

CURRICULUM VITAE, March 1, 2015

HASINA BEGUM

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Affiliations

June 12, 2010 to May 2014: PhD research scholar, Plant breeding, Genetics and Biotechnology Division; International Rice Research Institute (IRRI), Los Banos, Manila, Philippines, and Fellow of Third World organization for Women in Science (TWOWS), Italy.

November 2007-Till now: Scientific Officer, Bangladesh Rice Research Institute Gazipur -1700, Bangladesh.

September 2006-November 2007: Scientific Officer, Bangladesh Agricultural Research Institute, Gazipur -1700, Bangladesh.

June 2006-September 2006: Agricultural Officer, Unnayan Sangha (US) a Community Development Organization, Jamalpur, Bangladesh

Areas of Interest

Conventional and Molecular Plant Breeding, Plant Biotechnology and tissue culture

Research Experience

High throughput DNA extraction, DNA quantification and quality determination using agarose gel electrophoresis;

Molecular marker genotyping for SSR markers: running PCR, polyacrylamide ;

Gel electrophoresis (PAGE); gel imaging and scoring;

Experience in high throughput genotyping system (SNP marker);

Data analysis of given mapping populations for yield traits of elite breeding lines, Bacterial blight resistance, Tungro, False smart, submergence tolerance and using MAS in transgenic breeding;

Combining phenotypic and genotypic data for Association Mapping ;

QTL analysis using single marker analysis, simple and composite interval mapping;

Biometric and bioinformatics analysis;

Familiarity with germplasm collections and field breeding programs and a background in quantitative genetics;

Knowledge of SSR, SNP and gene-based marker development, validation and application;

Previous plant pathology experience

Previous experience with evaluation of disease resistance screens

Prior experience on working with vegetable crops specially on Tomato and Pumpkin

Demonstrated ability to communicate effectively, both written and oral

Basic understanding of farm equipment maintenance

Familiarity with breeding methodologies.

Broad knowledge of crop production and farming practices as well as farm equipment operation and repair

Familiarity with breeding and research methodologies

Knowledge of crop production, farming practices, and farm equipment operation and repair

Working knowledge of statistics

Individual leadership skills including excellent organizational and record keeping skills

Computer skills in word processing and spreadsheet programs

Ability to work as part of a multi-disciplinary/multicultural research team

Interest in international agricultural research and development;

Ability to work well as part of multidisciplinary teams;

Case studies of the application of QTL mapping for marker-assisted selection for drought tolerance in rice, pyramiding of genes for BB resistance, transfer of Sub 1 for submergence tolerance, and the transfer of golden rice traits into high yielding rice cultivars.

Language Skills

Bengali (native), English (nearly native).

Education

PhD . University of The Philippines Los Banos and International Rice research Institute, Philippines, 2014 (GPA 2)

Thesis title : Trait analysis and genome-wide association study to identify quantitative trait loci (QTLs) associated with agronomic and yield-component traits in elite irrigated rice breeding lines

Master of Science in Genetics and Plant Breeding. Sher –e- Bangle Agricultural University, Bangladesh, 2006 (GPA 3.65).

Thesis title: *In vitro* regeneration of *Corchorous* species.

Bachelor of science in Agriculture. Sher –e- Bangle Agricultural University, Bangladesh, 2001 (first class class 6th , Exam held in 2004).

Major courses took in PhD study

Introductory Molecular Biology, Advanced Genetics I & II, Methods in Plant Breeding, Population genetics, Quantitative genetics, Advanced Plant Breeding I & II, Molecular Plant Breeding , Plant Biotechnology, Methods in Crop research

Scientific articles

As PI (11)

- 1. Begum H,** Spindel JE, Lalusin A, Borromeo T, Gregorio G, Hernandez J, et al. (2015) Genome Wide Association Mapping for Yield and Other Agronomic Traits in an Elite Breeding Population of Tropical Rice (*Oryza sativa*). PLoS ONE 10(3): e0119873. doi:10.1371/journal.pone.0119873
- 2. H Begum,** A Khatun, M S R Bhuiyan, M H R Mukul and M A Zaman. 2008. Effect of different levels of NaCl on plant regeneration from cotyledons of *corchorus capsularis* and *corchorus olitorius*. Eco-friendly Agril. J. 1 (2): 118-121
- 3. H Begum,** A Khatun, MSR Bhuiyan and K Akter. 2008. Establishment of high frequency shoot regeneration method from cotyledon explants in jute (*Corchorus capsularis L*) Eco-friendly Agril. J. 1 (3) 126-130.
- 4. H Begum,** MS Ahmed, M Khatun, A Akter, M K Hossain. 2009. *In vitro*

regeneration performance of *corchorus* species. Eco-friendly Agril. J. 2 (3): 490-493

5. **H Begum**, M Khatun, M A Siddique, A Akter, M K Hossain. 2009. Influence of different concentration of Surfactants on plant regeneration from cotyledons of *corchorus capsularis* and *corchorus olitorius*. Eco-friendly Agril. J. 2 (4): 499-502.
6. **H Begum**, A Khatun, M S Rashid Bhuiyan, F Afroza, R Khatoon. Influence of different concentration of vitamins on plant regeneration from cotyledons of *corchorus capsularis* and *corchorus olitorius*. Bangladesh J.Agril. Res.34(1): 117-121,march 2009.
7. **H. Begum**, M. A. Motalib, M. Z. Islam, A. I. Saki and M. Akter. Effect of different pH levels on plant regeneration from the explants of jute. Bangladesh J. Agril.Res. 2(10) :5-10 , 2010.
8. **H. Begum**, M. Khalequzzaman, A. Akter, M. P. Ali and M. A. Motalib. Influence of different concentration of Vitamins on plant regeneration from two cultivated species of Jute.SAARC J. Agri.,7(1) ,72-84: 2009.
9. **H. Begum**, S. M. M. Islam, Shamsunnaher, P.L. Biswas and A Anssari. 2010. Effective of Different Concentration of Sucrose on Plant Regeneration of Jute. Intl. BioRes.8 (2):20-28.
10. **H Begum**, M. A Motalib, A Akhter, M. U. Kulsum, M.J. Hasan. Screening and Evaluation for Resistance to Bacterial Blight for Rice (*Xanthomonas oryzae* Pv. *Oryzae*). Eco-friendly Agri. J. 6(01):10-12,2013 (January).
11. **H Begum**, M. A Motalib, A Akhter, M. U. Kulsum, R K Roy. Wild species Identification Using Morphological Markers. Eco-friendly Agri. J. 6(01):13-16, 2013 (January).

As CI (20)

12. Spindel J, **Begum H**, Akdemir D, Virk P, Collard B, et al. (2015) Genomic Selection and Association Mapping in Rice (*Oryza sativa*): Effect of Trait Genetic Architecture, Training Population Composition, Marker Number and Statistical Model on Accuracy of Rice Genomic Selection in Elite, Tropical Rice Breeding Lines. PLoS Genet 11(2): e1004982. doi:10.1371/journal.pgen.1004982
13. M.M. Rahman, M.A. Islam, S.M. Shahidullah, S.M.M. Islam and **H.Begum**.2010.Physiogenetic variation in BRRI developed T. Aman rice (*Oryza sativa* L.) varieties. The agriculturist, 8(1): 32-37.
- 14.M.M. Rahman, M.M. Rahman, L. Rahman, **H.Begum** and S.M.M Islam.2009.Molecular characterization and diversity analysis of *Brassica* genotypes. Bangladesh Journal of Plant breeding and Genetics, 22(1): 01-08
15. M M Zaman, M Saifullah, M A Haque and **H Begum**. 2007. Growth quality and

yield of two lettuce cultivars as influenced by harvesting stages. Bangladesh J. Prog. Sci & Tech. 5 (2): 369-372.

16. F. Afroze, M.F. Hossain, M. Ali, M.A. Sadat and **H. Begum**, December 2007. Genetic variability and character association in ash gourd. (*Beninkasa Hispida* T). J. agric. educ. technol 10 (land 2): 105-110.
17. M T Khatun, M A A Bari, M A Zaman, **H Begum**, S Akter. Heterosis estimates in F₂ diallel population of spring wheat under interaction cultural environments. Bangladesh J.Agril.Res.34(1):123-141,march 2009.
18. M P Ali, M Asaduzzaman, A B M Anwar Uddin,R Khatun and **H Begum**.2009 Efficacy of sesame oil as protectant of seed against pulse beetle (*Callosobruchus Chinensis*) (L) on stored gram seed . Eco-friendly Agril. J. 2 (5): 555-558.
19. M A Siddique, N Islam, **H Begum**, A Bhuiya, and M A A Mamun. 2009. Effect of plant spacing and nitrogen level on the yield performance of Transplant Aman Rice CV. Surjomoni. Eco-friendly Agril. J. 2 (6): 637-640.
20. M. Khatun, S. Ghosal, M. R. Hasan, R.R. Majumder, **H. Begum**. 2011. Correlation and path Coefficiency of Rice Genotypes (*Oryza Sativa* L) Eco-friendly Agril. J. 4 (12): 768-773, 2011(December).
21. M Khatun P S Biswas, M A Hossain, M K H Hossain and **H Begum**. 2010 .Genetic variability, character association and path coefficient analysis of rice genotypes (*Oryza sativa* L.) Intl. J. BioRes. 9(3):36-40.
22. A.Akter, M.J.Hassan, **H.Begum**, M.U.Kulsum and M.K.Hossain. 2010.Combining ability analysis in rice (*Oryza sativa* L.). Bangladesh J. Pl. Breed. Genet., 23(2): 07-13.
23. M.U. Kulsum, M.J. Hasan, **H Begum**, M. M, Billah and H. Rahman. 2011. Genetic Diversity of some restorer lines for hybrid rice development. Bangladesh J. Agril.Res. 36(1): 21-28.
24. Shamsunnaheer, M A Gaffar, A Ansari, M H R Mukul and **H Begum**. Effect of explants age of on regeneration capacity in kenaf (*Hibiscus cannabinus* L). Intl. J. BioRes.7(3):7-13, Sep,2009.
25. M Z Islam, **H Begum**, M A Siddique, A Bhuiya and M M R Dewan. A study on wheat seed quality in different storage containers. Eco-friendly Agril. J. 2 (12): 1033-1037,2009(December).
26. A. I Saki, M A. Zaman, M. Thina-Khatun, M M. Kamal and **Hasina Begum**. Genetic Variability, Correlation and Path Co-efficient Analysis for Agronomic Traits in checkpea(*Cicer arietinum* L.) .The Agriculturists 7(1&2):12-21(2009).
27. M J Islam, M I U Mollah, M S Hossain and **H Begum**. Cracking puddled soils and management for increasing water retention capacity. Eco-friendly Agril. J. 2 (10): 875-880, 2009 (October).

28. P L Biswas, A K Paul, M K Hossain, A Akter, **H Begum** and S Ghosal. Variability and Character association studies in hybrid rice. Intl. J. BioRes.7 (1):48-52, July,2009
29. M Akter, M A Haque, M A Monsur, M K Quais and **H Begum**. Biological Activity of Celaflor Against Pulse Beetle, *Callosobruchus Maculatus*(Fab). Bangladesh j. entomol.(2009) **19** (1), 79-89.
30. Kamal Hossain, A Akter, **H Begum** A Ansari, and M M Rahman.2009. Line x Tester analysis for yield and its related traits in rice (*Oryza sativa* L.). *Bangladesh J. Pl. Breed. Genet.* 22(1):01-06.
31. K Hossain, A Akter, **H Begum** M Khatun and ASM Masuduzzaman.2009. Genetic diversity and its association with heterosis in rice (*Oryza sativa* L.). *Bangladesh J. Pl. Breed. Genet.* 22(2):39-46.

Proceedings paper

Abstract

1. A.Akter, M.J.Hassan, M.H. Rahman, **H. Begum**, M.Umma Kulsum.2014.Stability analysis for grain yield of promising hybrid Rice (*Oryza sativa* L.) across different locations by AMMI model. 9th Biennial Conference, 25-26 October, 2014, Plant Breeding and Genetic Society of Bangladesh.P50.
2. **H Begum**, A Khatun, M S Rashid Bhuiyan, F Afroza, R Khaton. Influence of different concentration of vitamins on plant regeneration from cotyledons of *corchorus capsularis* and *corchorus olitorius*. International conference paper on plant Breeding and Seed for food security. P: 51, 10-12 March 2009
- 3 .M T Khatun, M A A Bari, M A Zaman, **H Begum**, S Akter. Heterosis estimates in F₂ diallel population of spring wheat under interaction cultural environments. International conference paper on plant Breeding and Seed for food security. P: 50, 10-12 March 2009

Poster

1. Genome wide association study (GWAS) for agronomic and yield- component traits using a set of elite irrigated breeding lines. **H. Begum**, V. Lopena, V. Bartolome, P. Virk, G. Gregorio, J. Spindel, S. McCouch, B. Collard (Philippines). 7th International Rice Genetics Symposium, 5-8 November, 2013
2. Exploring the Efficacy of Genomic Selection in Rice Using Elite Lines of the International Rice Research Institute's Irrigated Rice Breeding Program. Date: Monday, January 13, 2014 Room: Grand Exhibit Hall

Jennifer E. Spindel , Cornell University, Ithaca, NY; **Hasina Begum** , International Rice Research Institute, Metro Manila, Philippines; Bertrand Collard , International Rice Research Institute, Metro Manila, Philippines; Edilberto Redoña , International Rice Research Institute, Metro Manila, Philippines and Susan McCouch , Cornell University, Ithaca, NY.(<https://pag.confex.com/pag/xxii/webprogram/Paper10602.html>)

Published books

Influence of Different Factors on Regeneration of Jute

Online: <https://www.morebooks.de/store/gb/book/influence-of-different-factors-on-regeneration-of-jute/isbn/978-3-8473-3711-9>

Professional Training/Workshop/Seminar Obtained

1. SNP Data Analysis, April 16-21, 2012. IRRI HQ, Los Banos, Philippines
2. Analysis of Experimental data Using the SAS system held on June 18-22, 2012, IRRI, Philippines
3. Basic Experimental Design and Data Analysis for Breeding trails. May 21-25, 2012. IRRI HQ, Philippines
4. Research Data Management 101 Training workshop-February 20-22, 2012. IRRI HQ, Philippines
5. Training workshop on "Marker Assisted Breeding for Bangladesh" from 18 November to 27 November 2008, BRRI, Bangladesh
6. "Rice breeding and Hybrid rice Development" held in Bangladesh Rice Research Institute, Gazipur, Bangladesh from 06-10 April, 2008
- 7.1- Month Rice Production Training held in Bangladesh Rice Research Institute, Gazipur, Bangladesh from July 27 to August 25, 2008
8. Breeder Seed Production Technology held in Bangladesh Rice Research Institute, Gazipur, Bangladesh from 14-16 June 2008

Teaching and theses/research Supervising

BRRI, Gazipur, Bangladesh (2007-2014)

- Research methodology development
- Research paper supervisor

Research contribution

As PI:

- 1.Evaluation of aromatic rice germplasm through morpho and physico-chemical properties**
- 2.Screening of rice germplasm for evaluation of Zinc content in grain**
- 3.Screening of short growth duration crop and its effect on yield and yield contributing character**

As CI

- 1.Collection,characterization**
- 2.Characterization and diversity evaluation of BRRI developed varieties**
- 3.Studies on selection criteria and genetic divergence of some landraces of rice**
- 4.Effect of seed maturity on grain quality of Breeder seed of rice**
- 5.Seed production Technology package**

Professional Affiliation

Association name	Nature of membership	Year of registration
BIRRI scientist association	General Member	2007
Plant Breeding and Genetics Society of Bangladesh	General Member	2008
Krishibid Institution of Bangladesh	General Member	2008
Bangladesh Society of Seed Science	Life Member	2010
Bangladesh Society for BioInformatics	Life Member	2010

Working papers/ Journal Articles in Progress

1. Cryopreservation through desiccation techniques of coconut zygotic embryos
2. Slow growth stage of single node shoots of sweet potato genotypes
3. Genotypic differences response to salinity stress
4. In *vitro* collecting coconut
5. Wild species identification using Morphological markers
6. Screening and evaluation for resistance to bacterial blight for rice (*xanthomonas oryzae pv. Oryzae*)
7. Morpho agronomical characterization and evaluation of in country sweet potato accession in Philippines
8. Morphological variation of Hoya at different habitat type in Philippines
9. Variety trials of mungbean in Philippines

Biographical

Date of Birth: June 01, 1980

Civil status: Married

Children: One Son

Religion: Muslim

References

1. Dr. Glenn Gregorio, senior scientist

(Supervisor of PhD Dissertation)

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2. Dr. Bert Collard, Senior scientist

(Supervisor of PhD Dissertation)

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3. Jose E. Hernandez, PhD

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(Supervisor)

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