

MOUSONA ISLAM

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Senior Scientific Officer, Genomic Research Laboratory, Plant Tissue Culture Section
BCSIR Dhaka Laboratories, Bangladesh Council of Scientific and Industrial Research (BCSIR)
Dhaka, Bangladesh

Education

Doctor of Philosophy (PhD) **September 2022**
Graduate School of Science and Engineering, Saitama University, Japan *Thesis: Role of Raf kinases and Nramp family membrane proteins in ABA and abiotic stress responses in the moss Physcomitrium patens*

Master of Science (MS) in Cytogenetics **2005 (held in 2008)**
Department of Botany, University of Dhaka, Bangladesh *Result: First Class (73%)*

Bachelor of Science in Botany **2004 (held in 2006)**
Department of Botany, University of Dhaka, Bangladesh *Result: First Class (62%)*

Higher Secondary Certificate (HSC) **1999**
Result: First Class (74.7%)

Secondary School Certificate (SSC) **1997**
Result: First Class (86.5%)

Professional Experience

Senior Scientific Officer **January 2020 – Till Date**
Genomic Research Laboratory, Plant Tissue Culture Section, BCSIR Dhaka Laboratories
Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

Scientific Officer **June 2011 – December 2019**
Genomic Research Laboratory, Plant Tissue Culture Section, BCSIR Dhaka Laboratories
Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka, Bangladesh

Technical Skills and Competences

- **Molecular Techniques:** DNA/RNA Extraction, PCR, qPCR, Molecular Cloning, CRISPR-Cas9, ELISA, Primer Design, SDS/PAGE analysis, Western Blot, Cytogenetics
- **Genomics & Sequencing:** NGS Library Prep (Illumina platforms), Whole Genome Sequencing (WGS), Target Enrichment
- **Bioinformatics:** Web-based workflow platform (Galaxy, Mega), Prokaryotic Genome Annotation (Prokka, Bakta), Comparative Genomics (Proksee, BRIG), De novo Assembly (SPAdes, Flye)

Computational Skills

- **Programming:** R Studio
- **Operating Systems:** Windows

Research Grants (Selected)

- Synergistic Effect of Plant Growth Promoting Rhizobacteria (PGPRs) and Phytohormones on growth promotion and stress responses in Potato and Tomato BDT 3 lac

Current Research Projects

- CRISPR-Cas9 mediated genome editing in Tomato
- Methyl Jasmonate and salt stress induced modulation of Bacside-A production and biosynthetic gene expression in *Bacopa monnieri* (L.) Wettst
- Genome analysis of PGPR to evaluate their role as growth promotor abiotic stress tolerance in plants

Training Experiences

- Workshop on "CRISPR-Cas9 Gene Editing Mechanism: A New Era In Molecular Biology", Bangladesh Society of Microbiology 5-9 May 2024
- Bioinformatics Training Course, Diagnosis, London, UK 28 July – 29 September 2018

Lab Experiences

- Tissue Culture and Breeding
- Agrobacterium-mediated genetic transformation
- Isolation of genomic and plasmid DNA
- Gene cloning
- PCR, Isozyme analysis
- Molecular marker analysis
- Library preparation for NGS and Sanger sequencing
- CRISPR-Cas9 genome editing
- Western blot analysis

Publications (Selected)

1. Nobiza K, Shinozawa A, Takahashi K, Matsuura H, Jahan A, **Islam M**, Karim MM, Sk R, Yoshikawa M, Ishizaki K, Sakata Y. Abscisic acid-mediated sugar responses are essential for vegetative desiccation tolerance in the liverwort *Marchantia polymorpha*. *Physiologia Plantarum*, **2023**, e13898.
2. Goswami B, Khan S, Banu TA, Akter S, **Islam M**, Habib A. In Vitro Mass Propagation of *Withania Somnifera* (L.) Dunal An Important Medicinal Plant of Bangladesh. *Bangladesh Journal of Botany*, **2022**, 51(2), 191-197.
3. Jahan A, Yamazaki Y, **Islam M**, Ghosh TK, Yoshimura N, Kato H, Ishizaki K, Shinozawa A, Sakata Y, Takezawa D. Differential regulations of abscisic acid-induced desiccation tolerance and vegetative dormancy by group B3 Raf kinases in liverworts. *Frontiers in Plant Science*, **2022**, 13.
4. Akther S, Banu TA, Khan S, Akter S, Habib A, **Islam M**, Goswami B, Sarkar BK. Micropropagation of two varieties of bell pepper (*Capsicum annuum* L.). *Plant Tissue Culture and Biotechnology*, **2020**, 30(2), 267-275.
5. **Islam M**, Inoue T, Hiraide M, Khatun N, Jahan A, Kuwata K, Katagiri S, Umezawa T, Yotsui I, Sakata Y, Takezawa D. Activation of SnRK2 by Raf-like kinase ARK represents a primary mechanism of ABA and abiotic stress responses. *Plant Physiology*, **2021**, 185(2), 533-546.
6. Rahe MA, Mollika SR, Khan MS, Banu TA, Al Amin GM, Habib MA, Akter S, **Islam M**, Sharmin RA. In vitro micropropagation of *Bacopa monnieri* (L.) Penn.-an important medicinal plant. *Plant Tissue Culture and Biotechnology*, **2020**, 30(1), 57-63.

7. **Islam M**, Habib A, Khan S, Akter S, Goswami B, Khan H, Banu TA. Molecular characterization of oil seed Brassica using RAPD markers. *Bangladesh Journal of Scientific and Industrial Research*, **2020**, 55(1), 1-8.
8. **Islam M**, Alam SS. Karyotype Characterization with Fluorescent Banding in One Released and Two Wild Germplasms of Hibiscus cannabinus L. *Cytologia*, **2011**, 76(2), 223-227.
9. **Islam, M**. Strategic Short Note: Integration of Multiomics Approaches for Sustainable Crop Improvement. In: *IoT and AI in Agriculture*. Springer, Singapore, **2024**. https://doi.org/10.1007/978-981-97-1263-2_9
10. Karim, M.M., **Islam, M.**, Miyabe, M.T., Ikeda, Y., Sadik Polash, M.A., Hirota, K., Sakayama, H., Sakata, Y. and Takezawa, D. ETHYLENE INSENSITIVE2-like protein mediates submergence and drought responses in Physcomitrium patens. *Plant Physiology*, **2025**, 198(3), kiaf293.

Professional Memberships

- Bangladesh Botanical Society (BBS) – Life Member
- Bangladesh Association of Plant Tissue Culture & Biotechnology (BAPTC&B) – Life Member
- Scientist Forum of Bangladesh Council of Scientific and Industrial Research
- Bangladesh Association of Women Scientists
- Bangladesh Academy of Science (BAS)
- Bangladesh Society of Microbiology (BSM)
- The Global Network of Bangladeshi Biotechnologist (GNOBB)
- Botanical Society of Japan

Personal Details

- **Father's Name:** Md. Nurul Islam Joardar
- **Mother's Name:** Jannatul Ara
- **Husband's Name:** Kazi Faiz Alam
- **Permanent Address:** Eye hospital road, Chuadanga
- **Phone No.:** 088-01711450332
- **E-Mail Address:** mousonaislam@gmail.com
- **Date & Place of Birth:** 31 December 1981, Chuadanga
- **Blood Group:** A+ve
- **Nationality:** Bangladeshi
- **Marital Status:** Married

References

- **Dr. Md. Hossain Sohrab**
Director, BCSIR Laboratories Dhaka
Bangladesh Council of Scientific and Industrial Research (BCSIR)
Dhaka-1205, Bangladesh
Email: mhsohrab@yahoo.com
- **Dr. Rakha Hari Sarker**
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