

## CONTACT DETAILS

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Address  
DNA Fingerprinting and Molecular Biology Laboratory  
Directorate of Research, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar - 736165, West Bengal, India

## LANGUAGES KNOWN

English (Official)  
Bengali (Native)  
Hindi

## SKILLS

### Wet Lab

- DNA marker technology
- Gene expression study
- Cloning
- Gene Identification
- Tissue Culture
- GWAS
- MAS
- qPCR

### Dry Lab

- Basic statistics
- Bioinformatics
- Transcriptome
- Metagenomics
- SNPs and SSRs identifications
- Primer designing
- gRNA identification for CRISPR technology

### Software

SPSS, GenStat, Past, Statistica, XLStat, Tassel v5.0, R packages, TB Tools, GenAlex, STRUCTURE, POPGENE, NTSYSpc, DarWin, MEGA, MapQTL, QTLViewer

## RUPSANATAN MANDAL, Ph.D.

*Experienced researcher with a Ph.D. in Agricultural Biotechnology. Specializes in uncovering genomic mechanisms of abiotic and biotic stress-associated metabolites in plants. Expertise includes Marker Technology, Genetic Diversity, and Molecular Biology techniques. Proficient in biostatistics and bioinformatics tools like R Package, TB tools and Tassel Software. Strong communicator and educator, skilled in fostering teamwork and leadership. Established Molecular Biology Laboratory and contributed to numerous collaborative research projects.*



## Experience

### Associate Professor

#### Genetics & Plant Breeding

#### SAS, Nagaland University

Jan 2025 / continue

### Assistant Professor

#### Uttar Banga Krishi Viswavidyalaya

July 2015 / Jan, 2025

### Short Course trainee

#### ICAR-Central Research Institute of Dryland Agriculture India

January 2024 / February 2024

### Visiting Scientist

#### (Global Wheat Program)

#### CIMMYT El Batan Mexico

August 2023 / September 2023

### Short Course trainee

#### ICAR - National Rice Research Institute India

October 2019

### Short Course trainee

#### ICAR-Indian Agricultural Research Institute India

July 2018 / August 2018

### Summer trainee

#### Central Potato Research Institute India

July 2017 / August 2017

- GWAS & Marker Trait Association
- Transcriptome & Gene Expression
- Pathogen Identification & Metagenomics
- DNA barcoding & Marker technology
- Bioinformatics
- Root phenotyping
- Software ([WinRHIZO](#), [ImageJ](#), [SnapRoot](#))
- GWAS
- Pure culture of wheat pathogen (FHB, SNB)
- Pathogen identification, ELISA (DON test)
- Pathogenicity test, Artificial inoculation
- Disease scoring for FHB and SNB
- Software ([Tassel v5.0](#), [R packages](#), [TB Tools](#))
- High throughput phenotyping
- Germplasm conservation
- Varietal identification
- Molecular tools
- QTL tools ([MapQTL](#), [QTL IciMapping](#), [Map Manager](#), [QTLViewer](#))
- Mapping population
- NGS
- Tissue culture & Protoplast fusion
- Microscopy and SEM
- Virus quantification & qPCR
- Basic Molecular biology tools

## Education

### Ph.D. (Agricultural Biotechnology)

#### Bidhan Chandra Krishi Viswavidyalaya (BCKV), India

September 2012 / November 2015

### M.Sc. (Genetics)

#### Bidhan Chandra Krishi Viswavidyalaya (BCKV), India

August 2009 / August 2011

### B.Sc. (Agriculture)

#### Visva-Bharati (Central University) India

July 2005 / July 2009

- Single spore culture (*Phytophthora colocasiae*)
- DNA & RNA extraction, Real-time PCR
- Marker technology (RAPD, ISSR, SSRs, AFLP)
- Primer designing, gene cloning, Allele mining
- Prediction of RNA & Protein Structure
- Biochemical assay
- [GenAlex](#), [STRUCTURE](#), [POPGENE](#), [NTSYSpc](#), [DarWin](#), [MEGA](#)
- Phenotyping & Selection
- Biochemical Assays
- Genetic Diversity and Genetic Components
- Software ([SPSS](#), [GenStat](#), [Past](#), [Statistica](#), [XLStat](#))
- Basic Agriculture & Horticulture
- Field trials
- Design of experiments

## Awards, Fellowships & Recognitions

### Awards

- ✓ Academic Excellence Awardee from Grades 1 to 12
- ✓ Outstanding Paper Award (Agriculture) in 21<sup>st</sup> (2014), 24<sup>th</sup> (2017), 27<sup>th</sup> (2020). 30<sup>th</sup> (2023), Govt of West Bengal
- ✓ Junior Scientist Award (2016) by the Confederation of Indian Universities, New Delhi & International Foundation for Environment and Ecology, Kolkata
- ✓ Young Faculty Award (2017) by Venus International Foundation, Chennai, India

### Fellowships

- ✓ University merit fellowships in Undergraduate and Post Graduate.
- ✓ UGC Fellowships, Govt of India, in Ph.D.
- ✓ International Training fellowships, ICAR -NAHEP, Govt of India

### Recognitions

- ✓ Ex-Officer-In-Charge, AICRP on Maize, Cooch Behar Centre, ICAR-IIMR, Govt of India
- ✓ Ex- Officer-In-Charge, Central Germplasm Conservation Unit, UBKV,
- ✓ Ex-Member Secretary, Institutional Germplasm Identification Committee, UBKV
- ✓ Ex-Member, Intellectual Property and Technology Management Cell, UBKV
- ✓ Ex-Associate scientist, Hi-tech potato seed production, RKVY, Govt. of West Bengal
- ✓ Ex-Member Secretary, Genome Club, RKVY, Govt. of West Bengal
- ✓ Ex-Principal Investigator, Transcriptome of potato, WBDST&BT, Govt. of West Bengal

## Ad Hoc / Externally Funded Projects (5)

### Aims:

1. Identify and characterize important agronomic, physiological, and quality traits within plant genetic resources using molecular markers, aiding in the selection of superior varieties for breeding programs.

2. Develop efficient conservation strategies based on molecular data to preserve unique and valuable genetic resources, ensuring their availability for future breeding efforts and research.

**Principal Investigator - All India Coordinated Research Project on Maize, Cooch Behar Centre funded by ICAR-IIMR, Govt. of India. (July 2022 to Dec, 2024)**

**Principal Investigator - UBKV Centre, Assessment of chromosomal diversity and underlying relationships among *Solanum melongena* cultivars and its closest allied species in the subtribe *Leptostemonum* of *Solanaceae* based on EMA-fluorescent karyotypes and nuclear ITS sequence analysis funded by Science and Engineering Research Board, Govt. of India. (Feb 2023 to Feb 2026)**

**Principal Investigator - Identification of anthocyanin rich and low glycemic index potato clones from the local potato cultivars found in North Bengal following G × E interaction, biochemical and transcriptome analysis funded by WBDSTBT, Govt. of West Bengal ( Sept 2021 to Sept 2024)**

**Member Secretary and Co-Principal Investigator , Genome Club Project, Funded by RKVY, Govt of West Bengal (Aug 2022 to Aug 2024)**

**Co-Principal Investigator, Survey of Pests and Diseases of Medicinal Plants in West Bengal funded by NMPB, Ministry of AYUSH, Govt. of India (2018 to 2024)**

## Genomic sequences in database

- rRNA/ITS /*Bipolaris sorokiniana* MW854818-MW854822
- rRNA/ITS / *Pyricularia oryzae* MW882140-MW882141
- 16S rRNA / *Bacillus* sp. ON786591-ON786610
- rRNA/ITS / *Stemphylium botryosum* isolates OP168183-OP168186
- rRNA/ITS / *Diplodia* sp. isolate OP369040-OP369043
- rRNA/ITS / *Pleurotus* sp. isolate OP819566-OP819569
- rRNA/ITS / *Stemphylium botryosum* isolates OP905643-OP905646
- rRNA/ITS / *Stemphylium botryosum* isolates OR764536
- 16S rRNA / *Pseudomonas* sp. strain PP025820-PP025826
- rRNA/ITS /*Phytophthora colocasiae* AB934370 – AB934374
- rRNA/ITS /*Phomopsis vexans* AB934366 – AB934369
- *Phytophthora* leaf blight resistance genes (taro) AB922183, AB934990 – AB934994
- Flax fiber relate gene LC215004 - LC215009

1. Rout, S., Roy, S.K., **Mandal, R.** et al. Genetic analysis and heterosis breeding of seed yield and yield-attributing traits in Indian mustard (*Brassica juncea* (L.) Czern & Coss.). *Scientific Reports*, **15**: 2911. <https://doi.org/10.1038/s41598-025-86621-8> (IF: 3.8)
2. Kumar D., Chaudhury R. S., Mandal K., Pradhan P., Bhattacharya S., Das B., Mukhopadhyay R., Phani V., Prudveesh K., Nath S., **Mandal R.**, Boro P. (2024). Identification of genes associated to  $\beta$ -N oxalyl-L- $\alpha$ ,  $\beta$ -diaminopropionic acid and their role in mitigating salt stress in a low-neurotoxin cultivar of *Lathyrus sativus*. *Plant Physiology and Biochemistry*, **207**: 108388. <https://doi.org/10.1016/j.plaphy.2024.108388> (IF: 6.5)
3. **Mandal, R.**, He X., Singh G., Kabir M.R., Joshi A.K., Singh P.K. (2024). Screening of CIMMYT and south Asian bread wheat germplasm reveals marker-trait associations for seedling resistance to Septoria Nodorum Blotch. *Genes*, **15**, 890. <https://doi.org/10.3390/genes15070890> (IF: 2.7)
4. Saha C. R., Kantamraju P., Dutta S., Pal K., Ghosh S., Das S., **Mandal R.**, Datta S., Choudhury A., Mandal S., Sahana N. (2024). Anthocyanin profiling of genetically diverse pigmented potato (*Solanum tuberosum* L.) clonal accessions from north-eastern sub-Himalayan plateau of India. *Heliyon*, **10** (17): e36730. <https://doi.org/10.1016/j.heliyon.2024.e36730> (IF: 3.4)
5. Mukhopadhyay R., Boro P., Karmakar K., Pradhan P., Saha C. R., Das B., **Mandal R.**, Kumar D. (2024). Advances in the understanding of heat shock proteins and their functions in reducing abiotic stress in plants. *Journal of Plant Biochemistry and Biotechnology*, (online). <https://doi.org/10.1007/s13562-024-00895-z> (IF: 1.7)
6. Pavithra S., Sarkar A., Dutta S., Mythily R., Behera V., **Mandal R.**, Marker trait association analysis to unravel genomic regions associated with Stemphylium disease reaction in lentil. *Physiological and Molecular Plant Pathology*, **131**: 102252. <https://doi.org/10.1016/j.pmpp.2024.102252> (IF: 2.7)
1. Mohapatra P. P., Seleiman M. F., **Mandal R.**, Pramanik K., Maity T. K., Tarafdar J., Das S. P., Raj C. A., Jena C., Alenazi M. M., Sow S., Ranjan S., Ahmad A., Gitari H., Khan Naeem. (2023). Efficiency of RAPD and SSR markers in assessing genetic diversity in summer onion (*Allium cepa* L.) genotypes. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*, **51**(3): 13369-13369. <https://doi.org/10.15835/nbha51313369> (IF: 1.80)
2. Chattopadhyay N., **Mandal R.**, Roy A., Bhattacharya P. M., Chowdhury A. K. (2022). Assessment of wheat genotypes based on genotype-by-environment interaction for durable resistance to spot blotch disease in hot spot. *Cereal Research Communications*, **50**: 95–102. <https://doi.org/10.1007/s42976-021-00164-y> (IF: 1.60)
3. Nag S, **Mandal R.**, Mitra J. (2021). Genetic characterization of global collection of flax (*Linum usitatissimum* L.) utilizing molecular marker. *Ecological Genetics and Genomics*, **19**:100084. <https://doi.org/10.1186/1471-2229-13-78>
4. Chattopadhyay N., Kumar A., **Mandal R.**, Roy A., **Bhattacharya P. M.**, Chowdhury A. K. (2021). Weather-based models to forecast spot blotch disease (*Bipolaris sorokiniana*) of wheat (*Triticum aestivum*) in North Bengal. *Indian Journal of Agricultural Sciences*, **91**(7): 1082–1087. <https://doi.org/10.56093/ijas.v91i7.115136> (IF: 1.40)
5. Nath S., Das S., Basak D., Rout S., Hembram S., Roy S. K., Debnath M. K., and **Mandal R.** (2021). Exploring the genetic variability for yield attributing traits among the indigenous and exotic collection of wheat in cis-Himalayan region of West Bengal, India. *International Journal of Plant & Soil Science*, **33**(24): 106-113. <https://doi.org/10.9734/ijpss/2021/v33i2430758>
6. Nag S., **Mandal R.**, Mitra J. (2020). Exploration of genetic structure and association mapping for fibre quality traits in global flax (*Linum usitatissimum* L.) collections utilizing SSRs markers. *Plant Gene*, **24**: 100256. <https://doi.org/10.1016/j.plgene.2020.100256> (IF: 2.2)
7. **Mandal R.**, Nag S., Tarafdar J., Mitra S., (2016). A comparison of efficiency parameters of SSR markers and genetic diversity analysis in *Amorphophallus paeoniifolius* (Dennst.) Nicolson. *Brazilian Archives of Biology and Technology*, **59**: 1–7. <http://dx.doi.org/10.1590/1678-4324-2016160439> (IF: 1.00)
8. **Mandal R.**, Sadhukhan R., Mandal N., Tarafdar J., Sarkar A. (2015). Assessment of genetic diversity and trait association in grass pea using morphometrics, grain protein and seed ODAP content. *Range Management and Agroforestry*, **36** (2): 136-140. (IF: 0.80)

1. Kariyanna B., Bheemanna M., Pal S., Sarkar S., **Mandal R.** Genetic variation and molecular tools for the management of brinjal shoot and fruit borer *Leucinodes orbonalis* Guenée (Lepidoptera: Crambidae), **Book: Genetic methods and tools for managing crop pests; Pages 391-407 (2022); Publisher: Springer Nature Singapore; [https://link.springer.com/chapter/10.1007/978-981-19-0264-2\\_14](https://link.springer.com/chapter/10.1007/978-981-19-0264-2_14)**
2. Hijam L., **Mandal R.**, Chakraborty M., Maying B. Utilization of rice genetic resources for nutritional and medicinal benefits. **Book: Bioprospecting of ethnomedicinal plant resources; Pages 351-374; Publisher: Imprint Apple Academic Press; eBook ISBN9781003451488**

## Patent

1. Patent has been granted on 2<sup>nd</sup> August, 2024 for an invention entitled “Method and kit for detecting *Bipolaris sorokiniana* (**Patent No. : 547033**)

**Declaration: I hereby declare that all the given information & particulars furnished above are true & correct to the best of my knowledge.**

Place: UBKV, WB, INDIA  
Date: 04-02-2025

Yours Sincerely,



**Rupsanatan Mandal**

### National

#### 1. Prof. Nirmal Mandal

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### REFEREES

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