Department of Biotechnology
Faculty of Agriculture
Sher-e-Bangla Agricultural University
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Md. Rafiqul Islam, PhD

Academic Background

- **Doctor of Philosophy (PhD) in Agriculture**, Division of Horticulture & Plant Medicine (Major in Biotechnology) Sunchon National University, South Korea (2020).

  Dissertation: Inheritance and Development of Molecular Markers Linked to Bacterial Fruit Blotch Resistance in Melon. Supervisors: Prof. Dr. Jong, In-Park.
- **Master of Science (MS) in Genetics and Plant Breeding**, Department of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Dhaka-1207, Bangladesh (2010). Supervisors: Prof. Dr. Md. Sarowar Hossain.
- **Bachelor of Science in Agriculture (Hons.)**, Faculty of Agriculture, Patuakhali Science and Technology University, Patuakhli-8602, Bangladesh (2007).

Research Background

Research Interest

- Areas of research interest are plant-microbe interaction (bacterial, and fungal), molecular biology concerning different plant diseases, and biotic and abiotic stress.

Research Skills

- Skills in molecular biology (including DNA, RNA, cDNA handling, PCR, qPCR, and quantification methods).
- Capable in cloning, sequencing, designing, and developing molecular markers (especially In/Del, SCAR, SSR, HRM, etc.).
- Able to analyze *in silico* analysis related to plant expression experiments.

Supervision

Supervisor

- **Research title:** *In vitro* regeneration of tea [*Camellia sinensis* (L.) O. Kuntze], 2021. (**Mokaram Hanifa Koly**; Reg. No.19-10234)
- **Research title:** Genetic diversity analysis and molecular screening of rice (*Oryza sativa l.*) by markers for bacterial leaf blight, 2022. (**Kazi Meftahul Jannat**; Reg. No.15-06528)

Co-Supervisor

- **Research title:** Potato (Solanum tuberosum L.) plantlet regeneration potentiality in readymade media and newly developed plant tissue culture media, 2023. (**Name: Zinat Ara Eakut**; Reg. No. 16-07257)
- **Research title:** DNA fingerprinting and molecular diversity of Mung bean (vigna radiata (l.) R. Wilczek) germplasm (**Name: Tamanna Tawfiq**; Reg. No.15-06822)
- **Research title:** Bioinformatics analysis of candidate Genes for bovine milk traits, 2022. (**Name: Mst. Saumik Afroz Era**; Reg. No.20-11102)

Research projects

- **Principal investigator** in the research project on "Screening of tomato germplasm through molecular markers for identifying tomato yellow leaf curl virus resistance" funded by (SAURES), 2023, Dhaka, Bangladesh.
- **Principal investigator** in the research project on "Molecular screening of cabbage (*Brassica oleracea* L.) genotypes in response to major diseases (Clubroot, Blackleg, and Black rot)" funded by University Grants Commission, 2020, Dhaka, Bangladesh.
- **Principal investigator** in the research project on "Molecular Screening for identifying bacterial blight (BB) resistant rice (*Oryza sativa* L.) germplasm to enhance food security in

Bangladesh" funded by National Science and Technology, Ministry of Science and Technology, 2021, Bangladesh.

- **Principal investigator** in the "Morphological and Molecular Genetic Diversity of Exotic Muskmelon Germplasm" research project funded by Sher-e-Bangla Agricultural University research system (SAURES), 2022, Dhaka, Bangladesh.
- Member of **sub-project management team (SPMT) in the research project** "Strengthening Research Capabilities of Postgraduates Programs in Genetics and Plant Breeding of Patuakhali Science and Technology University" funded by World Bank, 2014-2017.
- **Principal investigator** in the research project on "Effect of Growth Regulator on Plantlet Regeneration of Potato Through Meristem Culture Technique" funded by Patuakhali Science and Technology University, Patuakhali, Bangladesh, 2015.
- **Field Monitoring Officer** in a research project on "Accelerating Agriculture Productivity Improvement (AAPI)" Implemented by IFDC, Bangladesh, 2010-2012.
- **Training, Implementation, and Monitoring officer** in the research project on "Expansion of Urea Deep Placement (UDP) Technology in Additional 80 Upazilas of Bangladesh" funded by IFDC, Bangladesh, 2010.
- **Research assistant** in the research project on "Effect of water and heat stress on the growth and yield of wheat" funded by Sher-e-Bangla Agricultural University research system (SAURES), Bangladesh, 2009.
- **Research assistant** in the research project on "Spectre problems of food distribution systems and impact on household food security status in two southern islands of Bangladesh" funded by Sher-e-Bangla Agricultural University research system (SAURES), Bangladesh, 2008.

Professional Experience

Associate Professor

Department of Biotechnology, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh. Duration: 07 July 2021 to till date.

Assistant Professor

Department of Biotechnology, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh. Duration: 27 December 2018 to 06 July 2021.

Assistant Professor

Department of Biotechnology, Faculty of Agriculture, Patuakhali Science and Technology University, Patuakhli-8602, Bangladesh. Duration: 26 December 2018 to 07 July 2015.

Lecturer

Department of Biotechnology, Faculty of Agriculture, Patuakhali Science and Technology University, Patuakhli-8602, Bangladesh. Duration: 04 December 2012 to 06 July 2015.

Job Responsibilities

Designed and delivered lectures on theory and practical *in Vitro* Culture, Introductory Biotechnology, Recombinant DNA Technology: Principles and Methods, Nucleic Acids and Protein Biosynthesis and Regulation of Gene Expression, group workshop, and provided student support.

Administrative Experience

Head of the department (Chairman)

Performing as a chairman in the Department of Biotechnology, Faculty of Agriculture**,** Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh.
Duration: December 2022 to December 24

Assistant provost

Sher-e-Bangla Hall-1, Patuakhali Science and Technology University, Patuakhali-8602.
Duration: August 2014 to February 2017.

Seminars/ Symposium /Workshops:

- Participated in "Annual Plant Tissue Culture & Biotechnology Conference 2024" Organized by: Bangladesh Association for Plant Tissue Culture & Biotechnology on February 01, 2025, at Sher-e-Bangla Agricultural University, Dhaka, Bangladesh.
- Participated in 23rd. Science Council of Asia Conference, Bangladesh Academy of Sciences National Science & Technology Complex, Dhaka 1207, Bangladesh, 30 November-02 December 2024.
- Poster presentation at 2nd. International and 12th. Biennial conference, 10-11 December 2022.
- Oral presentation at 10th International Plant Tissue Culture & Biotechnology Conference, 11-13 March, 2023.
- Poster presentation at Bangladesh Seed Congress, 2023, 11-13 February 2023.
- Poster presentation at Annual Conference of Plant Tissue Culture & Biotechnology, December 2022.
- Participated in the Biotechnology Policy and Regulatory Framework held on February 16, 2022.
- Participated Biotechnology Outreach Conference in July 2022.

Publications

Thesis

1. **MD. RAFIQUL ISLAM,** 2020. "Inheritance and Development of Molecular Markers Linked to Bacterial Fruit Blotch Resistance in Melon". PhD Thesis. Division of Horticulture & Plant Medicine, Major in Horticulture, Sunchon National University, Sunchon, South Korea.
2. **MD. RAFIQUL ISLAM,** 2010. "Genetic Variability, Correlation and Path Co-Efficient Analysis of Some Yield and Yield Contributing Characters in Bitter Gourd (*Momordica charantia* L.)". M. S. Thesis. Department of Genetics and Plant Breeding, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka-1207, Bangladesh.
3. **MD. RAFIQUL ISLAM,** 2015. "Effect of Biotic and Abiotic Factors on the Quality of BRRI dhan 44 (*Oryza sativa*) Seeds Stored in Different Containers". Post-Graduate Certificate Course on Seed Technology. Department of Agronomy, Faculty of Agriculture, Patuakhali Science and Technology University, Dumki, Patuakhali-8602, Bangladesh.

Full-length Articles:

1. Nazmun Nahar, Khadiza Khatun, Nazmul Alam Khan, **Md. Rafiqul Islam**, Mossammot Moriom, Nusrat Jahan, Shamim Akram and Muhammad Maruf Husain. Multivariate Analysis of Growth and Yield Traits of Aman Rice Genotypes in Barishal Region of Bangladesh. *Res. Agric. Livest. Fish.* 2024;11(3). doi.org/10.3329/ralf.v11i3.76583.
2. **Rafiqul Islam**, Khadiza Khatun, Salma Akter, Mokaram Hanifa Koly, Kazi Meftahul Jannat and Nazmun Naher. Morphological and molecular genetic diversity of exotic melon germplasm. *J. Agric. Biotech. Sustain. Dev.* 2024; 16(1), pp. 10-16, DOI: 10.5897/JABSD2024.0405.
3. Sayed Mashequl Bari, Md Isrfil Hossen, **Md Rafiqul Islam**, and Md Mostofa Uddin Helal. Genome-wide identification and characterization of interleukin-18 gene family in rainbow trout (*Oncorhynchus mykiss*). *J avd Biotechnol Exp Ther*, 2024; 7(2): 275-289.
4. Mokaram Hanifa Koly, Md. Ekramul Hoque, Khadiza Khatun, Kazi Meftahul Jannat and **Md. Rafiqul Islam**. Role of phytohormone on *in vitro* regeneration of tea [*Camellia sinensis* (L.) O. Kuntze]. *J. Biosci. Biotechnol. Discv*. 2023; 8: 92-99.
5. Md. Mainul Islam, Rashad Khadiza Khatun, Ireen Nahar, **Md. Rafiqul Islam**. Production Potential of Solanaceous Vegetables in Hydroponic System. IJIR 2022, 7: 33-36.
6. Mi-Young Chung Khadiza Khatun, Arif Hasan Khan Robin, **Md. Rafiqul Islam**, Subroto Das Jyoti, Do-Jin Lee, Chang Kil Kim. Genome-wide analysis of *Solanum lycopersicum* L. *cyclophilins*. *J. Plant Biotechnol.* 2022, 49(1): 15-29.
7. **Md. Rafiqul Islam**, Mohammad Rashed Hossain, Denison Michael Immanuel Jesse, Hee-Jeong Jung, Hoy-Taek Kim, Jong-In Park and Ill-Sup Nou. Characterization, Identification

and Expression Profiling of Genome-Wide *R*-Genes in Melon and Their Putative Roles in Bacterial Fruit Blotch Resistance. *BMC Gent.* 2020, 21:80. https://www.researchsquare.com/article/rs-16495/v2

8. **Md. Rafiqul Islam**, Mohammad Rashed Hossain, Denison Michael Immanuel Jesse, Hee-Jeong Jung, Hoy-Taek Kim, Jong-In Park and Ill-Sup Nou. Development of Molecular Marker Linked with Bacterial Fruit Blotch Resistance in Melon (*Cucumis melo* L.) *Genes* 2020, 11(2), 220. https://pubmed.ncbi.nlm.nih.gov/32093120/
9. **Md. Rafiqul Islam**, Mohammad Rashed Hossain, Hoy-Taek Kim, Ujjal Kumar Nath, Md. Abuyusuf, Hee-Jeong Jung, Jong-In Park and Ill-Sup Nou. Molecular characterization of *Acidovorax citrulli* strain NIHHS15-280 causing bacterial fruit blotch disease in Korea and screening of resistance sources in melon. *Hortic Environ Biote* 2019, 61(1); 115–126. https://link.springer.com/article/10.1007/s13580-019-00190-0
10. **Md. Rafiqul Islam**, Mohammad Rashed Hossain, Hoy-Taek Kim, Denison Michael Immanuel Jesse, Md. Abuyusuf, Hee-Jeong Jung, Jong-In Park and Ill-Sup Nou. Development of Molecular Markers for Detection of *Acidovorax citrulli* Strains Causing Bacterial Fruit Blotch Disease in Melon. *Int. J. Mol. Sci.* 2019, **20**(11), 2715. https://doi.org/10.3390/ijms20112715
11. Md. Abuyusuf, Arif Hasan Khan Robin, Hoy-Taek Kim, **Md. Rafiqul Islam**, Jong-In Park and Ill-Sup Nou. Altered Glucosinolate Profiles and Expression of Glucosinolate Biosynthesis Genes in Ringspot-Resistant and Susceptible Cabbage Lines. *Int. J. Mol. Sci.* 2018, ***19***(9), 2833. https://doi.org/10.3390/ijms19092833
12. Md. Abuyusuf, Ujjal Kumar Nath, Hoy-Taek Kim, **Md. Rafiqul Islam**, Jong-In Park and Ill-Sup Nou. Molecular markers based on sequence variation in *BoFLC1.C9* for characterizing early- and late-flowering cabbage genotypes. *BMC Genetics 2019 20:42.* https://doi.org/10.1186/s12863-019-0740-1
13. Husna, A., Maih, M. A., Begum, S., Shilpi, S. Z. and **Islam, M. R.** Genetic Variability, Correlation and Path Co-Efficient Analysis Based on Vegetative Characters in Bottle Gourd (*Lagenaria Siceraria* L.). *Advance in Agriculture and Biology*. 2014, **2** (1): 8-12.
14. Lipu, A. M. Z. H., Shamsuddoha, A. T. M., Mondal, R., and **Md. Rafiqul Islam.** Effect of Nitrogen on Morphological Characters in Five Genotypes of Mustard. *International Journal of Agriculture and Crop Sciences*. 2013, **6-12**: 856-860.
15. Syed, M. A., **Islam, M. R.,** Hossain, M. S., Alam, M. m. and Amin, M. N. Genetic divergence in Chickpea *(Cicer arietinum* L.). *Bangladesh journal of agricultural Research*. 2012, **37** (1): 129-136.
16. Hossain, M. D., Bhuiyan, M. S. R., Talukder, K. H., **Islam, M. R.** and Syed M. A. Study on vegetative Propagating materials, flower characteristics and production of true seed through crossing among the different Gladiolus genotypes. *Advances in Biological Research*. 2012, **6** (2): 52-58.
17. Mahmud, M. A. A., Syed, M. A., Rahman, M. Mamunur, **Islam, M. R**. and Husna, A. Genetic Divergence in 58 Advanced Lines of *Brassica rapa. Libyan Agriculture Research Center Journal International.* 2011, **2** (5). 209-214.
18. Husna, A., Mahmud, F., **Islam, M. R**. and Mahmud, M. A. A. Genetic Variability, Correlation and Path Co-Efficient Analysis in Bottle Gourd (*Lagenaria siceraria* L.). *Advances in Biological Research*. 2011, **5** (6): 323-327.
19. Rahman, M. Mamunur, Rasul,M. G, Bashar, M. K, Syed, M. A. and **Islam, M. R**. Parent Selection for Transplanted Aman Rice Breeding by Morphological, Physiological and Molecular Diversity Analysis. *Libyan Agriculture Research Center Journal International.* 2011, **2** (1): 26-28.
20. **Islam, M. R.,** Hossain, M. S., Bhuiyan, M. S. R., Hasan, G. N. and Syed, A. Multivariate Analysis of Bitter Gourd (*Momordica charantia L.***)**. *Middle-East Journal of Scientific Research.* 2010, **5** (2): 86-90.

21. **Islam, M. R.,** Hossain, M. S., Bhuiyan, M. S. R., Husna, A. and Syed, M. A. Genetic Variability and Path-Coefficient Analysis of Bitter Gourd (*Momordica charantia* L.). *International Journal of Sustainable Agriculture.* 2009, **1** (3): 53-57.
22. Alam, M. M**.,** Ali, M. H., Hasanuzzaman, M., Nahar, K. and **Islam, M. R.** Dry Matter Partitioning in Hybrid and Inbred Rice Varieties under Variable Doses of Phosphorus. *International Journal of Sustainable Agriculture*. 2009, **1** (1): 10-19.
23. Hassanuzzaman, M., Nahar, K., Alam, M. M., Hossain, M. Z. and **Islam, M. R.** Response of Transplanted Rice to Different Application Methods of Urea Fertilizer. *International Journal of Sustainable Agriculture*. 2009, **1** (1): 01-05.

Academic Awards

- NSICT fellowship 2008-2009 for MS research work. Eleven (11) months NSICT (National Science and Information and Communication Technology) Fellowship was awarded by the Ministry of Science and Information and Communication Technology, Government of Bangladesh.
- Golden Seed project (Grant No. 213007-05-2,3,4-CG100) of the Ministry of Agriculture, Food and Rural Affairs (MAFRA), Republic of Korea, Fellowship 2017-2020 was awarded as a Doctor of Philosophy (PhD) researcher.

References

1. Park, Jong-In
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2. Dr. Ujjal Kumar Nath
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   Department Genetics and Plant Breeding
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