrul Islam, Swapandeep Singh Chimni, *Asian Journal of Organic Chemistry*, **2016**, *5*, 1334-1344
15. Stereoselective synthesis of 3-amino-2-oxindoles from isatin imines: new scaffolds for bioactivity evaluation. Jasneet Kaur, Swapandeep Singh Chimni, Suhel Mahajan, **Akshay Kumar,** *RSC Advances*, **2015**, *5*, 52481-52496
16. Maleimide as an efficient nucleophilic partner in the aza-Morita-Baylis-Hillman reaction: Synthesis of chiral 3-substituted-3-aminooxindoles. **Akshay Kumar**, Vivek Sharma, Jasneet Kaur, Naveen Kumar, Swapandeep Singh Chimni, *Organic and Biomolecular Chemistry*, **2015**, *13*, 5629-5635
17. Synthesis and stereochemistry-activity relationship of chiral thiourea derivatives as potential anticancer agents. Vikas Kumar, **Akshay Kumar**, V V. Sureshbabu, Swapandeep Singh Chimni, *Anti-Cancer Agents in Medicinal Chemistry*, **2014**, *14*, 910–920
18. Organocatalytic asymmetric Friedel-crafts reaction of sesamol with isatins: Access to biologically relevant 3-aryl-3-hydroxy-2-oxindoles. **Akshay Kumar**, Jasneet Kaur, Pankaj Chauhan, Swapandeep Singh Chimni, *Chemistry – An Asian Journal*, **2014**, *9*, 1305-1310
19. Organocatalytic enantioselective aza-Henry reaction of ketimines derived from isatins: Access to optically active 3-amino-2-oxindoles. **Akshay Kumar**, Jasneet Kaur, Swapandeep Singh Chimni, A. K. Jassal, *RSC Advances*, **2014**, *4*, 24816-24819
20. Cinchonidine thiourea catalysed asymmetric addition of phenols to oxindole derivatives. Jasneet Kaur, **Akshay Kumar**, Swapandeep Singh Chimni, *RSC Advances*, **2014**, *4*, 62367-

62374

21. Organocatalytic asymmetric Friedel-Crafts reaction of 1-naphthols with isatins: An enantioselective synthesis of 3-aryl-3-hydroxy-2-oxindoles. Jasneet Kaur, **Akshay Kumar**, Swapandeep Singh Chimni, *Tetrahedron Letters*, **2014**, *55*, 2138-2141

22. Primary-tertiary diamine-catalyzed Michael addition of ketones to isatylidenemalononitrile derivatives. **Akshay Kumar**, Swapandeep Singh Chimni, *Beilstein Journal of Organic Chemistry*, **2014**, *10*, 929-935

23. Cinchona-derived thiourea catalysed hydrophosphonylation of ketimines: enantioselective synthesis of α-amino phosphonates. **Akshay Kumar**, Vivek Sharma, Jasneet Kaur, Naveen Kumar, Swapandeep Singh Chimni, *Tetrahedron*, **2014**, *70*, 7044-7049

24. Organocatalyzed direct asymmetric aldol reaction of isatins in water: Low catalyst loading in command. **Akshay Kumar**, Swapandeep Singh Chimni, *Tetrahedron*, **2013**, *69*, 5197-5204

25. Organocatalytic asymmetric direct aldol reaction of pyruvic aldehyde dimethyl acetal with isatin derivatives. **Akshay Kumar**, Swapandeep Singh Chimni, *European Journal of Organic Chemistry*, **2013**, 4780-4786

26. Catalytic asymmetric synthesis of 3-hydroxyoxindole: A potentially bioactive molecule. **Akshay Kumar**, Swapandeep Singh Chimni, *RSC Advances*, **2012**, *2*, 9748-9762

27. Asymmetric synselective direct aldol reaction of protected hydroxyacetone catalyzed by primary amino acid derived bifunctional organocatalyst in the presence of water. **Akshay Kumar**, Sarbjit Singh, Vikas Kumar, Swapandeep Singh Chimni, *Organic and Biomolecular Chemistry*, **2011**, *9*, 2731-2742

28. The pH of the reaction controls the stereoselectivity of organocatalyzed direct aldol reactions in water. Swapandeep Singh Chimni, Sarbjit Singh, **Akshay Kumar,** *Tetrahedron Asymmetry*, **2009**, *20*, 1722-1724

Chapter in books

- Book Title: Frontiers in Natural Product Chemistry, Vol. 9, Bentham Science Publishers, **Chapter 3: Quercetin, A Flavonoid With Remarkable Anticancer Activity**. Authors: Sarbjit Singh, Pankaj Chauhan, **Akshay Kumar**. Page: 40-61, ISSN (Online): 2212-3997

Conference / Workshops/Training Organized:

- Organizing Secretary, (*International Conference on Sustainable Development in Chemical and Material Sciences*), **April 2024**.
- Course Coordinator, Refresher Course (*Physical and Chemical Sciences*), **December 2024**
- Course Coordinator, (NEP-2020 Orientation and Sensitization), **January 2025**
- Course Coordinator, **(**NEP-2020 Orientation and Sensitization), **April 2025**
- Convener, (*One-Day National Workshop on Character Building & Holistic Personality Development: NEP2020*), **September 2025**.
- Organizing Secretary, (*International conference on Recent Advances in Chemical Sciences*), **February 2026**.
-

Conference/Workshops/Training attended as Faculty Member:

- Attended National Conference on Holistic Development of Indian Education, NIT Delhi, 24th – 25th January, 2026
- Attended National Seminar on 'Bhartiya Bhashaon Mein Ekatmata' Organised by NIT Srinagar, 19th Sept., 2025
- Attended National Conference on 'Nurturing Young Minds For Scientific Innovations-2025 (NYMSI-2025), Central University of Himachal Pradesh, 15th – 16th May, 2025
- Attended Three-day workshop on Integrating Recent Pedagogical Skills in Teaching-Learning at Higher Education Level at Department of Educational Studies on 27th - 29th, November 2024
- Attended Refresher Course in Physical and Chemical Sciences, Organised by MMTTC, Central university of Jammu, 10th - 24th Dec., 2024
- Attended Faculty Induction Programme (FIP), Organised by MMTTC, Central university of Jammu, 23rd Sept. - 22nd Oct., 2024
- Attended NEP-2020 Orientation & Sensitization Programme (FDP), Organised by MMTTC, Central university of Jammu, 11th - 19th Dec., 2023
- Attended Two week online FDP program in 'Chemistry and Allied Sciences' Organised by Department of Chemistry and Chemical Sciences, 26th Oct. - 8th Nov., 2023
- Poster Presentation on "Vinylogous Allylic Alkylation of Coumarins" A. Kumar and R. Sharma at Professor Ram Chand Paul National Symposium" with a theme on "Emerging Chemical Innovations for Swachh, Swasth and Sarvatra Bharat" from 27th – 28th Feb., 2020.
- Attended Seminar on "Future of Basic Sciences – where we are heading to" organized by HRDC, GND University, Amritsar from 15th October – 16th October, 2018
- Attended Workshop on "Principles, Chemicals & Biological Applications of NMR" organized by HRDC, GND-University, Amritsar from 13th March – 17th March, 2018
- Poster Presentation in IV National Symposium on Advances in Chemical Sciences A. Kumar and J. Kaur, from 27th – 28th Feb., 2014.
- Poster Presentation on "Development of Primary Amine-Based Organocatalysts for Asymmetric Carbon-Carbon Bond Formation" A. Kumar and S. S. Chimni, at ICCOS conference at Moscow, Russia, 15th – 20th September, 2012.
- Poster presentation (*Best Poster Award*) on "Development of an Eco-friendly Protocol to Procure Chiral 3-Alkyl-3-hydroxy-2-oxindoles: A Potential Bioactive Molecule" A. Kumar and S. S. Chimni, at INDO-US Workshop on Green Chemistry for Environments & sustainable Development 11th – 13th March, 2012, at Dehradun.
- Poster presentation on "Organocatalyzed Enantioselective Aldol Reaction of Cyclohexanone and Isatin: Synthesis of 3-Cycloalkanone-3-Hydroxy-2-Oxindoles" A. Kumar and S. S. Chimni, at National Symposium on Chemistry in 21st Century at Guru Nanak Dev University, Amritsar, December 23-24, 2011,
- Poster presentation on "Asymmetric *syn*-Selective Direct Cross-Aldol Reaction Catalyzed by Diamine Organocatalysts Derived from Natural Amino Acid" A. Kumar and S. S. Chimni, at

6th Junior National Organic Symposium Trust Conference (J-NOST) School of Chemistry, University of Hyderabad, India, January 28 -31, 2011.

Research Projects (Major Grants/Research Collaboration):

Sr. No	Sponsoring Agency	Period	Amount (Rs)	Principal Investigator/ Co-Investigator	Status
1	DST-SERB	3 Years	18,20,800/-	PI	*Completed*
2	J&K Sate Science, Technology & Innovation Council	2 Years	7,35,000/-	CO-PI	*Ongoing*

Awards and Distinctions:

- **Best Poster Award** in INDO-US Workshop on Green Chemistry for Environments & sustainable Development held on 11th – 13th March, 2012, at Dehradun.
- Awarded **International Travel Support (ITS**) to present the research paper in the international conference at Moscow (Russia)
- **Qualified Joint CSIR-UGC Test** for Junior Research Fellowship and Eligibility of Lectureship (NET) in June 2007.
- **Qualified GATE** test in February 2007.

Association with Professional Bodies:

Life Member of National Magnetic Resonance Society of India.