# Biodata/CV of MOHAMMOD HOSSAIN

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| **1.** | **Name** | : MOHAMMOD HOSSAIN |
| **2.** | **Father's name** | : Md. Abdul Mannan |
| **3.** | **Mother's name** | : Minuara Begum |
| **4.** | **wife's name** | : Ayesha Siddiqua |
| **5.** | **Gender** | : Male |
| **6.** | **Postal Address** | : MOHAMMOD HOSSAIN<br>Chief Scientific Officer (CSO) and<br>Head, Regional Station, Bangladesh Rice Research Institute (BRRI),<br>Rajshahi, Bangladesh |
| **7.** | **Affiliation/Institution** | : Bangladesh Rice Research Institute (BRRI) |
| **8.** | **Date of joining in the present position** | : 15.05.2025 |
| **9.** | **Date of first joining in service** | : 20.08.1998 (as Scientific Officer at BRRI) |
| **10.** | **Date of birth** | : 20.11.1970 |
| **11.** | **Educational Qualification** | : |

| Name of the Degree | Class/Grade | Board/University | Year of passing |
|---|---|---|---|
| Ph.D. | Pass | BAU, Bangladesh | 2015 |
| M.Sc. | Great Distinction | Ghent University, Belgium | 2010 |
| M.S. | First | BAU, Bangladesh | 1998 |
| B.Sc. Ag. | First | BAU, Bangladesh | 1992 (held in 1996) |
| H.S.C. | First | Rajshahi, Bangladesh | 1988 |
| S.S.C. | First | Rajshahi, Bangladesh | 1986 |

S.S.C=Secondary School Certificate; H.S.C=Higher Secondary Certificate; B.Sc.Ag=Bachelor of Science in Agriculture; BAU=Bangladesh Agricultural University

**M.S. Thesis**

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| Promoter/Supervisor | Professor Dr. Muyeen Uddin Ahmed |
| Title | A study on the control of root-knot nematode (Meloidogyne javanica) of wheat |
| Year | 1998 |
| University, Country | Bangladesh Agricultural University, Bangladesh |

**Abstract:** Furadan5G (carbofuran), leaf extracts of dholkalmi (Ipomoea fistulosa), azolla (*Azolla pinnata*) and neem (*Azadirachta indica*) along with an untreated control were tested to control root-knot (Meloidogyne javanica) disease in five cultivars of wheat viz. Kanchan, Barkat, Akbar, Agrahani and Sawgat. Furadan 5G and neem leaf extract gave comparatively better response in plant growth characters like root length, plant weight, ear weight, number of grains and weight of grains with corresponding lower galling incidence. Dholkalmi and azolla also showed better effect over control. Kanchan was found to be susceptible in reaction to M. javanicai. Barkat, Akbar and Agrahani gave moderately susceptible reaction, while Sawgat was found to be moderately resistant.

**M.Sc. Thesis**

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| Promoter | Professor Dr. Godelieve Gheysen |
| Title | The role of Gibberellin in the response of rice to Meloidogyne graminicola and Hirschmanniella oryzae infection |
| Year | 2010 |
| University, Country | University Gent, Belgium |

**Abstract:** Upon pathogen attack, the plant defense response is mediated by a set of connected signal transduction pathways. Experiments were conducted to observe the role of plant hormone, in particular gibberellin (GA), in the response of rice to infection by the sedentary endoparasitic nematode *Meloidogyne graminicola* and the migratory endoparasitic nematode *Hirschmanniella oryzae*. Exogenous application of GA was done several times on Nipponbare and GA might have a negative effect on defence in Nipponbare against *M. graminicola*. On the other hand an inhibitory effect to *M. graminicola* in Taichung 65 was found when GA was applied exogenously. There was significant effect of GA in reducing infection in Nipponbare against *H. oryzae* but the experiment was not repeated to confirm this result. A significantly higher number of *H. oryzae* per plant was found in GA deficient mutant *waitoC* compared to WT and a lower number in GA insensitive mutant *gid1-3* plants. Experiments with *M. graminicola* showed that galling was significantly and reproducibly lower in mutants, whether it was GA insensitive or GA deficient, than in wild type (Taichung 65). There were even significantly lower galls in these GA deficient mutants after GA treatment than in non-treated mutant plants. There was no difference in the expression of GA signalling gene *Osgid1-3* after *M. graminicola* infection in Taichung 65, neither in root tip nor leaf tissue. The expression of GA signalling gene *Osgid1-7* was significantly higher only in whole root at 2 dpi but not in leaves or root tips. Even this gene was not differentially expressed in root and leaf tissues at later stage (6 dpi) of infection. The nematode inhibited biosynthesis of *OsGA20ox* in leaves at 2 dpi and, in both of leaves and roots at 6 dpi. The GA response gene AK073385 was also less expressed in root tip at 6 dpi. These might help *M. graminicola* to continue their infection in Taichung 65.

**Ph.D. Thesis**

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| Promoter/Supervisor | Professor Dr. M. Delwar Hossain |

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| Title | Identification of existing races of *Pyricularia grisea* in rice in Bangladesh using monogenic lines of rice |
| Year | 2015 |
| University, Country | Bangladesh Agricultural University, Bangladesh |

**Abstract:** Blast caused by *Pyricularia grisea* (Cooke) Sacc is one of the major diseases of rice in Bangladesh. To study the epidemiology of blast disease, genetic variability of *P. grisea* and PCR-based screening for blast resistant genes three experiments were conducted at BRRI during 2010-2013. Incidence and severity of blast disease of rice was recorded in ten agro-ecological zones (AEZ1, AEZ2, AEZ9, AEZ11, AEZ12, AEZ13, AEZ19, AEZ20, AEZ23 and AEZ28) of Bangladesh during boro (irrigated) and transplanted aman (rainfed) seasons. Disease incidence and severity was higher in irrigated ecosystem (boro) (21.19%) than in rainfed ecosystem (aman) (11.98%) regardless of locations (AEZs). It was as high as 68.7% in Jhalak hybrid rice followed by BRRI dhan47 (58.2%), BRRI dhan29 (39.8%), BRRI dhan28 (20.3%) during boro and in BRRI dhan34 (59.8%) during aman. Yield loss was estimated from survey data on neck blast infection. Maximum yield loss was noted in AEZ9 for both seasons. Percent yield loss was higher in all the locations for boro season (irrigated ecosystem) compared to aman season (rainfed ecosystem). In the crop sequence1 (CS-1= Crop cycle with one rice followed by fallow/other crops) disease incidence was 16.7% and in crop sequence2 (CS-2= Crop cycle with two rice followed by fallow/other crops) it was 31.9%. Most popularly adopted boro rice was BRRI dhan28 (29.6%) followed by BRRI dhan29 (25.9%) and aman rice was BRRI dhan34 (22.9%). A total of 139 isolates representing 8 AEZs (AEZ1, AEZ2, AEZ9, AEZ11, AEZ13, AEZ19, AEZ23 and AEZ28) of Bangladesh were characterized for their pathogenecities using 26 differential varieties (DVs) targeting 23 resistant genes namely, *Pish., Pib, Pit, Pia, Pii, Pi3, Pi5, Pik-s, Pik-m, Pi1*(t), *Pik-h, Pik, Pik-p, Pi7*(t), *Pi9, Piz, Piz*-5(pi-2(t)), *Piz-t, Pita*-2, *Pi12*(t), *Pita= Pi4*(t), *Pi19* and *Pi20* including a susceptible check LTH. Isolates clarified on MLs through pathogenecity test indicated that *pi9, pish, pita* and *pita2* were the major genes responsible for blast resistance in Bangladesh. Among them *Pi9*, *Pish* showed resistance frequencies of 90% and above while *Pita* and *Pita-2* showed 80-87% against all blast isolates. These blast isolates were categorized into 112 races based on the reaction patterns against DVs. Twenty five isolates were found suitable with high differentiating ability of 23 resistant genes and they had good sporulation ability. The monogenic lines as DVs and the preliminary selected 25 blast isolates could be used as the first differential system in Bangladesh, which can characterize the resistance of rice cultivars. All the five pathotypes viz. U, i, k, z and ta were identified in the isolates. Each pathotype was farther separated into 13, 8, 46, 13 and 37 groups respectively for U, i, k, z and ta. Of them seven types, U63, i0, i7, k177, z00, z04 and ta403 were basically dominant and commonly found in all eight AEZs. The computations from distance matrix gave hierarchical clustering among 139 blast isolates and grouped them into five distinct clusters. The inter-cluster distance was maximum between cluster I and cluster V ($D^2 = 5.51$). Minimum inter-cluster distance was observed between cluster III and cluster IV (2.32) which indicated that the isolates of these clusters were genetically closer. On the other hand, these two clusters maintained maximum distance from cluster V. One hundred forty four plant materials were classified into 10 cultivar groups (CG) based on their reaction patterns to four distinct blast isolates, H-11-64, H-1-8, H-1-1 and H-11-67. The reaction patterns of plant materials to these four standard blast isolates indicated presence of *Pish, Pi9, Pita-2* and *Pita* genes and their combination in the genetic background of tested plant materials. Gene specific primer 195R-1/195F-1, Pita440 (YL153)/Pita440 (YL154), OSM89 and AOL45/AOL48 were used to identify *Pi9, Pita, Pita-2* and *Pish* genes, respectively through PCR-based assay. Plant materials, H13, H23, H25, H35, H47, H49, H136, H138 harbored all three genes, *pita, pita2* and *pish* in their genetic background. The *pi9* gene together with *Pita*-2 was detected in local rice cultivar H100 and H129 which was confirmed by DNA analysis in PCR assay. These materials could be used in gene pyramiding in

**12. Field of specialization: Plant Pathology (Molecular Techniques)**

Description: Research expertise on plant pathology and molecular techniques; soil fauna and flora; fungi, bacteria, nematode, virus, mycoplasma related disease of rice crop and their management; seed health for crop management; Development of Integrated Nutrient Management options for delivery; Application of modern molecular biotechnological tools for plant pathogens diversity and diagnostic. Well capable of planning, designing, executing and reporting on rice based research program. Has sufficient knowledge and skill in English and Computer literacy.

**13. Training (In service)/ Scientific/scholarly studies and/or experience**

In Country training:

| Organization | Year | Duration | | Name of the Programme |
|---|---|---|---|---|
| | | Month | Day | |
| BRRI | 1998 | 2 | 0 | Rice production, communication and office management |
| BARD | 2000 | 3 | 15 | Foundation Training |
| BARD | 2000 | 0 | 28 | Training on Motor Driving. |
| BARD | 2000 | 0 | 28 | Computer Application Course on MS Word, MS Excel, MS Power Point, SPSS and IRRISTAT. |
| BRRI | 2001 | 0 | 3 | Identification, sampling and data collection on RSB Disease Complex |
| BRRI | 2002 | 0 | 3 | Breeder seed production and preservation technique of rice |
| BRRI | 2002 | 0 | 28 | Introductory course in molecular biology |
| BRRI | 2006 | 0 | 5 | Hybrid rice development and seed production |
| BRRI | 2012 | 0 | 7 | Theory and practice of molecular breeding in rice |
| BRRI | 2012 | 0 | 6 | Theoretical and applied molecular breeding |
| BRRI | 2013 | 0 | 6 | Genetic data analysis software |

| Organization | Year | Duration | | Name of the Programme |
|---|---|---|---|---|
| | | Month | Day | |
| NATA | 2018 | 0 | 5 | Public Financial Management |
| BRRI | 2018 | 0 | 5 | Innovation in Public Service |
| Information Commission | 2019 | - | - | Online training on Right to Information Act, 2009 |
| BRRI, a2i | 2022 | 0 | 2 | Public service innovation |
| BRRI, a2i | 2024 | 0 | 2 | Service process simplification |
| BRRI, MoA | online | - | - | Rice Disease Management |

BRRI=Bangladesh Rice Research Institute; BARD; Bangladesh Academy for Rural Development; NATA=National Agricultural Training Academy

Training Abroad: Scientific/scholarly studies and/or experience outside homeland (other than that mentioned in the diplomas)

| Organization, Country, Fund | Year, Duration (week) | Name of the research or study programme (and description) |
|---|---|---|
| International Rice Research Institute (IRRI), Philippines, funded by IRRI | 1999 (6) | Rice seed health for crop management (Description: Fungi, bacteria and nematodes, those are carried by rice seed were identified. Differences in severity of those pathogens in seeds of different rice varieties were observed.) |
| International Rice Research Institute (IRRI), Philippines, funded by IRRI | 2001 (4) | Development Integrated Nutrient Management options for delivery (Description: Nutrients for rice and their management were studied. Different nutrient management options were developed by the participants and presented.) |
| CAB International, UK, funded by DFID, UK | 2002 (8) | Training on Molecular Techniques (Description: Rice seed borne bacteria were identified by fatty acid analysis in gas chromatography. DNA from fungal and bacterial pathogens was extracted. Degradient Gel Electrophoresis (DGGE) for those identified bacteria and AFLP-agarose gel electrophoresis for fungal pathogens were performed.) |
| Warwick HRI, University of Warwick, UK, funded by DFID, UK | 2004-2005 (26) | Application of modern molecular biotechnological tools for fungal pathogens diversity and diagnostic (Description: The presence of Rhizoctonia oryzae, R. oryzae sativae and R. solani cause sheath blight disease complex in rice in Bangladesh was confirmed by DNA analysis (diagnostic PCR). Genetic diversity of 68 isolates of R. oryzae sativae, collected from different parts of Bangladesh was recorded by using DNA fingerprints (AFLP and SSR) and 9 different clusters were observed at 90% probability. Rice blast pathogen, Magnaporthe grisea was separated according to their mating type by DNA analysis.) |
| Ghent University, Belgium | 2010 (2) | Low Countries Study |

**14. Job Experience:**

| Position* | Period | | Place/Location | Total Year/Month |
|---|---|---|---|---|
| | From | To | | |
| Scientific Officer | 20.08.1998 | 08.06.2002 | BRRI, Rajshahi, Bangladesh | 3-yr/10-mo |
| Scientific Officer | 09.06.2002 | 31.05.2006 | BRRI, Gazipur, Bangladesh | 4-yr/0-mo |
| Senior Scientific Officer | 01.06.2006 | 13.12.2014 | BRRI, Gazipur, Bangladesh | 8-yr/6-mo |
| Principal Scientific Officer | 14.12.2014 | 27.01.2015 | BRRI, Gazipur, Bangladesh | 0-yr/2-mo |
| Principal Scientific Officer | 28.01.2015 | 29.01.2018 | BRRI, Barisal, Bangladesh | 3-yr/1-mo |
| Principal Scientific Officer & Head | 30.01.2018 | 22.07.2018 | BRRI, Barisal, Bangladesh | 7-mo |
| Principal Scientific Officer | 23.07.2018 | 12.01.2020 | BRRI, Barisal, Bangladesh | 2-yr 6-m0 |
| Principal Scientific Officer & Head | 15.01.2020 | 18.08.2021 | BRRI, Cumilla, Bangladesh | 1-yr 7-mo |
| Principal Scientific Officer | 25.08.2021 | 14.05.2025 | BRRI, Gazipur, Bangladesh | 3-yr 9-mo |
| Chief Scientific Officer (CSO) | 15.05.2025 | ongoing | BRRI, Rajshahi, Bangladesh | |
| Part time lecturer, RAC, Rajshahi and later under RU, Rajshahi | 11-04-1999 | 2002 | RAC & RU, Rajshahi, Bangladesh | Around two and half year |

* RAC = Rajshahi Agricultural College; RU = Rajshahi University (all in Bangladesh); SO to CSO is senior job position

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|---|---|
| **Editorial Board Member of research journal** | (i) International Journal of Agriculture and Environmental Research (ISSN: 2208-2158)<br>(ii) Journal of Advance Research in Food, Agriculture and Environmental science (ISSN: 2208-2417)<br>(iii) Universal Journal of Agricultural Research (ISSN: 2332-2268 Print and 2332-2284 Online)<br>(iv) Asian Journal of Research in Crop Science (ISSN: 2581-7167) |
| | Current Journal of Applied Science and technology<br>Biodiversitas<br>Journal of Agriculture and :Research<br>Journal of Advance Research in Food, Agriculture and Environmental Science<br>Plant Cell Biotechnology and Molecular Biology<br>Saudi Journal of Biological sciences<br>International Journal of Plant and Soil Science<br>Universal Journal of Agricultural Research<br>Agricultural Science Research Journal<br>Asian Journal of Research in Crop Science |

**15. Publication (SO to CSO):**

**LIST OF PUBLICATIONS**

| Sl | Publications | Status/ Page |
|---|---|---|
| **(a) Scientific Journal** | | |
| **(i)(a)** Full Paper Published in the Reputed **International Journal** (Principal/Co-author) | | |
| 1 | **Hossain**, **M.,** M. U. Ahmad, N. Ahmed, M. Abul Hossain and M.A.Alim.2002. A study on control of root-knot (*Meloidogyne javanica*) of wheat. *Indian Agriculturist*, 46 (1 & 2): 121 -128 | Inter national |
| 2 | **Mohammod Hossain**, Maurice Moens , Nancy De Sutter (2016). Nematode Feeding Types in Different Soil Habitats and Subsequent Study in Maize Field. Universal Journal of Agricultural Research, 4(5), 204 - 210. doi: 10.13189/ujar.2016.040506. | Inter national |
| 3 | **Mohammod Hossain**, Surapareddy Sreenivasaprasad, Muthu Meena, Md Abu Taher Mia. (2017). A PCR-Based Analysis of Genetic Diversity of *Rhizoctonia Oryzae-Sativae* in Bangladesh. International Journal of Agricultural Sciences and Natural Resources, 4(3): 15-21. http://www.aascit.org/journal/ijasnr | Inter national |
| 4 | **Mohammod Hossain**, Md Ansar Ali, Mohammad Delwar Hossain. (2017). Occurrence of Blast Disease in Rice in Bangladesh. American Journal of Agricultural Science, 4(4): 74-80. http://www.aascit.org/journal/ajas | Inter national |
| 5 | **Mohammod Hossain**, Surapareddy Sreenivasaprasad, Muthu Meena, Nitya Ranjan Sharma. (2017). Morphological and Genetical Study on *Rhizoctonia* Sheath Disease Complex of Rice in Bangladesh. Universal Journal of Agricultural Research, 5(6): 344-349. DOI: 10.13189/ujar.2017.050605 | Inter national |
| 6 | **Mohammod Hossain**, Md Ansar Ali and Mohammad Delwar Hossain. (2017). Virulence analysis of *Pyricularia grisea* on rice monogenic lines detected blast *R*-gene in Bangladesh. The Experiment, 43(4), 2516-2528. | Inter national |
| 7 | **Mohammod Hossain**, Kamrun Nahar, Godelieve Gheysen. 2017. Rice Root-knot Nematode Down Regulates GA-Gene to Establish Infection. Universal Journal of Agricultural Research 5(1): 69-77. DOI: 10.13189/ujar.2017.050111 | Inter national |
| 8 | **Mohammod Hossain,** Md Ansar Ali, Mohammad Delwar Hossain, Md Abu Taher Mia. (2018). Detection of Blast Resistant Gene in Rice by Host-pathogen Interaction and DNA-Marker. Universal Journal of Agricultural Research 6(1): 23-30. DOI: 10.13189/ujar.2018.060104 | Inter national |
| 9 | Padgham J. L., Duxbury J. M., Mazid A. M., Abawi G. S. and **Hossain M.** 2004. Yield loss caused by *Meloidogyne graminicola* on lowland rainfed rice in Bangladesh. *Journal of nematology*, 6(1): 42-48. | Inter national |
| 10 | Hosen, M. J., M. **Hossain** and *et. al.* 2011. Effect of Bacterivorous and Predatory Nematodes on Macroalgal Detritus Decomposition. *Proceedings of the Pakistan Academy of Sciences,* 48 (3): 137-142. | Inter national |
| 11 | Takan, J.P, Chipili, J, Muthumeenakshi, S, Talbot, N.J, Manyasa, E.O, Bandyopadhyay, R, Sere, Y, Nutsugah, S.K, Talhinhas, P, **Hossain, M**, Brown, A.E, Sreenivasaprasad, S. (2012) " Magnaporthe oryzae populations adapted to finger millet and rice exhibit distinctive patterns of genetic diversity, sexuality and host interaction", Molecular Biotechnology, 50 (2), pp.145-158.. DOI: 10.1007/s12033-011-9429-z | Inter national |
| 12 | Md Hasibur Rahaman Hera, **Mohammod Hossain**, Alok Kumar Paul. (2018). Effect of Foliar Zinc Spray on Growth and Yield of Heat Tolerant Wheat Under Water Stress. International Journal of Biological and Environmental Engineering 2018; 1(1): 10-16. http://www.aascit.org/journal/ijbee | Inter national |
| 13 | Lander BAUTERS, **Mohammod HOSSAIN**, Kamrun NAHAR and Godelieve GHEYSEN. (2018). Gibberellin reduces the susceptibility of rice, *Oryza sativa*, to the migratory nematode *Hirschmanniella oryzae.* Nematology 20 (7): 703–709. DOI:https://doi.org/10.1163/15685411-00003198 | Inter national |
| 14 | Md Abu Syed, Khandakar Md Iftekharuddaula, Partha Sarathi Biswas, Nasira Akter and **Mohammod Hossain**. (2019). Assessment of Genetic Diversity in Arsenic | Inter national |

| Sl | Publications | Status/ Page |
|---|---|---|
| **(a)** | **Scientific Journal** | |
| | Contaminated Rice Using SSR Markers. Trends Applied Sci. Res., 14 (3): 178-185. DOI: 10.3923/tasr.2019.178.185 | |
| 15 | Md. Abu Syed, K. M. Iftekharuddaula, Md. Golam Rasu, G. K. M. Mustafizur Rahmam, Golam M. Panaullah, John M. Duxbury, **Mohammod Hossain**, Partha S. Biswas. 2019. Development and Standardization of a Simple and Quick Screening Protocol for Arsenic Phyto-toxicity Tolerance at Seedling Stage in Rice. Food Science and Technology 7(3): 31-40, http://www.hrpub.org; DOI: 10.13189/fst.2019.070302 | Inter national |
| 16 | Latif MA, Uddin MB, Rashid MM, **Hossain M**, Akter S, Jahan QSA, Hossain MS, Ali MA, Hossain MA. 2021. Rice Bakanae Disease: Yield Loss and Management Issues in Bangladesh. Food Science and Technology, 9(1): 7-16, http://www.hrpub.org; DOI: 10.13189/fst.2021.090102 | Inter national |
| 17 | Yuji Enriquez, Melinda Smale, Nelissa Jamora, Mohammod Hossain and Lava Kumar. 2022. The role of CGIAR Germplasm Health Units in averting endemic crop diseases: the example of rice blast in Bangladesh. CABI Agriculture and Bioscience, 3:15. https://doi.org/10.1186/s43170-022-00084-9 | Inter national |
| 18 | Sheikh Maniruzzaman, Md. Alamgir Hossain, Helal Uddin Ahmed, Mohammod Hossain, Golam Sarwar Jahan, Palash Kumar Kundu and Md. Maksudul Haque. 2023. Development of Rice Varieties for Stress-Prone Tidal Ecosystem of Bangladesh. Middle-East Journal of Scientific Research. 31 (1): 22-31. DOI: 10.5829/idosi.mejsr.2023.22.31 | Inter national |
| **(i)(b)** Full Paper Published in **National Journal** (Principal/Co-author) | | |
| 1 | **Hossain**, **M.** and M. A. T. Mia. 2001. Management of sheath blight disease of rice under farmer's field condition. *Bangladesh J.Plant Pathol*. 17 (1 & 2): 13-16. | |
| 2 | **Hossain**, M., M.A.Mazid, M.A.Begum, M.A.Kader and B.Sikdar. 2001. Effect of variety and seedling age on the yield of hybrid rice. *Bangladesh J. genet. Biotechnol*. 2 (1 & 2): 09-14. | |
| 3 | **Hossain**, **M.,** Conrad Stevens, M. A. Taher Mia, M. M. Kamal, Sarah Elliot and Steven Wayne. 2003. Identification of rice seed associated bacteria and molecular standardization using Denaturing Gradient Gel Electrophoresis. *Bangladesh J.Plant Pathol*. 19 (1 & 2): 39 | |
| 4 | **Hossain**, **M.,** M. A. Mazid, M. A. Kader, M. M. Kamal, M.A.T. Mia and I. U. Mollah. 2003. Effect of soil solarization and nematicide on soil parasitic nematode in direct seeded rice wheat system. *The Agriculturists*, 1(1): 47 | |
| 5 | **Hossain M.,** M. A. Mazid, B. Karmakar, M. M. Kamal, M. Sh. Islam, M. A. Ali and M. A. Zami. 2004. Agronomic management of hybrid rice for better yield. *Bangladesh Agronomy Journal*, 10 (1 & 2): 23-30. | |
| 6 | **Hossain** M., M. M. Kamal, M. A. Mazid and M. M. Rashid. 2007. Reduction of parasitic nematode by soil solarization in transplanted Aman rice-wheat system. *Bangladesh Journal of Agricultural Research*, 32 (4): 533-540. | |
| 7 | **Hossain**, **M**., M. M. Kamal, M.A. Ali and M. A.T. Mia. 2008: Evaluation of methods and primers to identify genetic variability of *Fusarium moniliforme*. *Bangladesh Journal of Plant Pathology*, 24 (1 & 2):1-6 | |
| 8 | Hossain, M. Abul, **M. Hossain** and M.I.Hossain.2000. Performance of water soaking seeds on the duration and yield of groundnut (*Arachis hypogeae). J. Bio-Sci.* 8: 13-16. | |
| 9 | Mazid M.A., **M. Hossain**, M.A.Hamid Miah and B. Karmakar. 2001. Vegetative propagation of hybrid rice as a seed saving device. *Bangladesh J. genet. Biotechnol*. 2 (1 & 2): 01-07. | |
| 10 | Karmakar, B., M.A.Kader, B.Sikdar and **M. Hossain**. 2001. Agronomic response of hybrid and inbred rice to nitrogen fertilizer. *J. Bio-Sci*. 9: 31-38. | |
| 11 | Kader M. A., M. A. Mazid, B. Karmaker, **M. Hossain** and A. W. Julfiquar. 2002. Synchronization in flowering of parental lines of hybrid rice by phosphorus fertilizer. *J. Bio-Sci*. 10: 65-69. | |
| 12 | Hossain, M. I., M. A. Mazid, **M. Hossain**, M. R. Uddin and A. K. M. Hafizur Rahman. 2003. Agronomic response of late transplanted photosensitive aman rice (BR22) to different levels of nitrogen and spacing. *Bangladesh J. Agril. Sci*. 30 (1): 29-35. | |

| Sl | Publications | Status/ Page |
|---|---|---|
| **(a)** | **Scientific Journal** | |
| 13 | Kader, M. A., M. A. mazid, M. K. Bashar, **M. Hossain** and A. W. Julfiquar. 2003. Effect of application of $GA_3$ on CMS seed production in rice (*Oryzae sativa* L.). *Bangladesh J. Pl. Breed. Genet*. 16 (2): 45-50. | |
| 14 | Kamal, M. M., **M. Hossain**, M. Sh. Islam and M. Moens.2003. Survey of plant parasitic nematodes in nursery stock of Belgium. *Bangladesh Journal of Zoology*, 31 (2): 177-183. | |
| 15 | Latif, M. A., M. R. Islam, M. Y. Ali, **M. Hossain** and M. L. Rahman. 2004. Efficacy of three nematicides for the control of ufra disease of rice. *Journal of Agricultural Science and Technology*, 5 (1 & 2): 8-12. | |
| 16 | Rahman, S. M., M. M. Kamal, **M. Hossain** and M. A. Ali. 2005. Morphological changes of bunchy top infected banana plant. *Bangladesh J. Plant Pathol*. 21 (1 & 2): 43-48. | |
| 17 | Azad, A. K. M., M. M. Kamal, S. H. Howlader, **M. Hossain** and A. M. Akhanda. 2005. Morphology of six isolates of *Colletotrichum* species and thrir host range. *Bangladesh J. Plant Pathol*. 21 (1 & 2): 71-76. | |
| 18 | Haque, M. F., B. Karmakar, **M. Hossain**, S. Parveen and M. R. Islam. 2006. Effect of leaf curl disease on growth and yield of different cultivars of tomato. *Intl. J. BioRes*. 1(4): 26-30. | |
| 19 | Kamal, M. M., M. A. Tia, **M. Hossain** and N. R. Sharma. 2007. Diversity of the rice brown spot pathogen, *Bipolaris oryzae*, in Bangladesh assesses by genetic fingerprint analysis. *Bangladesh J. Plant Pathol*. 23 (1 & 2): 63-68. | |
| 20 | Latif, M. A., M, A, Ali, S. Akter, **M. Hossain**, Q. S. Jahan, M. S. Kabir, N. R. Sharma, M. M. Rahman and M. A. T. Mia. 2009. Screening of genotypes, organic amendments and antagonistic bacteria for the management of sheath blight disease of rice. Eco-friendly Agril. J. 2 (7): 706-712. | |
| 21 | M T Khatun, M A Latif, M M Rahman, **M Hossain**, T H Ansari, B Nessa, M A I Khan, M A Ali and M M Hanafi. (2017). Recovering Ability of Upland and Rainfed Lowland Rice Varieties against Rice Tungro Disease. Bangladesh Rice J. 21 (1): 91-100. | |

**LIST OF PUBLICATIONS**

| Sl | Publications | |
|---|---|---|
| **(b) Books/Monographs/Bulletins** | | **Status/ Page** |
| **(b)(i)Books/Book chapters (Attachment- Page: )** | | |
| 1 | Enriquez Yuji, Smale Melinda, Jamora Nelissa, **Hossain Mohammod** & Kumar Lava. (2022). The economic contribution of CGIAR Germplasm Health Units: the example of rice blast disease in Bangladesh. **Genebank Impacts Brief no. 14.** Consultative Group on International Agricultural Research. 10.13140/RG.2.2.33540.60807. | Inter national |
| 2 | Enriquez, Y., Smale, M., Jamora, N., **Hossain, M.** & Kumar, P.L. (2021). The economic contribution of CGIAR germplasm health units to international agricultural research: the example of rice blast disease in Bangladesh. **In Genebank Impacts Working paper No. 15.** CGIAR Genebank Platform, IRRI, and the Crop Trust. Consultative Group on International Agricultural Research, (53p.). DOI: 10.13140/RG.2.2.25152.00001 | Inter national |
| **(b)(ii) Monograph as Principal/Co-Author** | | |
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| **(b)(iii) Bulletin (Technical report/Booklet) (Attachment- Page: )** | | |
| 20 | Ara A, Bhuiyan MR, Jahan QSA, **Hossain M,** Mian MS, Khan et al. 2024. Outbreak of rice BLB and BLS diseases of and steps towards (Leaflet). Bangladesh Rice Research Institute, Gazipur 1701, 10000 copy. BRRI Publication No. 415. | National |
| 19 | Bhuiyan MR, Ara A, Jahan QSA, **Hossain M,** Mian MS, Khan MAI, Akter S, Monsur MA, Nessa B, Hira MHR, Akter R, Diljahan HA, Alam MS, Ansari TH and Latif MA. 2024. Farmers' steps to control rice sheath blight disease (Leaflet). Bangladesh Rice Research Institute, Gazipur 1701, 10000 copy. BRRI Publication No. 414. | National |
| 18 | Rashid MM, Saha B, Ferdous T, Husna T, Salahuddin AKM, Bhuiyan MR, Mian MS, Khan MAI, **Hossain M,** Jahan QSA, Ansari TH, Islam MR, Latif MA. 2024. Use of rice Tungro disease management technology (Leaflet). Bangladesh Rice Research Institute, Regional Station, Cumilla. 5000 copy. BRRI Publication No. 413. | National |
| 17 | Rashid MM, Saha B, Ferdous T, Husna T, Salahuddin AKM, Nihad SAI, Ara A, Bhuiyan MR, Mian MS, Khan MAI, **Hossain M,** Ansari TH, Islam MR, Latif MA. 2023. Farmers' steps to control rice blast disease (Leaflet). Bangladesh Rice Research Institute, Regional Station, Cumilla. 10000 copy. BRRI Publication No. 386. | National |
| 16 | Rashid MM, Saha B, Ferdous T, Husna T, Salahuddin AKM, Nihad SAI, Ara A, Bhuiyan MR, Mian MS, Khan MAI, **Hossain M,** Ansari TH, Islam MR, Latif MA. October 2023. Farmers approaches in the seedbed to control rice tungro disease (Leaflet). Bangladesh Rice Research Institute, Regional Station, Cumilla. 3rd Edn. 10000 copy. BRRI Publication No. 385. | National |
| 15 | Nessa B, Nihad SAI, Akter R, Dilzahan HA, Mamun MMR, Bhuya R, Monsur MA, Akter S, Khan MAI, Salim M, **Hossain M**, Ansari TH and Latif MA. 2022. Management of rice false smut disease (Leaflet). Published by Bangladesh Rice Research Institute. Publication No. 344 | National |
| 14 | Rashid MM, Nihad SAI, Khan MAI, Bhuiyan MR, **Hossain M,** Islam A, Zahan et al. 2021. Farmers' steps to manage blast disease of rice (Leaflet). Bangladesh Rice Research Institute, Regional Station, Cumilla. 20000 copy. BRRI Publication no. 324. DOI: 10.13140/RG.2.2.30072.37121 | National |
| 13 | Rashid MM, Khan FH, Saha B, Ferdous, T, Shalahuddin AKM, Zahan I, Shultana R, **Hossain M,** Islam A, Nihad et al. 2021. Farmers' steps in the seedbed to prevent rice tungro disease (Leaflet). Bangladesh Rice Research Institute, Regional Station, Cumilla. July 2021, 20000 copy. BRRI Publication no. 323. DOI: 10.13140/RG.2.2.30072.37121 | National |
| 12 | Rashid MM, Mian S, Khan FH, **Hossain M,** Nihad SAI, Khan MAI, TH Ansari and Latif MA. 2020. Management of rice diseases in Cumilla region. BRRI Publication No. 306. | National |
| 11 | Rashid MM, Khan FH, Nandi P, Sultana A, **Hossain M**, Mian et.al. 2020. Management of blast disease of aromatic rice in Cumilla region during T. Aman season. DOI: 10.13140/RG.2.2.32525.05608 | National |

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| 10 | Rashid MM, Khan FH, Nandi P, Sultana A, **Hossain M,** Mian S, Khan MAI, Latif MA. 2019. Management of blast disease of rice in Cumilla region in field condition during Boro season (Leaflet). DOI: 10.13140/RG.2.2.32525.05608 | National |
| 9 | Hossain, M. A., **Hossain, M**., Kabir, M., Syed, A., Hera, Md. and Kundu, P. (2019). Cultivation technology of BRRI dhan76 and BRRI dhan77 for non-saline tidal region (In Bengali). Published by Bangladesh Rice Research Institute, Regional Station, Barisal. https://www.researchgate.net/publication/334480858 | National |
| 8 | Hossain, M. A., **Hossain, M.,** Kabir, M., Syed, A., Hera, Md. and Kundu, P. (2018). Aus rice cultivation technique for greater Barishal region (In Bengali). Published by Bangladesh Rice Research Institute, Regional Station, Barisal. https://www.researchgate.net/publication/334480565 | National |
| 7 | Alamgir MA and **Hossain M.** 2018. Identification of climatic factors responsible for disease and insect outbreak and their appropriate management in southern region of Barishal. Edited and Published by Project Implementation Unit, National Agricultural Technology Program-Phase II Project (NATP-2), Bangladesh Agricultural Research Council (BARC), New Airport Road, Farmgate, Dhaka – 1215, Bangladesh. | National |
| 6 | Hossain, M. A., **Hossain, M.,** Maniruzzaman, S., Hera, Md. and Kundu, P. (2017). Boro rice cultivation in greater Barisal region (in Bengali). Published by Bangladesh Rice Research Institute, Regional Station, Barisal. https://www.researchgate.net/publication/334494301 | National |
| 5 | Ali MA, Ahmed HU, Ansari TH, **Hossain M** and Kabir Enamul. 2014. Identification of existing races of *Pyricularia grisea* and gene pyramiding for durable blast resistance in rice. NATP-Phage-1 Project Completion Report, PIU-BARC, BARC Complex, Farmgate, Dhaka-1215. | National |
| 4 | Hossain, M.A., Mia, M. A. T., **Hossain, M.** and Latif M. A. 2007. Improvement of farmers' saved rice seed project. A report on Agricultural Technology Transfer (ATT) Project. Submitted to Bangladesh Agricultural Research Council. New Airport Road, Dhaka 1215. | National |
| 3 | Hossain, M.A., Sharma, N.R., Kamal, M.M., Jahan, Q.S.A., Kabir, M.S. and **Hossain, M**. 2006. Dissemination of integrated disease management practices through farmers' participatory field trial project. A report on Agricultural Technology Transfer (ATT) Project. Submitted to BARC. New Airport Road, Dhaka 1215. | National |
| 2 | Sharma, N. R., Rahman, M. M. and **Hossain, M.** 2003. Rhizoctonia sheath disease complex of rice. Output of the project ID R7778, Crop Protection Programme, DFID, UK and Published by Plant Pathology Division, BRRI, Gazipur, Bangladesh. | National |
| 1 | Rahman. M.M., Hossain, M. A., Mia, M.A.T. and **Hossain, M.** 2003. Management of important rice diseases. Presented in 'Communication Fair 2003'. Developed and Published by Steps Towards Development, Dhaka, Bangladesh. | National |
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| | LIST OF PUBLICATIONS | |
|---|---|---|
| **(c) Seminar/Workshop/Symposium proceedings/Abstract/Popular article (Attachment- Page: )** | | **Status/ Page** |
| **Sl** | **Publications** | |
| 23 | ASM Masuduzzaman, KM Iftekharuddaula, MS Kabir, TH Ansari, Nusrat Jahan, AA Soily, NN Masud, M Hossain, M Khalequzzaman. 2023. Evaluation of perennial rice BRRIdhan91for superior ratooning and development of one line hybrid to fix heterosis in rice. (231) Paper presented at the International Rice Congress 2023 from October 16-19 in Manila, Philippines. https://doi.org/10.5281/zenodo.10398416 | Inter national |
| 22 | Rashid MM, Mian MS, Nihad SAI, **Hossain M,** Islam A, Khan et al. 2023. Factors affecting rice Tungro disease and its management technology in Cumilla region. Kabir MS, Khalequzzaman M, Khanam M, Iftekharuddaula KM, Biswas PS, Milon MK and Deb L (eds). 2023. Half century of rice research at BRRI ensuring food security in Bangladesh. Bangladesh Rice Research Institute, Gazipur 1701, 116 pp. | Inter national |
| 21 | Rashid MM, Mian MS, **Hossain M**, Islam et. al. 2021. Factors affecting rice tungro disease and its management in Cumilla region. Presentation of Sunday seminar on 7.2.2021 at BRRI auditorium and Zoom Platform (ID: 9471494595, Password: 2021) | National |
| 20 | Kader MA, Biswas PS, Ahmed HU, Hossain MA, Islam MR, Bari MN, Siddiquee MA, Hore TK, Haque MM, Amin A, Bhuiyan MKA, Ali, MP, Monsur MA, Iqbal M, Shozib HB, Ferdous N, **Hossain M,** Islam et. al. 2018. Updates of golden rice research in Bangladesh. A Paper presented in the special seminar held at BRRI on 01.10.2018 | National |
| 19 | **M.Hossain**, M. A. Ali and M. D. Hossain (2014). Identification of existing races of *pyricularia grisea* in rice in Bangladesh using monogenic lines of rice. M A Saleque, M A Kashem, M A Ali and M S Kabir (eds). 2015. Rice Research Abstracts 2014. Bangladesh Rice Research Institute, Gazipur 1701, Bangladesh, 119 pp. | National |
| 18 | Kamal MM, Mia MAT and Hossain M. 2008. Pathogenicity of different DNA fingerprinting types of rice brown spot pathogen *Bipolaris oryzae.* Abstract published in the 7th Biennial conference of Bangladesh Phytppathological Society held on April 19, 2008 at BARI, Gazipur, Bangladesh. | National |
| 17 | Kamal MM, Mia MAT and Hossain M. 2008. Diversity of the rice brown spot pathogen *Bipolaris oryzae,* in Bangladesh assessed by genetic fingerprint analysis. Abstract published in the 7th Biennial conference of Bangladesh Phytppathological Society held on April 19, 2008 at BARI, Gazipur, Bangladesh. | National |
| 16 | **Hossain, M.,** Sreenivasaprasad, S., Meena, M. and Mia, M.A.T. 2007. Molecular study on *Rhizoctonia* sheath blight disease complex in Bangladesh. A paper presented in the Thursday seminar held on May 03, 2007 at BRRI, Gazipur | National |
| 15 | **Hossain, M.** 2006. Dhaner Kholpora Rog Domon. Published in Krisi Katha, September-October, 2006 by ACI, Dhaka, Bangladesh. | National |
| 14 | Latif, M.A., M.S. Mian, M.M. Kamal, M.S. Kabir, **M. Hossain**, Akter et al. 2005. Effect of three organic amendments in controlling sheath blight disease of rice. Abstract presented in the workshop on Validation and Promotion of sheath blight disease management held on December 11, 2005 at BRRI, Gazipur | National |
| 13 | Kabir M.S., Hossain M.A., Akter S., Latif M.A., **Hossain M.** and Mia M.A.T. 2005. Efficacy of biocontrol agents on sheath blight disease management. Abstract presented in the workshop on Validation and Promotion of sheath blight disease management held on December 11, 2005 at BRRI, Gazipur | National |
| 12 | Latif, M.A., M.S. Mian, M.M. Kamal, M.S. Kabir, **M. Hossain**, S. Akter, Mia et al. 2005. Efficacy of two biocontrol agents in controlling sheath blight disease of rice. Abstract presented in the workshop on Validation and Promotion of sheath blight disease management held on 11. 12. 2005 at BRRI, Gazipur | National |
| 11 | Kabir M.S., Hossain M.A., Akter S., Latif, M.A., **Hossain M.**, Mia M.A.T. 2005. Efficacy of biocontrol agents on sheath blight disease management of rice. Abstract presented in the workshop on Validation and Promotion of sheath blight disease management held on 11. 12. 2005 at BRRI, Gazipur | National |

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| 10 | Azad, A.K.M., M.M. Kamal, S.H. Howlader, **M. Hossain** and A.M. Akanda 2004. Colletotrichum species in Gazipur district and their host range. Abstract published in the 6th Biennial conference of Bangladesh Phytppathological Society held on July 29, 2004 at BARI, Gazipur, Bangladesh. | National |
| 9 | **Hossain, M.,** C. Stevens, M.A.T. Mia and M.M. Kamal 2004. Standardization of DNA fingerprinting methods to identify genetic variability of *Fusarium moniliforme*. Abstract published in the 6th Biennial conference of Bangladesh Phytppathological Society held on July 29, 2004 at BARI, Gazipur, Bangladesh. | National |
| 8 | Rahman, M.S., M.M. Kamal, **M. Hossain** and M.A. Ali 2004. Changes in morphology of bunchy top infected banana plant. Abstract published in the 6th Biennial conference of Bangladesh Phytppathological Society held on July 29, 2004 at BARI, Gazipur, Bangladesh. | National |
| 7 | Ali MA, Hossain M, Karmakar B and Nahar MA. 2004. Survey of rice sheath disease complex caused by *Rhizoctonia* sp. in Rajshahi. Abstract published in the 6th Biennial conference of Bangladesh Phytppathological Society held on July 29, 2004 at BARI, Gazipur, Bangladesh. | National |
| 6 | **Hossain, M.,** C. Stevens, M.M. Kamal and M.A.T. Mia 2004. Molecular methods for identifying rice seed borne pathogen. A paper presented in the Thursday seminar held on February 26, 2004 at BRRI, Gazipur, Bangladesh. | National |
| 5 | Mia, M.A.T., C. Stevens, M.M. Kamal, **M. Hossain,** M.S. Mian, S. Rahman and J.A. Begum 2003. Storage experiment and molecular activities at BRRI. A paper presented in the Review and Planning Workshop of Rice Seed Health Improvement Sub-Project held during April 22-23, 2003 at BRRI, Gazipur, Bangladesh. | National |
| 4 | **Hossain, M.** and Mia, M.A.T. 2003. Management of sheath blight disease of rice in Farmar's field. A paper presented in the Thursday seminar held on April 10, 2003 at BRRI, Gazipur, Bangladesh. | National |
| 3 | Kamal M. M. and **M. Hossain**. 2007. Use of biotechnology and development of transgenics for crop disease management. Bakr, M. A., H. U. Ahmed, and M. A. W. Mian. (eds). 2007. Proceedings of the national workshop on "Strategic Intervention on Plant Pathological Research in Bangladesh" 11-12 February 2007, BARI (Bangladesh Agricultural Research Institute), Joydebpur, Gazipur, 344 pp. | National |
| 2 | Mia, M. A. T., **M. Hossain**, M. M. Rahman, Saidur Rahman and Jinnat Ara. 2004. Emerging technology to combat rice pests and diseases. Proceedings of the workshop on "Modern rice cultivation in Bangladesh" 19-21 April, 2004. Published by Director General (DG), BRRI (Bangladesh Rice Research Institute), Publication no. 159 (September, 2006), Joydebpur, Gazipur, 360 pp. | National |
| 1 | Mazid, M. A., **M. Hossain**, A.W. Julfiquar and M. A. Hamid Miah. 2002. Hybrid rice seed production: new technique and approach. A.W. Julfiquar, M. Mandal and M. S. Islam (eds). 2002. Proceedings on the workshop on "Hybrid Rice in Bangladesh: Progress and future strategies" 5-6 January, 2002. BRRI (Bangladesh Rice Research Institute) Publication no. 138, Joydebpur, Gazipur, 75pp. | National |

## 16. Research achievements/Contribution (SO to CSO):

### (i) List of Technology developed

| Sl. | Technology developed | Remarks |
|---|---|---|
| 1 | Identification of pathotypic races of *pyricularia oryzae* (Balst disease) in Bangladesh which would be used for blast resistance breeding | NATP-1 project/2014; PhD research; Hossain, 2014; Hossain et al., 2017a & b |
| 2 | Standardization of blast isolates (standard differential blast isolates, SDBIs) for the development of differential system in Bangladesh | |
| 3 | Identification of blast registrant germplasm which would be used for blast resistance breeding | |
| 4 | Detection of blast resistant gene (*Pi9, Pish, Pita* and *Pita2*) in rice by host-pathogen interaction and DNA-marker which would be used to develop blast resistant variety in Bangladesh | |
| 5 | Identification of climatic factors responsible for disease and insect outbreak and their appropriate management in southern region of Barishal | NATP-2, CRG 698 project/2018 |
| 6 | Exogenous application of Gibberellin (GA) induces plant defense and has a negative effect on *Meloidogyne graminicola* and *Hirschmanniella oryzae* nematode of rice | MSc Thesis; Hossain et al., 2017, Bauters et al., 2018 |
| 7 | Seed treatment with neem extract significantly reduced galling incidence caused by *Meloidogyne javanica* in wheat and increased yield | MS thesis, Hossain et al., 2002; |
| 8 | A PCR based detection of different *Rhizoctonia* spp. under Sheath Blight Disease Complex of Rice in Bangladesh for the rapid identification of the pathogens | Sheath Blight project R7778 (ZA0406); Hossain et al., 2017; |
| 9 | Development of integrated management packages of sheath blight disease of rice which would be used at disease prone area | RLRRC Project; BRRI, 2000; Hossain and Mia, 2001; Anonymous, 2003 **Page no.: 202, 415, 417** |
| 10 | Development of Rice-Wheat-Mungbean cropping pattern for rainfed lowland ecosystem | |
| 11 | Development of rice Tungro disease management technology which would be used in Tungro prone area | Rashid et al., 2021 and 2023; **Page no.: 345** |
| 12 | Primer AFLP-C shows maximum FPTs of *Fusarium moniliforme* which would be used to identify genetic variability of this pathogen | Hossain et al., 2008 **Page no.: 240** |
| 13 | Soil solarization significantly reduces soil parasitic nematode in rice field | Hossain et al., 2003, 2007; **Page no.: 217, 231** |
| 14 | Rice yield at farmers level increased by 10-12% due to improvement of farmers saved seed | PETRRA Project/2004; Anonym 2003; **Page no.: 390** |
| 15 | Contribution towards the development of some BRRI varieties, such as BRRI Hybrid dhan1, BRRI dhan42, BRRI dhan43, BRRI dhan75, BRRI dhan76, BRRI dhan77, BRRI dhan78, BRRI dhan86, BRRI dhan87, BRRI dhan91 | BRRI Annual Report 2000 and 2002-2020 |

## (ii) Research achievement (Research Program developed/Supervised/Executed)

List duly endorsed by the Head of Division and Director (Research)
Photocopy of the documents are enclosed herewith

### a. List of Research Program Developed

| Sl. | Research Program Developed | Remarks |
|---|---|---|
| 1 | Effect of hydrogen per oxide on the suppression of microbial growth and their management | PARNTER Project; Ongoing program; Anonymous 2019, 2020, 2022<br><br>**Page no.: 419-428** |
| 2 | Population biology of *Rhizoctonia solani* causing Sheath blight disease in rice | |
| 3 | Assessment of different levels of susceptibility to sheath blight in BRRI released and other HYVs of rice | |
| 4 | Ecofriendly approaches to combat sheath blight disease for safe food production | |
| 5 | Present status of rice seed borne pathogens in Bangladesh | |
| 6 | Molecular methods for identifying rice seed borne fungal pathogens | |
| 7 | Survey and monitoring of rice diseases at different AEZs of Bangladesh | |
| 8 | Screening of new chemicals against sheath blight disease of rice | |
| 9 | Effect of new chemicals on the development of blast disease of rice | |
| 10 | Demonstration of blast disease management practices at farmers' field | |
| 11 | Detection of Blast Resistant Gene in Rice by Host-pathogen Interaction and DNA-Marker | Hossain et al., 2018 |
| 12 | Identification of climatic factors responsible for disease and insect outbreak and their appropriate management in southern region of Barishal | NATP-2, CRG698/2018; Anonymous 2018 |
| 12 | Occurrence and management of false smut disease in Barishal region | Anonym. 2016, 17 |
| 13 | Down Regulation of GA-Gene in Rice by Root-knot Nematode to Establish Infection | Hossain et al., 2017 |
| 14 | Virulence analysis of *Pyricularia grisea* on rice monogenic lines detected blast *R*-gene in Bangladesh | |
| 15 | Morphological and Genetical Study on *Rhizoctonia* Sheath Disease Complex of Rice in Bangladesh | |
| 16 | Epidemiology, yield loss and management of blast disease of Rice in Bangladesh | |
| 17 | A PCR-Based Analysis of Genetic Diversity of *Rhizoctonia Oryzae-Sativae* in Bangladesh | |
| 18 | Nematode Feeding Types in Different Soil Habitats and Subsequent Study in Maize Field | Hossain et al., 2016 |
| 19 | Screening of rice germplasms for detection of resistant blast genes (*Pish, Pita, Pi9, Pita-2, Pib*) using gene specific primers | Anonymous, 2015 |
| 20 | Identification of existing races of *Pyricularia grisea* in rice in Bangladesh using monogenic lines of rice | PhD research, NATP-2/2010-14; Hossain et al., 2015 |
| 21 | Identification of Blast resistance genes by Host-pathogen interaction and molecular marker | Anonymous, 2015 |
| 22 | The role of gibberellin in the response of rice to *Meloidogyne graminicola* and *Hirschmanniella oryzae* infection | MSc 2010 |
| 23 | Evaluation of methods and primers to identify genetic variability of *Fusarium moniliforme* | Hossain et al., 2008 |
| 24 | Reduction of parasitic nematode by soil solarization in transplanted Aman rice-wheat system | Hossain et al., 2007 |

| Sl. | Research Program Developed | Remarks |
|---|---|---|
| 25 | Molecular study on *Rhizoctonia* sheath disease complex in Bangladesh to confirm the presence of three species of *Rhizoctonia* | Hossain et al., 2007, Thursday seminar |
| 26 | Agronomic management of hybrid rice for better yield | (Hossain et al., 2004) |
| 27 | Survey of rice sheath disease complex caused by *Rhizoctonia* sp. in Rajshahi | S. Prasad/ 2004) |
| 28 | Effect of soil solarization and nematicide on soil parasitic nematode in direct seeded rice wheat system | (Hossain et al., 2003) |
| 29 | Identification of rice seed associated bacteria and molecular standardization using Denaturing Gradient Gel Electrophoresis | |
| 30 | A study on control of root-knot (*Meloidogyne javanica*) of wheat | (Hossain et al., 2002) |
| 31 | Effect of variety and seedling age on the yield of hybrid rice | (Hossain et al., 2001) |
| 32 | Management of sheath blight disease of rice under farmer's field condition | |
| 33 | Screening of Ufra resistant local germplasm for resistant breeding | |
| 34 | Management of brown spot and grain spot of rice | |
| 35 | Use of biotechnology and development of transgenics for crop disease management | Kamal and Hossain |

## (c) List of Research Program Supervised

1. Sheath blight disease resistance in rice through Crispr-Cas9 genome editing (PARNTER, On going program)
2. Germplasm screening for rice Sheath blight disease resistance (PARNTER, On going program)
3. Ecofriendly approaches to control sheath blight disease for safe food production (PARNTER, On going program)
4. Evaluation of Microbial community in Sheath Blight affected the rice field
5. Determination of residual effect of different fungicides in rice grain, stem as well as soil against rice sheath blight disease
6. Quantifying yield losses caused by rice sheath blight disease: An experimental study
7. Development of Rice Varieties for Stress-Prone Tidal Ecosystem of Bangladesh (Moniruzzaman et al., 2023)
8. Response of upland Aus rice germplasm to blast disease (Anonymous, 2022)
9. Genotype and environmental interaction on neck blast incidence in blast prone area, Boro 2022-23 (Anonymous, 2022)
10. Studies on host range of the blast pathogen (Anonymous, 2022)
11. Rice Bakanae Disease: Yield Loss and Management Issues in Bangladesh (Latif et al., 2021)
12. Development and Standardization of a Simple and Quick Screening Protocol for Arsenic Phyto-toxicity Tolerance at Seedling Stage in Rice (Syed et al., 2019)
13. Assessment of Genetic Diversity in Arsenic Contaminated Rice Using SSR Markers (Syed et al., 2019)
14. Cultivation technology of BRRI dhan76 and BRRI dhan77 for non-saline tidal region (Leaflet)
15. Gibberellin reduces the susceptibility of rice, *Oryza sativa*, to the migratory nematode *Hirschmanniella oryzae* (Bauters et al., 2018)
16. Identification of existing races of *Pyricularia grisea* and gene pyramiding for durable blast resistance in rice (NATP project)
17. Factors affecting rice Tungro disease and its management technology in Cumilla region (Anonymous, 2020, Rashid et al., 2021)
18. Effect of Foliar Zinc Spray on Growth and Yield of Heat Tolerant Wheat Under Water Stress (Hera et al., 2018)
19. Management of rice false smut disease (Nessa et al., 2022)
20. Recovering Ability of Upland and Rainfed Lowland Rice Varieties against Rice Tungro Disease (Khatun et al., 2017)
21. Magnaporthe oryzae populations adapted to finger millet and rice exhibit distinctive patterns of genetic diversity, sexuality and host interaction (Takan et al., 2012)
22. Effect of Bacterivorous and Predatory Nematodes on Macroalgal Detritus Decomposition (Hosen et al., 2011)
23. Rearing of insect larvae (*Galleria mellonella*) to observe the interaction of entomopathogenic nematode (*Heterorhabditis* spp.) (Students in Belgium, MSc program, 2009-2010)
24. Observation of nematode feeding types and age structures in different habitats (Students in Belgium, MSc program, 2009-2010)
25. Efficiency of different extraction techniques of nematodes (Students in Belgium, MSc program, 2009-2010)
26. Screening of genotypes, organic amendments and antagonistic bacteria for the management of sheath blight disease of rice (Latif et al., 2009)
27. Pathogenicity of different DNA fingerprinting types of rice brown spot pathogen *Bipolaris oryzae* (Kamal et al., 2008)

28. Diversity of the rice brown spot pathogen, *Bipolaris oryzae*, in Bangladesh assesses by genetic fingerprint analysis (Kamal et al., 2007)
29. Improvement of farmers' saved rice seed Hossain et al., 2007)
30. Dissemination of integrated disease management practices through farmers' participatory field trial (Anwar et al., 2006)
31. Efficacy of organic amendments and biocontrol agents in controlling disease Latif et al., 2005)
32. Efficacy of three nematicides for the control of ufra disease of rice Latif et al., 2004)
33. Yield loss caused by *Meloidogyne graminicola* on lowland rainfed rice in Bangladesh (Padgham et al., 2004)
34. Effect of application of $GA_3$ on CMS seed production in rice (Kader et al., 2003)
35. Agronomic response of late transplanted photosensitive aman rice (BR22) to different levels of nitrogen and spacing (Hossain et al., 2003)
36. Genetic fingerprinting to study epidemiology and biodiversity of rice pathogens (Stevens et al., 2003)
37. Synchronization in flowering of parental lines of hybrid rice by phosphorus fertilizer (Kader et al., 2002)
38. Hybrid rice seed production: new technique and approach (Mazid et al., 2002)
39. Agronomic response of hybrid and inbred rice to nitrogen fertilizer (Karmakar et al., 2001)
40. Vegetative propagation of hybrid rice as a seed saving device (Mazid et al., 2001)
41. Performance of water soaking seeds on the duration and yield of groundnut (Hossain et al., 2000)
42. LCC based nitrogen management under Rice-Chickpea system in rainfed lowland ecosystem (RLRRC project, 1999-2001)
43. Evaluation of breeding materials (RYT, ALART, PVT) as a part of variety development (Regular program)

## (c) List of Research Program Executed

1. Effect of hydrogen per oxide on the suppression of microbial growth and their management (On going program)
2. Population biology of *Rhizoctonia solani* causing Sheath blight disease in rice (PARNTER, On going program)
3. Assessment of different levels of susceptibility to sheath blight in BRRI released and other HYVs of rice (PARNTER, On going program)
4. Ecofriendly approaches to combat sheath blight disease for safe food production (PARNTER, On going program)
5. Present status of rice seed borne pathogens in Bangladesh (On going program, (Anonymous, 2022)
6. Molecular methods for identifying rice seed borne fungal pathogens (On going program)
7. Survey and monitoring of rice diseases at different AEZs of Bangladesh (On going program, Anonymous, 2022)
8. Screening of new chemicals against sheath blight disease of rice (On going program)
9. Effect of new chemicals on the development of blast disease of rice (Reported to Khamarbari, DAE for registration, (Anonymous, 2022)
10. Demonstration of blast disease management practices at farmers' field (Anonymous, 2019, 2020)
11. Detection of Blast Resistant Gene in Rice by Host-pathogen Interaction and DNA-Marker (Hossain et al., 2018)
12. Identification of climatic factors responsible for disease and insect outbreak and their appropriate management in southern region of Barishal (NATP, Phage-II, CRG sub project, 2018, Anonymous, 2018)
13. Occurrence and management of false smut disease in Barishal region (Anonymous, 2016 and 2017)
14. Down Regulation of GA-Gene in Rice by Root-knot Nematode to Establish Infection (Hossain et al., 2017)
15. Virulence analysis of *Pyricularia grisea* on rice monogenic lines detected blast *R*-gene in Bangladesh (Hossain et al., 2017)
16. Morphological and Genetical Study on *Rhizoctonia* Sheath Disease Complex of Rice in Bangladesh (Hossain et al., 2017)
17. Epidemiology, yield loss and management of blast disease of Rice in Bangladesh (Hossain et al., 2017)
18. A PCR-Based Analysis of Genetic Diversity of *Rhizoctonia Oryzae-Sativae* in Bangladesh (Hossain et al., 2017)
19. Nematode Feeding Types in Different Soil Habitats and Subsequent Study in Maize Field (Hossain et al., 2016)
20. Screening of rice germplasms for detection of resistant blast genes (*Pish, Pita, Pi9, Pita-2, Pib*) using gene specific primers (Anonymous, 2015)
21. Identification of existing races of *Pyricularia grisea* in rice in Bangladesh using monogenic lines of rice (PhD research, NATP Phase-1 project, 2010-14, Hossain et al., 2015)
22. Identification of Blast resistance genes by Host-pathogen interaction and molecular marker (Anonymous, 2015)
23. The role of gibberellin in the response of rice to *Meloidogyne graminicola* and *Hirschmanniella oryzae* infection (MSc program in Belgium, 2009-2010)
24. Evaluation of methods and primers to identify genetic variability of *Fusarium moniliforme* (Hossain et al., 2008)

25. Reduction of parasitic nematode by soil solarization in transplanted Aman rice-wheat system (Hossain et al., 2007)
26. Molecular study on *Rhizoctonia* sheath disease complex in Bangladesh to confirm the presence of three species of *Rhizoctonia* (Hossain et al., 2007, Thursday seminar, 2007)
27. Agronomic management of hybrid rice for better yield (Hossain et al., 2004)
28. Survey of rice sheath disease complex caused by *Rhizoctonia* sp. in Rajshahi (Sreenivasaprasad, S., 2004)
29. Effect of soil solarization and nematicide on soil parasitic nematode in direct seeded rice wheat system (Hossain et al., 2003)
30. Identification of rice seed associated bacteria and molecular standardization using Denaturing Gradient Gel Electrophoresis (Hossain et al., 2003)
31. A study on control of root-knot (*Meloidogyne javanica*) of wheat (Hossain et al., 2002)
32. Effect of variety and seedling age on the yield of hybrid rice (Hossain et al., 2001)
33. Management of sheath blight disease of rice under farmer's field condition (Hossain et al., 2001)

## 17. Outstanding Achievement/Research activities and achievement (SO to PSO)

**Relevant Activities: Outstanding/Notable Research Contribution/Award/Honors Received/MS/PhD Thesis Supervised/Patent Registered**

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| **a) Outstanding performance:**<br><br>**Page no.:** | (i) Received certificate on outstanding contribution to innovation in rice research suitable for the resource-poor farmers of Bangladesh from PETRRA project (2004)<br>(ii) Worked and trained as a molecular biologist from June 2002 until July 2004 under the direct supervision of Dr. Conrad Stevens, IRRI Consultant of PETRA project<br>(iii) Received GREAT DISTINCTION Certificate in Erasmus Mundus: European Master of Science in Nematology Degree from University of Gent, Belgium (2010)<br>(iv) Achieved 3rd position in Annual Performance Agreement (APA) for Plant Pathology Division, BRRI (2022-23)<br>(v) Certificate of excellence in reviewing Journal paper<br>(vi) Excellent teaching ability in agricultural subject |
| **b) Notable Research Contribution/ Project Investigator:**<br><br>**Page no.:** | (i) Worked under the project entitled "Rice sheath blight complex caused by *Rhizoctonia* species: Pathogen epidemiology and management strategies". Project ID: R 7778 (ZA 0406), UK (Sreenivasaprasad S). Led the various activities at the project site Rajshahi (2000-2003). Also invited to a 6-month research training at Warwick HRI, University of Warwick, UK (2004-05)<br>(ii) Prepared action plan for "Dissemination of Integrated Disease Management (IDM) through farmers' participatory trial" (2006)<br>(iii) Prepared action plan for "Improvement of Farmers' Saved Rice Seed Project". Agricultural Technology Transfer (ATT) Project, BARC, Farmgate, Dhaka (2007)<br>(iv) MSc research fellow of "Erasmus Mundus: European Master of Science in Nematology" funded by Erasmus Mundus, European Commission (2008-10)<br>(v) Developed working plan for the project "Identification of existing races of *Pyricularia grisea* and gene pyramiding for durable blast resistance in rice". NATP-Phage-1, PIU-BARC, BARC Complex, Farmgate, Dhaka (2010-2014).<br>(vi) Developed and executed project "Identification of climatic factors responsible for disease and insect outbreak and their appropriate management in southern region of Barisal". NATP-2 (CRG 698), BARC, Farmgate, Dhaka (2017-19). |

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| **c) Award/ Honors Received:**<br><br>**Page no.:** | (i) Received DISTINCTION Certificate (standing 1st position) in Rice seed health for crop management training from IRRI, Philippines (1999)<br>(ii) Received FIRST CHAIRMAN'S AWARD (standing 1st position) in Foundation Training. Funded by BARC and organized by Bangladesh Academy for Rural Development, Bangladesh (2000)<br>(iii) Received English Language Course Certificate from the USA Peace Crops<br>(iv) Received Funding award in Erasmus Mundus Masters Course: European Master of Science in Nematology (2008)<br>(v) Received SECOND POSITION Certificate in Theoretical and Applied Molecular Breeding training under NATP *Saltol-Sub1* Project (2012)<br>(vi) Received 3rd position of Annual Performance Agreement (APA) with the Director General, BRRI during 2022-23 (2024) |
| **d) MS/PhD Thesis Supervised/ Contribution:** | (i) Contribution in writing up of PhD thesis "Analysis of adaptation of the land races influenced by physical and chemical factors and selection for better yield in sesame (*Sesamum indicum* L.)" |
| **e) Patent:** | None |
| f) **Participation in technology transfer system, monitoring and evaluation**<br><br>**Page no.:** | (i) Attended Radio-Talks on different technologies developed by BRRI as a speaker<br>(ii) Attended television program as a speaker<br>(iii) Acted as a regular resource person of different training courses conducted by Training Division, BRRI RS, other Government and Non-Government organizations<br>(iv) Field monitoring and evaluation of inbred and hybrid rice trials (ALART, PVT) of BRRI and other organizations<br>(v) Attended in field day program<br>(vi) Member of Agricultural Technology Extension Coordination Committee (ATECC)<br>(vii) Member of District Agricultural Technology Extension Committee (DATEC)<br>(viii) Attended in the Sub-PTAC committee meeting<br>(ix) Conducted demonstration trials of BRRI developed technologies |
| g) **Member of scientific/ professional organization**<br><br>**Page no.:** | (i) Krishibid Institution Bangladesh (KIB) – Life member<br>(ii) Bangladesh Psychopathological Society – Life Member<br>(iii) Bangladesh Botanical Society – General Member<br>(iv) Bangladesh Rice Research Institute Scientists Association (BRRISA) – Member<br>(v) Asian Council of Science Editors (ACSE)- Member<br>(vi) Orcid ID: https://orcid.org/0000-0002-9943-6351<br>(vii) Researcher ID: B-4185-2018 (Provided by Thomson Reuters)<br>(viii) Live DNA ID: https://livedna.net/?dna=880.13256 |
| **h) Editorial Board Member/ Reviewer of research journal** | (i) Universal Journal of Agricultural Research (ISSN: 2332-2268 Print and 2332-2284 Online)<br>(ii) Saudi journal of biological sciences<br>(iii) SAARC journal of agriculture'<br>(iv) Plant cell biotechnology and molecular biology<br>(v) Journal of Advance Research in Food, Agriculture and Environmental science (ISSN: 2208-2417) |

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| **Page no.:** | (vi) International journal of plant and soil science<br>(vii) IJRDO-journal of agriculture and research<br>(viii) Current journal of applied science and technology<br>(ix) Biodiversitas<br>(x) Asian journal of research in crop science<br>(xi) Asian journal of agricultural extension, economics and sociology<br>(xii) Agricultural science research journal<br>(xiii) International Journal of Agriculture and Environmental Research (ISSN: 2208-2158) |
| **i) Others**<br><br><br><br><br><br>**Page no.:** | (i) Management of research station as Head/In charge<br>(ii) Participated in National/International workshop/symposium<br>(iii) Attended visitors from different organizations<br>(iv) Visited farmers' fields to solve their rice production problems<br>(v) Member in evaluation committee for recruitment<br>(vi) Member in variety evaluation committee<br>(vii) Acted as assistant presiding officer in Municipal election 2004<br>(viii) Team member for work on Molecular Markers to Fingerprint DNA of BRRI Varieties<br>(ix) Part time lecturer of Rajshahi Agricultural College<br>(x) Acted as a member in different committee<br>(xi) Member of writers Pool related to food security<br>(xii) Certificate on continuous research and research related activities under COVID 19 situation<br>(xiii) **Website/URL:** http://www.aascit.org/membership/mhossain<br>http://livedna.org/880.13256;<br>http://www.researcherid.com/rid/B-4185-2018 |

17. Referee:

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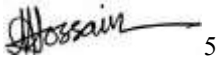
5.5.2026

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