

SHAMMI AKHTER

✉ shammi.akhter@bcsir.gov.bd ♥ Dhaka, Bangladesh

Senior Scientific Officer, Pharmaceutical Sciences Research Division
BCSIR Dhaka Laboratories, Bangladesh Council of Scientific and Industrial Research (BCSIR)
Dhaka, Bangladesh

Personal Profile

- **Senior Scientific Officer** at Pharmaceutical Sciences Research Division, Bangladesh Council of Scientific and Industrial Research (BCSIR)
- **Scientific Officer** at Pharmaceutical Sciences Research Division, Bangladesh Council of Scientific and Industrial Research (BCSIR)
- Total of 10 years' researcher experience in the field of Phytochemistry (Natural Product Chemistry), Pharmaceutical Sciences and Analytical Chemistry at BCSIR, Bangladesh
- Completed MS in Pharmaceutical Technology and Bachelor of Pharmacy (B. Pharm.) from Bangladesh

Areas of Interest

- New drug development from natural sources
- Bioanalytical method development

Education

Master of Science in Pharmaceutical Technology **2015**
University of Asia Pacific, Bangladesh *Thesis: Chemical and Biological Investigations of Six Ethnomedical Important Plants of Bangladesh and an endophytic fungus of Fusarium Species*

Bachelor of Pharmacy **2014**
University of Asia Pacific, Bangladesh *Internship: Popular Pharmaceuticals Limited, Bangladesh (21 May 2014 – 7 June 2014)*

Professional Experience

Senior Scientific Officer **10 August 2023 – Present**
Pharmaceutical Sciences Research Division, BCSIR, Bangladesh

Senior Scientific Officer **25 November 2021 – 09 August 2023**
Institute of Food Science and Technology (IFST), BCSIR, Bangladesh

Scientific Officer **15 March 2016 – 24 November 2021**
Pharmaceutical Sciences Research Division, BCSIR, Bangladesh

Research Experience: Earned solid laboratory research training and skills on modern chromatographic separation techniques such as application of NMR spectroscopy and UV spectroscopy to determine/identify the chemical structure of organic compounds. Also acquired solid skills in molecular genetics such as isolation, identification, fermentation & extraction of endophytic fungi and their secondary metabolites respectively.

Responsibilities

- Maintaining administration to conduct lab work and instruments
- Planning, writing, conducting, assisting and presenting R&D and ADP research project and related activities
- Demonstrating research work among Junior Scientists and Research Fellows of BCSIR and students of BSc, MS, MPhil and PhD levels from different universities
- Developing methods to analyze and solve different industrial problems from various Pharmaceutical Industries

Research Technical Skills

- **Small Molecule/Secondary Metabolite Isolation and Characterization:** Extraction, separation, isolation, purification, characterization, screening, bioactivity
- **Chromatography:** Column Chromatography, TLC, VLC
- **Spectrometry:** NMR, UV, Atomic Absorption Spectroscopy, Gas Chromatography, Gas Chromatography-Mass Spectroscopy
- **Others:** ELISA Microplate reader, Synthetic reactor, Particle size analyser
- **Microbiology:** Bacteria and fungus isolation from different sources (plant, marine weeds and animals), culture, morphological and molecular identification, extraction and evaluation of their bioactivity, secondary metabolites isolation and characterization
- **Tools & Software:** BLAST, ChemDraw

Other Skills

- Able to work independently or as a team member
- Good at analytical thinking and problem solving
- Excellent communication and interpersonal skills
- Willing to take challenges
- Dedicated and responsible
- Eager to learn new things

Current Projects

Project Leader

- Morpho-molecular Identification and Biochemical Profiling of Endophytic Fungi Isolated from *Heliotropium indicum* (July 2024 – June 2026)
- Production of an instant vegetable powder as functional food (July 2022 – June 2024)

Project Associate

- Phytochemical and Bioactivity studies on the leaves, stem, barks and roots of *Crataeva rurvata* Buch.-Ham. (July 2024 – June 2026)
- Green synthesis of Iron based nano particle: surface modification, bioactivity exploration and its potential application (July 2024 – June 2026)
- Dengue seroprevalence in the current dengue outbreak and the association of infecting dengue virus serotypes with clinical dengue manifestation (July 2024 – June 2026)
- Extraction of short chain carbohydrates from vegetable wastes (July 2022 – June 2024)
- Effect of food preparation techniques on micronutrient profile of vegetables (July 2022 – June 2024)

Annual Development Project (ADP)

- Pharmaceutical Sciences Research Institute for Bioequivalence Studies and Drug Development (Associate)

Successfully Completed Projects

- Optimization of factors influencing extraction of bioactive compounds from medicinal plants using response surface methodology (Associate)
- Isolation of bulk amount of active compounds from *Lawsonia alba* Lam. (Project Leader)
- Taxonomical Identification of Symbiotic Fungi from Medicinal Plants-Research and Development (R & D) project approved by BCSIR (Associate)
- Analytical Method Development for Determination of Drugs in Blood Samples (Associate)

Awards

- National Science and Technology Fellowship (NST) (2015–2016)
- Professor Nurul Afsar Khan Post Graduate Fellowship (2015)
- Dean Award (in B.Pharm)

Professional Memberships

- Pharmacy Council, Bangladesh
- Scientists Association of BCSIR, Bangladesh

Publications (Selected)

1. Hossain, M. A., Mitra, K., Hossen, M. M., & **Akhter, S.** Optimization of the preparation of whey protein from pasteurized liquid milk using response surface methodology and artificial neural network model. *Applied Food Research*, **2025**, 5, 100828.
2. Baral, P.K., Afroz, F., Begum, N., Rony, S.R., Sharmin, S., Moni, F., **Akhter, S.**, Sultana, S., & Sohrab, M.H. Exploration of endophytic fungi and their bioactive potential isolated from the medicinal plant *Adhatoda vasica*. *Research Journal of Pharmacognosy*, **2024**, 11(1), 9–18.
3. Zinnurine, R., Sohrab, M.H., Afroz, F., Rony, S.R., **Akhter, S.**, Begum, M.N., & Rana, M.S. Morphological and molecular identification of biologically active endophytic fungi isolated from *Dillenia indica* L. *Bangladesh Journal of Plant Taxonomy*, **2024**, 31(2), 311–320.
4. Hossain, M.A., **Akhter, S.**, Sohrab, M. H., Afroz, F., Begum, M. N., Rony S. R. Applying an Optimization Technique for The Extraction of Antioxidant Components from *Justicia Adhatoda* Leaves. *Engineered Science*, **2023**, 24, 913.
5. Alam, M. S., Rony, S.R., Afroz, F., Al-Mansur, A., Sharmin, S., Moni, F., **Akhter, S.**, Hussain, M.M., Sohrab, M.H. A New Annulenol from *Aconitum heterophyllum* with Bioactivity and Cytotoxicity against Vero and Lung Cell Line. *Dhaka University Journal of Pharmaceutical Sciences*, **2023**, 22(1), 1-10.
6. Samapti, M. M. S., Afroz, F., Rony, S.R., Sharmin, S., Moni, F., **Akhter, S.**, Ahmed S. F. U., Sohrab, M.H. Isolation and Identification of Endophytic Fungi from *Syzygium cumini* Linn and Investigation of Their Pharmacological Activities. *The Scientific World Journal*, **2022**, 9529665.
7. Mahmud S. M. N., Sohrab M.H., Begum M.N., Rony S.R., Sharmin S., Moni F., **Akhter S.**, Mohiuddin A.K.M., Afroz F. Cytotoxicity, antioxidant, antimicrobial studies and phytochemical screening of endophytic fungi isolated from *Justicia gendarussa*. *Annals of Agricultural Sciences*, **2020**, 65(2), 225-232.
8. Moni F., Sharmin S., Rony S.R., Afroz F., **Akhter S.**, Sohrab M.H. Bioanalytical method validation of Esomeprazole by high performance liquid chromatography with PDA detection. *Acta Chromatographica*, **2021**, 33(2), 120-126.

9. Hannana, U., Afroz, F., Sharmin, S., Moni, F., **Akhter, S.**, Sarker, A., Rony, S.R., Sohrab, M.H. Bioactive potential of endophytic fungi isolated *Phyllanthus niruri* L. *Bangladesh Journal of Scientific and Industrial Research*, **2020**, 55(4).
10. Sharmin, S., Sohrab, M.H., Moni, F., Afroz, F., Rony, S.R., **Akhter, S.** Simple RP-HPLC method for quantitative estimation of Aceclofenac in Pharmaceutical tablets. *PHARMACIA*, **2020**, 67(4), 383-391.
11. **Akhter S.**, Rony SR, Al-Mansur MA, Hasan CM, Rahman KM, Sohrab MH. Lawsonol: A new bioactive Naphthoquinone Dimer from the leaves of *Lawsonia alba*. *Chemistry of Natural Compounds*, **2018**, 54(1), 26-29.

Conference Presentations

International Conference Abstracts

- **Akhter S.**, Sohrab MH, Khatun MM, Shathi AS, Sultana M, Pathan MH, Shahinuzzaman ADA, and Rony SR. "A comparative study of drying methods on nutritional and functional properties of Broccoli powder and Bioassay of Broccoli extracts." BCSIR Congress-2023, Dhaka, Bangladesh 8–10 March 2024
- Airin AA, Shahinuzzaman ADA, Sharmin S, Sohrab MH, **Akhter S.**, Begum N, Rony SR, Moni F, Molla Jamal AHMSI, Islam MR and Seraj ZI. "Isolation, characterization and exploration of bioactivities of new molecules from endophytic fungi *Aspergillus welwitschiae*." BCSIR Congress-2023, Dhaka, Bangladesh 8–10 March 2024
- **Akhter S.**, Afroz F, Rony SR, Shahinuzzaman ADA, Sharmin S, Moni F, Sohrab MH. "Chemical and biological investigation of *Randia dumetorum* (Monkaanta) and its associated endophytic fungi." ICSTB-2021, BCSIR 11–13 March 2021

National Conference Abstracts

- **Akhter S.**, Hannana SU, Sarkar A, Sohrab MH, Rony SR, Sharmin S. "Chemical and biological studies of endophytic fungi isolated from *Phyllanthus niruri* L. and *Achyranthes aspera* L." 38th Annual Conference of Bangladesh Chemical Society, Chittagong Region, Bangladesh

International Conferences/Workshops Participation

- BCSIR Congress-2023, Dhaka, Bangladesh 8–10 March 2024
- International Conference on Environmental Protection for Sustainable Development (ICEPSD)-2022, Bangladesh 2–4 September 2022
- International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu (ICSTB-2021), Bangladesh 11–13 March 2021
- PSE-NPS2020 Summit on Natural Products for Healthy Living, Khulna University 16–17 January 2020
- 1st International Conference on Biological and Environment Research (ICBER 2018), Jessore University of Science & Technology 16–17 September 2018
- Young Scientists' Meeting on Advances in Phytochemical Analysis, PSE-YSM 2018, Liverpool, United Kingdom 3–5 July 2018
- International Conference on Chemical Science & Technology, ICCST-Chem 2018, Khulna University of Engineering & Technology 24–25 February 2018

References

- Available upon request.

Last Updated: Friday 27th February, 2026