CURRICULUM VITAE

DR. MUHAMMAD ISLAM

PhD. Postdoc (Organic Chemistry)



Assistant Professor of Chemistry,
MNS-University of Engineering & Technology, Multan, Pakistan

Career Highlights

✓ 28 SCI/SCIE Publications | IF 111+

✓ Google Scholar Citations: 683 | h-index: 15 | i10-index: 20

✓ HEC Approved Ph.D. Supervisor

✓ Postdoctoral Research Fellow, Tianjin University, China

✓ IRSIP Research Fellow, Cardiff University, UK

✓ Visiting Ph.D. Scholar, University of Nizwa, Oman

✓ 13+ Years Industrial R&D & QA/QC Experience

✓ International Collaborations: China • UK • Netherlands • Oman • Germany • Turkey • Saudi Arabia

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1. Personal & Contact Information

Full Name:	Dr. Muhammad Islam
Date of Birth:	February 10, 1986
Citizenship:	Pakistani
Current Position:	Assistant Professor of Chemistry, MNS-University of Engineering & Technology (MNS-UET), Multan
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Web of Science (WOS):	publons.com/researcher/AAX-9068-2021/

2. Research Statement

My research program operates at the synergy of **sustainable synthetic organic chemistry**, **green methodology development**, and **computational drug discovery**. By seamlessly integrating green synthetic platforms—including solvent-free mechanochemistry (SuFEx/SuPhenEx click chemistry) and continuous-flow electrosynthesis—with quantum chemistry (DFT), in-silico modeling, and target-driven biological screening, my group develops novel functional molecular architectures to address critical challenges in human health, enzyme inhibition, and environmental diagnostics.

Research Track Record & Methodological Foundations

1. Targeted Medicinal Chemistry & Molecular Recognition

My primary research focused on the rational design, structural characterization, and bio-evaluation of novel nitrogen/sulfur-containing heterocycles aimed at enzyme inhibition in gastrointestinal, metabolic, and neurodegenerative pathways. Through systematic Structure–Activity Relationship (SAR) modeling, spectroscopic validation, and molecular docking, my work elucidated detailed binding modes and inhibition mechanisms against key therapeutic targets (*urease, cholinesterase, carbonic anhydrase, and alpha-glucosidase*). In parallel, I developed chromo-fluorogenic chemosensors with tailored receptor cavities for real-time environmental and biological sensing.

2. Advanced Flow, Electro- & Mechanochemical Click Platforms

To drive sustainability and atom economy in synthetic methodology, I expanded my research scope through international appointments:

- **Cardiff University (UK):** Mastered continuous-flow chemistry and microreactor-assisted electroorganic synthesis, utilizing clean electrical current as an eco-friendly reagent to eliminate stoichiometric oxidant/reductant waste.
- **Tianjin University (China):** Pioneered mechanochemical SuFEx and SuPhenEx click chemistry protocols, achieving high-efficiency, solvent-free transformations to build diverse sulfur-containing molecular libraries under environmentally benign conditions.

Future Research Vision

My objective is to build an internationally recognized, multi-funded research group centered on three strategic pillars:

1. **Next-Generation Mechanochemical Click Chemistry:** Developing high-throughput, solvent-free SuFEx/SuPhenEx platforms to rapidly synthesize privilege-structure chemical libraries for drug discovery and functional materials.
2. **AI-Driven Lead Discovery & Translational Probe Design:** Combining machine-learning algorithms (predictive SAR/ADMET) with DFT calculations and collaborative bio-screening to significantly shorten the hit-to-lead timeline for novel therapeutic candidates.
3. **Sustainable Chemical Technologies & Scalable Flow Systems:** Translating continuous-flow electrosynthesis and green mechanochemical methodologies into scalable, automated processes for functional probes and pharmaceutical intermediates.

Mentorship, Leadership & Academic Vision

As an HEC-approved Ph.D. supervisor, I am deeply committed to cultivating an inclusive, interdisciplinary, and research-rigorous laboratory environment. My mentorship framework equips students with core synthetic skills alongside modern computational and machine-learning tools. Leveraging strong international networks (UK, China, Europe) and active grant acquisition, I aim to bridge fundamental chemical discovery with translational health solutions while training the next generation of competitive chemical scientists.

3. Research Interests

- **Sustainable & Mechanochemical Methodologies:** Solvent-free ball-milling protocols for SuFEx and SuPhenEx click reactions, advancing benign chemical manufacturing and complex framework construction.
- **Continuous-Flow & Electroorganic Synthesis:** Microreactor-based electrosynthesis of heterocycles (e.g., thiazolidin-2-imines) utilizing electrical current as a sustainable driving force.
- **Targeted Medicinal Chemistry & Enzyme Inhibitors:** Rational design, synthesis, and biological evaluation of functionalized thiosemicarbazones and heterocycles targeting urease, cholinesterases, carbonic anhydrase, and alpha-glucosidase.
- **In Silico-Driven Therapeutics:** Computer-aided drug design (CADD), molecular docking, and DFT-backed structure–activity relationship (SAR) modeling for anti-Alzheimer's and antiproliferative/anti-cancer lead discovery.
- **Molecular Recognition & Optical Chemosensors:** Synthesis of functionalized coumarin, naphthyridine, and acridinedione chromophores for selective colorimetric and fluorescent sensing of ionic species.

4. Education

Certificate / Degree	Year	Major	Division / %	Board / University
Postdoctorate	2024	Organic Chemistry	—	Tianjin University, China
Ph.D.	2020	Organic Chemistry	—	Bahauddin Zakariya University (B.Z.U), Multan
M.Phil. (18 yr.)	2014	Organic Chemistry	1st / 72%	Bahauddin Zakariya University (B.Z.U), Multan
M.Sc. (16 yr.)	2008	Organic Chemistry	1st / 70.4%	Bahauddin Zakariya University (B.Z.U), Multan
B.Ed. (14 yr.)	2010	Chemistry, Biology	1st / 70.0%	AIOU Islamabad
B.Sc. (14 yr.)	2005	Chemistry	1st / 64.6%	Bahauddin Zakariya University (B.Z.U), Multan
F.Sc. (12 yr.)	2003	Biology, Physics, Chemistry	1st / 78.1%	B.I.S.E Multan
Matriculation (10 yr.)	2001	Biology, Physics, Chemistry, Math	1st / 79.4%	B.I.S.E Multan

5. Academic & Professional Appointments

Assistant Professor of Chemistry

MNS-University of Engineering & Technology (MNS-UET), Multan, Pakistan | May 2023 – Present

- **Teaching & Curriculum Development:** Instruct advanced courses in Organic Chemistry (*Stereochemistry, Reactive Intermediates, Spectroscopy, Applied Chemistry*) and core modules in Biochemistry and Analytical Chemistry; serve on the **Board of Studies (BoS)** to update academic curricula.
- **Research Supervision:** Direct research operations as an **HEC-Approved Ph.D. Supervisor**, mentoring graduate students in green organic synthesis, chemosensor development, and medicinal chemistry.
- **Strategic Admissions Management:** Served as **Convener of the Admission Committee**, successfully spearheading outreach campaigns that resulted in a **record increase in student intake** year-over-year.
- **Examination Management:** Act as **Departmental Exam Coordinator**, ensuring strict adherence to academic evaluation policies, grading standards, and exam logistics.
- **Industrial & International Liaison:** Serve on the **Industrial Advisory Board (IAB)** to bridge academia-industry gaps, and acted as **Convenor of the Publicity Committee** for international scientific conferences.

Visiting Faculty, Chemistry

Punjab Group of Colleges (PGC), Khanewal, Pakistan | 2010 – 2022

- **Advanced Instruction for Top Scholars:** Taught chemistry to the high-performing **Toppers Section**, mentoring students for top academic ranks, university entrance exams, and competitive assessments.
- **Industry-Integrated Pedagogy:** Integrated real-world industrial knowledge into daily lectures and practical laboratory sessions to deepen students' understanding of practical chemistry.
- **Applied BS Research Mentorship:** Supervised BS Chemistry undergraduate research projects designed around industrial applications and applied research methodologies.
- **Long-Term Academic Impact:** Maintained a sustained 12-year commitment to academic excellence while balancing full-time industrial research responsibilities.

Senior Manager, Quality Control

Jadeed Feeds, Khanewal, Pakistan | 2010 – 2022

- **Laboratory Infrastructure & Setup:** Designed, commissioned, and equipped state-of-the-art analytical testing laboratories across two major industrial locations (Khanewal and Shahkot).
- **Instrumentation & Methodology:** Managed end-to-end procurement, installation, and standard operating procedures (SOPs) for high-end analytical equipment, including **HPLC, Amino Acid Analyzers, Bomb Calorimeters, UV-Vis, and NIR Spectroscopy**.
- **Comprehensive Multi-Matrix Analysis:** Developed testing and quality protocols for a broad spectrum of samples, including raw/finished feeds, edible oils, coal, vitamins, pharmaceuticals, and microbiological assays.
- **NIR Method Optimization:** Successfully built and validated NIR (WinISI) calibration equations for rapid non-destructive compositional testing.
- **R&D & Quality Standards:** Applied advanced analytical instrumentation and statistical process control (SPC) to maintain industry-leading standards, providing a strong practical foundation for ongoing academic research.

College Teaching Intern

Government College (GC), Khanewal, Pakistan | 2008 – 2010

- **Early Career Teaching Success:** Launched teaching career post-MSc, rapidly establishing a reputation for outstanding classroom instruction and pedagogical effectiveness in chemistry.

- **Undergraduate Lecture & Tutorial Instruction:** Delivered undergraduate coursework in organic and general chemistry, simplifying complex chemical concepts for foundational learners.
- **Practical Laboratory Supervision:** Facilitated hands-on laboratory sessions, training students in foundational chemical analysis, experimental setups, and safety procedures.
- **Academic Guidance:** Mentored undergraduate students in coursework comprehension, study methodologies, and exam readiness.

6. Postdoctoral & International Research Experience

Postdoctoral Researcher — Tianjin University, China (2024)

Supervised by Prof. Han Zuilhof

- **Methodology Innovation:** Pioneered solvent-free, ball-milling ("shaken, not stirred") strategies for SuFEx and SuPhenEx click reactions to build sustainable, sulfur-containing functional molecular architectures.
- **High-Impact Scientific Output:** Co-authored research published in top-tier peer-reviewed chemistry journals, including ***The Journal of Organic Chemistry*** (2026) and ***Advanced Synthesis & Catalysis*** (2025), alongside a third manuscript currently under submission/review.
- **Student Mentorship & Training:** Provided hands-on mentorship and practical training to Ph.D., Master's, and undergraduate students in mechanochemical synthesis, reaction execution, spectroscopic characterization, and analytical interpretation.
- **Global Academic Integration:** Actively contributed to an internationally recognized research group, collaborating on sustainable chemistry frameworks and data-driven methodology validation.

IRSIP (HEC) Research Visit — Cardiff University, United Kingdom (April–October 2018)

Supervised by Prof. Thomas Wirth

- **Microreactor Methodology:** Spearheaded research in flow-microreactor electrosynthesis for green heterocyclic synthesis (thiazolidin-2-imines), published in the ***European Journal of Organic Chemistry***.
- **International Research Excellence:** Awarded the competitive HEC International Research Support Initiative Program (IRSIP) fellowship to conduct advanced synthetic research in an internationally leading group.
- **Crystallographic Mastery:** Completed advanced technical training in Single-Crystal X-ray Diffraction (SC-XRD) analysis and structural elucidation.
- **Rigorous Safety Compliance:** Certified in high-pressure gas-cylinder handling and laboratory safety management for specialized flow and electrochemical setups.

Natural & Medical Sciences Research Center (NMSRC), University of Nizwa, Sultanate of Oman

Host Supervisors: Prof. Ahmed Al-Harrasi & Prof. Javid Hussain

March 2018 – April 2018

- **Enzymatic Bio-Assay Execution:** Spearheaded the complete *in vitro* biological evaluation and enzyme inhibition profiling (urease, cholinesterases) of novel thiosemicarbazone derivatives under the direct supervision of Prof. Ahmed Al-Harrasi.

- **High-Impact Scientific Productivity:** Generated crucial bioactivity data that underpinned multiple co-authored peer-reviewed research publications.
- **Mechanistic & SAR Analysis:** Performed quantitative inhibition assays (IC_{50} determinations) and binding mechanics evaluation to establish structure–activity relationships for synthesized small molecules.
- **International Research Synergy:** Established enduring interdisciplinary collaborations connecting synthetic organic chemistry with advanced biomedical screening capabilities.

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7. Teaching Experience & Courses Taught

Dr. Muhammad Islam has demonstrated a strong commitment to academic excellence and pedagogical development in his role as Assistant Professor of Chemistry at MNS University of Engineering and Technology (MNS-UET), Multan. He has designed, delivered, and supervised a diverse spectrum of undergraduate chemistry curricula, spanning core theoretical principles, advanced specialization modules, and rigorous laboratory instruction.

Below is a representative overview of the key courses taught at MNS-UET Multan:

Courses Taught

Organic Chemistry (Core & Specialization Courses)

- **Principles of Organic Chemistry / Organic Chemistry** (CHM-110 / CHM-161)
- **Organic Chemistry – I: Stereochemistry & Aliphatic Reactions** (CHM-261)
- **Organic Chemistry – II: Aromatic Substitutions, Redox & Pericyclic Reactions** (CHM-361)
- **Heterocyclic & Organometallic Compounds** (CHM-413)
- **Reactive Intermediates & Rearrangement Reactions** (CHM-417)
- **Organic Spectroscopy (UV-Vis, IR, NMR, Mass Spectrometry)** (CHM-415)
- **Chemistry of Natural Products** (CHM-419)
- **Organic Synthesis & Retrosynthetic Analysis** (CHM-420)
- **Medicinal Chemistry** (CHM-421)
- **Advanced Stereochemistry** (CHM-414)
- **Advanced Organic Chemistry Practical & Research Supervision** (CHM-472 / CHM-493 / CHM-494)

Foundational & Interdisciplinary Courses

- **Principles of Biochemistry / General Biochemistry** (CHM-105 / CHM-131)
- **Principles of Analytical Chemistry** (CHM-204 / CHM-111)
- **Fundamentals of Chemistry** (CHM-106)
- **Natural Science** (NS-104)

8. Research Supervision

Dr. Islam is a Higher Education Commission (HEC) of Pakistan approved Ph.D. supervisor in Organic Chemistry.

- **Ph.D. Candidates Supervised:** None *(Program not currently offered at the department)*
- **M.S. / M.Phil. Scholars Supervised:** None *(Program not currently offered at the department)*
- **B.S. Final-Year Research Students Supervised:** Multiple undergraduate cohorts mentored in synthetic organic chemistry laboratory techniques, spectroscopic data analysis, and basic computational tools.

9. Grants, Fellowships & Funding

- IRSIP Fellowship, Higher Education Commission (HEC) of Pakistan — Cardiff University, UK (2018)
- Visiting Ph.D. Scholarship, University of Nizwa, Oman (2018)

10. Awards & Honors

- HEC Approved PhD Supervisor – Higher Education Commission (HEC), Pakistan
- Postdoctoral Research Fellowship – Tianjin University, China
- International Research Support Initiative Program (IRSIP) Award – HEC, Pakistan
- Certificate of Appreciation for Outstanding Administrative & Academic Services – MNS-UET Multan

11. Professional Trainings & International Exposure

Institution	Certificate / Training	From	To
Hydrocarbon Development Institute of Pakistan	Testing of High Speed Diesel	01 Jun 2015	15 Jun 2015
Shimadzu Asia Pacific Pte. Ltd., Singapore	Principles and Operation of Atomic Absorption (AA-7000)	07 Nov 2017	09 Nov 2017
Shimadzu Asia Pacific Pte. Ltd., Singapore	Principles and Operation of HPLC	15 Nov 2017	16 Nov 2017
FOSS Academy, Denmark	WinISI Basic Calibration Service Training	17 Apr 2018	19 Apr 2018
Sykam GmbH, Germany	S433 Amino Acid Analyzer Training Course	19 Jun 2018	22 Jun 2018
Cardiff University, UK	Gas Cylinder Safety Training Course	22 Aug 2018	22 Aug 2018
Cardiff University, UK	Introduction to Single Crystal XRD	28 Aug 2018	28 Aug 2018
University of Nizwa, Oman	Visiting Ph.D. Scholarship	Mar 2018	Apr 2018
Cardiff University, UK	IRSIP (HEC)	Apr 2018	Oct 2018

12. Key Publications (Full List)

25. Hao, Z.; Meng, L.; Wang, Y.; **Islam, M**.; Das, D.; Zhu, Y.; Chao, Y.; Tripathi, S.; Pujari, S. P.; Zhao, H.; Wang, J.; Zuilhof, H. Mechanochemical Sulfur-Phenolate Exchange Click Reactions. The Journal of Organic Chemistry 2026, 91 (28), 9793-9801.

24. Qamar, S.; Ramzan, N.; Aleem, W.; **Islam, M**.; Qamar, N. Evaluations of graphene nanoplatelets stability using non-ionic polymeric dispersants: processing and characterizations. Polymer Bulletin 2026, 83 (7), 374.

23. Abbas, K.; **Islam, M**.; Tayyab, M.; al-Rashida, M.; Taslimi, P.; Islam, T.; Sadeghian, N.; Şenol, H.; Alanazi, A. K.; Schenone, S.; Shafiq, Z. Synthesis, carbonic anhydrase inhibition and in silico insights of 4-formyl-2-nitrophenyl naphthalene-2-sulfonate hybrid thiosemicarbazones. Bioorganic Chemistry 2025, 167, 109243.

22. Raza, S.; **Islam, M**.; Çakır, F.; Ateşoğlu, Ş.; Akbaş, F.; Taslimi, P.; Gülçin, İ.; Alamery, S. F.; Elgorban, A. M.; Noreen, F.; et al. Targeting Lung Cancer: Synthesis, Characterization, Enzyme Inhibition, and Antiproliferative Activity of 1H-benzo[f]chromen-1-one-Thiosemicarbazones Supported by Molecular Docking. Archiv der Pharmazie 2025, 358 (10), 1-15.

21. Aftab, H.; **Islam, M**.; Şenol, H.; Batool, Z.; Ateşoğlu, Ş.; Çakır, F.; Akbaş, F.; Taslimi, P.; Alanazi, A. K.; Noreen, F.; Shafiq, Z. Synthesis, antiproliferative activity targeting lung cancer and in silico studies of hydroxypiperidine substituted thiosemicarbazones. Scientific Reports 2025, 15 (1), 33402.

20. Farooq, U.; **Islam, M**.; Batool, Z.; Mali, S. N.; Jawarkar, R. D.; Gurav, S. S.; Alharthy, R. D.; Şenol, H.; Sadeghian, N.; Taslimi, P.; Shafiq, Z.; Schenone, S. Design, Synthesis, In Vitro, and In Silico Studies of 5-(Diethylamino)-2-Formylphenyl Naphthalene-2-Sulfonate Based Thiosemicarbazones as Potent Anti-Alzheimer Agents. Archiv der Pharmazie 2025, 358 (7), e70050.

19. Wang, Y.; Hao, Z.; **Islam, M**.; Zhu, Y.; Chao, Y.; Pujari, S. P.; Zhao, H.; Zuilhof, H. SuFEx Reactions When Shaken Not Stirred. Advanced Synthesis & Catalysis 2025, 367 (17), e70081.

18. Islam, M.; Ullah, S.; Khan, A.; Batool, Z.; Mali, S. N.; Gurav, S. S.; Dahlous, K. A.; Mohammad, S.; Hussain, J.; Al-Harrasi, A.; Shafiq, Z. Design, synthesis, in vitro, and in silico studies of 4-fluorocinnamaldehyde based thiosemicarbazones as urease inhibitors. Scientific Reports 2025, 15 (1), 609.

17. Alharthy, R. D.; Tariq, S.; Naseem, S.; **Islam, M**.; Ahmed, N.; Pasha, A. R.; Shafiq, Z. Coumarin-based thiosemicarbazones as colorimetric and fluorescent 'Turn on' chemosensors for fluoride ions and their applications in logic circuits. Journal of Molecular Structure 2023, 1294, 136381.

16. Islam, M.; Khan, A.; Khan, M.; Halim, S. A.; Ullah, S.; Hussain, J.; Al-Harrasi, A.; Shafiq, Z.; Tasleem, M.; El-Gokha, A. Synthesis and biological evaluation of 2-nitrocinnamaldehyde derived thiosemicarbazones as urease inhibitors. Journal of Molecular Structure 2023, 1284, 135387.

15. Saleem, T.; Khan, S.; Yaqub, M.; Khalid, M.; **Islam, M**.; Yousaf ur Rehman, M.; Rashid, M.; Shafiq, I.; Braga, A. A. C.; Syed, A.; Bahkali, A. H.; Trant, J. F.; Shafiq, Z. Novel Quinoline-Derived Chemosensors: Synthesis, Anion Recognition, Spectroscopic and Computational Study. New Journal of Chemistry 2022.

14. Islam, M.; Shafiq, Z.; Mabood, F.; Shah, H. H.; Singh, V.; Khalid, M.; de Alcântara Morais, S. F.; Braga, A. A. C.; Khan, M. U.; Hussain, J.; Al-Harrasi, A.; Marraiki, N.; Zaghloul, N. S. S. 2-Nitro- and 4-fluorocinnamaldehyde based receptors as naked-eye chemosensors to potential molecular keypad lock. Scientific Reports 2021, 11 (1), 20847.

13. Ashraf, A.; **Islam, M**.; Khalid, M.; Davis, A. P.; Ahsan, M. T.; Yaqub, M.; Syed, A.; Elgorban, A. M.; Bahkali, A. H.; Shafiq, Z. Naphthyridine derived colorimetric and fluorescent turn off sensors for Ni2+ in aqueous media. Scientific Reports 2021, 11 (1), 19242.

12. Azeem Shakil, M.; Mahmood, K.; Altaf, A. A.; Tahir, M. N.; Hussain, A.; Khalid, M.; Tariq, M.; **Islam, M**.; Yaqub, M.; Badshah, A.; Kausar, S.; Zaheer, M. 2-Amino-6-methylpyridine based Salt Converted to Carbon Electrode Material for Supercapacitive Application. Journal of Molecular Structure 2021, 130895.

11. Arooj, M.; Zahra, M.; **Islam, M**.; Ahmed, N.; Waseem, A.; Shafiq, Z. Coumarin based thiosemicarbazones as effective chemosensors for fluoride ion detection. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 2021, 261, 120011.

10. Islam, M.; Khan, A.; Shehzad, M. T.; Khiat, M.; Halim, S. A.; Hameed, A.; Shah, S. R.; Basri, R.; Anwar, M. U.; Hussain, J. Therapeutic potential of N4-substituted thiosemicarbazones as new urease inhibitors: Biochemical and in silico approach. Bioorganic Chemistry 2021, 104691.

9. Ahmad, M. U.; Rafiq, M.; Zahra, B.; **Islam, M**.; Ashraf, M.; al-Rashida, M.; Khan, A.; Hussain, J.; Shafiq, Z.; Al-Harrasi, A. Synthesis of benzimidazole based hydrazones as non-sugar based α-glucosidase inhibitors: Structure activity relation and molecular docking. Drug Development Research 2021, DOI: 10.1002/ddr.21807.

8. Hashmi, S.; Khan, S.; Shafiq, Z.; Taslimi, P.; Ishaq, M.; Sadeghian, N.; Karaman, H. S.; Akhtar, N.; **Islam, M**.; Asari, A.; Mohamad, H.; Gulçin, İ. Probing 4-(diethylamino)-salicylaldehyde-based thiosemicarbazones as multi-target directed ligands against cholinesterases, carbonic anhydrases and α-glycosidase enzymes. Bioorganic Chemistry 2021, 107, 104554.

7. Shehzad, M.; Khan, A.; **Islam, M**.; Hameed, A.; Khiat, M.; Halim, S.; Anwar, M.; Shah, S.; Hussain, J.; Csuk, R.; Khan, S.; Al-Harrasi, A.; Shafiq, Z. Synthesis and urease inhibitory activity of 1,4-benzodioxane-based thiosemicarbazones: Biochemical and computational approach. Journal of Molecular Structure 2020, 1209, 127922.

6. Ashraf, A.; Khizar, M.; **Islam, M**.; Hameed, A.; Moin, S.; Yaqub, M.; Rauf, W.; Naseer, M.; Ahsan, M.; Shafiq, Z.; Hussain, J.; Al-Harrasi, A.; Boqué, R.; Jabeen, F.; Mabood, F. Synthesis of sensitive novel dual signaling pyridopyrimidine-based fluorescent 'turn off' chemosensors for anions determination. Measurement 2020, 107267.

5. Shehzad, M.; Khan, A.; **Islam, M**.; Halim, S.; Khiat, M.; Anwar, M.; Hussain, J.; Hameed, A.; Pasha, A.; Khan, F.; Al-Harrasi, A.; Shafiq, Z. Synthesis, characterization and molecular docking of some novel hydrazonothiazolines as urease inhibitors. Bioorganic Chemistry 2020, 103404.

4. Islam, M.; Khan, A.; Shehzad, M.; Hameed, A.; Ahmed, N.; Halim, S.; Khiat, M.; Anwar, M.; Hussain, J.; Csuk, R.; Shafiq, Z.; Al-Harrasi, A. Synthesis and characterization of new thiosemicarbazones, as potent urease inhibitors: In vitro and in silico studies. Bioorganic Chemistry 2019, 87.

3. Islam, M.; Kariuki, B. M.; Shafiq, Z.; Wirth, T.; Ahmed, N. Efficient Electrosynthesis of Thiazolidin-2-imines via Oxysulfurization of Thiourea-Tethered Terminal Alkenes Using the Flow Microreactor. European Journal of Organic Chemistry 2019, 2019 (6), 1371-1376.

2. Islam, M.; Hameed, A.; Ayub, K.; Naseer, M.; Hussain, J.; Alharthy, R.; Asari, A.; Ludwig, R.; Al-Rashida, M.; Shafiq, Z. Receptor-Spacer-Fluorophore Based Coumarin-Thiosemicarbazones as Anion Chemosensors with 'Turn on' Response: Spectroscopic and Computational (DFT) Studies. ChemistrySelect 2018, 3, 7633-7642.

1. Iqbal, N.; Ali, S. A.; Munir, I.; Khan, S.; Ayub, K.; al-Rashida, M.; **Islam, M**.; Shafiq, Z.; Ludwig, R.; Hameed, A. Acridinedione as selective fluoride ion chemosensor: a detailed spectroscopic and quantum mechanical investigation. RSC Advances 2018, 8 (4), 1993-2003.

13. Conference Presentations & Invited Talks

International Conferences & Poster Presentations

- **Islam, M.**, & Ahmed, N. (2018). *"Electro-Microreactor for Flow Electrosynthesis of Thiazolidin-2-Imines"*, Poster Presentation at **Electrochem Conference (RSC/SCI)**, University of Bath, United Kingdom.
- **Islam, M.** (2025). *"Mechanochemical SuFEx and SuPhenEx reactions"*, Oral Presentation at the **2nd International Conference on Recent Trends in Engineering and Applied Sciences (ICRTEAS-2025)**, MNS University of Engineering & Technology, Multan, Pakistan (February 10–11, 2025).

Invited Talks, Resource Person & Guest Lectures

- **Resource Person / Expert Trainer** (April 09, 2026). *"Hands-on Experience on Google Colab for Machine Learning"*, Workshop organized by the Center for Professional & Executive Development (CPED), MNS University of Engineering & Technology, Multan, Pakistan.
- **Invited Speaker** (2026). *"In-Silico Drug Design, Molecular Docking, and ADMET Profiling in Modern Organic Chemistry"*, Academic & Student Training Session, Department of Chemistry, MNS-UET Multan.

14. Doctoral, M.Phil. & M.Sc. Dissertations

Ph.D. Dissertation (2020)

"Synthesis and Characterization of Thiosemicarbazones: Biological Screening, Solid-State Assembly and Potential as Chemosensor for Biologically Important Ions." This work established structure-activity relationships for a series of thiosemicarbazone derivatives, evaluating their solid-state (crystallographic) organization and their function as colorimetric/fluorescent chemosensors and enzyme inhibitors — forming the methodological basis for the candidate's subsequent publication record.

M.Phil. Dissertation (2014)

"Synthesis, Characterization and Antimicrobial Studies of Imine Derivatives of Amoxicillin." This project investigated Schiff-base (imine) derivatization of the amoxicillin scaffold and assessed the antimicrobial activity of the resulting derivatives.

M.Sc. Dissertation (2008)

"Studies of the Effect of Phosphorous Fertilizer and Water Stress on Protein and Phenolic Contents in Cotton (Gossypium hirsutum L.) Plant." This agronomic-chemistry study examined how phosphorous fertilization and water-stress conditions influenced protein and phenolic-compound accumulation in cotton.

15. Technical & Research Skills

Synthetic & Applied Chemistry

- **Targeted Organic Synthesis:** Expertise in multi-step synthesis of thiosemicarbazones, imines/Schiff bases, coumarin derivatives, and functionalized heterocycles.
- **Modern Green Methodologies:** Mechanochemical / ball-milling click chemistry, including Sulfur-Fluoride Exchange (SuFEx) transformation pathways.
- **Advanced Reaction Technologies:** Operation and optimization of flow-microreactor systems and continuous-flow electrosynthesis.
- **Solid-State & Structural Chemistry:** Single-crystal growth, crystallization protocols, and solid-state assembly/supramolecular network evaluation.

Analytical Instrumentation & Quality Assurance

- **Chromatography & Assays:** High-Performance Liquid Chromatography (HPLC) method development, sample preparation, and compound quantification.
- **Elemental & Structural Analysis:** Atomic Absorption Spectroscopy (Shimadzu AA-7000) and Single-Crystal X-ray Diffraction (XRD) data interpretation.
- **Specialized Analytical Systems:** Operation of Automated Amino Acid Analyzers (Sykam S433) and NIR spectroscopic calibrations using FOSS WinISI software.
- **Spectroscopic Probes:** High-sensitivity UV-Vis and Fluorescence spectroscopy for chemosensor development, molecular recognition, and binding studies.
- **Industrial R&D & QA/QC:** Batch quality testing, raw material validation, standard operating procedure (SOP) development, and regulatory compliance testing.

Computational Modeling & Collaborative Bio-Screening

- **In-Silico Molecular Modeling:** Molecular docking simulations, virtual binding affinity estimation, and in-silico ADMET property profiles.
- **Quantum Chemical Calculations:** Density Functional Theory (DFT) calculations for electronic structure elucidation and structure-activity relationship (SAR) studies.
- **Enzyme Inhibition Assays *(Collaborative)*:** In-vitro screening protocols against target enzymes including urease, cholinesterase, carbonic anhydrase, and α-glucosidase.
- **Cell-Based Antiproliferative Assays *(Collaborative)*:** Evaluation of cytotoxic profiles and anticancer activity via cross-institutional research collaborations.

16. Language Proficiency

Urdu:	Native
Punjabi:	Native
English:	Fluent (professional working proficiency — publications, teaching, and international research stays in UK, China, Oman, Singapore)
Arabic	Elementary
Chinese	Beginner

17. References

Prof. Dr. Zahid Shafiq

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