Curriculum Vitae

Md. Nazmul Hasan Mehedi
Lecturer, Department of Horticulture
Patuakhali Science and Technology University (PSTU), Patuakhali-8660, BANGLADESH
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PERSONAL DETAILS

Name	:	Md. Nazmul Hasan Mehedi
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Nationality	:	Bangladeshi
Date of Birth	:	11 October 1991
Language	:	**English: Competent user, IELTS (Academic) overall band 6.5, No band less than 6.0 (Valid till 21 June 2027);** Bangla: Native
Research output identifier	:	ORCID: https://orcid.org/0000-0002-0526-7164; Google Scholar

EDUCATION

Patuakhali Science and Technology University, Patuakhali, Bangladesh (July 2014- December 2015) Master of Science in Horticulture (**CGPA 4.00 out of 4.00**).

Major courses: Ornamental and landscape Horticulture; Advanced Spices, Vegetables, and Fruits Production; Plant Biotechnology, Plant Tissue Culture, Statistics

Awards: Dean's Merit Award

MS Thesis Title: Postharvest management of anthracnose on quality of mango using antagonistic bacteria; **Word Count:** 17,218 (including references)

Patuakhali Science and Technology University, Patuakhali, Bangladesh (2010-2014)
Bachelor of Science in Agriculture (**CGPA 3.932 out of 4.00; Merit Position: First**), Faculty of Agriculture

Awards: Prime Minister Gold Medal 2014; Chancellor Gold Medal 2014; Dean's Merit Award (maximum four times); UGC Award for topper in the faculty; Merit Scholarship

PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

Bangladesh Society of Horticultural Science (2015- Current)
Membership type: General member

Nuclear Agriculture Newsletter (2019-2023)
Membership type: Former Convener of the Editorial Board

Reviewer of Scientific Paper
Bangladesh Journal of Nuclear Agriculture
Cogent Food & Agriculture (ORG)

Plant Breeding and Genetics Society of Bangladesh (2018- Current)
Membership type: General member

EMPLOYMENT HISTORY

1. Patuakhali Science and Technology University, Patuakhali, Bangladesh (December, 2023-Till date)
Position: Lecturer, Department of Horticulture

(a) Academia

Courses offering: Ornamental Horticulture; Spices, Medicinal Plants and Plantation Crops; Postharvest Technology of Horticultural Crops; Horticultural plant biotechnology; Research Methodology

Roles:

- ➢ Curriculum development
- ➢ Lecture preparation and delivery (theoretical and practical),
- ➢ Student evaluation of through paper-based exam, group work, assignment etc.
- ➢ Undergrads student's supervision and project management

(b) Research

(i) Project title: **Postharvest quality improvement and shelf life enhancement of tropical fruits (Mango, Banana, Papaya, Guava, Tomato) using polysaccharide-based edible coating (January, 2023 - on-going; Co-investigator)**
Funding organization: Government of Bangladesh
Roles:

- ➢ Experiment planning, supervision of undergraduate student in experiment set up, data collection, data processing, data analysis, data presentation, and report writing
- ➢ Biochemical and enzymatic assays,
- ➢ Postharvest micro-biology

Current Status: Successfully completed the several experiments using chitosan, chitosan nano-particles, alginate, pectin, botanical extracts, bio-degradable compounds etc. and some experiments are on-going.

(ii) Project title: **Effect of nanoparticle-enriched edible coatings on postharvest quality and shelf life of strawberry (Principal Investigator: 2024-25)**
Funding organization: Ministry of Science and Technology, Bangladesh

(iii) Project title: **Effect of PSTU innovation dissemination center training on farmer's technological knowledge and farm production (Co-Investigator: 2024-25)**
Funding organization: PSTU Research and Training Fund, Bangladesh

(iv) Project title: **Probiotic-Infused Edible Coatings for Enhancing Postharvest Quality and Decay Suppression in Bananas (Principal Investigator: 2025-26)**
Funding organization: Ministry of Science and Technology, Bangladesh

2. Bangladesh Institute of Nuclear Agriculture (BINA), Mymensingh-2202, Bangladesh (June 2017-December 2023)

Position: Scientific Officer, Horticulture Division

Roles:

- Designing and execution of the research program- Experimentation, data collection, perform crossing, data processing, data analysis, data presentation, and report writing
- Development of improved lines and mutants (Abiotic stress tolerant, improved nutritional quality)
- Genotyping assay (DNA isolation, PCR, Gel Electrophoresis)
- Biochemical analysis for postharvest quality analysis and shelf life enhancement
- Plant tissue culture for development of polyploids

(a) Project title: **Development of mutant varieties of spice crops (Co-Investigator)**

Funding organization: Government of Bangladesh

Roles: Treatment of seed with mutagen, Selection of mutant lines based on phenotypic characteristics, Biochemical analysis (antioxidant activity, phenolics, flavonoids, carotenoids, lycopene, ascorbic acid) for evaluating nutritive value, Genetic diversity analysis using SSR markers, Data analysis and reviewing reports.

Findings: Several mutants (both gamma ray and EMS induced) of onion, garlic, chili, zinger, turmeric, sweet pepper, and black cumin were developed. Two varieties, **"BINA onion-1"** and **"BINA onion-2,"** were registered with the National Seed Board of Bangladesh following prescribed procedures.

(b) Project title: **Varietal improvement of exotic and indigenous fruits nutritional quality and stress tolerance through mutation breeding and other advanced techniques (Co-Investigator)**

Funding organization: Government of Bangladesh

Roles: DNA fingerprinting, germplasm screening for stress tolerance and physico-chemical analysis

Findings: Two fruit varieties **(BINA sapota-1; BINA jujube-1**) has been released for countrywide cultivation; Several stress tolerant and high-yielding advanced mutants with improve nutritional qualities have been developed.

(c) Project title: **Development of postharvest technology of perishable horticultural crops through gamma irradiation and other edible coatings**

Funding organization: Government of Bangladesh

Roles: Biochemical analysis with anti-oxidant determination (proline, MDA, antioxidant activity, phenolics, flavonoids, carotenoids, ascorbic acid) of tropical fruits and vegetables for evaluating postharvest quality and shelf life; data analysis, interpretation, presentation and report writing.

Current Status: Several non-commodity technologies have been developed and disseminated among the stakeholders regarding shelf life enhancement and postharvest quality of perishable horticultural crops in Bangladesh and collaborative research is continued.

RESEARCH OUTPUTS

Publications

Full-Length Research Article

1. Haque, M. M., Das, G. C., Faysal, M. M., Hossain, M. A., Haque, M., Miah, S., Farthouse, J., Rahman, M., & **Mehedi, M. N. H.** (2025). PCR-based detection technique and gamma irradiation strategies for managing *Ralstonia solanacearum*-induced brown rot of potato. *International Journal of Radiation Biology*. https://doi.org/10.1080/09553002.2025.2451630 *(Q1 Journal)*

2. Haque, M. M., **Mehedi, M. N. H.**, Farthouse, J., Sultana, A., Ara, I., & Dey, S. (2024). Detection of *Candidatus Liberibacter asiaticus* using molecular techniques in citrus mutants from Bangladesh. *Bioscience Research, 21*(1), 143–149. https://www.isisn.org/BR-21-1-2024.htm *(Q3 Journal)*

3. Nitu, N. J., Ullah, M. S., Howlader, P., **Mehedi, M. N. H.**, Meem, H. Z., & Bose, S. K. (2025). Chitosan oligosaccharides maintained postharvest quality and increased shelf life of mango. *Journal of Horticulture and Postharvest Research, 8*(1), 43–66. https://doi.org/10.22077/jhpr.2024.7888.1395 *(Q2 Journal)*

4. Ullah, M. S., Nitu, N. J., Howlader, P., **Mehedi, M. N. H.**, & Bose, S. K. (2025). Natural preservatives maintained postharvest quality, reduced decay percentage and increased shelf life of mango. *International Journal of Horticultural Science and Technology, 12*(4), 1261–1280. https://doi.org/10.22059/ijhst.2025.379925.890 *(Q2 Journal)*

5. Mohosina, F., **Mehedi, M. N. H.**, Mahmud, E., Hasan, M. K., Noor, M. M. A., Rahman, M. H. S., & Chowdhury, A. K. (2020). Genetic diversity of commercially cultivated watermelon (*Citrullus lanatus*) hybrids in Bangladesh. *SABRAO Journal of Breeding and Genetics, 52*(4). https://sabraojournal.org/sabrao-journal-releases-december-2020-volume-52/ *(Q2 Journal)*

6. Afrose, R., Tabassum, T., Mohosina, F., Meem, H. Z., Noor, M. M. A., & **Mehedi, M. N. H.** (2025). Decoding gene activity and heterosis: Line × tester analysis for yield traits in rapeseed (*Brassica napus* L.). *Agricultural Reviews*, 1–11. https://doi.org/10.18805/ag.RF-372

7. Islam, S., Ali, M., Howlader, P., **Mehedi, M. N. H.**, & Bose, S. K. (2025). Enhancing garlic productivity: Unveiling the potential of alginate oligosaccharides (AOS). *Agriculture Archives: An International Journal, 4*(1), 61–68. https://doi.org/10.51470/AGRI.2025.4.1.61

8. Howlader, M. H. K., Shila, A., Moriom, M., Yeasmin, S., & **Mehedi, M. N. H.** (2025). Effect of salinity stress on growth and yield component of different mustard varieties in Bangladesh. *Journal of Environmental Science and Natural Resources, 14*(1&2), 89–95. https://doi.org/10.3329/jesnr.v14i1-2.75292

9. Razia, S., Rubel, M. H., **Mehedi, M. N. H.**, Ghosh, S. R., Ahmed, F., Nabi, K. M. E., & Hossain, N. (2025). Screening of rice genotypes for salinity tolerance at seedling stage through SSR marker. *Research in Agriculture, Livestock and Fisheries, 12*(1), 137–147. https://doi.org/10.3329/ralf.v12i1.81543

10. Akter, R., Rajib, M. M. R., Kayesh, E., Rahman, M. M., & **Mehedi, M. N. H.** (2024).

Hormonal efficiency and net return of BARI Tomato-4 enhanced under polytunnels during rainy summer season. *Archives of Agriculture and Environmental Science*, 9(4), 717–721. https://doi.org/10.26832/24566632.2024.0904011

11. **Mehedi, N. N. H.**, Bepari, N. C., Robbani, M., Akter, K. T., Hasan, M. and Hasan, F. (2020). Lemon grass oil: effect on physico-chemical properties and postharvest life of banana cv. Amritasagor. *Asian Journal of Crop, Soil Science and Plant Nutrition*, 03(01), 114-124. https://doi.org/10.18801/ajcsp.030120.15

12. **Mehedi, M. N. H.**, Mitu, N., Robbani, M., Sukhi, K. F. N., Rahman, H. S., & Noor, M. A. (2020). Impact of different explants and growth regulators on *in vitro* regeneration of Chrysanthemum. *Asian Journal of Biochemistry, Genetics and Molecular Biology*, 4(4), 10–18. https://doi.org/10.9734/AJBGMB/2020/v4i430133

13. Ghosh, S. R., Hossain, M. M., Islam, M. R., & **Mehedi, M. N. H.** (2024). Impact of different doses of gamma irradiation and ethyl methane sulphonate (EMS) on plant growth and bulb yield of onion (*Allium cepa* L.). *Acta Scientifica Malaysia*, 8(1), 5–10. https://doi.org/10.26480/asm.01.2024.05.10

14. **Mehedi, M. N. H.**, Halder, A., Hasan, M. F., Toma, N. I., Rouf, M. A., Farthouse, J., & Islam, M. A. (2020). Influence of edible starch and sodium bicarbonate on postharvest quality of minimally processed carrot and potato. *Asian Journal of Agricultural and Horticultural Research*, 6(2), 1–12. https://doi.org/10.9734/AJAHR/2020/v6i230067

15. **Mehedi, M. N. H.**, Islam, M. R., Alam, M. S., & Tasmin, S. (2021). Binamorich-2: A new high yielding chilli variety of Bangladesh. *Archives of Agriculture and Environmental Science*, 6(3), 329–333. https://doi.org/10.26832/24566632.2021.0603010

16. Tasmin, S., Islam, M. R., Alam, M. S., & **Mehedi, M. N. H.** (2023). Binalebu-2: a high yielding, year-round, scented and seedless variety of lemon. Bangladesh Journal of Nuclear Agriculture, 37(1), 23–30. https://doi.org/10.3329/bjnag.v37i1.69920

17. Hossain, M. I., Ali, M., **Mehedi, M. N. H.**, Hasan, M., Sarkar, M. J., & Toma, N. I. (2020). Effect of variety and nutrient sources on growth and yield of broccoli in southern belt of Bangladesh. *Archives of Agriculture and Environmental Science*, 5(3), 313–319. https://doi.org/10.26832/24566632.2020.0503012

18. Islam, M. R., **Mehedi, M. N. H.**, Moniruzzaman, M., Obaidullah, A. J. M., Fahim, A. H. F., & Karim, M. R. (2020). Evaluation of eight isabgol (*Plantago ovata* Forsk.) germplasm performance grown under different climatic conditions in Bangladesh. *Archives of Agriculture and Environmental Science*, 5(4), 447–451. https://doi.org/10.26832/24566632.2020.050402

19. Islam, M. R., **Mehedi, M. N. H.**, Ara, R., Obaidullah, A. J. M., Moniruzzaman, M., & Aktar, N. (2021). Evaluation of different Chaba (*Piper chaba*) germplasm for growth and yield performances. *Asian Plant Research Journal*, 7(2), 23–29. https://doi.org/10.9734/APRJ/2021/v7i230151

20. Uddin, M. J., Robbani, M., Hasan, M. F., Rahman, H., **Mehedi, M. N. H**., & Islam, S. M. A. (2022). Isolation, screening and molecular identification of antagonistic bacteria against *Colletotrichum gloeosporioides* in mango. *Archives of Agriculture and Environmental Science*, 7(3), 432–439. https://doi.org/10.26832/24566632.2022.0703018

21. Uddin, M. J., **Mehedi, M. N. H**., Robbani, M., Hasan, M. F., & Islam, S. M. A. (2023). Influence of post-harvest application of *Stenotrophomonas rhizophila* on quality of mango cv. BARI AAM-3. *Bangladesh Journal of Agriculture*, 48(2), 13–29. https://doi.org/10.3329/bjagri.v48i2.70155

22. Akter, R., Rajib, M. M. R., Kayesh, E., Saikat, M. M. H. H., Rahman, S. M. M., & **Mehedi, M. N. H.** (2023). Plant growth regulators influence the contents of bioactive compounds in tomato. *IOSR Journal of Agriculture and Veterinary Science*, 16(8 Ser. I), 1–8. https://doi.org/10.9790/2380-1608010108

23. Ferdous, M., Hasan, M. F., Ali, M., **Mehedi, M. N. H.**, & Islam, M. R. (2019–2021). Mangrove apple (*Sonneratia caseolaris*): A promising fruit in Patuakhali coast of Bangladesh. *Bangladesh Journal of Agriculture*, 44–46, 9–17. https://doi.org/10.3329/bjagri.v46i1-6.59969

Book Chapter

1. Haque, M. M., **Mehedi, M. N. H.**, Farthouse, J., Hasna, M. K., Khalil, I., Nabi, K. M. E., Paul, N. R., & Monika, F. S. (2023). Molecular detection of *Candidatus Liberibacter asiaticus* in citrus plants: Insights from Bangladesh. *Current Research in Plant Biology and Sciences*, 4, Article 2860. https://doi.org/10.9734/bpi/crpbs/v4/2860

Conference Paper

1. **Mehedi, M. N. H.**, Akhther, N., Alam, M. S., & Islam, M. R. (2022). Extend the shelf life of mango through gamma irradiation. In Proceedings of the Bangabandhu International Conference on Sustainable Agriculture through Nuclear and Frontier Research (p. 53). Mymensingh, Bangladesh. January 19–21, 2022.

2. **Mehedi, M. N. H**., Alam, M. S., Tasmin, S., Ahmed, F., & Islam, M. R. (Year). Selection of a high yielding turmeric variety in Bangladesh: BINA Halud-1. In Proceedings of the Bangabandhu International Conference on Sustainable Agriculture through Nuclear and Frontier Research (p. 54). Mymensingh, Bangladesh. January 19–21, 2022.

3. Tasmin, S., Islam, M. R., Tarafder, M. A., & **Mehedi, M. N. H.** (Year). Radiosensitivity of black cumin through gamma irradiation. In Proceedings of the Bangabandhu International Conference on Sustainable Agriculture through Nuclear and Frontier Research (p. 56). Mymensingh, Bangladesh. January 19–21, 2022.

Patents/Varietal Registration

1. BINA lemon 1, 2, 3 (Associate breeder)
2. BINA sapota 1 (Associate breeder)
3. BINA jujube 1 (Associate breeder)
4. BINA chili 2 (Associate breeder)
5. BINA turmeric (Associate breeder)

FELLOWSHIPS, AWARDS & HONOURS

Basic Nuclear Agriculture and Frontier Research Techniques Training Award 2023 | Bangladesh Institute of Nuclear Agriculture (BINA), BAU campus, Mymensingh, Bangladesh.

Chancellor Gold Medal 2020 | Patuakhali Science and Technology University 2nd Convocation, Patuakhali, Bangladesh

Prime Minister Gold Medal 2017 | University Grant Commission, Agargaon, Dhaka, Bangladesh

UGC Merit Scholarship (2010-2013) | University Grant Commission, Agargaon, Dhaka, Bangladesh

Awarded Merit Gold Medal 2019) | National Agricultural Training Academy (NATA), Bangladesh for attaining 3rd position among forty participants in N 25th Foundation Training for NARS Scientists (Duration: 04 months)

TRAINING:

	Home			
Sl.	**Name of the Training**	**Duration**	**Venue**	**Comments**
01.	Training on improved postharvest handling of fruits and vegetables	27-28 December, 2017	BARC, Dhaka	Certificate received
02.	N 25th Foundation Training for NARS Scientists	5th August- 2 December, 2018	NATA, Gazipur	**Awarded Merit Gold Medal**
03.	Value chain management of Commercially important horticultural crops	27-31 January, 2019	NATA, Gazipur	Certificate received
04.	Technical Report Writing and Editing	03-07 February, 2019	BARC, Gazipur	Certificate received
05.	Good Agricultural Practices (GAP)	18-22 May, 2019	NATA, Gazipur	Certificate received
06.	Production and postharvest Management of Horticultural crops	25-29 May, 2019	BARI, Gazipur	Certificate received
07.	Training of Trainers	14-18 July, 2019	BINA, Mymensingh	Certificate received
08.	Research Methodology	16-29 February, 2020	GTI, BAU, Mymensingh	Certificate received
09.	Food Processing and preservation techniques	29 Sep-03 Oct, 2018	NATA, Gazipur	Certificate received
10.	Training course on Molecular Techniques in Crop Improvement	27 Feb-04 Mar, 2022	BINA, Mymensingh	Certificate received
11.	Industrial revolution 4.0 in Agriculture	24-28 July, 2022	NATA, Gazipur	Certificate received
12	Statistical data analysis using R and Python	23-28 March, 2024	IQAC, PSTU	Certificate received
	Abroad			
13.	Climate Smart Agriculture	21 April-02 March, 2019	Manilla, Philippine	Certificate received

SKILLS and COMPETENCIES

Laboratory Skills: *(a) Molecular:* Genomic DNA extraction, PCR, Gel electrophoresis, DNA preparation for sequencing *(b) Biochemical:* Plant bioactive compound extraction (proline, MDA, antioxidant activity, phenolics, flavonoids, carotenoids, ascorbic acid, etc.) *(c) Microscopy:* Light microscopy *(d) Others:* Crossing, Radiosensitivity testing

Bioinformatics/Computational skills: QTLseq analysis, MutMap, Marker development, DNA sequence analysis, BLAST (local and web), Phylogeny, Protein modeling and structural features analysis, Primer design

Software: R statistical software, Python, MEGA, Minitab 17, SPSS

REFERENCES:

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Relation: Professional and Academic
(*Present lab head-Postharvest biotechnology and molecular biology lab*)

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(Previous work place lab head)

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