

Riyadh Hossen Bhuiyan

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Fiber and Polymer Research Division, BCSIR Laboratories Dhaka
(BCSIR), Ministry of Science and Technology, Dhaka-1205, Bangladesh

Education

M.Sc. (Thesis) in Analytical Chemistry (Exam held in 2013)

National University, Gazipur, Bangladesh

July 2010

- First Class

B.Sc. (Hons.) in Chemistry (Exam held in 2011)

National University, Gazipur, Bangladesh.

July, 2009

- First Class

Professional Experience

- **Scientific Officer**, Fibre and Polymer Research Division, July, 2021–Present
BCSIR, Dhaka.
- **Research Chemist**, Fibre and Polymer Research Division, March, 2016– July, 2021
BCSIR, Dhaka.
- **Assistant Officer**, R&D Division, Active Fine Chemical Ltd., 2015-2016,
✓ Coordinated chemical R&D and API development (Glimepiride, Cefixime,
Cefuroxime, Azithromycin, Ketorolac).
✓ Calibrated and prepared analytical equipment for use.
- **Lecturer (Chemistry)**, 2013-2014
Illuminate Ideal School & College, Chattogram.
Taught chem., graded tests, counselled students. Hold Office of the Convener, Student
Welfare Committee.

Training & Workshops

Pulping and paper making technologies of non-wood fiber, China National Pulp and Paper
Research Institute, Beijing 12–31 Aug 2019.

Technical Experience

UV-Vis spectroscopy | FT-MIR/NIR | STA/TGA | GC-MS | HPLC Measurements | Micro viscometer | Rheometer (Zetasizer Nano-ZS) | Universal Strength & Tear Testers | Softwares: Adobe Photoshop; SPSS; Origin; Sigma plot, End notes, Mendeley, Chemdraw, R programming language.

Publications (Selected, 2019 – 2025)

Bhuiyan, R. H., Rahman, M. M., Billah, M. M., Ehsan, M. F., Akter, T., Hossain, M. S., ... & Ray, S. K. (2026). Bio-adsorbent for wastewater treatment: amination of green coconut husk waste-derived lignin for the removal of Congo red dye. *RSC advances*, 16(3), 2093-2111.

Md. Ripaj, M U. et al. (2026). Optimized H₃PO₄ activation of *Nypa fruticans* roots for high-quality activated carbon: Structural tuning and superior iodine adsorption. *Biomass and Bioenergy*, 205 (2026) 108488. <https://doi.org/10.1016/j.biombioe.2025.108488>.

Bhuiyan, R.H. et al. (2025). Seasonal pattern, spatial distribution and risk assessment of trace elements in a primary canal (Chandgaon canal) of Chittagong, Bangladesh. *Regional Studies in Marine Science*, 104431.

Hasan, M.S., Rahman, M.M. and others (2025). Plasma-Modified Jute Cellulose with Improved Carboxymethylation. *ChemistrySelect*, 10(32), e03048.

Khanam, S.; **Bhuiyan, R. H.**; et al. (2025). Progress in nutrient management in agriculture: Rice straw to nitrogen, phosphorus and potassium containing hydrogel as slow release fertilizer. *Industrial Crops and Products*, 224, 120380.

Ray, S.K., **Bhuiyan, R.H.** et al. (2025). Acetobromination of alkali-lignin in flow-mode on a lab scale. *International Journal of Biological Macromolecules*, 145451.

Uddin, M. N., Ferdous, T., Likhon, M. N. A., **Bhuiyan, R. H.**, and et al. (2025). A Rapid Method for the Determination of Hexeneuronic Acid in Non-Wood Pulp Using Multivariate Analysis of FT-NIR Spectra. *Journal of Applied Polymer Science*, e57698.

Ray, S.K. and **Bhuiyan, R.H.**, et al. (2024). Development of a Biomass-Based Phase III Lignocellulosic Feedstock Biorefinery System. *ACS Sustainable Resource Management*. (Equal authorship)

(Total: 24 peer-reviewed papers, including RSC Advances, Heliyon, ACS SRM, Carbohydrate Polymers, RSOS.)

Accepted Manuscript

“Sustainable Congo Red (CR) and Hexavalent Chromium [Cr(VI)] Removal Using Graphene Functionalized Aminated Lignin Composite: Mechanistic and Reusability Insights.” *RSC advances*

Patents

(a) Patent Published in the “Patents and Design and Trademarks’ Website”: One

Swapan Kumer Ray*, Riyadh Hossain Bhuiyan, Tanvir Muslim and Md. Qamrul Ehsan (2025), “A novel and green material-driven phase III lignocellulosic feedstock biorefinery process to prepare alkali-lignin and NPK-fertilizers from black liquor”, Patents and Design and Trademarks, Motijheel, Dhaka, Ref. No. 36.08.0000.200.16.001.22.1069; Dated: 04.02.2025 (Patent No. 20)

(b) Submitted patent:

Swapan Kumer Ray*, Quazi Shushma Afroz, Riyadh Hossen Bhuiyan, Tanvir Muslim and Md. Qamrul Ehsan (2025), “Production Method of Natural Rubber-Modified Lignin Nanocomposite as Bitumen Modifier” to the office of the Patents and Design and Trademarks, Motijheel, Dhaka, BCSIR Ref. 39.02.0000.043.39.018.25/632; Dated: 17.09.2025

(c) Opposite TWS Rubberized bituminous pavement for moisture and heat resistance with waste thermoplastic coated aggregates (Item No. P/BD/2021/000233) – Dept. Copyright © Department of Patents, Dhaka 19 Jul 2021.

Conference Presentations

- Preparation of silver-lignin composites, Poster, BCSIR Congress 2023.
- Aminated Lignin: Traditional and Unconventional Approaches to Synthesis, Oral, BCSIR Congress 2022.
- Nitro-Lignin Super-Plasticizer for Cement Fluidity, Poster, ICSTB 2021.
- Poster: Natural Rubber-Lignin Composite as Modifier of Bitumen, BCSIR 2019.
- Natural rubber, biomass with plastic wastes in bitumen modification and sustainable pavement construction - Integrate approach; Oral CESSD 2019.

Awards and Grants

- Associate Investigator: Special Allocation Project Grant, Ministry of Science and Technology, Government of Bangladesh (2020-2021;2021-2022;2022–2023; 2025-2026).

Professional Trainings (Selected)

- Basic Principle, Applications, Operation and Maintenance and troubleshooting of XRD, FTIR and Raman Spectroscopy
May, 2025

- Research Methodology and Publication
- GBC-XRD

May, 2025
September, 2025

Professional Membership

- **Bangladesh Chemical Society (BCS)**