

Curriculum-Vita

Suman Dutta, Ph.D.

Assistant Professor (Genetics and Plant Breeding)
School of Agriculture and Rural Development, Faculty Centre for IRDM
Ramakrishna Mission Vivekananda Educational and Research Institute
Ramakrishna Mission Ashrama, Narendrapur, Kolkata 700103
Cell: +91 9318473178; E-mail: duttasumansiliguri@gmail.com

About

Passionate researcher with several years of experience in the field of Genetics and Plant Breeding assisted through Biotechnology and Bioinformatics insights from diverse genomic datasets for use in the life science industry. Proficient in the development, analysis, and interpretation of statistical models of genetic association prediction, validation of hypothesis testing, and model building using Machine learning tools. Highly organized and analytically oriented mind who can work independently or in a team. Proficiency in programming languages like Python and R. Believed in organizational leadership and capacity development.

Education

- Ph.D. (Genetics and Plant Breeding) from ICAR-Indian Agricultural Research Institute, New Delhi, 2023
Dissertation: “Molecular characterization and utilization of *matrilineal (mtl)* gene for *in-vivo* haploid induction in maize (*Zea mays* L.)”
- M.Sc. (Ag) in Genetics and Plant Breeding from ICAR-Indian Agricultural Research Institute, Jharkhand, 2018
Dissertation: “Analysis of genetic variability and validation of candidate gene(s) affecting retention of kernel carotenoids in maize during storage”
- B.Sc. (Ag) Honours from Bidhan Chandra Krishi Viswavidyalaya, West Bengal, 2016

Professional experience

- ICAR-National Bureau of Plant Genetic Resources, New Delhi, March 2022 to March 2022. **Skill:** Flow cytometry and Haploid identification
- ICAR-National Institute for Plant Biotechnology, New Delhi, December 2019 to March 2020. **Skill:** Plant tissue culture and Genetic engineering
- ICAR-Indian Agricultural Statistical Research Institute, New Delhi, August 2018 to March 2020. **Skill:** Computational biology, Statistics, and Computer application

Additional training

- Attended training program on ‘**Genome-wide association studies and its application in Agriculture**’ under DBT funded project during March 15-24, 2022 at Division of Agricultural Bioinformatics offered by ICAR-Indian Agricultural Statistical Research Institute, New Delhi.
- Attended the national workshop on ‘**Intellectual Property Right: A Fuel for Building Sustaining Brands**’ organized by the School of Management, National Institute of Technology, Rourkela in association with Cell for IPR Promotion and Management (CIPAM), Ministry of Commerce and Industry, Government of India during 2022.
- International symposium on ‘**Recent trends in Bioinformatics and Big-data Analysis**’ organized by BITS-NET Sub-DIC and NIPGR, New Delhi in November 2019.
- Attended in Student’s symposium on ‘**Genomics-based Next Generation Crop Improvement Approaches**’ held at Indian Agricultural Research Institute, New Delhi, during November 11-12, 2016 organized by Pioneer Hi-Bred International.
- Completion of online courses offered through Coursera and earned certificates after receiving the minimum marks to pass the exam conducted by various universities of the world.

<u>Name of the Examination</u>	<u>Year</u>	<u>Conducting Organization</u>
Machine learning	2022	Stanford University, USA
Genomic Data Science Specialization	2022	The Johns Hopkins University, USA
Neural Networks and Deep Learning	2022	DeepLearning.AI, USA
Entrepreneurship	2022	The Wharton School, USA
Intellectual Property Law Specialisation	2022	University of Pennsylvania, USA
Understanding Financial Markets	2022	University of Geneva, Switzerland
MTA: Introduction to Programming Using Python	2020	Microsoft, USA

Programming skill

- R
- Python

Laboratory skill

- Machine learning : Classification, Regression, and Clustering
- Computational biology : Sequence analysis and Big-data bioinformatics
- Molecular plant breeding : Genomics assisted breeding
- Rapid generation advancement : Doubled haploid technology

Scholarships in the academic field

<u>Name of the fellowship</u>	<u>Year</u>	<u>Organization</u>	<u>Awarded for</u>
CSIR-JRF & SRF	2019 to 2022	CSIR	Pursuing Ph.D.
IARI Scholarship	2018 to 2019	ICAR-IARI	Pursuing Ph.D.
ICAR-JRF Scholarship	2016 to 2018	ICAR	Pursuing M.Sc.

Performance in national competitive examinations

<u>Name of the Examination</u>	<u>Year</u>	<u>Conducting Organization</u>
National Eligibility Test (NET) in Genetics and Plant Breeding, Indian Council of Agricultural Research (Genetics & Plant Breeding)	2021	Agricultural Scientists Recruitment Board (ASRB)
National Eligibility Test (NET) in Genetics and Plant Breeding, Indian Council of Agricultural Research (ICAR) (Genetics & Plant Breeding)	2018	Agricultural Scientists Recruitment Board (ASRB)
Indian Agricultural Research Institute (IARI) Ph.D. Entrance (Genetics & Plant Breeding)	2018	ICAR-IARI, New Delhi
Joint Graduate Entrance Examination for Biology and Interdisciplinary Life Sciences (JGEEBILS)	2018	Tata Institute of Fundamental Research (TIFR), Mumbai
Graduate Aptitude Test in Engineering in Biotechnology (GATE-BT)	2018	Indian Institute of Technology, Guwahati
Joint CSIR-UGC National Eligibility Test (NET) for Junior Research Fellowship (JRF) and eligibility for Lectureship (LS)	2018	Council of Scientific and Industrial Research
Joint CSIR-UGC National Eligibility Test (NET) for Lectureship (LS)	2017	Council of Scientific and Industrial Research
Joint CSIR-UGC National Eligibility Test (NET) for Lectureship (LS)	2016	Council of Scientific and Industrial Research
All India Entrance Examination for Admission - Junior Research Fellowship in Plant Science	2016	Indian Council of Agricultural Research
Bidhan Chandra Krishi Viswavidyalaya entrance test for post-graduation in crop improvement	2016	Bidhan Chandra Krishi Viswavidyalaya
All Bengal Mathematics Talent Search	2010	JMMC Research Foundation

Teaching Experience

A. Masters of Science (M.Sc.) in Genetics and Plant breeding

<u>Name of the Course</u>	<u>Subject Code</u>
Principles of Genetics	GPB-101
Principles of Cytogenetics	GPB-102
Principles of Plant Breeding	GPB-103
Plant Genetic Resources and their Utilization	GPB-106
Breeding of Field Crops-I	GPB-201
Principles of Quantitative Genetics	GPB-202
Heterosis Breeding	GPB-204
Breeding of Field Crops-II	GPB-301
Breeding for Stress Resistance	GPB-303
Mutagenesis and Mutation Breeding	GPB-304
Molecular Breeding	GPB-306
Molecular Tools and Techniques	ABT-206

B. Doctor of Philosophy (Ph.D.) in Genetics and Plant breeding

<u>Name of the Course</u>	<u>Subject Code</u>
Advances in Plant Breeding System	GPB-613
Synthetic and System Biology in Plant Science	GPB-615
IPR and Regulatory Mechanism	GPB-609

Student Guided

Masters of Science (M.Sc.): 2

Doctor of Philosophy (Ph.D.): Nil

List of publications

<u>Sl. No.</u>	<u>Research article</u>	<u>NAAS rating</u>
1.	Dutta S , Muthusamy V, Hossain F, Baveja A, Chhabra R, Jha SK, Yadava DK, and Zunjare RU. 2020. Analysis of genetic variability for retention of kernel carotenoids in sub-tropically adapted biofortified maize under different storage conditions. <i>Journal of Cereal Science</i> , 93, pp.102987.	9.62 (IF*: 3.62)
2.	Dutta S , Muthusamy V, Chhabra R, Baveja A, Zunjare RU, Mondal TK, Yadava DK, and Hossain F. 2021. Low expression of <i>carotenoids cleavage dioxygenase 1 (ccd1)</i> gene improves the retention of provitamin-A in maize grains during storage. <i>Molecular Genetics and Genomics</i> , 296, pp.141-153.	9.29 (IF: 3.29)
3.	Dutta S , Muthusamy V, Hossain F, Baveja A, Abhijith KP, Saha S, Zunjare RU, and Yadava DK. 2020. Effect of storage period on provitamin-A carotenoids retention in biofortified maize hybrids. <i>International Journal of Food Science and Technology</i> , 56, pp.3148-3156.	9.71 (IF: 3.71)
4.	Dutta S , Muthusamy V, Chhabra R, Zunjare RU, and Hossain F. 2020. Two-step method for isolation of high-quality RNA from stored seeds of maize rich in starch. <i>3 Biotech</i> , 10, pp.1-8.	8.41 (IF: 2.41)
5.	Gain N, Chhabra R, Chandra S, Zunjare RU, Dutta S , Chand G, Sarika K, Devi EL, Kumar A, Madhavan J, Muthusamy V, and Hossain F. 2022. Variation in anthocyanin pigmentation by <i>R1-navajo</i> gene, development and validation of breeder-friendly markers specific to <i>CI-Inhibitor</i> locus for <i>in-vivo</i> haploid production in maize. <i>Molecular Biology Reports</i> [Accepted]	8.74 (IF: 2.74)

*IF: Impact factor

<u>Sl. No.</u>	<u>Book chapter</u>
1.	Hossain F, Zunjare RU, Muthusamy V, Bhat JS, Mehta BK, Sharma D, Talukder ZA, Chhabra R, Katral A, Dutta S , Chand G, Bhatt V, Mishra SJ, Gain N, Kasana R, Ikkurti G, and Duo H. 2022. Biofortification of Maize for Nutritional Security. <i>Biofortification of Staple Crops</i> . Springer, Singapore. doi.org/10.1007/978-981-16-3280-8_6
2.	Dutta S , Muthusamy V, Zunjare RU, and Hossain F. 2022. Accelerated generation of elite inbreds in maize using doubled haploid technology. <i>Plant Breeding-New Perspectives</i> . <i>IntechOpen</i> , United Kingdom. doi: 10.5772/intechopen.105824
3.	Dutta S , Singh AK, Mondal BP, Paul D, and Patra K. 2022. Digital inclusion of the farming sector using drone technology. <i>Human-Robot Interaction - Perspectives and Applications</i> . <i>IntechOpen</i> , United Kingdom. doi: 10.5772/intechopen.108740

Sl. No.**Review article**

1. Maity A, Paul D, Lamichaney A, Sarkar A, Babbar N, Mandal N, **Dutta S**, Maity PP and Chakrabarty SK. 2023. Climate change impacts on seed production and quality: current knowledge, implications, and mitigation strategies. *Seed Science and Technology*, 51, pp.65-96.
2. Das A, Singh S, Islam Z, Munshi AD, Behera TK, **Dutta S**, Weng Y and Dey SS. 2022. Current progress in genetic and genomics-aided breeding for stress resistance in cucumber (*Cucumis sativus* L.). *Scientia Horticulturae*, 300, pp.111059.

Sl. No.**Popular article**

1. Ghosh S, Roy A, and **Dutta S**. 2022. Rapid Generation Advance Methods to Fast-track Crop Breeding. *Agricultural Reviews*. doi: 10.18805/ag.R-2476.
2. Roy A, Ghosh S, Dutta B, **Dutta S**. 2022. Seed Quality Enhancement Through Seed Biopriming to Increase Productivity. *Agricultural Reviews*. doi: 10.18805/ag.R-2477.

Sl. No.**Poster presentation****Organization/Institute**

1. **Dutta S**, Zunjare RU, Kumar S, Mishra SJ, Gain N, Subramani R, Muthusamy V, and Hossain F. 2022. Maize haploid plants possess altered mineral accumulation and physio-biochemical characteristics compared to diploid plants.
 - **Symposium:** ‘Tending Mendel's garden for a perpetual and bountiful harvest’ICAR-IARI, New Delhi
ISGPB, New Delhi
2. **Dutta S**, Muthusamy V, Chhabra R, Baveja A, Zunjare RU, Mondal TK, Chakraborti M, Jha SK, and Hossain F. 2018. Genetic variability of provitamin-A under storage and influence of *CCD1* and *LOX* genes affecting their retention.
 - **Conference:** 13th Asian Maize Conference and Expert Consultation on ‘Maize for Food, Feed, Nutrition and Environmental Security’CIMMYT, Mexico
ICAR-ICMR, Ludhiana
BISA, Ludhiana
3. **Dutta S**, Muthusamy V, Chhabra R, Baveja A, Zunjare RU, Mondal TK, Jha SK, and Hossain F. 2018. Analysis of genetic variability and validation of candidate gene(s) affecting retention of kernel carotenoids in maize during storage.
 - **Conference:** 1st National Genetics Congress on ‘Genetics for Sustainable Food, Health, and Nutrition Security’ICAR-IARI, New Delhi

Oral presentation

<u>Sl. No.</u>	<u>Abstract publication</u>	<u>Organization/Institute</u>
1.	Dutta S , Zunjare RU, Mishra DC, Sil A, Gain N, Chand G, Chhabra R, Muthusamy V, and Hossain F. 2022. Prediction of maize <i>Matrilineal</i> specific patanin-like protein involved in <i>in-vivo</i> maternal haploid induction using support vector machine and di-peptide composition. (Best oral presentation award) <ul style="list-style-type: none">• Symposium: ‘Advances in plant biotechnology and nutritional security’	ICAR-NIPB, New Delhi
2.	Dutta S . 2019. Analysis of genetic variability and validation of candidate gene(s) affecting retention of kernel carotenoids in maize during storage <ul style="list-style-type: none">• Merit medal presentation: For securing the highest CGPA in Masters of Science (M.Sc.) in Genetics and Plant breeding	ICAR-IARI, New Delhi

Volunteer Experience

<u>Sl. No.</u>	<u>Involvement</u>	<u>Organization/Institute</u>
1.	Guidance for on-field exposure visit with students from M.Sc. (Ag) in Genetics and Plant Breeding in the experimental farm on 6 th April 2023.	RKMVERI, Kolkata Nuziveedu Seeds Limited, Barrackpur
2.	Act as a rapporteur Symposium Commemorating the Birth Bicentenary of Gregor Johann Mendel conducted by Genetics Club, Division of Genetics at ICAR-Indian Agricultural Research Institute in association with the XV Genetics Congress Trust and Indian Society of Genetics and Plant Breeding, New Delhi, India celebrated on 19 to 21 July 2022.	ICAR-IARI, New Delhi

Personal Information

- Date of birth : 27th June 1994
- Sex : Male
- Marital status : Unmarried
- Religion : Hindu
- Citizenship : Indian
- Present address : Ramakrishna Mission Ashrama, Narendrapur, Kolkata, Pin- 700103
- Permanent address : Atul Prashad Sarani road, Sukanta Nagar, P.S.-Rabindra Sarani, City-Siliguri, Dist.-Jalpaiguri, State- West Bengal, Pin-734006

Declaration

The information furnished above is true and correct to the best of my knowledge and belief.

Date: 16.05.2023


Signature