

Dr. URVASHI

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**Currently: Post-Doctoral Fellow and Visiting Assistant Professor,
Department of Chemistry, Colorado State University, Pueblo**

- My present research focuses on the late-stage cannabinoids alterations with the goal of creating novel and more advantageous cannabinoids from a biological standpoint. As a result, we are aiming to increase cannabis' bioavailability while reducing harmful side effects related to delivery. In addition, I have examined the kinetics of the reaction to enable scaling up from the lab bench in an effort to optimize the isolation of cannabinoids from industrial hemp using a unique decarboxylation approach to extract the cannabinoids more sustainably. A manuscript about this investigation into the thermochemical decarboxylation of cannabis has been submitted.
- Doctorate work includes functionalization of *N*-Heterocycles, specifically pyridine related compounds, in the search of medicinally benefits, materials or better synthetic purpose, through cyclization/coupling reactions. With the research and academic experience acquired, I am actively passionate about mentorship, and research.

Experience:

S No	Title	Duration	Topics
1.	Postdoc researcher-CSUP, CO	from 12/2021–present.	Cannabis Chemistry
2.	<u>Visiting Assistant CBC Professor-CSUP, CO</u>	from 08/23-present	Medicinal plant biochemistry, Natural product extraction and analysis, Plant physiology and growth, Organic chemistry. <u>Nominated for student choice of faculty award at CSUP23-24.</u>
3.	Guest Faculty, Department of Chemistry (Science Faculty), University of Delhi, India	6 months, 2021	Organic- chemistry (post graduate level)
4.	Guest faculty, Rajdhani college, University of Delhi, India	4 semesters Organic chemistry, 2019-2021	final year (IIIrd) undergraduate organic chemistry (theory plus practical), biochemistry, industrial chemistry, inorganic chemistry, organic spectroscopy, qualitative and quantitative aspects of analysis in analytical chemistry
5.	Senior research fellow (SRF), Jawahar Lal Nehru University (JNU), New Delhi, India	7 months, 2019-2020	<i>N</i> -Heterocyclic Compounds and coupling reactions
6.	Junior research fellow (JRF), JNU, New Delhi, India	6 months, 2014	Coupling methods

Qualifications:

- Thesis topic: “*Transition-Metal-Catalyzed C-C/C-S Coupling and C-N Bond Formation: Synthesis of N-Heterocyclic Compounds and Their Biological Evaluation*” Department of Chemistry, University of Delhi-110007. Doctorate degree awarded on 27th Feb 2021.
- Awarded **Rajiv Gandhi Fellowship for SC candidates –JRF and SRF Fellowship (2016 to 2019).**
- Qualified in **CSIR-UGC NET-JRF** examination, Dec 2016.
- Qualified in **CSIR-UGC NET (Lectureship)** Examination, December 2016 and Dec 2014.
- **M.Sc. (Organic Chemistry specialization)**- University of Delhi, first class (67%), 2013.
- **B. Sc. (Honours) Chemistry**- Miranda House, University of Delhi, Delhi-110007, 77% result, 2011.

SKILLS

- Analytical Cannabis extraction and analysis

- Executed synthetic procedures related to pyridine fused compounds, multistep heterocycle synthesis, glove box reactions, coupling and cyclization reactions, halogenation, protection, and de-protection reactions, Late-stage functionalization, Fluorination reactions.
- Moisture/air sensitive reactions, small/ large-scale reactions, Low temperature reactions, under pressure reactions.
- Screened reactions for optimal conditions (solvent, crystallization, catalyst, temperature, reaction rate, and stoichiometry).
- Purification techniques (crystallization, trituration, chromatography (Column and flash), extraction, distillation)
- Identification of functional groups, Knowledge of ^1H , ^{19}F and ^{13}C -NMR, FTIR, Mass, HPLC, ASE300, Bruker300MHz, EPR, GC, GCMS, Automatic flash.
- Strong communication abilities (oral and written), time management abilities, exceptional attention to detail, cognitive flexibility, leadership experience, abilities of creative problem-solving, conflict resolution, teamwork, and multitasking.
- Lot of patience, excellent organizational skills, abilities to manage multiple concurrent deadlines, ability to delegate tasks to manage workload.
- Self-motivated, organized, reliable, and safety minded.

PUBLICATIONS

1. **Urvashi**, Melvin Druelinger, John Hatfield, Kenneth J. Olejar. Fluorinated ethers of Cannabinol (CBN)- **2024**, Manuscript under preparation
2. **Urvashi**, Melvin Druelinger, John Hatfield, Kenneth J. Olejar. Electrophilic Fluorination of Cannabinol (CBN)- **2024**, Manuscript under preparation
3. **Patent:** Olejar K, **Urvashi**, Hatfield J. (**2024, equal contribution**) Conversion of CBD to CBN in hemp. Submitted -**US Patent Office**.
4. **Patent:** Olejar K, **Urvashi**, Druelinger M, Hatfield J. (**2024, equal contribution**) Fluorinated cannabinol ethers. **submitted- US Patent Office**
5. **Patent:** Olejar K, **Urvashi**, Druelinger M, Hatfield J. (**2023, equal contribution**) Fluorinated cannabinoid compositions and methods thereof. **Pending approval- US Patent Office**
6. **Urvashi**, Joon-Hee Han, Min Hong, Tae-Hyung Kwon, Melvin Druelinger, Sang-Hyuck Park, Chad A. Kinney, Kenneth J. Olejar. Thermo-chemical conversion kinetics of cannabinoid acids in hemp (*Cannabis sativa* L.) using pressurized liquid extraction- **2024**, Journal of Cannabis Research, revised Manuscript submitted.
(one more manuscript is also under preparation)
7. **Patent-** Pooja Yadav, **Urvashi**, Raja Singh, and Vibha Tandon- Novel Malonyl and dioxolan derivatives of indole as HIV-I integrase strand transfer inhibitors-**Indian patent, 2022, equal contribution**, Patent no. 406390.
8. **Urvashi**, J. B. Senthil Kumar, Parthasarathi Das, Vibha Tandon - Development of Azaindole Based Frameworks as Potential Antiviral Agents and Their Future Perspectives, *JMC*, **2022**, *65*, 6454-6495.
9. **Urvashi**, Mohammad Ovais Dar, Prasad V. Bharatam, Parthasarathi Das, Shrikant Kukreti, Vibha Tandon, Cu (II)-catalyzed sulfonylation of 7-azaindoles using DABSO as SO_2 -Source and its mechanistic study, *Tetrahedron*, **2020**, *76*, 131337.
10. **Urvashi**, Vibha Tandon, Parthasarathi Das and S. Kukreti, Synthesis of 3,6-diaryl-1*H*-pyrazolo[3,4-*b*]pyridines *via* one-pot sequential Suzuki–Miyaura coupling, *RSC Advances*, **2018**, *8*, 34883.
11. Tohasib Yusub Chaudhari, **Urvashi**, Sandeep K. Ginotra, Pooja Yadav, Gulshan Kumar and Vibha Tandon, Regioselective synthesis of functionalized dihydroisoquinolines from *o*-alkynylarylaldimines *via* the Reformatsky reaction, *Org. Biomol. Chem*, **2016**, *14*, 9896.
12. Raja Singh, Pooja Yadav, **Urvashi** and Vibha Tandon, Novel Dioxolan Derivatives of Indole as HIV-1 Integrase Strand Transfer Inhibitors Active Against RAL Resistant Mutant Virus, *Chem. Select*, **2016**, 5471.
13. Vibha Tandon, **Urvashi**, Pooja Yadav, Souvik Sur, Sheenu Abbat, Vinod Tiwari, Raymond Hewer, Maria A. Papathanasopoulos, Rameez Raja, Akhil C. Banerjea, Akhilesh K. Verma, Shrikant Kukreti, and Prasad V. Bharatam. Design, Synthesis, and Biological Evaluation of 1, 2-Dihydroisoquinolines as HIV-1 Integrase Inhibitors, *ACS Med Chem Lett*. **2015**, *6*, 1065.

14. **Urvashi**, Gaurav K. Rastogi, Sandeep K. Ginotra, Alka Agarwal and Vibha Tandon. An expedient approach to 1,2-dihydroisoquinoline derivatives *via* cobalt catalysed 6-endo dig cyclization followed by Mannich condensation of *o*-alkynylarylaldimines, *Org. Biomol. Chem.*, **2015**, *13*, 1000.

Positions and Honors

Research and Academic Positions:

- Postdoctoral Researcher, Prof. Chad A Kinney and Kenneth Olejar (CSU-Pueblo, 2021-present)
- Visiting Assistant Professor (CSU-Pueblo, 2023-present)
- Nominated for student choice of faculty award at CSUP23-24**
- Adjunct Organic Chemistry Faculty (CSU-Pueblo, 2022–2023)
- Visiting Assistant Professor (Organic Chemistry) (DU, 2021)
- Visiting Assistant Professor (Organic Chemistry) (DU, 2019-2021)
- Senior Research Fellow (JNU-Delhi, 2019-2020)
- Junior Research fellow (JNU-Delhi, 2013-2014)

Awards:

- Rajiv Gandhi National Fellowship, SC (UGC, Delhi, 2016-2019)
- CSIR-UGC, NET JRF (CSIR-Delhi, 2016)
- CSIR-UGC, NET JRF (Lectureship) (CSIR-UGC, Delhi, 2016)
- CSIR-UGC, NET JRF (Lectureship) (CSIR-UGC, Delhi, 2014)
- Non NET-Fellowship, Ph.D. (DU-Delhi, 2014-2016)
- Qualified Ph.D. entrance (DU-Delhi, 2014)

Memberships in Professional Societies:

- American Chemical Society (2016-present)

Oral Presentation

1. Oral: "Thermo-chemical decarboxylation kinetics of cannabinoid acids in hemp (*Cannabis sativa L.*) by pressurized liquid system" **Regional Conference- Cannabis Research Conference-** August 3-5, 202, Colorado State University's Institute for Cannabis Research, Auraria Campus, Auraria Pkwy, Denver, CO-USA.
2. Oral: "A thermo-chemical decarboxylation kinetics study for cannabinoid acids in hemp (*Cannabis sativa L.*) by pressurized liquid system" **ACS Spring 2023, Crossroads of Chemistry**, Indianapolis, USA, March 26-30, 2023.
3. Oral: "3,6-diaryl-1*H*-pyrazolo[3,4-*b*]pyridines: Regioselective synthesis via one-pot sequential Suzuki–Miyaura **National Conference - Recent trends and advancements in chemical sciences**, University of Delhi, 29-31 March 2019, Delhi, India.
4. Oral: "Novel 1, 2-dihydroisoquinoline derivatives as a next generation HIV-1 Integrase Strand Transfer Inhibitors (INSTI's)" **International Conference - 11th J-NOST Conference** for Research Scholars (J-NOST 2015), School of Chemical Sciences, 14-17th December 2015, NISER Bhubaneswar, India.

Poster presentation and Workshops attended (chosen only).

1. Participated in International Women day 2019, organized by DST and Jawaharlal Nehru University, New Delhi, title: Women Conclave 2019, on March 8, 2019.
2. Volunteered in National Science Day, 2019 organised by Jawaharlal Nehru University, title "Science for the people and the people for Science", 28th Feb 2019.
3. Poster: International Conference- 6th World Congress on Nanomedical Sciences (ISNSCON-2018), Chemistry Biology Interface Synergistic in New Frontiers (CBISNF-2019) and Science and Technology for the future of Mankind (STFM) conference, held during 7th -9th January 2019 at Vigyan Bhawan, New Delhi.
4. Poster: International Conference - Emerging trends in drugs development and natural-products (ETDDNP-2018), Department of Chemistry, University of Delhi, 12-14th January 2018.
5. National Conference- 7th Symposium on "Frontiers in Molecular Medicine" 2017, JNU, New Delhi, India, topic entitled "Identification of host interacting partner of HIV-1 integrase".
6. Poster: National Conference - 53rd Annual Convention of Chemists 2016, Gandhi Institute of Technology and Management (GITAM) University, Visakhapatnam-530045, Andhra Pradesh, Dec 27-29th 2016.
7. Workshop: Instructional Workshop on Computational Methods in Drug Discovery, Special Centre for Molecular Medicine (SCMM) and School of Computational and Integrative Sciences (SCIS), JNU, New Delhi-110067, 9-11th August 2016.
8. Attended 5th Indo-German, Seminar on Modelling Chemical and Biological (Re) Activity- MCBR, IIT Delhi, November 7, 2015.
9. Workshop: DS Kothari Centre for Research & Innovation in Science Education Miranda House, two days workshop, Computational Methods in Drug Discovery, 16-17th April 2015.

10. Poster: International Conference - 10th NOST Conference for Research Scholars (J-NOST 2014), Department of Chemistry, IIT Madras, 4-6th December 2014.
11. Poster: International Conference - The Indo-US Conference on Molecular Modelling and Informatics in Drug Design (M²ID²), National Institute of Pharmaceutical Education and Research (NIPER), S. A. S. Nagar (Mohali), Punjab, India, 3-6th November 2014.
12. Poster: International Conference - 20th ISCB International Conference, Chemistry and Medicinal Plants in Translational Medicine for Healthcare, Department of Chemistry, University of Delhi, 1-4th March 2014.”