

CURRICULUM VITAE OF

MUHAMMAD MAHMUDUL HASAN, PhD
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Highlights of Research Qualifications:

- 16 years research experience in the field of mutation breeding as well as conventional breeding.
- Currently engaged in comparative studies on **mutation induction using Electron Beam (eBeam) and Gamma Ray (⁶⁰Co)** irradiation in rice. Preliminary results indicate that eBeam treatment leads to **lower deleterious effects on germination, survival, and seedling vigor** in the M₁ generation, while **inducing higher phenotypic variation in the M₂ generation** compared to gamma irradiation. These findings suggest that eBeam may offer a more efficient and less harmful alternative for mutation breeding. Further studies are underway to identify novel and beneficial traits through radiation-induced variation
- My expertise extends to **plant pathology**, particularly in the **isolation, identification, and purification of rice blast fungal pathogens**, including sporulation, artificial inoculation, disease development, and scoring under both laboratory and field conditions.
- Experienced in Molecular Breeding. **Especially in Marker assisted backcrossing (MABC) in blast resistance breeding in rice.**
- Able to work well independently or as part of a team with excellent interpersonal and communication skills.
- Conducting research and management for the development of high yielding and disease resistant varieties of rice.
- With 16 years of research experience; I have successfully completed three high-impact research projects and **supervised seven master's degree students.**
- I have published more than **30 research papers** in widely cited, indexed journals.
- My research achievements are reflected in a Google Scholar **h-index of 15** and i10-index of 16, with over **1,208 citations.**

Research Achievement: One proposed high yielding aromatic BINA dhan28 both for *Aman* and *Boro* season has been recommended by Technical Committee of the National Seed Board (NSB), Ministry of Agriculture (113th and 114th meeting held on 10 April and 8 September, 2025 respectively).

Personal Details:

Name	: Dr. Muhammad Mahmudul Hasan
Father's name	: Muhammad Abdul Hakim
Mother's name	: Khadija Begum
Gender	: Male
Present Address	: Principal Scientific Officer, Plant Breeding Division, BINA, BAU Campus, Mymensingh-2202, Bangladesh
Permanent Address	: Village: Patadaha, Post office: Patadaha, Upazila: Maderganj, District: Jamalpur, Bangladesh
Date of Birth	: 1 June, 1984

Educational Qualification

Degree/Diploma/Certificate	University/Institute/Board	Year
Post Doc	University Putra Malaysia	2018
PhD in Genetics and Plant Breeding	University Putra Malaysia	2015
M.S in Agronomy	Bangladesh Agricultural University, Mymensingh	2008
B.Sc.Ag. (Hons.)	Bangladesh Agricultural University, Mymensingh	2006
H.S.C (Science)	Dhaka Board	2001
S.S.C (Science)	Dhaka Board	1999

Thesis Title:

Post Doc: **Introgression of blast resistant genes into rice through marker-assisted backcrossing (MABC)**

PhD: **Development of a blast resistant rice lines through marker-assisted backcrossing between varieties MR263 and Pongsu Seribu 1**

M.S: **Effect of Planting Method and Variety on Yield of Transplanting Aman Rice.**

Training

In Country:

Serial No.	Organization	Year	Duration		Name of programme
			Months.	Days	
01	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	2011	-	05	Technical Report Writing
02	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	2010	-	10	ICT-Training
03	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	2016	1	02	Nuclear Orientation Training Course
04	Bangladesh Institute of Management (BIM), 4 Sobhanbag, Mirpur Road, Dhaka-1207	2018	-	06	Project Development and Management
05	Bangladesh Academy for Rural Development Board (BARD), Kotbari Cumilla	2018	-	13	Administrative and Financial Management
06	Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka	2018	-	02	Collection and Documentation of Plant Genetic Resources
07	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh	2018	-	05	Research Management
08	Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka	2019	-	06	Financial & Procurement Management

09	Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka	2019	-	02	Climate smart agriculture in relation to charland Eco-system.
10	Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka	2021	-	05	Project Development and Management
11	Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka	2021	-	03	Exploratory Data Analysis In Agricultural Research with R software
12	National Agriculture Training Academy (NATA), Gazipur	2021	-	10	Public Procurement Procedure
13	Central Procurement Technical Unit (CPTU).Implementation Monitoring and Evaluation (IMED), Ministry Planning	2021	-	5	National e-Government Procurement (e-GP) System as Procuring Entity (PE) User
14	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh	2022	-	6	Molecular Techniques in Crop Improvement
15	Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh	2023	-	03	Gene bank Development, Germplasm Collection, Preservation and Maintenance

Abroad:

	Country	Year	Duration		Name of programme
			Mos. Months	Days	
01	Institute of Tropical Agriculture, Universiti Putra Malaysia and in Collaboration with Malaysian Nuclear Agency	2016	06	-	Mutation Breeding in Rice
2	Sannomaru Hotel, Mito-city Ibaraki, Japan	2025	-	5	“Eighth Regional Review Meeting (RRM) on Radioactive Source Security”: eBeam irradiation a potential alternative technology for induced mutation in rice

Job Experience:

Position & Organization	Period	
	From	To
Scientific Officer, Plant Breeding Division, Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	04 October, 2009	25 November, 2018
Senior Scientific Officer, Plant Breeding Division, Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	26 November, 2018	22 September, 2024
Principal Scientific Officer, Plant Breeding Division, Bangladesh Institute of Nuclear Agriculture (BINA), BAU Campus, Mymensingh-2202	23 September, 2024	Till to date

Master Student Supervision

SL No	Name of student	Supervisor	Co-Supervisor	Title
1	Marufa Akter Roll No.21121210 Reg.No.52383 Session:2021-2022 Semester:Septembere, 2022	Ms. Sumitra Saha Associate Professor, Department of Biotechnology, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	M o r p h o - m o l e c u l a r characterization of rice blast isolates in Bangladesh
2	Dheeman Tanvir Swakshar Roll No.20220715 Reg.No.44528 Session:2015-2016 Semester:March, 2023	Dr. Ujjal Kumar Nath Professor, Department of Genetics and Plant Breeding, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Molecular Characterization and Development of Marker of Rice Blast Fungus (<i>Magnaporthe Oryzae</i>) through Ribosomal ITS (Internal Transcribed Spacer) Sequencing
3	Md. Hasin Raiyan Roll No.20220708 Reg.No.44703 Session:2015-2016 Semester:March, 2023	Dr. Ujjal Kumar Nath Professor, Department of Genetics and Plant Breeding, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Screening of Different Rice Genotypes against Rice Blast
4	Md. Redwan Ahmed Roll No.23120702 Reg.No.47636 Session:2017-2018 Semester: April- September, 2024	Dr. Mohammad Rashed Hossain Professor, Department of Genetics and Plant Breeding, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Introgression of Blast resistant gene, Pi9 into Binadhan-17 through m a r k e r - a s s i s t e d backcrossing and genome wide analysis of B3 superfamily in rice
5	Maisha Fahmida Roll No.20220721 Reg.No.47904 Session:2017-2018 Semester: April- September, 2024	Dr. Ujjal Kumar Nath Professor, Department of Genetics and Plant Breeding, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Screening of rice germplasm for blast disease resistant
6	Md. Jobayer Hosen Roll No.22221001 Reg.No.54010 Session:2022-2023 Semester: April- September, 2024	Dr. Md. Tofazzal Hossain Professor, Department of Biochemistry and Molecular Biology, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Molecular screening of rice genotypes for blast resistance in Bangladesh
7	Md Rezaul Amin Sarker Roll No.:23221005 Reg.No.:55729 Session: 2023-2024 Semester: October-March, 2024-2025	Dr. Md. Tofazzal Hossain Professor, Department of Biochemistry and Molecular Biology, BAU, Mymensingh	Dr. Muhammad Mahmudul Hasan, PSO, Plant Breeding Division, BINA Mymewnsingh	Incorporation of blast resistance gene into Binadhan-17 using marker- assisted backcrossing
MS Thesis Examiner				
1	Roll no. 22120720; Reg. no. 45952 Semester: October-March 2024	Prof. Dr. Mohammad Rashed Hossain Department of Genetics and Plant Breeding, BAU, Mymensingh	Prof. Dr. A B M Arif Hasan Khan Robin Department of Genetics and Plant Breeding, BAU, Mymensingh	Morphometric Assessment of Major Fruit Quality Traits in Pre-Breeding Genotypes and Hybrids of Rockmelon

Project Completion

SL. No.	Role	Title	Source of fund	Remarks
1	Program Director (PD)	Research Activities for the Identification of Blast Resistant Rice Mutants/Lines Using Mutation Breeding and other Advanced Techniques	Ministry of Agriculture, Bangladesh	Successfully completed
2	Principal Investigator (PI)	M o r p h o - M o l e c u l a r Identification and Characterization of Rice Blast Fungus for Development of Blast Resistant Rice Variety	Ministry of Science and Technology	Successfully completed
3	Principal Investigator (PI)	Molecular Novelty and Phylogenetic Assessment of <i>Magnaporthe oryzae</i> Strains Causing Blast Disease in Rice Across Bangladesh for Development of Blast Resistant Rice Variety	Ministry of Science and Technology	Successfully completed

Google Scholar Citations

Number publication	Total citation	H-index	i10-index	Highest citation
31	1208	15	16	298

Languages:

- Bangla (Native)
- English (Fluent)

Publications:

Cited Index Journals:

1. **M. M. Hasan**, Marufa Akter, Sumitra Saha, Md. A. Malek, Nazmul Islam & Md. Amirul Alam. 2024. Morpho-molecular characterization revealed distinct diversity among rice blast (*Pyricularia oryzae*) isolates. *Indian Phytopathology*. <https://doi.org/10.1007/s42360-024-00749-7>. (Publisher: Springer)
2. **M. M. Hasan**, Md. Dheeman Tanvir Swakshar, Atiqur Rahman, M A Malek, M A K Azad, Most. Maliha Parvin, Md. Hasin Raiyan, Ujjal Kumar Nath, Md. Amirul Alam. 2025. Molecular Uniqueness and Phylogenetic Study of Noble Rice Blast (*Magnaporthe oryzae*) Isolate from Bangladesh. *Gene Reports*. 38(102103). <https://www.sciencedirect.com/science/article/abs/pii/S2452014424002267>. (Publisher: Elsevier)

3. **M. M. Hasan**, M. Y. Rafii, M. R. Ismai, M. Mahmood, H. A. Rahim, Md. Amirul Alam, Sadegh Ashkani, M. A. Malek and M. A. Latif. 2015. Marker Assisted backcrossing: a useful method for rice improvement. *Biotechnology & Biotechnological Equipment*, 29 (2): 237-254. (Publisher: **(Taylor & Francis)**)
4. **M. M. Hasan**, M. Y. Rafii, M. R. Ismai, M. Mahmood, H. A. Rahim, Md. Amirul Alam, M. A. Malek and M. A. Latif. 2015. **Introgression of the blast resistance gene into MR263, an elite variety, through marker-assisted backcrossing.** *Journal of the Science of Food and Agriculture*, DOI 10.1002/jsfa.7222. (Publisher: **Wiley**)
5. **M. M. Hasan**, M. Y. Rafii, M. R. Ismai, M. Mahmood, H. A. Rahim, Md. Amirul Alam, Fahim Ahmed, M. A. Malek and M. A. Latif. 2018. **Genetic analysis of the resistance to rice blast in the BC₂F₁ population derived from MR263 × Pongsu Seribu1.** *Biotechnology & Biotechnological Equipment*. DOI: 10.1080/13102818.2018.1506266. (Taylor & Francis)
6. **M. M. Hasan**, M. Y. Rafii, M. R. Ismai, M. Mahmood, H. A. Rahim, Md. Amirul Alam, M. A. Malek and M. A. Latif. 2015. **Performance of yield and yield contributing characteristics of BC₂F₃ population with addition of blast resistant gene.** *Ciencia e Agrotecnologia*, 39 (5): 463-476.
7. **M. M. Hasan**, Md. Amirul Alam, M. Monjurul Alam Mondal and Adam B. Puteh. 2014. Varietal performance and effect of planting method on yield and yield contributing characteristics of rice. *Life Science Journal*, 11(9): 9- 13.
8. Farzad Aslani, A. Shukor Juraimi, M. Saiful Ahmad-Hamdani, M. Amirul Alam, M. Mahmudul Hasan, F. S. Golestan Hashemi and Mohammad Bahram. 2019. The role of arbuscular mycorrhizal fungi in plant invasion trajectory. *Plant Soil*. <https://doi.org/10.1007/s11104-019-04127-5>. (Publisher: **Springer**)
9. S. C. Chukwu, M. Y. Rafii, S. I. Ramlee, S. I. Ismail, M. M. Hasan, Y. A. Oladosu U. G. Magaji, Ibrahim Akos, K. K. Olalekan. 2019. **Bacterial leaf blight resistance** in rice: a review of conventional breeding to molecular approach. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-019-04584-2>. (Publisher: **Springer**)
10. Fahim Ahmed, M. Y. Rafii, M. R. Ismai, Abdul Shukor Juraimi, H. A. Rahim, M. A. Latif, **M. M. Hasan** and Fatah Abro Tanweer. 2016. The addition of submergence-tolerant Sub1 gene into high yielding MR219 rice variety and analysis of its BC₂F₃ population in terms of yield and yield contributing characters to select advance lines as a variety. *Biotechnology & Biotechnological Equipment*, DOI:10.1080/13102818.2016.1192959. (Taylor & Francis)
11. Md. Amirul Alam, Sarni Nani Marthen Karre and **M. M. Hasan**. 2023. Fruit Set Capabilities and Yield Variability among Cucumber (*Cucumis sativus* L.) Germplasm Collections. *Journal of Agrobiotechnology*. 14(2):58-70
12. Adedze Yawo Mawunyo Nevame, LuXia, ChofongGilbertNchongboh, **Muham mad Mahmudul Hasan**, Md. Amirul Alam, Li Yongbo, Zhang Wenting, Si Longting. 2020. **Validation of some disease resistance-molecular marker**

associated with multiple disease in tomato for marker-assisted selection program. *Science Asia* (46) 19-29.

13. Adedze Yawo Mawunyo Nevame, LuXia, ChofongGilbertNchongboh, **M.M. Hasan**, Md. Amirul Alam, Li Yongbo, Zhang Wenting, He Yafei, Reza Mohammad Emon, Mohd Razi Ismail, Andrew Effisue, Sun Gang, Li Wenhui, Si Longting. 2018. **Development of a new molecular marker for the resistance to tomato yellow leaf curl virus.** Biomed Research International. Volume 2018, Article ID 8120281, 10 pages <https://doi.org/10.1155/2018/8120281>.
14. M. A. Alam, A. S. Juraimi, M. Y. Rafii, A. A. Hamid, F. Aslani, **M. M. Hasan**, M. A. M. Zainudin and M. K. Uddin. 2014. Evaluation of Antioxidant Compounds, Antioxidant Activities, and Mineral Composition of 13 Collected Purslane (*Portulaca oleracea* L.) Accessions. *BioMed Research International*, **2014: 1- 10**.
15. Nevame, A. Y. M., Emon, R. M., Malek, M. A., **Hasan, M. M.**, Md. Amirul Alam, Farah Melissa Muharam, Farzad Aslani, and Ismail, M. R. 2018. Relationship between High Temperature & formation of Chalkiness and their effects on Quality of Rice: A review. Biomed Research International. Volume 2018, Article ID 1653721, 18 pages <https://doi.org/10.1155/2018/1653721>.
16. Alam, M.A., Hakim, M. A., Abdul Shukor Juraimi., Rafii, M. Y., **Hasan, M. M.**, Farzad Aslani 2018. Potential allelopathic effects of rice plant aqueous extracts on germination and seedling growth of some rice field common weeds. *Italian Journal of Agronomy*, doi: 10.4081/ija.2018.1066
17. A. N. A. Haque, M. E. Hossain, M. E. Haque, **M. M. Hasan**, M. Y. Rafii, Heng, Lee, S. M. Shamsuzzaman. 2017. Effect of soil amendments and nitrogen levels on growth, yield and nitrogen uptake by rice plant under saline condition in noakhali district, bangladesh . *Bangladesh Journal of Botany*, **46(1): 381-388. IF: 0.233**
18. A. N. A. Haque, M. E. Hossain, M. E. Haque, **M. M. Hasan**, M. Y. Rafii, M. A. Malek and S. M. Shamsuzzaman. 2017. Response of yield, nitrogen use efficiency and grain protein content of wheat (*triticum aestivum* l.) varieties to different nitrogen levels . *Bangladesh Journal of Botany*, **46(1): 389-396**
19. Israt Jahan, M. M. Rahman, **M. M. Hasan**, M. E. Hossain, A. N. A. Haque, S. M. Shamsuzzaman, M. Y. Rafii. 2017. Residual effects of two consecutive applications of municipal solid waste compost and fertilizers on biomass production and yield of rice (*Oryza Sativa* L.). *Bangladesh Journal of Botany*, **46(1): 397-404**.
20. M. T. Rahman, M. R. Islam, **M. M. Hasan**, M. F. Iqbal, A. N. A. Haque, S. M. Shamsuzzaman, M. Y. Rafii. 2017. Effects of micronutrient on growth and micronutrient content of hybrid maize (*Zea Mays* L.) *Bangladesh Journal of Botany*, **46(1): 527-532**.

21. M. S. Mia, A. K. Patwary, L. Hassan, **M. M. Hasan**, Md. A. Alam, M. A. Latif, M. M. A. Mondal and A. B. Puteh. 2014. Genetic Diversity Analysis of Ginger (*Zingiber officinale* Roscoe.) Genotypes Using RAPD Markers. *Life Science Journal*,11(8): 90-94.
22. S. K. Roy, M. Y. Ali, M. S. Jahan, U. K. Saha, M. S. Ahmad-Hamdani, **M. M. Hasan** and Md. Amirul Alam. 2014. Evaluation of growth and yield attributing characteristics of indigenous Boro rice varieties. *Life Science Journal*, 11(4): 122-126.
23. Nusrat Jahan, Md. Rafiqul Islam, A. B. Siddique, M. Rafiqul Islam, **M. M. Hasan**, S. M. Shamsuzzaman and A.W. Samsuri. 2014. Effects of Integrated Use of Prilled Urea, Urea Super Granule and Poultry Manure on Yield of Transplant Aus Rice and Field Water Quality. *Life Science Journal*, 11(8):101-108.
24. M. Monjurul Alam Mondal and Adam B. Puteh, M. A. kashem, **M. M. Hasan**, H. El-Zeadani and B. Zulkarami. 2014. Morpho-physiological and reproductive characters and their relationships with seed yield of advanced mungbean mutants. *Research on Crops*, 15 (2): 444-449.
25. M. M. Rahman, M. A. Kader, A. Z. M. Moslehuddin, **M. M. Hasan**, A. B. Siddique, S. M. Shamsuzzaman and A. W. Samsuri. 2014. Response of Potato to Ash as an Alternative Source of Potassic Fertilizer. *Life Science Journal*, 11(11):14-19.
26. M. A. Malek, M. Pramanik, M. H. R. Pramanik, M. R. Ismail, M. Y. Rafii , A. B. Puteh, M. M. A. Mondal and **M. M. Hasan**. 2014. Evaluation and selection of rapeseed (*Brassica napus* L.) mutants for higher seed yield. *Journal of Food, Agriculture & Environment*, 12 (1): 285 - 288.
27. M. Monjurul Alam Mondal and Adam B. Puteh, M. A. kashem, **M. M. Hasan**. 2014. Effect of plant density on canopy structure and dry matter partitioning into plant parts of soybean (*Glycinmax*). *Life Science Journal*, 11(3):67-74.
28. Z. Islam, M. K. Siddiqua, **M. M. Hasan**, M. A. Nahar¹, MD. Amirul Alam, S. M. Shamsuzzaman,. M. A. Mondal and Adam B. Puteh. 2014. **Assessment of genetic diversity of brinjal (*Solanum melongena* L.) germplasm by RAPD markers.** *Research on Crops*, 15(2): 416-422.
29. M. M. J. Liza, M.R. Islam, M. Jahiruddin, **M. M. Hasan**, Md. Amirul Alam, S. M. Shamsuzzaman and A. W. Samsuri. 2014. Residual effects of organic manures with different levels of chemical fertilizers on rice. *Life Science Journal*, 11(12):6-12.
30. F. Yasmine, M.A. Rahman, **M.M. Hasan**, Md. Amirul Alam, M.S. Haque, M.R.Ismail and M.Y. Rafii. 2019. Morphophysiological and yield attributes of groundnut varieties under different salinity stress conditions. *Legume Research*, 42(5) 2019:684-687

Non Citation Indexed Journal

1. Ali, M. A., **Hasan, M. M.**, Mia, M. S., Ahmad, Q. N. (2011). Karyotype analysis in lignosus bean (*Dipogon lignosus*) and lablab bean (*Lablab purpureus*). Journal of the Bangladesh Agricultural University 9(1): 27-36.

SEMINAR/ CONFERENCE/ CONGRESS/WORKSHOP ATTENDED

- First Plant Breeding Seminar (Advances in Plant Improvement). 3-5 July 2012, Agro-Biotechnology Institute, Malaysia (ABI), Serdang, Selangor, Malaysia.
- The First National LRGS Food Security Rice Research Colloquium 31 January, 2013. Auditorium Jurutera, Faculty of Engineering, UPM, Serdang, Selangor, Malaysia
- UPM-Thomson Reuters Seminar 2013. Driving Success in Research, Innovation and Commercialization. 20 Aug. 2013. Dewan Kuliah Utama, Faculty of Medicine and Health Science. UPM.
- Upm-Shizuoka University International Colloquium, 3 March 2014, Agriculture Hall Faculty of Agriculture, University Putra Malaysia.
- Workshop on Graphical Genotypes (GGT) for Visualization and Analysis of Genetic Data, 12 February 2015, University Putra Malaysia, Serdang, Selangor, Malaysia

References:

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