

Md. Hasan Ali

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SUMMARY OF QUALIFICATIONS

A fervent researcher with B.S. and M.S. degrees in Chemistry with four years research experience in organic synthesis, analytical chemistry and natural products. I am an efficacious researcher delivering my painstaking effort in Chemistry to achieve SDGs of Bangladesh. As a young researcher, the experiences I gain from my academic and professional research,

EDUCATION

University of Dhaka

Master of Science in Organic Chemistry GPA: 3.86 out of 4.00 2021 (Exam held January 2023)
Thesis: Study of Secondary Metabolites and Biological Activity of the fruits of *Syzygium fruticosum* (Khudijam)

University of Dhaka

Bachelor of Science in Chemistry CGPA: 3.48 out of 4.00 2020 (Exam held December 2021)
Project: Preparation and Characterization of Chitosan from Shrimp and Crab Shells

PROFESSIONAL EXPERIENCE

Research Chemist

Synthesis Laboratory, Bangladesh Council of Scientific and Industrial Research (BCSIR) Dhaka-1205, Bangladesh August 2023-Present

- Involve in synthesizing to develop new compounds that can interact with biological systems to produce therapeutic effects and act as chemosensor or biosensor
- Administer the GC instruments and UV/Fluorescence Spectroscopy section, involving operation, maintenance and calibration
- Perform analytical method validation and verification for various organic pollutants and solvents from customs house and local industries following AOAC and ISO/IEC 17025:2017 guidelines.
- Execute wet lab experiments, providing technical support to university researchers and students
- Received international training on 'ANALYTICAL CHEMISTRY COURSE FOR LABORATORIES SUPPORTING CUSTOMS SERVICES' by OPCW at OPCW Centre for Chemistry and Technology (CCT), Nootdorp, The Hague, *The Netherlands*.

Bose Fellow

Bose Centre for Advanced Study and Research in Natural Sciences University of Dhaka, Dhaka-1000 July 2023 - February 2024

- Conducted bioactivity and secondary metabolite investigations, including isolation, purification, and characterization of bioactive compounds from *Syzygium fruticosum* fruits and *Staurogyne zeylanica* using ¹H-NMR, ¹³C-NMR, and UV-Visible spectroscopy
- Assisted BS Honors and Master's research students in the Organic Research Laboratory (ORL) under Professor Dr. Tanvir Muslim

EXPERTISE AREA

- Synthesis and Characterization of organic compounds
- Analytical Method Development and Validation using GC-FID, GC-ECD, GC-MS, UV-Vis and Fluorescence spectrometer
- Isolation and Characterization of Secondary Metabolites from Medicinal Plants and their biological applications.
- Computational Chemistry and Data Analysis and Visualization by different software and programming languages
- Research Grant Writing

HONORS & AWARDS

- Bose Fellowship 2023-24, Bose Centre for Advanced Study and Research in Natural Sciences, University of Dhaka
- National Science and Technology (NST) Fellowship 2022-2023, Ministry of Science and Technology
- General Board Scholarship (BS. Honors) 2020, Ministry of Education, Govt of Bangladesh
- Dhaka University Alumni Association (DUAA) Scholarship 2018-2021, University of Dhaka

HARD & SOFT SKILLS

- *Instruments:* GC-FID (Bruker), GC-ECD (Bruker), GC-MS (Perkin Elmer), HPLC-PDA (Shimadzu), HPLC-RID (Shimadzu), Preparative-HPLC (Shimadzu), UV-Vis, Fluorescence, ATR-IR, Raman, and AAS Spectrometer, LCD 3.3, AP4C detector.
- *Software:* SigmaPlot 10.0, RStudio, AutoDock tools-1.5.7, Discovery Studio 2024 (Biovia), PyMOL, ChemDraw Ultra 12.0, Chem3D Pro 12.0, Python Programming Language.
- *Language:* Bengali(Native), English

RESEARCH GRANTS:

- *Synthesis, Biological Application and DFT Theoretical Study of Bis-Chalcone Derivatives*
Ongoing Project (July, 2025- June, 2026) Role: Project Leader
- *UV and GC methods for detecting synthetic pyrethroid insecticide and polyaromatic hydrocarbons residues in environmental samples*
Ongoing Project (July, 2023- June, 2026) Role: Project Associate
- *Process development of active pharmaceutical ingredients (APIs) for industrial uses*
Completed Project (July, 2024- June, 2025) Role: Project Associate

PROFESSIONAL COURSES & TRAINING

- ‘ANALYTICAL CHEMISTRY COURSE FOR LABORATORIES SUPPORTING CUSTOMS SERVICES’ by Organization for the Prohibition of Chemical Weapons at OPCW Centre for Chemistry and Technology (CCT), Nootdorp, The Hague, **The Netherlands** held on 11-14 November 2025.
- ‘Understanding of ISO 17025:2017-for Laboratory Accreditation’ by BCSIR, Dhaka-1205 held on 27 May, 2025
- ‘Research Methodology and Publication’ by BCSIR, Dhaka-1205 held on 26 May, 2025.
- ‘Public Procurement Act PPA-2006 and Public Procurement Regulations PPR-2008 in scientific Procurement’ by BCSIR, Dhaka-1205 held on 22 May, 2025.
- ‘Basic Principle maintenance and Troubleshooting of XRD, FT-IR and Raman Spectroscopy’ by BCSIR, Dhaka-1205 held on 21 May, 2025.
- ‘R Programming: Learning the Basics of Statistical Computing’ by BCSIR, Dhaka-1205 held on 27 November, 2024.
- ‘Introduction to Python: Basic Programing and Data Analysis’ by BCSIR, Dhaka-1205 held on 05 November, 2024.
- ‘Operation and Maintenance of Preparative High Performance Liquid Chromatography’ BCSIR, Rajshahi-6206 held on 06-10 October, 2024.

PUBLICATIONS

- **Ali, M.**, Mimi, S., Chhanda, S., Hasan, M., Rafi, M., Shristy, N., ... & Muslim, T. (2025). Analgesic, hypoglycemic, sedative, antidiarrheal, thrombolytic, anti-inflammatory activity of *syzygium fruticosum* DC. Asian Society of Pharmacognosy, 9(1), 12-20. <http://dx.doi.org/10.71221/ajp.09102>
- **Ali, M. H.**, Islam, S., Hasan, M. M., Rahman, M. H., Rahman, A., Taher, M. A., & Muslim, T. (2024). Studies of phytochemical analysis, in vitro and in vivo evaluation of the local *Pseudoelephantopus spicatus* plant. African Journal of Pharmacy and Pharmacology, 18(7), 114-126. <https://doi.org/10.5897/AJPP2023.5354>
- Akter, R., Islam, M. M., Islam, M. W., Akter, T., **Ali, M. H.**, Nesa, F., ... & Georghiou, P. E. (2025). Recent Developments in the Biological Consequences of Certain Chalcone Derivatives. ChemistrySelect, 10(41), e03482. <https://doi.org/10.1002/slct.202503482>
- Islam, M. S. M. M., Siddik, M. N. A., Islam, M. A., Trisha, S. A., Alam, M., **Ali, M. H.**, ... & Saha, B. K. (2025). Polyaromatic hydrocarbons and trace metals in road-deposited soil, source apportionment, and risk analysis: evidence from the largest port city of Bangladesh. Environmental Geochemistry and Health, 47(10), 446. <https://doi.org/10.1007/s10653-025-02752-x>
- Islam, M. S. M. M., Akter, H., **Ali, M. H.**, Morshed, A. J. M., Islam, M. A., Uddin, M. H., ... & Siddik, M. N. A. (2024). Physicochemical characterization and determination of trace metals in different edible fats and oils in Bangladesh: Nexus to human health. Heliyon, 10(18). <https://doi.org/10.1016/j.heliyon.2024.e37606>
- ISLAM, M., CHAKRABORTY, D., BHATTACHARJEE, S. C., **ALI, M.**, SARKER, M., & ISLAM, M. (2024). Assessment of total phenolic content (TPC), total flavonoid content (TFC) and antidiarrheal and antioxidant activities of *Dioscorea bulbifera* tuber extract. ASSESSMENT, 17(11). <https://doi.org/10.22159/ajpcr.2024v17i11.51957>
- Bristy, R. R., Mimi, S. S., Chhanda, S. A., **Ali, M. H.**, Rafi, M. O. S., & Muslim, T. (2025). Investigation of the Pharmacological Potential of *Staurogyne zeylanica* Kuntze: In vitro and In vivo Studies. Bangladesh Pharmaceutical Journal, 28(1), 28-36. <https://doi.org/10.3329/bpj.v28i1.79447>
- Jahan, I., **Ali, M. H.**, Shristy, N. T., Rafi, M. O. S., Mimi, S. S., Siddik, M. N. A., ... & Chowdhury, T. A. (2024). Assessing Therapeutic Potentials of *Catharanthus roseus* (L.) G. Don Focusing on Anti-Diabetic, Analgesic and Anti-Diarrheal Activities. Bangladesh Pharmaceutical Journal, 27(2), 215-222. <https://doi.org/10.3329/bpj.v27i2.75191>

POSTER/ORAL PERESENTATION

- Poster Presentation on ‘Evaluation of Analgesic, hypoglycemic, CNS-sedative, Diarrheal, Inflammatory, and Thrombolytic Potential in Crude Methanolic extract *syzygium fruticosum* DC fruits’ at BCSIR Congress 2023.
- Oral Presentation on ‘Alcohol and Heavy Metal Contaminated Health Risk Assessment in Beverage Samples Available in Bangladesh’ at ICSHSD-2025, Dhaka University and Engineering Technology (DUET).