

Name: Dr. Narottam Dey, Assistant Professor (Stage-III) in Biotechnology

Official address: Rice Biotechnology laboratory, Department of Biotechnology, Visva-Bharati, Santiniketan-731235 (W.B)

Email address: narottam.dey@visva-bharati.ac.in

Educational Qualification: M.Sc.-1999 (from the University of Burdwan)  
Ph.D-2007 (from Bose Institute, Kolkata)  
Post-Doc-2014-15 (Oregon State University, USA)

Research work experiences in abroad: Worked as INSA-Visiting Scientist in Centre for Agricultural Sciences, Hungarian Academy of Sciences, Martoonvasar, Hungary for three months.

: Worked as UGC-Raman Post Doctoral fellow in Department of Botany and Plant Pathology, Oregon State University, USA for a year(October, 2014-October, 2015)

: Worked as INSA-Visiting Scientist in Institute of Plant and Microbial Biology, Academia Sinica, Taipei, Taiwan in October, 2019 for 10 days

Area of Specialization: Plant Genomics and Biotechnology in Rice

Fields of Research:

- i) Molecular Breeding programme targeting rice quality traits (low glycemic load and high antioxidants )
- ii) Genomics study Drought, salinity and submergence tolerance in rice
- iii) Genomics of floral organ development in rice

External research grants received (2011-2021)

Project title	Duration	Funding agency
1. Allele Mining for Stress Tolerance in Traditional and Wild Relatives of Rice ( <i>Oryza sativa</i> L.) (As P.I) (Completed)	2011-14	UGC, Govt. of India
2. Biochemical and Molecular Profiling of West Bengal Folk Rice Germplasm with reference to Abiotic Stress Tolerance.” (As P.I) (Completed)	2011-14	State DST, Govt. of W.B
3. Received UGC post Doctoral Rama fellowship	2014-15	UGC, Govt. of India
4. Development of multiple kenneled rice through Biotechnology (As P.I) (Completed)	2014-17	SERB, Govt. of India
5. Responses of crop plants (rice and wheat) to combination of light and drought stresses (As Co-P.I) (Continuing)	2016-19	DST, Govt. of India
6. Genetic improvement and popularization of Komal Chawl-a potential rice preparation for soldiers posted in remote places (As P.I) (Continuing)	2017-20	DRDO-LSRB, Govt. of India.
7. Development of SNP and miRNA based functional markers for abiotic stress (drought salinity and submergence) tolerance among selected West Bengal rice land races (As P.I)	2018-21	DST, Govt. of West Bengal

8. Assessment of combinatorial effect of SUB1A and SK loci in lowland indigenous rice lines for tolerance to flash flood followed by stagnation (as P.I)	2021-2024	SERB, Govt. of India
--	-----------	----------------------

Details of the Ph.D students supervised: Awarded-06, Continuing-05

Nucleotide sequence submission in NCBI database:

1. Sanger sequencing: Accession No MH053403, MH053404, MH053405, MH053406, MH065616  
MH065617, MH065618
2. NGS: WGS of a rice lines Acc. No NCBI SRA database, SRP131720.

### Publication details (Since 2011)

1. Lodha T., Karmakar, J., Roychowdhuri, R and **Dey N** (2011) Assessment of genetic diversity of some commonly grown rice genotypes of South Bengal using microsatellite markers associated with the saltol QTL mapped on 1st Chromosome. *NBU Journal of Plant Sciences* 5:35-39.
2. Karmakar J, Roychowdhury R, Kar R K, Deb D and **Dey N** (2012) Profiling of selected indigenous rice (*Oryza sativa* L.) landraces of Rarh Bengal in relation to osmotic stress tolerance. *Physiol. Mol. Biol. Plants* 18(2):125–132.
3. Roychowdhury R, Karmakar J and **Dey N** (2012) PCR-compatible genomic DNA isolation from different tissues of rice (*Oryza sativa* L.) for SSR Fingerprinting. *Eurasia. J Bio. Sci.* 6: 85-90.
4. Karmakar J, Roychowdhury R and **Dey N** (2012) A Simple cost effective, modified protocol for isolation of PCR compatible genomic DNA from rice (*Oryza sativa* L.). *Plant Archive* 12: 1077-079.
5. Ghosh N, Das SP, Mandal C, Gupta S, Das K, **Dey N**, Adak M K (2012) Variations of antioxidative responses in two rice cultivars with polyamine treatment under salinity stress. *Physiol. Mol. Biol. Plants* 18(4):301-313.
6. Maiti S., Ghosh B., Mandal C., Das K., **Dey N.**, Adak M K (2012) Responses of the maize plant to chromium stress with reference to antioxidation activity. *Braz. J. Plant Physio* 24(3): 203-212.
7. Chaya S, Karmakar J, Ganie SA, Roychowdhury R, Paul A, Adak MK and **Dey N** (2013) Genetic Profiling of a small heterogeneous population presenting traditional, wild and wild relatives of rice (*Oryza sativa* L.) in relation to osmotic stress tolerance. *NBU Journal of Plant Science.* 7 (1): 63-69.
8. Roychowdhury R, Karmakar J, Adak MK and **Dey N** (2013) Physio-biochemical and microsatellite based profiling of lowland rice landraces for osmotic stress tolerance. *American Journal of plant Science.* 4:52-63.
9. Reddy BS, Karkmakar J, Roychowdhury R and **Dey N** (2013) Optimization of callus induction and callus multiplication in rice (*Oryza sativa* L.) landraces. *Research in Plant Biology* 3(5):41-44.
10. Ganie SA, Karmakar J, Roychowdhury R, Mondal TK and **Dey N** (2014) Assessment of genetic diversity in salt-tolerant rice and its wild relatives for ten SSR loci and one allele mining primer of *salT* gene located on 1st chromosome, *Plant. Syst Evol.* 300:1741-1747.
11. Banerjee S, Ghosh N, **Dey N** and Adak MK (2014) Assessment of some biomarkers under submergence stress in some rice cultivars varying in responses. *American J. Plant Science.* 06: 84–94.
12. Banerjee S., Ghosh N., Mandal C., **Dey N.**, Adak MK (2015) Physiological basis of submergence tolerance in rice genotypes with reference to carbohydrate metabolism. *Plant Gene and Trait* 6 (2): 1-11.

13. Goswami S, labar R, Paul A, Adak MK and **Dey N** (2015) Physio-biochemical and Genetic exploration for submergence tolerance in rice (*Oryza sativa* L.) landraces with special references to Sub1 loci. *American Journal of Plant Science* 6:, 1893-1904.
14. Priya, A. , Prakash Das, S. , Goswami, S. , Adak, M. , Deb, D. and Dey, N. (2015) An Exploratory Study on allelic Diversity for Five Genetic Loci Associated with Floral Organ Development in Rice. *American Journal of Plant Sciences*, 6, 1973-1980. (doi: 10.4236/ajps.2015.612198).
15. Ganie SA, **Dey N** and Mondal T K (2016) Promoter methylation regulates the abundance of osa- MIR393a in contrasting rice genotypes under salinity stress. *Functional & Integrative Genomics* 16(1):1-11
16. Ganie SA, Karmakar J, Roychowdhury R, Mondal TK and **Dey N** (2016) An exploratory study on allelic diversity among rice and its wild species as well as relatives with simple sequence repeat and inter simple sequence repeat markers. *Indian Journal of Biotechnology* (15): 357-362.
17. Paul A, Goswami S, Banerjee , Paul A and **Dey N** (2017) Biochemical and Genetic exploration of aromatic rice lines (*Oryza sativa* L.) from eastern India” *Plant Cell Biotechnology and Molecular Biology* 18(5&6):231-240.
18. Goswami S, Kar RK, Paul A and **Dey N** (2017) Study of selected biochemical parameters related to submergence tolerance in rice (*Oryza sativa* L.) with special reference to land races and wild species. *Research Journal of Chemistry and Environment* 21:11(29-38)
19. Goswami S, Kar RK, Paul A and **Dey N** (2017) Genetic potentiality of indigenous rice genotypes from Eastern India with reference to submergence tolerance and deepwater traits. *Current Plant Biology*11–12: 23–32.
20. **Dey N** (2017) Global transcriptome analysis in rice (*Oryza sativa* L.) Canadian Journal of Biotechnology. Vol. 1 page: 290. (special issue).
21. Saha I, De AK, Ghosh A, Sarkar B, **Dey N** and Adak MK (2018) Preliminary Variations in Physiological Modules When sub1A QTL Is under Soil-Moisture Deficit Stress. *American Journal of Plant Sciences* (9) : 732-744.
22. Goswami S, Kar RK, Paul A and **Dey N** (2018) Differential Expression Of Sub1A Loci In Rice Under Submergence. *Plant Biochemistry and Biotechnology* (Accepted DOI:10.1007/s13562-018-0456-8)
23. Saha I, De AK, Sarkar B Ghosh A, **Dey N** and Adak MK (2018) Cellular response of oxidative stress when sub1A QTL of rice receives water deficit stress. *Plant Science Today*. 5 (3): 84-94.
24. Das SP, Deb D and **Dey N** (2018) Micromorphic and Molecular Studies of Floral Organs of a Multiple Seeded Rice (*Oryza sativa* L.). *Plant Molecular Biology Reporter* 36:764–775.
25. Kumari R, Choudhury D, Goswami S and **Dey N** (2019) Physiological, biochemical, and molecular screening of selected upland rice (*Oryza sativa* L.) lines from eastern India. *Bulletin of the National Research Centre*. 43:56. (<https://doi.org/10.1186/s42269-019-0087-9>).
26. Das SP, Deb D and **Dey N** (2018) Expression study of five genes involved in floral organ development in multiple seeded rice. *Journal of Plant Biochemistry and Biotechnology* (Accepted)
27. Gyugos M, Ahres M, Gulyás Z, Szalai G, Darkó E, Végh B, Boldizsár A, Mednyánszky Z, Kar RK, **Dey N**, Sarkadi LS, Galiba G and Kocsy G (2019) Role of light-intensity-dependent changes in thiol and amino acid metabolism in the adaptation of wheat to drought. *Journal of Agronomy and Crop Science* (Accepted) (DOI: [10.1111/jac.12358](https://doi.org/10.1111/jac.12358))
28. Das SP, Jasrotia RS, Deb D, Iquebal MA, Jaiswal S and **Dey N** (2020) Genomic analysis of polycarpellary rice (*Oryza sativa* L.) through whole genome resequencing. *Journal of Plant Biochemistry and Biotechnology* (<https://doi.org/10.1007/s13562-020-00602-8>)

29. Samanta P, Ganie SA, Chakraborty A and **Dey N** (2020) Study on regulation of carbohydrate usage in a heterogeneous rice population under submergence *Journal of Plant Biochemistry and Biotechnology* (<https://doi.org/10.1007/s13562-020-00577-6>).
30. Karmakar J, Goswami S, Pramanik K, Maiti TK, Kar RK and **Dey N** (2021) Growth promoting properties of Mycobacterium and Bacillus on rice plants under induced drought. *Plant Science Today* 8 (1):49-57. OI: [10.14719/pst.2021.8.1.965](https://doi.org/10.14719/pst.2021.8.1.965)

**General article:**

**Dey N** (2014) Harnessing the potential of indigenous rice lines: an issue of food sovereignty. Published in CTA, Technical Centre for Agricultural and Rural Cooperation ACP-EU S&T Strategies Postbus 380NL- 6700 AJ, Wageningen, the Netherlands.

**Book chapter:**

1. **Dey N** (2012) Adoption of Proper Strategies for Lowering the Green House Gas (Carbon Dioxide, Methane) Emission from Rice Fields. In Sustainable Agriculture and Environment. New Delhi Publishers, India (ISBN 978-93-81274-12-5) Chap 11:299-304.
2. **Dey N** (2012) Biodiversity and Biotechnology: Impact on sustainable Rice production. Book chapter in "Biodiversity-The natural Wonder" ISBN: 978-93-80663-61-6. Page No: 63-74.
3. **Dey N** (2013) Role of Biotechnology and Genomics in Sustainable Rice Production. In Eco-conservation and Sustainable Living. Narosa Publishing House, New Delhi. India (ISBN 978 1-8487-216-3) Chapter 14 Page-162-166.
4. Karmakar J, Goswami S and **Dey N** (2014) Study of some rice field Plant Growth promoting Rhizobacteria (PGPR). Rice Genetics and Biotechnology (Proceedings of National Seminar on Rice Genomics and Biotechnology, ISBN 978-93-84106-08-9) page No-178-183.
5. Karmakar J, Chakraborty K and **Dey N** (2014) Abiotic stress linked marker assisted screening of selected rice lines. Rice Genetics and Biotechnology (Proceedings of National Seminar on Rice Genomics and Biotechnology, ISBN 978-93-84106-08-9) page No-152-160.
6. Hasanuzzaman M, Roychowdhury R, Karmakar J, **Dey N**, Nahar K and Fujita M (2015) Recent Advances in Biotechnology and Genomic Approaches for Abiotic Stress Tolerance in Crop Plants. Genomics and Proteomics: Principles, Technologies, and Applications. Apple Academic (CRC press) ISBN 9781771881142.