

**Dr. Kishor Kumar Chouhan**

**Ph.D. (Chemistry)**

Department of Chemistry.

Indian Institute of Technology (IIT) Bhilai, India

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## ABOUT

I am Kishor Kumar Chouhan. I completed my doctoral studies in October 2024 under the guidance of Dr. Arup Mukherjee at the Department of Chemistry, Indian Institute of Technology Bhilai, India. My research focuses on the development of novel catalytic methods for the facile synthesis of amides, carboxylic acids, and amines, as well as the development of metal and non-metal catalytic systems and their applications in organic transformations, multistep syntheses, and photocatalysis. Moreover, my research primarily focuses on synthetic methodology as well as the purification and characterization of the products using spectroscopic techniques.

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## CAREER OBJECTIVE

- ❖ Highly motivated researcher with six years of research experience in organometallic chemistry, homogenous catalysis, photocatalysis, organic synthesis, phosphorus chemistry, and mechanistic studies.
- ❖ A proficient communicator with outstanding interpersonal, logical approaches, teamwork, and high-pressure skills, has attended numerous national and international conferences and seminars.

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## RESEARCH AREA

- ❖ Homogeneous Catalysis, Organic Synthesis, Phosphorus Chemistry, Photocatalysis, and Mechanistic Studies.

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## ACADEMIC QUALIFICATIONS

**Ph.D. (Chemistry)**

[2019-2024]

Department of Chemistry

Grade: CGPA 9.5/10

Indian Institute of Technology (IIT) Bhilai, India

Thesis Title: "Development of novel catalytic methods for the easy synthesis of amides"

Supervisor: ***Dr. Arup Mukherjee***

**M.Sc.** From Pt. Ravishankar Shukla University Raipur, India (**1<sup>st</sup> class**).

**B.Sc.** From Pt. Ravishankar Shukla University Raipur, India (**1<sup>st</sup> class**).

## EXPERIMENTAL SKILLS

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- ❖ Excellent handling skill in setting up tedious reactions like highly moisture and air-sensitive, temperature-dependent reactions.
- ❖ Performed multistep synthesis.
- ❖ Purification of compounds using column chromatography.
- ❖ Different crystallization techniques.
- ❖ Purification laboratory solvents like THF, Methanol, Benzene, Hexane, Toluene, Acetonitrile, Diethyl Ether, DMSO, DCM, etc.

## RESEARCH EXPERIENCES

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- ❖ My research primarily focuses on synthetic methodology as well as the purification and characterization of the products using spectroscopic techniques. During my doctoral studies, I developed metal and non-metal catalytic systems and their applications in organic transformations, multistep synthesis, and photocatalysis reactions. Moreover, I have synthesized phosphorus-based and organic ligand (backbone) based metal complexes (Co, V, Zn) and determined their crystal structures. Currently, I am working on their application in organic transformation reactions.
- ❖ Technical Skills & Instrumentation: Characterized samples by using different analytical instruments such as FTIR, UV-Vis Spectrophotometer, NMR (Bruker & ASCEND Advance NEO 600 MHz), HRMS (Agilent 6545XT AdvanceBio LC/Q-TOF), GC, GC-MS, CHNSO, FESEM, EPR, SC-XRD (Bruker/ D8 QUEST), Powder XRD (Bruker D8 Advance A25).
- ❖ Glove box handling.
- ❖ Schlenk lines: Reaction set up under N<sub>2</sub> atmosphere, air-sensitive compounds, and Cannula transfer for moisture
- ❖ Chemistry Lab Software: Chem Draw Professional, Origin, End Note, MestReNova NMR Manager, TopSpin Bruker, Mercury, Data analysis of Mass spectra. Scientific data searching using databases such as Scifinder, Chemspider, Chemweb techniques, Scopus, and ISI draw.
- ❖ I have experience in establishing new laboratory facilities.

## PUBLICATIONS

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### Refereed Journals

1. **Kishor Kumar Chouhan**, Deep Chowdhury, Arup Mukherjee, \* Transamidation of aromatic amines with formamides using cyclic dihydrogen tetrametaphosphate, *Org. Biomol. Chem.* **2022**, *20*, 7929–7935. <https://doi.org/10.1039/D2OB00882C>
2. **Kishor Kumar Chouhan**, Deep Chowdhury, Arup Mukherjee, \* Cyclotrimetaphosphate-assisted ruthenium catalyst for the hydration of nitriles and oxidation of primary amines to amides under aerobic conditions in water, *Org. Biomol. Chem.* **2023**, *21*, 2429–2439. <https://doi.org/10.1039/D3OB00062A>
3. **Kishor Kumar Chouhan**, Pinaki Nad, Arup Mukherjee, \* Dual role of TiO(acac)<sub>2</sub> as a reagent and an activator/catalyst: a study on the solvent dependent product formation. *Chem. Asian J.* **2023**, *18*, e202300738. <https://doi.org/10.1002/asia.202300738>
4. Pallavi Singh, **Kishor Kumar Chouhan**, Arup Mukherjee, \* Ruthenium Catalyzed Intramolecular C–X (X= C, N, O, S) Bond Formation via C–H Functionalization: An Overview. *Chem. Asian J.* **2021**, *16*, 2392–2412. <https://doi.org/10.1002/asia.202100513>
5. Cobalt-Catalyzed Tandem Deamination and Dehomologation of Primary Amines to Carboxylic Acids in Water. Deep Chowdhury, **Kishor Kumar Chouhan**, Deep Chowdhury, Arup Mukherjee\*, (*Manuscript Submitted*)
6. Photo- and Thermally Enabled Transfer Hydrogenation of Nitro Compounds to Anilines Catalyzed by a Bench-Stable Co(II) Complex. **Kishor Kumar Chouhan**, Deep Chowdhury, Arup Mukherjee\*
7. Photochemical N-Formylation of Amines via Decarboxylation of Glyoxylic Acid without a Catalyst or Activator. **Kishor Kumar Chouhan** and Arup Mukherjee, \*

## TEACHING EXPERIENCE

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During the Ph. D. program at IIT Bhilai, I was a Teaching Assistant for UG and PG students in the chemistry lab.

## ACHIEVEMENTS AND AWARDS

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- ❖ 2025: Oral presentation (**2<sup>nd</sup> position**) by the International Conference on ICMSSD-2025, GVTTPGC, Durg, India.
- ❖ 2023: **Best oral presentation** by the International Conference on HAST-2023, Kalinga University, Naya Raipur, India.

- ❖ 2022: **Oral presentation (3<sup>rd</sup> position)** by National Conference on ACES-2022, PTRSU Raipur, India.
- ❖ Jan. 2022 – Dec. 2023: **Senior Research Fellow (SRF)** from CSIR- Delhi, India.
- ❖ Dec. 2018 – Dec.2021: **Junior Research Fellow (JRF)** from CSIR- Delhi, India.
- ❖ 2018: Qualified national level tests, Council of Scientific & Industrial Research- Junior Research Fellow **CSIR-JRF** (NET). Delhi, India.
- ❖ 2018: Qualified national level tests, **Graduate Aptitude Test in Engineering** (GATE)
- ❖ 2017, 2019: State Eligibility Test (SET) CGVYAPAM Naya Raipur, India.

## ACADEMIC CONFERENCES AND SEMINARS

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- ❖ Oral presentation on ICMSSD-2025, GVTTPGC, Durg, C. G., India.
- ❖ Oral presentation title “*Cyclotrimetaphosphate-Assisted Ruthenium Catalyst for the Hydration of Nitriles and Oxidation of Primary Amines to Amides Under Aerobic Conditions in Water*” in the International Conference on HAST-2023, Kalinga University, Naya Raipur, India.
- ❖ Oral presentation title, “*Transamidation of Aromatic Amines with Formamides using Cyclic Dihydrogen Tetrametaphosphate*” in the National Conference on ACES-2022, PTRSU, Raipur, India.
- ❖ Participated in a two-day Workshop on **AMCT-2022**, CIF, IIT Bhilai, India.
- ❖ Participated in a two-day International Workshop on **RAICS-2022**, BHU, Varanasi, India.
- ❖ Participated in National Seminar on NSAMSISA-2020, Govt. PTSSC, Raipur, India.
- ❖ Participated in a one-day Workshop on CPT-2019, IIT Bhilai, India.
- ❖ Participated in a one-day National Workshop on “Awareness on Intellectual Property Rights” 2019, IIT Bhilai, India.