

# Curriculum Vitae

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## Personal Information

### Dr. Zilhas Ahmed Jewel

#### Assistant Professor

(Plant Breeding and Plant Genetic)

Department of Agriculture

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## Professional experience and expertise

Develop green super rice variety with improved nutrient use efficiency (NuUE) is a vital target area to increase yield and make it more stable under rainfed conditions. A total of 230 BC<sub>1</sub>F<sub>6</sub> introgression lines (ILs) were developed from a single early backcross population. A high-density linkage map was constructed by using 704 high-quality single nucleotide polymorphism (SNP) markers. Of my research 49 main-effect QTLs were identified on 12 rice chromosomes. I identified four novel putative QTLs for agronomic efficiency (AE) and 22 QTLs for partial factor productivity (PFP). Also 9 years' experience in breeding, phenotyping and charactering of rice of low land, upland, salinity and submergence stress environment in Bangladesh , Philippines and China. Currently working as Assistant Professor of Plant Breeding & Plant Genetics in the Department of Agriculture at Bangabandhu Sheikh Mujibur Rahman Science and Technology University also collaborate working with International Rice Research Institute (IRRI, Bangladesh Office) to perform Breeding Zone Yield trial to select best breeding line to bred zone specific breeding lines for the targeted region of Asia.

## Academic Qualifications

Name of Institute/Board/University	Name of Degree	Passing Year	Class/CGPA	Taught Subject
University of the Philippines Los Banos (UPLB)	Ph.D	2015	1.69 (Cum laude)	Plant Breeding & Plant Genetics
Bangladesh Agricultural University (BAU)	M. Sc	2010	3.72 (out of 4.0)	Genetics and Plant Breeding

## Publications

### a. Book Published

- Plant Genetics and Molecular Breeding (*Two Chapter Contribute*)**, MDPI-Books, Publishing open Access books and series, ISBN 978-3-03921-175-3 (Pbk); ISBN 978-3-03921-176-0 (PDF) <https://doi.org/10.3390/books978-3-03921-176-0> © 2019 by the authors; CC BY-NC-ND licence, Published: July 2019 (This book is a printed edition of the Special Issue Plant Genetics and Molecular Breeding that was published in *IJMS*)

**2. Genetic Study of Aromatic Rice through Molecular Markers”** LAP Lambert Academic Publishing, German, ISBN 978-3-8465-2977-5, October, 2011

**b. Research Article Published**

1. **Ahmed, Z.**, Ali, J., Pang, Y., Mahender, A., Acero, B., Hernandez, J., Li, Z. (2019). Science Direct Developing green super rice varieties with high nutrient use efficiency by phenotypic selection under varied nutrient conditions. *The Crop Journal*, 7(3), 368–377. <https://doi.org/10.1016/j.cj.2019.01.002>. (SCI-Impact factor: 2.658)
2. **Jewel, Z.A.**; Ali, J.; Mahender, A.; Hernandez, J.; Pang, Y.; Li, Z. Identification of Quantitative Trait Loci Associated with Nutrient Use Efficiency Traits, Using SNP Markers in an Early Backcross Population of Rice (*Oryza sativa* L.). *Int. J. Mol. Sci.* **2019**, 20, 900. (doi:10.3390/ijms20040900) (SCI-Impact factor: 4.183)
3. Ali, J.; **Jewel, Z.A.**; Mahender, A.; Anandan, A.; Hernandez, J.; Li, Z. Molecular Genetics and Breeding for Nutrient Use Efficiency in Rice. *Int. J. Mol. Sci.* **2018**, 19, 1762. (doi:10.3390/ijms19061762) (SCI-Impact factor: 4.183)
4. Varunseelan Murugaiyan, Jauhar Ali, Anumalla Mahender, Umair M Aslam, **Zilhas Ahmed Jewel**. Yunlong Pang, Corinne M Marfori-Nazarea,; Lin-Bo Wu, Michael Frei, Zhikang Li. Mapping of genomic regions associated with arsenic toxicity tolerance in a backcross breeding population of rice (*Oryza sativa* L.)"RICE-D-19-00068, (Review Complete waiting for publish to Rice Journal <https://thericejournal.springeropen.com/>) (SCI-Impact factor: 3.039)
5. Najeeb Ul-Rehman Sofi, Jauhar Al, Anumalla Mahender, Yunlong Pang, **Zilhas Ahmed Jewel**, Varunseelan Murugaiyan, Lakshminarayana R Vemireddy, Zhikang Li, "Identification of main- effect quantitative trait loci (QTLs) for low- temperature stress tolerance germination- and early seedling vigor- related traits in rice (*Oryza sativa* L.) (Review Complete waiting for publish to Molecular Breeding Journal <https://thericejournal.springeropen.com/>) (SCI-Impact factor: 2.077)
6. **Z. A. Jewel**, A. K. Patwary, S. Maniruzzaman, R. Barua and S. N. Begum, Physico-chemical and Genetic Analysis of Aromatic Rice (*Oryza sativa* L.) Germplasm, *The Agriculturists* 9(1&2): 82-88(2011) ISSN-1729-5211 A Scientific Journal of Krishi Foundation
7. R. Barua<sup>1</sup>, M. S. U. Bhuiya, M. M. Kabir, S. Maniruzzaman<sup>3</sup> and **Z. Ahmed**, Effects of Mimosa (*Mimosa invisa*) Compost and Phosphorus on the Yield and Yield Components of Lentil (*Lens culinaris* L.), *The Agriculturists* 9(1&2): 63-72(2011) ISSN-1729-5211 A Scientific Journal of Krishi Foundation
8. S Moniruzzaman, T Akter, R Barua, **Z Ahmed**, M S Islam, Effect of cut corm plant spacing on vase life of gladiolus, *Eco-friendly Agril. J.*4(12):774-778, 2011

**Employment history**

- **2018 to Date Assistant Professor-Department of Agriculture at BSMRSTU**
  - Coordinator of genetics and plant breeding classes
  - Conducted one project on Germplasm collection and conservations
  - Conducting Breeding Zone Yield trial with IRRI-Bangladesh to select best breeding line to breed zone specific breeding lines for the targeted region of Asia.

- **2016 to 2018 Assistant Scientist-Plant Breeding:** International Rice Research Institute(IRRI)
  - Assist in designing and implementing the rice breeding research of ACI-IRRI PPP project
  - Manage the implementation of experiments and other research studies to the PPP
  - Consolidate, evaluate and analyze research data related to rice breeding activities
  - Contribute to the preparation of reports, publications and presentations
  - Coordinate and prepare training
  - Peoples management and perform any other duties as assigned by supervisor from time to time
  - Facilitate the timely transfer of germplasm from IRRI HQ to ACI and coordinate in laboratory based activities in the ACI laboratory
  - Assist in interpretation of result in relation to laboratory experiments, Make recommendations for further research, Assure maintenance of accurate data recording and update database for efficient storage and retrieval of information
  - Assist in developing the capacity of public sector institutions i. e., national agricultural research and extension system to support private sector led crop production programs.
- **2011-2015 PhD Research Scholar:** Plant Breeding, Genetics and Biotechnology Division, International Rice Research Institute (IRRI), Los Banos, Laguna, Philippines
  - Bred Nutrient Use Efficient Rice (NUE) cultivars for the targeted region of Asia and Africa
  - A total of 230 BC1F5 introgression lines (ILs) were developed from a single early backcross population involving Weed Tolerant Rice 1, as the recipient parent, and Hao-an-nong, as the donor parent. The ILs were cultivated in field conditions with a different combination of fertilizer schedule under six nutrient conditions: minus nitrogen (–N), minus phosphorus (–P), (–NP), minus nitrogen phosphorus and potassium (–NPK), 75% of recommended nitrogen (75N), and NPK.
  - A high-density linkage map was constructed by using 704 high-quality single nucleotide polymorphism (SNP) markers. A total of 49 main-effect QTLs were identified on all chromosomes. With further analysis of these QTLs, I refined them to four top hotspot QTLs (QTL harbor-I to IV) located on chromosomes 3, 5, 9, and 11. However, I identified four novel putative QTLs for agronomic efficiency (AE) and 22 QTLs for partial factor productivity (PFP) under –P and 75N conditions.
  - These interval regions of QTLs, several transporters and genes are located that were involved in nutrient uptake from soil to plant organs and tolerance to biotic and abiotic stresses.
  - The promising ILs can be useful resources for molecular genetic dissection and understanding the physiological mechanisms of NuUE.
  - Assist in designing and implementing the rice breeding research of GSR project
  - Provide research support (data collection, collation and maintenance) to Program Leader/ Project Manager / Scientists in the field of rice based farming system
  - Assist in Knowledge management and training; Coordination and partnership building; Monitoring, evaluation and reporting
- **2011-2015 PhD Student/Research Associate (Regular):** Institute of Plant Breeding, University of the Philippines Los Banos(UPLB), Laguna, Philippines
  - Project implementation, Data collection, analyzes, report preparation & presentation.
  - Direct involvement in the day to day project activities during project implementation.
  - Essential data collection under the close supervision of project investigator

- **2010-2011 Technology Development Scientist:** Molecular Biology Laboratory, BRAC Agriculture Research and Development Centre, Gazipur, Bangladesh
  - Supervise the work of research officer and research technicians
  - Provide assistance and guidelines/information to project staff on implementation of experiments including the logistics.
  - Assign, monitor and evaluate research activities/tasks performed by Researcher, Research Technicians and contract workers, provide guidance when necessary.
  - Maintain smooth conduct of experiments by troubleshooting and fostering a productive teamwork environment
  - Assist in developing standard research protocol
- **2008-2009 M.Sc Research Scholar:** Plant Biotechnology Division, Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh Agricultural University Campus, Mymensingh, Bangladesh
  - Identified *fgr* genes from traditional aromatic rice germplasm in Bangladesh
  - Summarize research findings and draft manuscripts for publication in refereed journals
  - Take part in developing suitable rice breeding materials in close coordination with the molecular and conventional breeders
  - Select adequate research tools and equipments
  - Assist in the identification of research technicians and assign tasks/responsibilities
- **2009-2010 Research Monitoring Officer:** International Fertilizer Development Center, Bangladesh.
  - Draft training material using readily available published information
  - Prepare necessary supply: identify resource persons: make sure that the logistics are appropriate for defined purpose
  - Act as resource person for training courses and visitors

### **Awards & Recognition**

- Bill and Melinda Gates Foundation (BMGF Scholarship) through International Rice Research Institute- Green Super Rice Project, Los Banos, Laguna, Philippines
- International Rice Research Institute awarded on work with “**Development of nutrient use efficient (NUE) rice (*Oryza sativa* L.) cultivars and identification of QTLs governing NUE related traits**” 3 May 2011 to 7 July, 2015, International Rice Research Institute, Los Banos, Laguna, Philippines
- International Rice Research Institute Training Centre awards **Plaque of Appreciation** for distinguished leadership and dedicated service to Association of Fellows, Scholars, Trainees and Residents of IRRI in 2012, given at 23 February 2013, Los Banos, Laguna, Philippines

### **Competences and technical skills**

- Use plant molecular breeding approach and genomic tools to develop rice cultivars and improved traits under low input, biotic and abiotic stress environments
- QTLs mapping and analysis
- Resistant breeding of Bacterial leaf blight (BLB), Blast
- Identification of QTLs
- Gene Expression and markers analysis

### **Conferences presentation**

#### **(1) Invited Seminar Talks:**

- Graduate School Seminar, Crop science Cluster, College of Agriculture, University of the Philippines Los Banos, Laguna, Philippines (2013)

**Speech Title: Evaluation of Bioactive Compounds in Pigmented Rice Gerplasm**

- Graduate School Seminar, Crop science Cluster, College of Agriculture, University of the Philippines Los Banos, Laguna, Philippines (2014)

**Speech Title: Heterosis in F<sub>1</sub> hybrids among three local and three HYV rice (*Oryza sativa* L.) varieties**

- PhD Seminar, Institute of Plant Breeding, University of the Philippines Los Banos, Laguna, Philippines (2015)

**Speech Title: Development of nutrient use efficient (NUE) rice (*Oryza sativa* L.) cultivars and identification of QTLs governing NUE related traits**

**(2) Participated Conferences with Presentation**

- **2018:** Participated on 2<sup>nd</sup> Transforming Rice Breeding: Current Status and Way Forward, 18-20 November, 2018 ACI Center, Dhaka Bangladesh
- Poster presented on 5<sup>th</sup> International Rice Congress, 14-18 October, 2018, Marina Bay Sands, Singapore
- **2017:** Participated on Transforming Rice Breeding: Cutting edge Breeding Approach, 23-24 October, 2017 ACI Center, Dhaka Bangladesh
- **2016:** Participant and poster presentation on 7<sup>th</sup> International Rice Blast Conference: Identification of novel blast resistant rice germplasm in Bangladesh through morphological and molecular characterization. 9-13 October, 2016, the Bellevue Manila, Alabang, Metro Manila, the Philippines.
- **2015:** Participant on 23<sup>rd</sup> Bangladesh Science Conference "Science and Technology for National Development" 17-18 October, 2015, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur, Bangladesh
- **2015:** Paper presented on "Development of nutrient use efficient (NUE) rice (*Oryza sativa* L.) cultivars and identification of QTLs governing NUE related traits" Graduate Student and Leadership Conference of graduate university, 16 May, 2015, SEARCA Umali, Hall, SEARCA, University of the Philippines Los Banos, Laguna, Philippines
- **2013:** Abstract and poster presented on (Heterosis in F<sub>1</sub> hybrids among local and high yielding varieties of rice (*Oryza sativa* L.) ,7<sup>th</sup> International Rice Genetics Symposium, International Rice Research Institute, 5 -8 November, 2013, Dusit Thani Hotel, Manila, Philippines
- **2010:** Abstract and poster presented on (Physico-chemical and Genetic Analysis of Aromatic Rice (*Oryza sativa* L.) Germplasm), 3<sup>rd</sup> International Conference on Plant Molecular Breeding. 5-9 September, 2010, Beijing P.R. China.
- **2008:** International Conference on Plant Breeding and Seed for Food Security (Bangladesh Agricultural Research Council, 2008)
- **2007:** National seminar on Disaster management in Bangladesh: Role of education and Research (Patuakhali Science & Technology University, 2007).

**Professional Affiliations**

- Member of Plant Breeding Society and Genetics of Bangladesh
- Member of Bangladesh Association for the Advancement of Society
- Member of Association of Fellows, Scholars, Trainees and Residents (AFSTRI) at International Rice Research Institute (IRRI), Los Baños, Laguna, Philippine

**Science contributions (Reviewer)**

- i. Reviewer of International Journal Environmental & Agricultural Science <https://bioaccent.org/environmental-agricultural-science/>
- ii. Reviewer of AGRIVITA, Journal of Agricultural Science <https://agrivita.ub.ac.id/index.php/agrivita>
- iii. Pakistan Journal of Scientific & Industrial Research
- iv. Journal of Analytical and Bioanalytical Chemistry.

## **Others Training**

### **International:**

- i. Rice Research to Production course, 14 August-1 September, 2017, International Rice Research Institute, Los Banos, Laguna, Philippines
- ii. Basic Leadership and Presentation Skills Training, 10 September, 2014, International Rice Research Institute, Los Banos, Laguna, Philippines
- iii. Quality Seed production training course, 11-13 August 2014 at International Rice Research Institute Los Banos, Laguna, Philippines
- iv. Plant Breeding Genetics and Biotechnology(PBGB)-Risk Management and Quality Assurance(RMQA) Training course, 11-13 August, 2014, International Rice Research Institute, Los Banos, Laguna, Philippines
- v. Effective Presentation Skill workshop, 12-14 November, 2012, International Rice Research Institute, Los Banos, Laguna, Philippines
- vi. Basic Molecular Experimental Skill Training, 10-12 August, 2013, Molecular Breeding Laboratory, International Rice Research Institute, Los Banos ,Laguna, Philippines
- vii. Analysis of Experimental Data Using The SAS System, 24-28 June, 2013, International Rice Research Institute, Los Banos, Laguna, Philippines
- viii. Introduction to Bioinformatics Training Workshop, 30-31 May, 2013, International Rice Research Institute, Los Banos , Laguna, Philippines
- ix. Experimental Designs and Data Analysis for Breeding Trials(PBtools and STAR statistical software), 20-24 May, 2013, International Rice Research Institute, Los Banos, Laguna, Philippines
- x. SNP Data Analysis Course, 22-27 April, 2013, International Rice research Institute, Los Banos, Laguna, Philippines
- xi. Research Data Management (RDM101), 19-21 February, 2013. IL learning center, International Rice Research Institute, Laguna, Philippines
- xii. Multicultural Environment Training IRRI, 18 October, 2012, International Rice Research Institute, Los Banos, Laguna, Philippines
- xiii. Spurring a Transformation in Agriculture through Remote Sensing(STARS), Geospatial Tools to Target Surface Water Irrigation, June 6, 2016 organized jointly by CIMMYT-Bangladesh and CEGIS Bangladesh
- xiv. International Training Workshop on Plant Molecular Breeding Techniques, 29August- 11 September, 2010(Chinese Academy of Agricultural Science), Beijing P.R. China

### **National:**

- i. Participated on Training course on P-replication design using DiGger” December 5, 2017, at Bangladesh Rice Research Institute, Gazipur, Bangladesh
- ii. Trainer assistant and participant of Training course on Rice Breeding for Product Deelopment,24-27day of July, 2017 at International Rice Research Institute-IRRI Bangladesh ,Dhaka, Bangladesh
- iii. Trainer assistant and participant of Plant Breeding Tools rice under the ACI-IRRI public private partnership project,26-29 day of August, 2016 at ACI center, Dhaka, Bangladesh



- iv. Trainer of training on “Field evaluation and Management Practices of Rice” under the ACI-IRRI public private partnership project, 13<sup>th</sup> day of July 2016 at Central Research Station, Gazipur, Bangladesh
- v. Participated on 2<sup>nd</sup> Annual meeting on Drying Beads Marketing in Bangladesh. October 15, 2017, at Lake castle hotel Dhaka, Bangladesh
- vi. Breeding Management System Training using Breeding Value Software, March 28-29, 2016, ACI-IRRI -Public Private Partnership Project ,International Rice Research Institute(IRRI), IRRI Bangladesh office, House 103, Road 1, Block F, Dhaka, Bangladesh
- vii. Trainer of training on “Participatory Varietal Selection (PVS) 13 October, 2015, BRAC Agricultural Research and Development Center, CERDI Road, Gazipur-1701, Bangladesh
- viii. Green Super Rice Training Course on Crop Management Skills for Bangladeshi Researchers and Extension Agents, 6-7 September, 2015, Bangladesh Rice Research Institute, Gazipur, Bangladesh
- ix. Improved Livelihood for SIDR Affected Rice Farmers (ILSAFARM)” implementation of USAID (IFDC. January, 2010)
- x. Hybrid Rice Seed production Training, 22-28 February, 2011, Bangladesh Rice Research Institute, Gazipur, Bangladesh
- xi. Participated on Basics of MS Office, 18-31 August 2008, Graduate training Institute , Bangladesh Agricultural University, Mymensingh, Bangladesh

## References

### **B.P. Mallikarjuna Swamy**

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### **Dr. Jauhar Ali**

Plant Breeder, Senior Scientist-II IRRI-GSR Project  
Leader & Coordinator (Asia & ES Africa) for the  
Development of Green Super Rice (GSR), PBGB,  
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*I certify the above information provided is correct to the best of my knowledge and faith.*

Dated: 14 July 2019

Signature



**(Dr. Zilhas Ahmed Jewel)**