

# MUHAMMAD EHTISHAM IBRAHEEM KHAN

PhD in Chemical and Pharmaceutical Sciences and Biotechnology

Phone: +421 918169274 | Email: [khan.ehtisham1994@gmail.com](mailto:khan.ehtisham1994@gmail.com)

LinkedIn: [linkedin.com/in/ehitsham-khan-209](https://www.linkedin.com/in/ehitsham-khan-209)

---

Researcher in synthetic chemistry with expertise in sustainable and scalable method development using photochemical, microwave-assisted, and continuous-flow approaches. Experienced in heterocycles, small-molecule and polymer synthesis and reaction optimization. Retain international research experience and applied R&D exposure informing a translational research perspective. Currently pursuing postdoctoral research in polymer synthesis for surfactant activities. Passionate about applying innovative green technologies to solve real-world chemical challenges.

---

## Skills

- Organic Synthesis & Green Chemistry
  - Polymers, Heterocycles & Small molecule Synthesis
  - Method Development & Optimization
  - Photo & Flow chemistry and Microwave Reactions
  - Analytical Skills: NMR, FTIR, GC-MS, GPC, DLS
  - Project & Data Management
  - Teaching & Mentoring
  - Chemdraw, Microsoft Office Suite
- 

## Education

### PhD in Chemical and Pharmaceutical Sciences and Biotechnology

University of Camerino, Italy | 2022 – 2025

*Thesis: "Next-Generation Technologies for Novel C–C and C–X Bond Formation from Functionalized Nitroolefins"*

### MS in Organic Chemistry (Honors)

University of Wah, Pakistan | 2017 – 2019

*Thesis: "Synthesis of Bio-Active Organic Fragments via Domino Pathways"*

### BS in Chemistry (Second Class Upper Honors)

University of Wah, Pakistan | 2013 – 2017

---

## Professional Experience

### Postdoctoral Researcher

*Polymer Institute of the Slovak Academy of Sciences* | Nov 2025 – Present

- Developing photo-ATRP and continuous-flow polymerization routes to synthesize well-defined surfactant and emulsifier polymers for drug delivery applications.
- Optimizing light-driven and flow parameters to improve conversion, molecular-weight control, and batch consistency.
- Designing transferable polymerization protocols for potential industrial deployment.

### PhD Researcher

*Green Chemistry Group, University of Camerino, Italy* | Feb 2022 – April 2025

- Developed scalable green synthetic routes for heterocycles and functionalized building blocks relevant to medicinal chemistry and APIs.
- Achieved ~100% E/Z photochemical isomerization using solvent-evaporation workup, eliminating chromatography and reducing waste and processing time.
- Designed a low-toxicity nitrotriene process using inexpensive feedstocks to improve safety and supply-chain robustness.
- Improved isoxazole yields using flow and microwave reactors, outperforming batch methods.
- Trained Masters & Bachelor-level students.
- Assisted PI in advance lab activities and organizing scientific events.

#### **PhD Research Intern**

***Indena SpA, Settala Plant, Milan, Italy*** | Feb 2024 – Aug 2024

- Developed and optimized scale-up routes for high-potency API intermediates in a kilo-lab.
- Executed multi-kg manufacturing campaigns, improving yield, impurity profile, and batch-to-batch reproducibility.

#### **Visiting PhD Researcher**

***State Key Laboratory of Green Chemistry, ECNU, Shanghai, China*** | Jun 2023 – Dec 2023

- Developed clean photochemical C–H activation methods for alkyl benzenes to carboxylic acids.
- Studied machine-learning tools in organic synthesis and published a review in *AI Chemistry*.

#### **Teaching Assistant**

***University of Camerino, Italy*** | Jun 2023 – Jul 2023

- Facilitated interactive sessions for international students.
- Supervised project design and execution.
- Led 30 hrs. of advanced labs to master's students.

#### **Chemistry Lecturer**

***HITEC, Rawalpindi, Pakistan*** | Sep 2019 – Mar 2022

- Delivered lectures and managed laboratory sessions.
- Developed learning materials and handled student feedback analysis.

---

### **Conferences & Workshops**

- *Invited Short Oral talk* at 48th A. Corbella Summer School on Organic Synthesis, Italy, June 2024
- 23-ICOS International Conference on Organic Synthesis, China, Oct 2023
- Labtech China Congress, Shanghai, Jul 2023
- CPHI & PMEC Expo, Shanghai, Jun 2023
- ISOS Virtual Symposium, Italy, Oct 2022
- International Workshop on Nanomedicine, Pakistan, Mar 2021

## Professional Memberships

- Società Chimica Italiana (SCI)
  - European Chemical Society (EuChemS)
  - Green Chemistry Teaching and Learning Community (GCTLC)
- 

## Awards & Grants

- Fellowship for Invited Talk at ISOS 2024
  - Indena SpA Travel Grant
  - PON-MIUR Doctoral Research Scholarship, Italy
  - High CGPA Merit Scholarship, University of Wah, 2018
- 

## Publications

- 1) Bentivogli, E., Munir, I., **Khan, M. E. I.**, Ballini, R., Petrini, M., & Palmieri, A. (2026). A New General Synthesis of 2, 5-Disubstituted Thiophenes Starting From  $\beta$ -Nitro- $\beta$ ,  $\gamma$ -Unsaturated Ketones and 4-Methoxybenzyl Mercaptan. *Synthesis*, 58(01), 89-94.
- 2) **Khan, M. E. I.**, Ashfaq, M., Tahir, M. N., Munawar, K. S., Asghar, F., Batool, S., ... & Nawaz, F. (2026). Carbamothioyl Benzamide Derivative: Synthesis, Characterizations, Hirshfeld Surface Analysis, Computational Study, and Molecular Docking Analysis. *Crystal Research and Technology*, 61(1), e70051.
- 3) **Khan, M. E. I.**, Wang, L., Bassetti, B., Petrini, M., Palmieri, A. (2025). SnX 2 Promoted Cyclization of  $\beta$ -Nitro- $\beta$ , $\gamma$ -unsaturated Ketones Into 3-(2-Haloalkyl)-5-aryl Isoxazoles. *Asian Journal of Organic Chemistry*. 2025, 00.
- 4) **Khan, M. E. I.**, Cassini, T. L., Petrini, M., & Palmieri, A. (2024). Synthesis of 3, 5-disubstituted isoxazoles by domino reductive Nef reaction/cyclization of  $\beta$ -nitroenones. *Organic & Biomolecular Chemistry*, 22(16), 3299-3303.
- 5) **Khan, M. E. I.**, Ashfaq, M., Tahir, M. N., Munawar, K. S., Ayub, K., Nawaz, F., ... & Husnain, K. (2024). Synthesis, Characterization, Single Crystal XRD, Solid State Assembly Inspection by Hirshfeld Surface Analysis, and Theoretical Studies of Pb (II) complex with Thiourea Derivative. *Journal of Molecular Structure*, 1304, 137689.
- 6) Ali, R. S. A. E., Meng, J., **Khan, M. E. I.**, & Jiang, X. (2024). Machine learning advancements in organic synthesis: A focused exploration of artificial intelligence applications in chemistry. *Artificial Intelligence Chemistry*, 2(1), 100049.
- 7) **Khan, M. E. I.**, Yuan, L., Petrini, M., & Palmieri, A. (2023). A New One-Pot Synthesis of 3, 6-Disubstituted Pyridazines Starting from  $\beta$ -Nitro- $\beta$ ,  $\gamma$ -Unsaturated Ketones. *Synthesis*, 55(19), 3204-3208.
- 8) Yuan, L., Kachalova, L., **Khan, M. E. I.**, Ballini, R., Petrini, M., & Palmieri, A. (2023). Overcoming the Usual Reactivity of  $\beta$ -Nitroenones: Synthesis of Polyfunctionalized Homoallylic Alcohols and Conjugated Nitrotriene Systems. *The Journal of Organic Chemistry*, 88(7), 4770-4777.

- 9) **Khan, M. E. I.**, Di Terlizzi, L., Protti, S., & Palmieri, A. (2022). Visible-Light-Driven Photocatalyst-Free Preparation of (Z)  $\beta$ -Nitroacrylate Isomers. *European Journal of Organic Chemistry*, 2022(26), e202200635.
- 10) Ashfaq, M., Tahir, M. N., Muhammad, S., Munawar, K. S., Ali, S., Ahmed, G., ... & **Khan, M. E.I.** (2022). Shedding light on the synthesis, crystal structure, characterization, and computational study of optoelectronic properties and bioactivity of imine derivatives. *ACS omega*, 7(6), 5217-5230.
- 

## References

- 1) **Dr. Alessandro Palmieri**  
PI, Green Chemistry Group, University of Camerino  
Email: [alessandro.palmieri@unicam.it](mailto:alessandro.palmieri@unicam.it)
- 2) **Dr. Andrea Gambini**  
R&D Manager, Indena SpA, Milan  
Email: [andrea.gambini@indena.com](mailto:andrea.gambini@indena.com)
- 3) **Dr. Xuefeng Jiang**  
Professor, ECNU, Shanghai  
Email: [xfjiang@chem.ecnu.edu.cn](mailto:xfjiang@chem.ecnu.edu.cn)