Curriculum Vitae

Dr. Md Aminul Islam

Assistant Professor
Dept. of Botany, Majuli College, Majuli, Assam-785106
Mobile no: **9555017961**
Email ID: aminul.islam102@gmail.com

SUMMARY

I would like to teach as well as conducting research on plant genetics and molecular biology. I have been spending over nine years on research, mainly focused on the development of molecular approaches for plant improvement with following components.

1. Application of contemporary genetic and genomic technologies to studying genome variation and inheritance of complex traits in plants.
2. Development and application of genomics-assisted breeding strategies for crop improvement.
3. Molecular genetics and integrated functional genomics of plant adaptation to stress environments.

ACADEMIC INFORMATION

Doctor of Philosophy, Plant Science, TERI University, New Delhi, India

- March 2016
- Dissertation: Germplasm characterization and mapping of pungency locus in *Capsicum* spp. from NE India.

Master of Science, Botany, Gauhati University, Guwahati, India

- December 2007
- Specialization in Cytology, Genetics and Plant Breeding

Bachelor of Science, Botany, Gauhati University, Assam, India

- August 2005
- Major: Botany
- Dissertation: Effect of chemical mutagen EMS (Ethyl methane sulphonate) on mitotic index of *Allium* spp.
- Graduation with Distinction

NATIONAL LEVEL EXAM CLEARED

1. **CSIR-UGC NET:** Qualified National Eligibility Test for lectureship conducted by Council of Scientific and Industrial Research (CSIR) & University Grand Commission (UGC), India (2018).
2. **GATE:** Qualified graduate aptitude test in engineering (GATE) conduct by Indian Institute of Sciences (IISc) and Indian Institutes of Technology (IITs), India (2014).

3. **NET (ICAR)**: Qualified National eligibility test for lectureship conducted by Agricultural Scientist Recruitment Board, Government of India (Feb 2013).

FELLOWSHIP/AWARDS

1. Received **NESA Young Scientist of The Year Award-2020**, National Environmental Science Academy, India.
2. Received **CSIR Research Associateship, 2017** from Council of Scientific and Industrial Research (CSIR), India.
3. Received the **National Postdoctoral Fellowship (N-PDF) 2016,** Science and Engineering Research Board, Department of Science and Technology, Govt. of India.

GRANTS

1. Project title: Identification of sequence variations for use in genetic mapping and QTLs analysis in lentil.
   Source: Science and Engineering Research Board, Govt. of India
   Amount: 19,20,000 Indian Rupees

RESEARCH SKILLS

Karyotyping, chromosomal Molecular marker development, Genotyping using AFLP, SSR, TE-AFLP, ISSR, RAPD markers, Gene isolation and cloning, Transformation, Tissue culture techniques, Construction of linkage map, Mapping of traits, QTLs identification, Southern blotting, Collection of phenotypic data and evaluation of using statistical packages.

INSTRUMENT HANDLING/ANALYSES SKILLS

Polymerase chain reaction (PCR), Electrophoresis units, Nano Drop spectrophotometer, Alpha-Imager, DNA analyser, UV-visible Spectrophotometer, HPLC, Ultracentrifuge, Compound & Confocal Microscope.

BIOINFORMATIC TOOLS

Multiple sequence analysis, Local and Global alignment, Synteny analysis, Gene prediction, Primer designing, SSR mining, Phylogenetic and evolutionary analysis, RNA transcriptome analysis and next generation sequencing analysis.

HANDS ON SOFTWARE'S

Population study: NTSYs pc, PowerMarker, Structure, PopGene, DARwin, Arliquin
Linkage mapping: JoinMap, ICIMapping, MapChart
QTL mapping: MapQTL, ICIMapping, QTL cartographer
Association Mapping: TASSEL
Molecular Tools: BioEdit, MEGA, Clustal W, Clustal X
Statistical Software: SPSS
Transcriptome Analysis: NGS QC Toolkit, Trinity

RESEARCH EXPERIENCES/ EMPLOYMENT

B P Chaliha College, Nagarbera, Assam India

Research Associate cum Assistant Professor 2018-2019
Teaching Genetics, Plant Breeding and Molecular Biology

National Institute of Plant Genome Research, New Delhi India
National Postdoctoral Fellow, Advisor: Dr. Sabhyata Bhatia 2016-2018
Identification of sequence variation for use in genetic mapping and QTL analysis in Lentil.

- Next generation sequencing
- Transcriptome profiling of lentil
- Development large number of microsatellite and SNP markers
- Genotyping by NGS technology
- QTLs analysis for pod dehiscent and seed traits

Indian Agricultural Research Institute, New Delhi India
Senior Research fellow, Advisor: Dr Vinod 2015-16
Hybrid technology for higher productivity in selected field of horticultural crop (wheat).

- Screening and selection of wheat genotypes
- Development of mapping population
- Validation of hybrid variety
- Phylogenetic studies of wheat grasses

The Energy and Research Institute, New Delhi India
Project Assistant, Advisor: Dr. Shashi Bhushan Tripathi 2009-10
Germplasm characterization of Indian Seabuckthorn using molecular marker.

- Germplasm collection
- Development of novel microsatellite markers
- Analysis genetic diversity using amplified fragment length polymorphism (AFLP).

The Energy and Research Institute, New Delhi India
Project consultant, Advisor: Dr. Shashi Bhushan Tripathi 2008-09
Collection and maintain the Jatropha germplasm from NE India.

- Collection of Jatropha germplasm
- Evaluation of phenotypic diversity
- Maintaining in-situ germplasm

TEACHING EXPERIENCE

Majuli College, Majuli, Assam
Assistant Professor, Botany 2021- Till date
Genetics, Plant Breeding and Molecular Biology

USTM, Ri-Bhoi, Meghalaya India
Assistant Professor, Botany 2020-2021
Genetics, Plant Breeding and Molecular Biology

BP Chaliha College, Nagarbera, Assam India
Assistant Professor (Guest), Botany 2018-2019
Genetics, Plant Breeding and Molecular Biology

LIFE TIME SOCIETY MEMBERSHIP

- Indian Society of Genetics and Plant Breeding
- Indian Science Congress

SUPERVISING POSTGRADUATE

- Co-supervised eight graduate for their thesis

DEVELOPMENT OF E-LEARNING DELIVERY PROCESS/MATERIAL

- "GM technology for conferring resistance to biotic stress (pests, viruses and fungi)" University Grand Commission (UGC), Govt. of India.

INVITED TALK/SPEAKER

- "Molecular Marker in Modern Agriculture: Current Status and Future" at Rathnavel Subramaniam College of Arts and Science, Coimbatore, Tamil Nadu, India.
- "Role of molecular approaches in biodiversity conservation" at Pandit Deendayal Upadhayay Aadarsha Mahavidyalaya, Behali, Biswanath, Assam, India.
- "Principal of microscopy and image documentation" at B P Chaliha College, Assam, India.
- "From Mendelian to Molecular Genetics" at B P Chaliha College, Assam, India.
- "An overview of genetics" at Goalpara College, Goalpara, Assam.

EXPERIENCE AS PEER REVIEWER

- Frontier in Plant Science
- Industrial Crops and Products
- Bulletin of the National Research Centre

PUBLICATIONS IN PEER REVIEWED JOURNALS

1. **Islam MA**, Shivaraj SM, Kumar V, Phad DS, Sonah H, Tripathi SB, Deshmukh RK (2021) Development of chloroplast microsatellite markers in Capsicum: Insight into evolution of "Bhut Jolokia" a clad of ghost chilli landraces. Indian Journal of Genetics 81:1-8.
2. Borborah K, Saikia D, Rehman M, **Islam MA**, Mahanta S, Chutia J, Borthakur SK, Tanti B (2020) Comparative analysis of genetic diversity in some non-commercial cultivars of Musa L. from Assam, India, using morphometric and ISSR markers. International Journal of Fruit Science. 1-15
3. Nahar S, Lahkar L, **Islam MA**, Saikia D, Shandilya ZM, Vemireddy LR, Sahoo L, Tanti B (2020) Genetic diversity based on osmotic stress tolerance-related morpho-physiological traits and molecular markers in traditional rice cultivars. Biologia 75:669-679
4. **Islam MA**, Sinha P, Sharma SS, Negi MS, Tripathi SB (2017) Isolation and characterization of novel polymorphic microsatellite loci in Hippophae rhamnoides. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences 87:727–732
5. Sharma SS, **Islam MA**, Negi MS, Tripathi SB (2017) Estimation of outcrossing rates in biodiesel species Pongamia pinnata based on AFLP and microsatellite markers. National Academy Science Letters 40:105-108
6. **Islam MA**, Sinha P, Sharma SS, Negi MS, Neog B, Tripathi SB (2016) Analysis of genetic diversity and population structure in Capsicum landraces from North Eastern India using TE-AFLP markers. Plant Molecular Biology Reporter 34:869–875
7. Sharma SS, **Islam MA**, Malik AA, Kumar K, Negi MS, Tripathi SB (2016a) Seed traits, fatty acid profile and genetic diversity assessment in Pongamia pinnata (L.) Pierre

germplasm. Physiol Mol Bio Plants 22:193-205

8. Sharma SS, **Islam MA**, Singh VK, Negi MS, Tripathi SB (2016b) Genetic diversity, population structure and association study using TE-AFLP markers in Pongamia pinnata (L.) Pierre germplasm. Tree Genetics & Genomes 13:6
9. Sinha P, **Islam MA**, Negi MS, Tripathi SB (2016) Analysis of genetic diversity and fatty acid composition in a prebreeding material of Jatropha. Journal of Plant Biochemistry and Biotechnology 25:111-116
10. **Islam MA**, Sharma SS, Sinha P, Negi MS, Neog B, Tripathi SB (2015) Variability in capsaicinoid content in different landraces of Capsicum cultivated in north-eastern India. Sci Hort 183:66-71
11. Sharma SS, **Islam MA**, Negi MS, Tripathi SB (2015a) Changes in oil content and fatty acid profiles during seed development in Pongamia pinnata (L.) Pierre. Indian Journal of Plant Physiology 20:281-284
12. Sharma SS, **Islam MA**, Negi MS, Tripathi SB (2015b) Isolation and characterization of a first set of nine polymorphic microsatellite loci in Pongamia pinnata (Fabaceae). Journal of Genetics 94:70-74
13. Sinha P, **Islam MA**, Negi MS, Tripathi SB (2015a) Changes in oil content and fatty acid composition in Jatropha curcas during seed development. Industrial Crops and Products 77:508-510
14. Sinha P, **Islam MA**, Negi MS, Tripathi SB (2015b) Development of novel microsatellite markers in Jatropha curcas and evaluation of their cross-species transferability. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences 84:1011-1016
15. Sinha P, **Islam MA**, Negi MS, Tripathi SB (2015c) Estimation of outcrossing rates in interspecific backcross plants of Jatropha curcas (L.) using AFLP and SSR markers. Physiol Mol Bio Plants 21:605-609
16. Sinha P, **Islam MA**, Negi MS, Tripathi SB (2015d) First identification of core accessions of Jatropha curcas from India based on molecular genetic diversity. Plant Genetic Resources 14:77-80
17. Sinha P, Negi MS, Sharma SS, **Islam MA**, Tripathi SB (2013) Analysis of genome-wide homozygosity in Jatropha curcas accessions using AFLP markers. International Journal of Research in Pharmacy and Science 3:191-201

BOOK & BOOK CHAPTERS

1. Anamika, Mehta S, Singh B, Patra A, **Islam MA**: Databases: A weapon from the arsenal of bioinformatics for plant abiotic stress research. In: Recent approaches in omics for plant resilience to climate change. Edited by Wani SH. Cham: Springer International Publishing; 2019: 135-169.
2. Dhakate P, Sharma P, Mehta S, Akter J, Bhatt V, Chandanshive S, Chakravarty D, Rahman M, **Islam MA**: Beneficial role of metalloids in plants: Molecular understanding and applicability. In: Recent approaches in omics for plant resilience to climate change. Edited by Wani SH. Cham: Springer International Publishing; 2019: 357-387.
3. Mehta S, Singh B, Dhakate P, Rahman M, **Islam MA**: Rice, marker-assisted breeding, and disease resistance. In: Disease resistance in crop plants: Molecular, genetic and genomic perspectives. Edited by Wani SH. Cham: Springer International Publishing; 2019: 83-111.
4. Rahman M, Sultana S, Nath D, Kalita S, Chakravarty D, Mehta S, Wani SH, **Islam MA**: Molecular breeding approaches for disease resistance in sugarcane. In: Disease resistance

in crop plants: Molecular, genetic and genomic perspectives. Edited by Wani SH. Cham: Springer International Publishing; 2019: 131-155.

5. Singh B, Mehta S, Aggarwal SK, Tiwari M, Bhuyan SI, Bhatia S, **Islam MA**: Barley, disease resistance, and molecular breeding approaches. In: Disease resistance in crop plants: Molecular, genetic and genomic perspectives. Edited by Wani SH. Cham: Springer International Publishing; 2019: 261-299.

6. Bhat JA, Shivaraj SM, Ali S, Mir ZA, **Islam A**, Deshmukh R: Genomic resources and omics-assisted breeding approaches for pulse crop improvement. In: Pulse improvement: Physiological, molecular and genetic perspectives. Edited by Wani SH, Jain M. Cham: Springer International Publishing; 2018: 13-55.

7. **Islam MA**, Tripathi SB: An overview of markers used for genetic diversity analysis of Capsicum. In: Molecular approaches for plant improvement. Edited by **Islam MA**, Dhakate P. New Delhi, India: Kalpaz Publication; 2018: 63-79. (ISBN:9789386397829)

8. **Islam MA**, Dhakate P: Molecular approaches for plant improvement. New Delh, India: Kalpaz Publication; 2018. (ISBN:9789386397829)

CONFERENCES/WORKSHOP PRESENTATIONS

1. **Md Aminul Islam,** Vivek Kumar Singh, Surya Kalita, Mehzabin Rahman, Rupesh Kailasrao Deshmukh, Shashi Bhushan Tripathi: Construction of an interspecific genetic linkage map of Capsicum by making cross between Capsicum annuum and Bhut Jolokia (BJ), an endemic to N E India, National seminar on "Bioresources, Conservation and Management Strategies for Rural Development", University of Science & Technology Meghalaya, Meghalaya, India. Dated 22 to 23rd Aug 2019. (**Oral Presentation**).
2. **Md Aminul Islam**, Shashi Bhushan Tripathi: Genetic studies of "Bhut Jolokia" a Capsicum landrace of NE India - insight from microsatellite markers, National Seminar on Science Society and Sustainable Development, Jawaharlal Nehru College, Boko, Assam, India. Dated 3rd -4th May 2019. (**Oral Presentation**).
3. **Md Aminul Islam** and Sabhyata Bhatia: Enriching the genomic resources of lentil (Lens sp.): Insights from transcriptome sequencing, National conference on Current Trends in Plant Science and Molecular Biology for Food Security and Climate Resilient Agriculture, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, MP and National Environmental Science Academy (NESA), India. Dated 15-16th Feb 2018. (**Oral Presentation**).
4. **Md Aminul Islam**, Rajnish Kumar, Baljindar Singh, Sabhyata Bhatia: Development of microsatellite and SNPs markers using de-novo transcriptome sequencing in lentil (Lens sp.), 5th Rajasthan Science Congress, Amity University, Jaipur, India. Dated 13-15th Oct 2017 (**Oral Presentation**).
5. **Md Aminul Islam**, Vivek Kumar Singh, Priyanka Nanda, Madan Singh Negi and Shashi Bhushan Tripathi: Development of a molecular linkage map using backcross population derived from the distant cross Bhut jolokia x *C. annuum.* In: National Meet on "Distant Hybridization in Horticultural Crop Improvement", Indian Institute of Horticultural Research, Bangalore 2015 (**Oral Presentation**).
6. **Md Aminul Islam**, Vivek Kumar Singh, Madan Singh Negi, Shashi Bhushan Tripathi: Genetic relationships and population structure of "Bhut Jolokia" a landrace of Capsicum sp. inferred from TE-AFLP markers, International seminar on Asian Plant Science Congress, Nepal. Dated 1-3rd Nov 2014 (**Oral presentation**).

7. **Md Aminul Islam,** Shyam Sundar Sharma, Madan Singh Negi, Shashi Bhushan Tripathi: Bambusa vulgaris and B. wamin: Are they two different species? Insights from Molecular marker and DNA sequence data. First Indian Forest Congress 2011: Indian Council of Forestry and Education NASC Complex, New Delhi. Dated 22-25th Nov 2011 (**Oral presentation**).
8. **Md Aminul Islam**, Madan S Negi, Priya Vijayan, Sagnik Sengupta, Shashi B Tripathi: Novel Microsatellite Markers for Efficient Genotyping Applications in Seabuckthorn, National seminar on Seabuckthorn: Emerging trends in production to consumption, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, Himachal Pradesh, India. Dated 16-18th Feb 2010 (**Oral presentation**).