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Department: BIOTECHNOLOGY
Qualification: B.Sc. (Honours) in Botany from Presidency College, Kolkata
M.Sc. in Biophysics and Molecular Biology from Calcutta University
Ph.D. (Life Sciences) from Jadavpur University (Research pursued at Bose Institute, Kolkata)
Post Doctoral Research: Collaborative program with Bose Institute and University of Calcutta on “Transgenic rice for improved stress tolerance”
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TEACHING AREAS:

Cell Biology, Advanced Molecular Biology, Bioprocess Technology, Genomics and Proteomics, Plant Biology, Microbial and Plant Biotechnology, Ecology and Evolution, Skill Enhancement Course, Generic Elective

RESEARCH INTERESTS:

- **Broad Area:** Plant Physiology & Biochemistry, Molecular Biology and Biotechnology
- **Outline of research:**
 1. **Understanding the molecular regulation of multiple abiotic stress (fluoride, arsenic, heavy metal toxicity, salinity and drought) in indica rice varieties**

Abiotic stress mainly salinity, drought, cold, heavy metals/metalloids or fluorides place a heavy penalty on the growth and yield of crop plants. It is increasingly apparent that plants, being sessile, have evolved many adaptations to counteract such stresses. The focus of my research is on the physiological and molecular responses that operate during such

environmental stresses in plants. The alteration in stress-inducible gene and protein expression is one of the fundamental metabolic processes that may influence stress tolerance. Identification of genes/proteins responsible for stress tolerance, understanding the mechanism of their induction, comparative genomic and proteomic approaches between susceptible and tolerant cultivars, analysis of regulatory elements in the upstream region of these genes and their interaction with the stress-inducible transcription factors, identification of the regulatory transcription factors and their pattern of expression, overexpression of these genes or transcription factors through transgenic approaches to generate stress-tolerant plants, analysis of stress-inducible promoters through reporter gene assays and correlation of such molecular analyses with biochemical stress markers, all fall within the area of my research. In addition, my interest is also directed towards comparative physiological and molecular behaviour of several indigenous aromatic rice cultivars to abiotic stresses, so as to increase their productivity and spread their global demand. The enhancement of stress-inducible gene expression by the incorporation of Scaffold/Matrix Attachment Region DNA, from various plant sources, in such constructs will also constitute another goal of my research.

2. Deciphering the biochemical basis and molecular regulation of aroma production in aromatic rice varieties

Fragrant or aromatic rice varieties constitute a small but special group of rice and are gaining widespread importance and popularity among consumers worldwide. They command premium prices over non-scented varieties at all levels of the global rice trade, because of their pleasant and distinct aroma. My main objective in this area is the analysis of the biochemical and molecular-genetic regulation of aroma production in some aromatic indica rice varieties and comparison with non-aromatic rice varieties. A single recessive candidate gene responsible for aroma has been found to be a defective allele of a gene encoding betaine aldehyde dehydrogenase 2 (*BADH2*). The gene structure of *BADH2* contains 15 exons and 14 introns, with several kinds of mutations like deletions, insertions and single nucleotide polymorphisms (SNPs) in the exons or introns. Correlating the endogenous metabolites with expression levels of genes encoding corresponding enzymes for aroma, as well characterization of *BADH2* gene and promoters from different aromatic rice varieties will provide insight regarding the regulation of the aroma level.

RESEARCH PROJECTS:

PROJECT – 1

Principal Investigator of the project entitled “Deciphering the biochemical and molecular mechanism of melatonin action during arsenic-mediated stress in indica rice varieties” [sponsored by Department of Science & Technology and Biotechnology, Govt. of West Bengal]

PROJECT – 2

Principal Investigator of the project entitled “Deciphering the effect of sub lethal dose of gamma radiation on cross adaptation of rice plants to arsenic and fluoride co-contamination” [sponsored by UGC-DAE CSR, Govt. of India]

PROJECT - 3

Principal Investigator of the project entitled “Deciphering the biochemical and molecular response of indica rice varieties to fluoride-mediated environmental stress and cloning of putative fluoride exporter (FEX) from rice for characterization” [sponsored by Science and Engineering Research Board, Govt. of India]

PROJECT - 4 (Completed)

Principal Investigator of the project entitled “Molecular analysis of the expression of abscisic acid inducible genes in the developing grains: Comparison between salt-sensitive and salt-tolerant rice varieties” [sponsored by Science and Engineering Research Board, Govt. of India]

PROJECT – 5 (Completed)

Principal Investigator of the project entitled “Dissecting the basis of biochemical and molecular-genetic regulation of aroma production in common aromatic indica rice varieties” [sponsored by Council of Scientific and Industrial Research, Govt. of India]

Ph.D. SCHOLARS UNDER SUPERVISION:

Name of Research Fellows:

1. Mr. Aditya Banerjee (Qualified CSIR-UGC NET- JRF, 2016, Rank 11)
2. Mr. Santanu Samanta (Qualified CSIR-UGC NET-LS)
3. Mr. Ankur Singh (Qualified GATE, 2018 and NET-LS, 2018)
4. Mr Swarnavo Chakraborty (Qualified CSIR-UGC NET-JRF, 2020, Rank 100)
5. Mr. Arpan Moitra (Qualified CSIR-UGC NET-LS)



Mr. Aditya Banerjee
UGC-Adhoc Fellow



Mr. Santanu Samanta
Project Fellow



Mr. Ankur Singh
Project Fellow



Mr. Swarnavo Chakraborty
CSIR-Adhoc Fellow



Mr. Arpan Moitra
Project Fellow

SCHOLAR AWARDED Ph.D.

Dr. Saikat Paul

SCHOLAR SUBMITTED Ph.D. Thesis

Smt. Puja Ghosh (Viva awaited)

PUBLICATIONS IN INTERNATIONAL / NATIONAL JOURNALS:

1. Kakali Mukherjee, **Aryadeep Roychoudhury**, Bhaskar Gupta, Sudhiranjan Gupta, Dibyendu N. Sengupta (2006) An ABRE-binding factor, OSBZ8, is highly expressed in salt tolerant cultivars than in salt sensitive cultivars of indica rice. **BMC Plant Biology** Aug; 6: 18
2. **Aryadeep Roychoudhury**, Chaitali Roy, Dibyendu N. Sengupta (2007) Transgenic tobacco plants overexpressing the heterologous *lea* gene *Rab16A* from rice during high salt and water deficit display enhanced tolerance to salinity stress. **Plant Cell Reports** Oct; 26(10):1839-1859
3. **Aryadeep Roychoudhury**, Bhaskar Gupta, Dibyendu N. Sengupta (2008) Trans-acting factor designated OSBZ8 interacts with both typical abscisic acid responsive elements as well as abscisic acid responsive element-like sequences in the vegetative tissues of indica rice cultivars. **Plant Cell Reports** Apr; 27(4): 779-794
4. **Aryadeep Roychoudhury**^{*}, Supratim Basu, Sailendra N. Sarkar, Dibyendu N. Sengupta (2008) Comparative physiological and molecular responses of a common aromatic indica rice cultivar to high salinity with non-aromatic indica rice cultivars. **Plant Cell Reports** Aug; 27(8): 1395-1410

5. Aryadeep Roychoudhury^{*}, Supratim Basu (2008) Overexpression of an abiotic-stress inducible plant protein in the bacteria *Escherichia coli*. **African Journal of Biotechnology** Sept; 7 (18): 3231-3234
6. Aryadeep Roychoudhury, Karabi Datta, Swapan K. Datta (2008) C4 plants and abiotic stress. In: S. Ghosh (Eds.), **Proceedings of The Humboldt Kolleg on Global Warming in Context to the Indian Sub-continent**, Humboldt Club, Calcutta, Dec 11-13; pp. 86-105
7. Aryadeep Roy Choudhury^{*} (2008) Cholera: a clinical and biochemical overview. **Science and Culture** Nov-Dec; 74 (11-12): 483-487
8. Aryadeep Roychoudhury^{*}, Supratim Basu, Dibyendu N. Sengupta (2009) Effects of exogenous abscisic acid on some physiological responses in a popular aromatic indica rice compared with those from two traditional non-aromatic indica rice cultivars. **Acta Physiologiae Plantarum** Sept; 31 (5): 915–926.
9. A. Roychoudhury^{*}, D.N. Sengupta (2009) The promoter-elements of some abiotic stress-inducible genes from cereals interact with a nuclear protein from tobacco. **Biologia Plantarum** Sept; 53 (3): 583-587
10. Aryadeep Roychoudhury^{*}, Supratim Basu, Dibyendu N. Sengupta (2009) Comparative expression of two abscisic acid-inducible genes and proteins in the seeds of an aromatic indica rice cultivar with that of non-aromatic indica rice cultivars. **Indian Journal of Experimental Biology** Oct; 47 (10): 827-833
11. Aryadeep Roychoudhury^{*}, Supratim Basu, Dibyendu N. Sengupta (2009) Analysis of comparative efficiencies of different transformation methods of *E. coli* using two common plasmid vectors. **Indian Journal of Biochemistry and Biophysics** Oct; 46: 395-400
12. Supratim Basu, Aryadeep Roychoudhury, Progya Paromita Saha, Dibyendu N. Sengupta (2010) Differential antioxidative responses of indica rice cultivars to drought stress. **Plant Growth Regulation** Jan; 60 (1): 51–59

13. Supratim Basu, **Aryadeep Roychoudhury**^{*}, Progya Paromita Saha, Dibyendu N. Sengupta (2010) Comparative analysis of some biochemical responses of three indica rice varieties during polyethylene glycol-mediated water stress exhibits distinct varietal differences. **Acta Physiologiae Plantarum** May; 32 (3): 551-563
14. **Aryadeep Roy Choudhury**^{*} (2010) Effect of changes in the conventional carbon sources on the stability of minichromosome in the budding yeast, *Saccharomyces cerevisiae*. **Journal of Mycopathological Research** Apr; 48 (1): 101-104
15. **Aryadeep Roychoudhury**^{*}, Supratim Basu, Dibyendu N. Sengupta (2011) Amelioration of salinity stress by exogenously applied spermidine or spermine in three varieties of indica rice differing in their level of salt tolerance. **Journal of Plant Physiology** March; 168: 317–328
16. Moumita Ganguly, **Aryadeep Roychoudhury**, Sailendra N. Sarkar, Dibyendu N. Sengupta, Swapan K. Datta, Karabi Datta (2011) Inducibility of three salinity/abscisic acid-regulated promoters in transgenic rice with *gusA* reporter gene. **Plant Cell Reports** September; 30 (9): 1617-1625
17. **Aryadeep Roy Choudhury**^{*}, Sreeparna Pradhan (2011) Role of potentially important microbes in bioremediation. **Science and Culture** July-Aug; 77 (7–8): 303-309
18. Moumita Ganguly, Karabi Datta, **Aryadeep Roychoudhury**, Dipak Gayen, Dibyendu N. Sengupta, Swapan K. Datta (2012) Overexpression of *Rab16A* gene in indica rice variety for generating enhanced salt tolerance. **Plant Signaling & Behavior** April; 7(4): 502-509
19. Supratim Basu, **Aryadeep Roychoudhury**^{*}, Saptadwipa Sanyal, Dibyendu N. Sengupta (2012) Carbohydrate content and antioxidative potential of the seed of three edible indica rice (*Oryza sativa* L.) cultivars. **Indian Journal of Biochemistry and Biophysics** April; 49: 115-123
20. **Aryadeep Roychoudhury**^{*}, Supratim Basu, Dibyendu N. Sengupta (2012) Antioxidants and stress-related metabolites in the seedlings of two indica rice varieties exposed to cadmium chloride toxicity. **Acta Physiologiae Plantarum** May; 34 (3): 835-847

21. **Aryadeep Roy Choudhury**^{*}, Kaushik Das, Satyaki Ghosh, Richik Nilay Mukherjee, Rupkatha Banerjee (2012) Transgenic Plants: benefits and controversies. **Journal of the Botanical Society of Bengal** June; 66 (1): 29-35

22. **Aryadeep Roy Choudhury**^{*}, Sreeparna Pradhan, Bodhisatwa Chaudhuri, Mayukh Chakraborty (2012) Microbes and biofuel production. **Journal of Mycopathological Research** Oct; 50 (2): 243-248

23. **Aryadeep Roychoudhury**^{*}, Saikat Paul, Supratim Basu (2013) Cross-talk between abscisic acid-dependent and abscisic acid-independent pathways during abiotic stress. **Plant Cell Reports** July; 32 (7): 985-1006

24. **Aryadeep Roychoudhury**^{*}, Mayukh Chakraborty (2013) Biochemical and molecular basis of varietal difference in plant salt tolerance. **Annual Review & Research in Biology** (presently **Annual Research & Review in Biology**) Oct-Dec; 3 (4): 422-454

25. **Aryadeep Roychoudhury**^{*}, Srijita Ghosh (2013) Physiological and biochemical responses of mungbean (*Vigna radiata* L. Wilczek) to varying concentrations of cadmium chloride or sodium chloride. **Unique Journal of Pharmaceutical and Biological Sciences** Nov-Dec; 1 (3): 11-21

26. **Aryadeep Roy Choudhury**^{*}, Mayukh Chakraborty, Samadrita Bhattacharya (2013) Formation and importance of biofilm. **Everyman's Science** Oct-Nov; Vol. XLVIII (4): 298-304

27. Supratim Basu, **Aryadeep Roychoudhury**, Dibyendu N. Sengupta (2014) Identification of transacting factors regulating SamDC expression in *Oryza sativa*. **Biochemical and Biophysical Research Communications** March; 445 (2): 398–403

28. Supratim Basu, **Aryadeep Roychoudhury**^{*} (2014) Computational analysis of abiotic stress inducible genes and proteins from rice (*Oryza sativa* L.). **International Journal of Pharma and Bio Sciences** April; 5 (2): (B) 718-735

29. Supratim Basu, **Aryadeep Roychoudhury**, Dibyendu N. Sengupta (2014) Deciphering the Role of various cis-acting regulatory elements in controlling SamDC gene expression in Rice. **Plant Signaling & Behavior** March; 9: e28391-1- e28391-5
30. Supratim Basu, **Aryadeep Roychoudhury** (2014) Inducibility of dehydration responsive element (DRE)-based promoter through *gusA* expression in transgenic tobacco. **Indian Journal of Biotechnology** April; 13 (2): 172-177
31. Supratim Basu, **Aryadeep Roychoudhury** (2014) Expression profiling of abiotic stress-inducible genes in response to multiple stresses in rice (*Oryza sativa* L.) varieties with contrasting level of stress tolerance. **BioMed Research International** July; 2014: 706890, 12 pages
32. Kaushik Das, **Aryadeep Roychoudhury** (2014) Reactive oxygen species (ROS) and response of antioxidants as ROS-scavengers during environmental stress in plants. **Frontiers in Environmental Science** December; 2: 53
33. Naser A. Anjum, Adriano Sofo, Antonio Scopa, **Aryadeep Roychoudhury**, Sarvajeet Singh Gill, Muhammad Iqbal, Alexander S. Lukatkin, Eduarda Pereira, Armando C. Duarte, Iqbal Ahmad (2015) Lipids and proteins—major targets of oxidative modifications in abiotic stressed plants. **Environmental Science and Pollution Research** March; 22 (6): 4099-4121
34. Aditya Banerjee, **Aryadeep Roychoudhury** (2015) WRKY Proteins: signaling and regulation of expression during abiotic stress responses. **The Scientific World Journal** March; 2015: 807560; 17 pages
35. Naser A. Anjum, Mirza Hasanuzzaman, Mohammad A. Hossain, Thangavel Palaniswamy, **Aryadeep Roychoudhury**, Sarvajeet Singh Gill, Miguel A.M. Rodrigo, Vojtěch Adam, Masayuki Fujita, Rene Kizek, Armando Da Costa Duarte, Eduarda Pereira, Iqbal Ahmad (2015) Jacks of metal(loid) chelation trade in plants – an overview. **Frontiers in Plant Science** April; 6:192
36. **Aryadeep Roychoudhury** , Aditya Banerjee (2015) Transcriptome analysis of abiotic stress response in plants. **Transcriptomics** October; 3 (2): e115

37. **Aryadeep Roychoudhury**^{*}, Aditya Banerjee, Vikramjit Lahiri (2015) Metabolic and molecular-genetic regulation of proline signaling and its cross-talk with major effectors mediates abiotic stress tolerance in plants. **Turkish Journal of Botany** December; 39 (6): 887-910
38. **Aryadeep Roychoudhury**^{*}, Srijita Ghosh, Saikat Paul, Sukanya Mazumdar, Ganginee Das, Subhankari Das (2016) Pre-treatment of seeds with salicylic acid attenuates cadmium chloride-induced oxidative damages in the seedlings of mungbean (*Vigna radiata* L. Wilczek). **Acta Physiologiae Plantarum** January; 38 (1): 11
39. **Aryadeep Roychoudhury**^{*}, Aditya Banerjee (2016) Endogenous glycine betaine accumulation mediates abiotic stress tolerance in plants. **Tropical Plant Research** April; 3(1): 105–111
40. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2016) Group II late embryogenesis abundant (LEA) proteins: structural and functional aspects in plant abiotic stress. **Plant Growth Regulation** May; 79: 1-17
41. Aditya Banerjee, **Aryadeep Roychoudhury**^{*}, S. Krishnamoorthi (2016) Emerging techniques to decipher microRNAs (miRNAs) and their regulatory role in conferring abiotic stress tolerance of plants. **Plant Biotechnology Reports** July; 10(4): 185-205
42. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2016) Seed priming with spermine ameliorates salinity stress in the germinated seedlings of two rice cultivars differing in their level of salt tolerance. **Tropical Plant Research** December; 3(3): 616–633
43. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2017) Abscisic-acid-dependent basic leucine zipper (bZIP) transcription factors in plant abiotic stress. **Protoplasma** January-February; 254(1): 3-16
44. Aditya Banerjee, Shabir H. Wani, **Aryadeep Roychoudhury**^{*} (2017) Epigenetic Control of Plant Cold Responses. **Frontiers in Plant Science** September; 8:1643

45. Aryadeep Roychoudhury^{*} (2017) Editorial article for Special Issue 'Abiotic stress tolerance in plants: growth regulators and transcriptional control of multiple signaling pathways'. **Plant Gene** September; 11: 59-60

46. Saikat Paul, Aryadeep Roychoudhury^{*}, Aditya Banerjee, Neha Chaudhuri, Puja Ghosh (2017) Seed pre-treatment with spermidine alleviates oxidative damages to different extent in the salt (NaCl)-stressed seedlings of three indica rice cultivars with contrasting level of salt tolerance. **Plant Gene** September; 11: 112-123

47. Saikat Paul, Aryadeep Roychoudhury^{*} (2017) Seed priming with spermine and spermidine regulates the expression of diverse groups of abiotic stress-responsive genes during salinity stress in the seedlings of indica rice varieties. **Plant Gene** September; 11: 124-132

48. Saikat Paul, Aryadeep Roychoudhury^{*} (2017) Effect of seed priming with spermine/spermidine on transcriptional regulation of stress-responsive genes in salt-stressed seedlings of an aromatic rice cultivar. **Plant Gene** September; 11: 133-142

49. Aditya Banerjee, Aryadeep Roychoudhury^{*} (2017) Epigenetic regulation during salinity and drought stress in plants: Histone modifications and DNA methylation. **Plant Gene** September; 11: 199-204

50. Puja Ghosh, Aryadeep Roychoudhury^{*} (2018) Differential levels of metabolites and enzymes related to aroma formation in aromatic indica rice varieties: comparison with non-aromatic varieties. **3 Biotech** January; 8: 25

51. Aditya Banerjee, Aryadeep Roychoudhury^{*} (2018) The gymnastics of epigenomics in rice. **Plant Cell Reports** January; 37: 25-49

52. Aditya Banerjee, Aryadeep Roychoudhury^{*} (2018) Strigolactones: multi-level regulation of biosynthesis and diverse responses in plant abiotic stresses. **Acta Physiologiae Plantarum** May; 40: 86

53. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2018) Transcriptome profiling of abiotic stress-responsive genes during cadmium chloride-mediated stress in two indica rice varieties. **Journal of Plant Growth Regulation** June; 37: 657-667
54. Aditya Banerjee, Durgesh Kumar Tripathi, **Aryadeep Roychoudhury**^{*} (2018) Hydrogen sulphide trapeze: Environmental stress amelioration and phytohormone crosstalk. **Plant Physiology and Biochemistry** August; 132: 46-53
55. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Interactions of Brassinosteroids with Major Phytohormones: Antagonistic Effects. **Journal of Plant Growth Regulation** December; 37: 1025-1032
56. A. Banerjee, **A. Roychoudhury**^{*} (2019) Fluorine: a biohazardous agent for plants and phytoremediation strategies for its removal from the environment. **Biologia Plantarum** January; 63: 104-112
57. Aditya Banerjee, Durgesh Kumar Tripathi, **Aryadeep Roychoudhury**^{*} (2019) The Karrikin 'Calisthenics': Can Compounds Derived from Smoke Help in Stress Tolerance? **Physiologia Plantarum** February; 165: 290-302
58. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2019) Comparative Analyses of Regeneration Potentiality of Eight Indigenous Aromatic Indica rice (*Oryza sativa* L.) Varieties. **International Journal of Scientific Research in Biological Sciences** February; 6: 55-64
59. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Structural introspection of a putative fluoride transporter in plants. **3 Biotech** March; 9: 103
60. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2019) Transcript analysis of abscisic acid-inducible genes in response to different abiotic disturbances in two indica rice varieties. **Theoretical and Experimental Plant Physiology** March; 31: 249-272

61. Aditya Banerjee, Puja Ghosh, **Aryadeep Roychoudhury**^{*} (2019) Salt acclimation differentially regulates the metabolites commonly involved in stress tolerance and aroma synthesis in indica rice cultivars. **Plant Growth Regulation** May; 88: 87-97
62. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2019) Comparative Analysis of the Expression of Candidate Genes Governing Salt Tolerance and Yield Attributes in Two Contrasting Rice Genotypes, Encountering Salt Stress During Grain Development. **Journal of Plant Growth Regulation** June; 38: 539–556
63. Aditya Banerjee, **Aryadeep Roychoudhury**^{*}, Puja Ghosh (2019) Differential fluoride uptake induces variable physiological damage in a non-aromatic and an aromatic indica rice cultivar. **Plant Physiology and Biochemistry** June; 142: 143–150
64. Mirza Hasanuzzaman, Aditya Banerjee, M. H. M. Borhannuddin Bhuyan, **Aryadeep Roychoudhury**^{*}, Jubayer Al Mahmud, Masayuki Fujita (2019) Targeting Glycinebetaine for Abiotic Stress Tolerance in Crop Plants: Physiological Mechanism, Molecular Interaction and Signaling. **Phyton, International Journal of Experimental Botany** August; 88 (3): 185-221
65. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Differential regulation of defence pathways in aromatic and non-aromatic indica rice cultivars towards fluoride toxicity. **Plant Cell Reports** October; 38:1217–1233
66. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Melatonin application reduces fluoride uptake and toxicity in rice seedlings by altering abscisic acid, gibberellin, auxin and antioxidant homeostasis. **Plant Physiology and Biochemistry** December; 145: 164-173
67. Aditya Banerjee, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2019) Spermidine application reduces fluoride uptake and ameliorates physiological injuries in a susceptible rice cultivar by activating diverse regulators of the defense machinery. **Environmental Science and Pollution Research** December; 26: 36598–36614

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69. Saikat Paul, **Aryadeep Roychoudhury** ^{*} (2020) Regulation of physiological aspects in plants by hydrogen sulfide and nitric oxide under challenging environment. **Physiologia Plantarum** February; 168: 374-393
70. Aditya Banerjee, Puja Ghosh, **Aryadeep Roychoudhury** ^{*} (2020) Differential regulation of genes co-involved in aroma production and stress amelioration during salt acclimation in indica rice cultivars. **Biologia** April; 75: 495–506
71. Aditya Banerjee, Santanu Samanta, Ankur Singh, **Aryadeep Roychoudhury** ^{*} (2020) Deciphering the molecular mechanism behind stimulated co-uptake of arsenic and fluoride from soil, associated toxicity, defence and glyoxalase machineries in arsenic-tolerant rice. **Journal of Hazardous Materials** May; 390: 121978
72. Ankur Singh, Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2020) Seed priming with calcium compounds abrogate fluoride-induced oxidative stress by up regulating defence pathways in an indica rice variety. **Protoplasma** May; 257: 767–782
73. Puja Ghosh, **Aryadeep Roychoudhury** ^{*} (2020) Differential regulation of genes associated with aroma production in indica rice cultivars during grain developmental stages. **Vegetos** June; 33: 313-322
74. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2020) Gibberellic acid-priming promotes fluoride tolerance in a susceptible indica rice cultivar by regulating the antioxidant and phytohormone homeostasis. **Journal of Plant Growth Regulation** 39:1476–1487
75. Moumita Ganguly, **Aryadeep Roychoudhury**, Dibyendu N. Sengupta, Swapan K. Datta, Karabi Datta (2020) Independent overexpression of *OsRab16A* and *AtDREB1A* exhibit enhanced drought

tolerance in transgenic aromatic rice variety Pusa Sugandhi 2. **Journal of Plant Biochemistry and Biotechnology** September; 29: 503–517

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80. Aditya Banerjee, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2020) *De novo* RNA-Seq analysis in sensitive rice cultivar and comparative transcript profiling in contrasting genotypes reveal genetic biomarkers for fluoride-stress response. **Environmental Pollution** December; 267: 115378

81. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Differential lead-fluoride and nickel-fluoride uptake in co-polluted soil variably affects the overall physiome in an aromatic rice cultivar. **Environmental Pollution** January; 268 (B): 115504

82. Santanu Samanta, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Melatonin application differentially modulates the enzymes associated with antioxidative machinery and ascorbate glutathione cycle during arsenate exposure in indica rice varieties. **Plant Biology** 23 (S1): 193-201

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84. Aditya Banerjee, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2021) Fluoride toxicity variably affects overall physiology and grain development in three contrasting rice genotypes, representing a potential biohazard. **Environmental Science and Pollution Research** 28: 40220–40232
85. Aditya Banerjee, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2021) Maghemite nano-fertilization promotes fluoride tolerance in rice by restoring grain yield and modulating the ionome and physiome. **Ecotoxicology and Environmental Safety** 215:112055
86. Anindita Paul, **Aryadeep Roychoudhury**^{*} (2021) Go green to protect plants: repurposing the antimicrobial activity of biosynthesized silver nanoparticles to combat phytopathogens. **Nanotechnology for Environmental Engineering** 6:10
87. Supratim Basu, **Aryadeep Roychoudhury**^{*} (2021) Transcript profiling of stress-responsive genes and metabolic changes during salinity in indica and japonica rice exhibit distinct varietal difference. **Physiologia Plantarum** 173: 1434-1447
88. Ankur Singh, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Differential Responses of *Vigna radiata* and *Vigna mungo* to Fluoride-Induced Oxidative Stress and Amelioration via Exogenous Application of Sodium Nitroprusside. **Journal of Plant Growth Regulation** 40: 2342-2357
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2. **Guest Editor** of a Special issue “Innovations and Translational Dimensions in Agricultural and Environmental Biotechnology” in the journal, *Plant Gene* Volume 17 (Elsevier) in 2019.
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41. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) High-Throughput Genomics. In: Khan MIR, Singh A, Poór P (Ed.) Improving Abiotic Stress Tolerance in Plants. **CRC Press** (Taylor & Francis Group), Boca Raton, Pp. 309-316
42. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Regulation of inducible promoters during salinity stress in plants In: Wani SH (Ed.) Transcription Factors for Abiotic Stress Tolerance in Plants. **Elsevier Academic Press**, Pp. 111-122
43. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Plant Responses to Environmental Nickel Toxicity. In: Aftab T, Hakeem KR (Ed.) Plant Micronutrients, **Springer Nature Switzerland**, Pp. 101-111
44. Saket Chandra, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Quantitative Trait Loci for Rice Grain Quality Improvement. In: Roychoudhury A (Ed.) Rice Research for Quality Improvement: Genomics and Genetic Engineering (Volume 2), **Springer Nature Singapore Pte Ltd**, Pp. 687-697
45. Puja Ghosh, **Aryadeep Roychoudhury**^{*} (2020) Aromatic Rice: Biochemical and Molecular Basis of Aroma Production and Stress Response. In: Roychoudhury A (Ed.) Rice Research for Quality Improvement: Genomics and Genetic Engineering (Volume 2), **Springer Nature Singapore Pte Ltd**, Pp. 373-408
46. **Aryadeep Roychoudhury**^{*}, Rituparna Bhowmik (2020) Genetic Engineering of Rice to Fortify Micronutrients. In: Roychoudhury A (Ed.) Rice Research for Quality Improvement: Genomics and Genetic Engineering (Volume 2), **Springer Nature Singapore Pte Ltd**, Pp. 563-579
47. Santanu Samanta, **Aryadeep Roychoudhury**^{*} (2021) Transporters involved in arsenic uptake, translocation and efflux in plants. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Metal and Nutrient Transporters in Abiotic Stress, **Academic Press (Elsevier)**, Pp. 77-86

48. **Aryadeep Roychoudhury**^{*}, Swarnavo Chakraborty (2021) Cobalt and molybdenum transport in plants. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Metal and Nutrient Transporters in Abiotic Stress, **Academic Press (Elsevier)**, Pp. 199-211

49. Ankur Singh, **Aryadeep Roychoudhury**^{*} (2021) Silicon transporters in plants. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Metal and Nutrient Transporters in Abiotic Stress, **Academic Press (Elsevier)**, Pp.133-143

50. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Deciphering the Roles of Protein Phosphatases in the Regulation of Salt-Induced Signaling Responses in Plants. In: Pandey G (Ed.), Protein Phosphatases and Stress Management in Plants, **Springer Nature Switzerland**, Pp. 149-162

51. **Aryadeep Roychoudhury**^{*}, Swarnavo Chakraborty (2020) Cellular and Molecular Phytotoxicity of Lead and Mercury, Faisal M et al. (Ed.), Cellular and Molecular Phytotoxicity of Heavy Metals, **Springer Nature Switzerland**, Pp. 373-387

52. Ankur Singh, **Aryadeep Roychoudhury**^{*} (2020) Genetic Engineering: A Powerful Tool to Abrogate the Effect of Metal/Metalloid Toxicity in Rice. In: Roychoudhury A (Ed.), Rice Research for Quality Improvement: Genomics and Genetic Engineering Volume 1, **Springer Nature Singapore Pte Ltd**, Pp. 373-384

53. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Physiological and Genetic Basis of Submergence Tolerance in Rice, In: Roychoudhury A (Ed.), Rice Research for Quality Improvement: Genomics and Genetic Engineering Volume 1, **Springer Nature Singapore Pte Ltd**, Pp. 399-406

54. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Rice Grain Quality and Abiotic Stress: Genomics and Biotechnological Perspectives, In: Roychoudhury A (Ed.), Rice Research for Quality Improvement: Genomics and Genetic Engineering Volume 1, **Springer Nature Singapore Pte Ltd**, Pp. 747-752

55. Ankur Singh, Bodhisatwa Chaudhuri, **Aryadeep Roychoudhury** ^{*} (2020) Influence of Night Temperature on Rice Yield and Quality, In: Roychoudhury A (Ed.), Rice Research for Quality Improvement: Genomics and Genetic Engineering Volume 1, **Springer Nature Singapore Pte Ltd**, Pp. 579-590
56. Ankur Singh, **Aryadeep Roychoudhury** ^{*} (2021) Cytokinin-Mediated Signalling During Environmental Stress in Plants. In: Aftab T, Hakeem K (Ed.), Plant Growth Regulators, **Springer Nature Switzerland**. Pp. 133-151
57. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2021) Roles of Hydrogen Sulfide in Regulating Temperature Stress Response in Plants. In: Aftab T, Hakeem K (Ed.), Plant Growth Regulators, **Springer Nature Switzerland**. Pp. 207-215
58. **Aryadeep Roychoudhury** ^{*}, Rituparna Bhowmik (2021) State-of-the-Art Technologies for Improving the Quality of Medicinal and Aromatic Plants. In: Aftab T, Hakeem K (Ed.), Medicinal and Aromatic Plants, **Springer Nature Switzerland**, Pp. 593-627
59. **Aryadeep Roychoudhury** ^{*}, Rituparna Bhowmik (2021) Understanding the Mechanistic Functioning of Bioactive Compounds in Medicinal Plants. In: Aftab T, Hakeem K (Ed.), Medicinal and Aromatic Plants, **Springer Nature Switzerland**, Pp. 159-184
60. **Aryadeep Roychoudhury** ^{*}, Swarnavo Chakraborty (2021) Molecular basis of plant-microbe interaction in remediating pesticides. In: Hasanuzzaman M, Prasad MNV (Ed.), Handbook of Bioremediation, **Academic Press (Elsevier)**, Pp. 639-647
61. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2021) Metallothionein-assisted phytoremediation of inorganic pollutants, In: Hasanuzzaman M, Prasad MNV (Ed.), Handbook of Bioremediation, **Academic Press (Elsevier)**, Pp. 81-90

62. Ankur Singh, **Aryadeep Roychoudhury** ^{*} (2021) Augmenting the Abiotic Stress Tolerance in Plants Through Microbial Association. In: Nath M, Bhatt D, Bhargava P, Choudhary DK (Ed.) Microbial Metatranscriptomics Belowground, **Springer, Singapore**, Pp. 179-198
63. Ankur Singh, **Aryadeep Roychoudhury** ^{*} (2021) Salicylic Acid and Jasmonic Acid in Generating Salt Stress-Tolerant Plants. In: Aftab T, Yusuf M (Ed.) Jasmonates and Salicylates Signaling in Plants. **Springer Nature Switzerland**, Pp. 31-43
64. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2021) Phosphate, nitrate and polyamine transporters in abiotic stress response in plants. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Transporters and Plant Osmotic Stress. **Academic Press (Elsevier)**, Pp. 29-35
65. **Aryadeep Roychoudhury** ^{*}, Supratim Basu (2021) Abscisic acid control of plant macroelement membrane transport systems in response to water deficit and high salinity. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Transporters and Plant Osmotic Stress. **Academic Press (Elsevier)**, Pp.89-99
66. Amber Gupta, Birendra Prasad Shaw, **Aryadeep Roychoudhury** ^{*} (2021) NHX1, HKT, and monovalent cation transporters regulate K⁺ and Na⁺ transport during abiotic stress. In: Roychoudhury A, Tripathi DK, Deshmukh R (Ed.) Transporters and Plant Osmotic Stress. **Academic Press (Elsevier)**, Pp. 1-27
67. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2021) Roles of turgorins and systemins in promoting agriculture. In: Naeem M, Aftab T (Ed.) Emerging Plant Growth Regulators in Agriculture Roles in Stress Tolerance. **Academic Press (Elsevier)**, Pp. 415-421
68. Aditya Banerjee, **Aryadeep Roychoudhury** ^{*} (2021) Role of Phenomics in Screening Abiotic Stress Tolerance in Plants. In: Aftab T, Hakeem KR (Ed.) Plant Abiotic Stress Physiology Volume 2 Molecular Advancements. **CRC Press Taylor & Francis Group APPLE ACADEMIC PRESS**, Pp. 47-59

69. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Role of magnetopriming in alleviation of abiotic stress in plants. In: Aftab T, Roychoudhury A (Ed.) PLANT PERSPECTIVES TO GLOBAL CLIMATE CHANGES Developing Climate-Resilient Plants. **Academic Press (Elsevier)**, Pp. 519-523

70. Ankur Singh, **Aryadeep Roychoudhury**^{*} (2021) Role of β -aminobutyric acid in generating stress-tolerant and climate-resilient plants. In: Aftab T, Roychoudhury A (Ed.) PLANT PERSPECTIVES TO GLOBAL CLIMATE CHANGES Developing Climate-Resilient Plants. **Academic Press (Elsevier)**, Pp. 459-469

71. **Aryadeep Roychoudhury**^{*}, Swarnavo Chakraborty (2021) Effect of Hydrogen Sulfide on Osmotic Adjustment of Plants Under Different Abiotic Stresses. In: Khan MN, Siddiqui MH, Alamri S, Corpas FJ (Ed.) Hydrogen Sulfide and Plant Acclimation to Abiotic Stresses. **Springer Nature Switzerland AG**, Pp. 73-85

72. Ankur Singh, **Aryadeep Roychoudhury**^{*} (2021) Hydrogen Sulfide and Redox Homeostasis for Alleviation of Heavy Metal Stress. In: Khan MN, Khan MN, Siddiqui MH, Alamri S, Corpas FJ (Ed.) Hydrogen Sulfide and Plant Acclimation to Abiotic Stresses. **Springer Nature Switzerland AG**, Pp. 59-72

73. Santanu Samanta, **Aryadeep Roychoudhury**^{*} (2021) Arsenic stress and mineral nutrition in plants. In: Kumar V, Srivastava AK, Suprasanna P (Ed.) Plant Nutrition and Food Security in the Era of Climate Change. **Academic Press (Elsevier)**, Pp. 361-375

74. **Aryadeep Roychoudhury**^{*}, Swarnavo Chakraborty (2021) Cobalt and molybdenum: deficiency, toxicity, and nutritional role in plant growth and development. In: Kumar V, Srivastava AK, Suprasanna P (Ed.) Plant Nutrition and Food Security in the Era of Climate Change. **Academic Press (Elsevier)**, Pp. 255-270

75. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Role of sugars in mediating abiotic stress tolerance in legumes. In: Singh VP, Singh S, Tripathi DK, Prasad SM, Bhardwaj R (Ed.) Abiotic Stress and Legumes. **Academic Press (Elsevier)**, Pp. 93-103
76. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Nitric oxide mediated regulation of stomatal movement during desiccation. In: Singh VP, Singh S, Tripathi D, Romero-Puertas M, Sandalio L (Ed.) Nitric Oxide in Plant Biology. **Academic Press (Elsevier)**, Pp. 493-502
77. Santanu Samanta, **Aryadeep Roychoudhury**^{*} (2021) Heavy Metal Toxicity in Plants: Physiological and Molecular Adaptations. In: Aftab T, Hakeem KR (Ed.) Heavy Metal Toxicity in Plants. **CRC Press Taylor & Francis Group, Boca Raton**, Pp. 1-9
78. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2021) Beneficial Aspects of Cobalt Uptake in Plants Exposed to Abiotic Stresses. In: Aftab T, Hakeem KR (Ed.) Frontiers In Plant-Soil Interaction. **Academic Press (Elsevier)**, Pp. 523-529
79. **Aryadeep Roychoudhury**^{*}, Nilanjana Das (2022) Sewage Sludge Treatment and Involvement of Microbes. In: Rajput VD, Yadav AN, Jatav HS, Singh SK, Minkina T (Ed.) Sustainable Management and Utilization of Sewage Sludge. **Springer Nature Switzerland** Pp.165-181
80. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2022) Silver and zinc nanoparticles in the improvement of agricultural crops. In: Ghorbanpour M, Shahid MA (Ed.) Nano-enabled agrochemicals in agriculture. **Academic Press (Elsevier)**, Pp.199-209
81. Swarnavo Chakraborty, **Aryadeep Roychoudhury**^{*} (2022) Morphological, Architectural and Biochemical Modifications of Cereal Crops During Abiotic Stress. In: Roychoudhury A, Aftab T, Acharya K (Ed.) Omics Approach to Manage Abiotic Stress in Cereals. **Springer Nature Singapore**, Pp. 1-20
82. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2022) Molecular Genetic Studies and Breeding and Genomics-Based Approaches to Develop Abiotic Stress Tolerance in Sorghum. In:

Roychoudhury A, Aftab T, Acharya K (Ed.) Omics Approach to Manage Abiotic Stress in Cereals. **Springer Nature Singapore**, Pp. 465-477

83. Ankur Singh, **Aryadeep Roychoudhury** ^{*} (2022) Omics Tools to Understand Abiotic Stress Response and Adaptation in Rye, Oat and Barley. In: Roychoudhury A, Aftab T, Acharya K (Ed.) Omics Approach to Manage Abiotic Stress in Cereals. **Springer Nature Singapore**, Pp. 513-529

84. Swarnavo Chakraborty, **Aryadeep Roychoudhury** ^{*} (2022) Ethical Perspectives and Limitations of Metabolic Engineering Technologies in Plants. In: Aftab T, Hakeem KR (Ed.) Metabolic Engineering in Plants. **Springer Nature Singapore**, Pp. 405–413

^{*}
Corresponding author

PAPERS/LECTURES PRESENTED IN CONFERENCES/SEMINARS

1. Kakali Mukherjee, **Aryadeep Roy Choudhury**, Dibyendu N. Sengupta (2001) Expression of ABRE-binding factor in rice cultivars in response to salinity stress and construction of abiotic stress inducible promoters (**Paper presented at** National Symposium on “Plant Physiology & Biochemistry in Transgenic era and beyond”, at Bose Institute, Kolkata)

2. Kakali Mukherjee, **Aryadeep Roy Choudhury**, Dibyendu N. Sengupta (2003) Expression of abscisic acid responsive element-binding proteins in salt sensitive and salt tolerant rice cultivars (**Paper presented at** 2ND International Congress of Plant Physiology at IARI, New Delhi)

3. Kakali Mukherjee, **Aryadeep Roy Choudhury**, Dibyendu N. Sengupta (2003) Expression of abscisic acid responsive cis element binding proteins in rice cultivars and construction of salinity stress inducible promoters (**Paper presented at** FAOBMB Satellite Symposium (organized by Society of Biological Chemists, SBC) on “Regulation of Gene Expression” at IICB, Kolkata)

4. Kakali Mukherjee, **Aryadeep Roy Choudhury**, Bhaskar Gupta, Dibyendu N. Sengupta (2004) Expression of ABRE-binding factor OSBZ8 in lamina is high in salt tolerant and low in salt sensitive rice cultivars (**Paper presented at** National Seminar on Plant Physiology, organized by Department of Botany, University of Pune, and Indian Society for Plant Physiology, New Delhi, held at Pune University)

5. **Aryadeep Roy Choudhury** and Dibyendu N. Sengupta (2007) Overexpression of *Rab16A* gene in tobacco makes the transgenic plants tolerant to salinity (**Paper presented at** International Conference on “Chromosomes to Neurones”, at the Saha Institute of Nuclear Physics, Kolkata)
6. **Aryadeep Roy Choudhury** (2007) C₄ Photosynthesis: Physiology and the biotechnological implication towards crop improvement (**Invited talk at** Plant Physiology Forum meeting, at Ramakrishna Mission, Narendrapur, Kolkata)
7. Supratim Basu, **Aryadeep Roy Choudhury** and Dibyendu N. Sengupta (2008) Changes in the antioxidant properties in the leaves of rice plants by salinity stress and ABA treatment and overexpression of *Rab16A* in tobacco provides salt tolerance (**Paper presented at** International Symposium on “A Journey from Plant Physiology to Plant Biology”, at Bose Institute, Kolkata)
8. **Aryadeep Roy Choudhury** (2009) Micro RNA and abiotic stress (**Invited talk at** National Symposium on “Advances in Plant Sciences, Agri-Biotechnology and Food Security”, at Visva-Bharati University)
9. **Aryadeep Roy Choudhury** (2012) Microbes and biofuel production (**Oral presentation at** National Symposium on “Frontlines of Microbiological Research: Concepts and Applications”, at University of Calcutta)
10. **Aryadeep Roychoudhury** and Saikat Paul (2014) Molecular regulation of *Rab16A* gene in indica rice varieties and its overexpression to generate salt-tolerant transgenic plants (**Paper presented at** International Symposium on “Trends in Plant Science Research”, organized by Centenary Celebration Committee, Department of Botany, University of Calcutta)
11. Shreyasee Roy, Ranita Bose, Debabrata Mukherjee, **Aryadeep Roy Choudhury** (2016) A comparative study on the effect of Cd and As in some important selected plant species (**Paper presented at** 5th International Conference on Ecotoxicology & Environmental Sciences, organized by Institute of Ecotoxicology and Environmental Sciences, Kolkata, held at Central Institute of Fisheries Technology, Cochin, Kerala)
12. **Aryadeep Roy Choudhury** (2016) Molecular regulation of *Rab16A* gene during salinity stress and varietal differences in salt stress response in indica rice (**Oral presentation at** National Seminar on “Defining Modern Biology: plants and microbes”, organized by Department of Botany, University of Gour Banga, Malda, West Bengal)
13. Saikat Paul, **Aryadeep Roy Choudhury** (2016) Expression analysis of abscisic acid inducible genes under multiple abiotic stresses in rice (*Oryza sativa* L.) (**Paper presented at** National

Seminar on “Defining Modern Biology: plants and microbes”, organized by Department of Botany, University of Gour Banga, Malda, West Bengal)

14. Aryadeep Roychoudhury (2016) Induced *Rab16A* gene expression in the molecular regulation of salt tolerance mechanism of indica rice varieties. **(Oral presentation** at National Conference of Plant Physiology – 2016 “Challenges in Crop Physiology Research: From Molecular to Whole Plant”, organized by Department of Crop Physiology, University of Agricultural Sciences, Bengaluru and Indian Society for Plant Physiology, New Delhi)

15. Saikat Paul, Aryadeep Roychoudhury (2016) Seed priming with spermidine enhances salt tolerance in the susceptible aromatic rice cultivar Gobindobhog by influencing multiple metabolic pathways and up regulating stress-inducible genes. **(Paper presented** at National Conference of Plant Physiology – 2016 “Challenges in Crop Physiology Research: From Molecular to Whole Plant”, organized by Department of Crop Physiology, University of Agricultural Sciences, Bengaluru and Indian Society for Plant Physiology, New Delhi)

16. Aditya Banerjee, Aryadeep Roy Choudhury (2016) Alleviation of cadmium chloride-induced oxidative stress in mungbean (*Vigna radiata* L.) by seed pre-treatment with salicylic acid. **(Paper presented** in the International Conference on “The Green Planet: past, present and future”, organized by CAS-VII, Department of Botany, University of Calcutta)

17. Saikat Paul, Aryadeep Roy Choudhury (2017) Seed priming with spermine and spermidine improves salt tolerance of rice (*Oryza sativa* L.) seedlings via modulation of multiple metabolic pathways. **(Paper presented** in the International Symposium on “Insight to Plant Biology in the modern era”, organized by Division of Plant Biology, Bose Institute)

18. Saikat Paul, Aryadeep Roychoudhury (2017) Comparative transcriptional profiling of ABA-inducible stress-responsive and yield related genes in two rice (*Oryza sativa* L.) cultivars during grain filling under salinity stress. **(Paper presented** in the National Conference of Plant Physiology “Emerging Role of Plant Physiology for Food Security and Climate Resilient Agriculture”, organized by Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chattisgarh)

CONFERENCES/SEMINARS/PROGRAMS PARTICIPATED:

1. National Seminar on Transgenic plants: prometheus unbound, organized by Department of Biophysics, Molecular Biology and Genetics, Calcutta University, **March 26, 2006**, at Calcutta University

2. **Symposium on Plant Biotechnology and its relevance to food security**, supported by DBT Program Support, Department of Biotechnology, Govt. of India, **August 23, 2008**, at Calcutta University
3. **International Conference on Plant Systems Biology**, organized by the Department of Biophysics, Molecular Biology and Bioinformatics, Department of Botany and Bioinformatics Centre, Calcutta University, **December 8, 2009** at Calcutta University
4. **International Symposium on Modern Biology in 21st Century: Teaching and Research**, organized by the Department of Biophysics, Molecular Biology and Bioinformatics, University of Calcutta, **December 7th and 8th, 2010**, at Calcutta University
5. **DST-PURSE-sponsored Seminar on “Diabetes Research: Present status and future prospects”**, organized by Department of Biophysics, Molecular Biology and Bioinformatics, University of Calcutta, **17th September, 2012**, at Calcutta University
6. **23rd S. M. Sircar Conference**, organized by Plant Physiology Forum, **4th April, 2014**, at Bose Institute
7. **Inter Institutional Faculty Exchange Program (IIFEP)** organized by All India Association for Christian Higher Education (AIACHE), New Delhi, **November 30th to December 8th, 2014**, at Kochi and New Delhi
8. **One-day symposium on Insight to Plant Biology Through Systems Approach**, organized by Division of Plant Biology, Bose Institute, **December 17, 2015**, at Bose Institute, Kolkata
9. **National Symposium “Exploring Biological System: Cell to Organism (EBS 2016)”**, organized by Department of Biophysics, Molecular Biology and Bioinformatics, University of Calcutta, **1st and 2nd March, 2016**, at Calcutta University
10. **National Seminar “Frontiers in Biotechnology, 2016”**, organized by the Department of Biotechnology, St. Xavier’s College (Autonomous), Kolkata, **4th October, 2016**, at St. Xavier’s College (Autonomous), Kolkata
11. DBT (Govt. of India) sponsored two-day **National Level Workshop on Advances in Condensed Matter Physics with special emphasis on Biological Systems for Faculty Development**, organized by Department of Physics, St. Xavier’s College (Autonomous), Kolkata, **9th and 10th December, 2016**, at St. Xavier’s College (Autonomous), Kolkata

12. National Seminar “Frontiers in Biotechnology, 2017”, organized by the Department of Biotechnology, St. Xavier’s College (Autonomous), Kolkata, **27th October, 2017**, at St. Xavier’s College (Autonomous), Kolkata

13. UGC-CAS Phase VII sponsored National Seminar on “New Horizons of Integrative Biology”, organized by Department of Botany, University of Calcutta, **29th and 30th March, 2018**, at Calcutta University

14. National Seminar “Frontiers in Biotechnology, 2018”, organized by the Department of Biotechnology, St. Xavier’s College (Autonomous), Kolkata, **12th October, 2018**, at St. Xavier’s College (Autonomous), Kolkata

15. National Seminar on Applications of Statistics in Natural Sciences, organized by Department of Statistics and Physics, St. Xavier’s College (Autonomous), Kolkata, in collaboration with ICARD, Kolkata, **16th and 17th December, 2019**, at St. Xavier’s College (Autonomous), Kolkata

16. Two-day Faculty Development Programme on Experimental Physics at Graduate Level : Scope and Challenges, organized by Department of Physics, St. Xavier’s College (Autonomous), Kolkata, **10th and 11th January, 2020**, at St. Xavier’s College (Autonomous), Kolkata

INVITED LECTURE AS RESOURCE PERSON

1. Aryadeep Roy Choudhury (2014) Genetically modified (GM) crops: food security, challenges and present status - **Invited speaker** at the National Seminar on “Food Security and GM crops”, organized by Rishi Bankim Chandra College, Naihati, **on 12th February, 2014**

2. Aryadeep Roy Choudhury (2014) Regulation of gene expression for environmental stress management in crops - **Invited talk as resource person**, at the Department of Biotechnology, Mar Augusthinose College, Ramapuram, Kottayam, Kerala, on **3rd December, 2014**, as a part of **Inter Institutional Faculty Exchange Program (IIFEP)**, organized by All India Association for Christian Higher Education, New Delhi)

3. Aryadeep Roy Choudhury (2015) Genetically modified crops - **Invited lecture as a resource person**, in the one day students’ seminar, organized by the Department of Botany, Scottish Church College, Kolkata on **5th December, 2015**.

4. Aryadeep Roy Choudhury (2016) **Invited lecture as a resource person** in Pre-Ph.D. Course program for research scholars in Botany on **24th February, 2016**, at the Department of Botany, University of Calcutta

5. Aryadeep Roy Choudhury (2016) Invited lecture in Ph.D. coursework for research scholars on Research Methodology on **29th June, 2016**, at the Department of Biochemistry, West Bengal State University.

6. Aryadeep Roy Choudhury (2018) Transcriptomics and biochemical analysis in deciphering varietal differences in abiotic stress tolerance in indica rice (invited speaker in “Biosangam An International Conference on Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology”, organized by Department of Biotechnology, Motilal Nehru National Institute of Technology, Allahabad)

7. Aryadeep Roy Choudhury (2018) Chairperson for a session in “Biosangam An International Conference on Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology”, organized by Department of Biotechnology, Motilal Nehru National Institute of Technology, Allahabad, held on **March 9-11, 2018**.

8. Aryadeep Roy Choudhury (2020) Guest Speaker in the Webinar entitled “Journey of rice research from salinity to fluoride stress response” on the virtual platform of Bioingene.com International Webinar Series for the promotion of Plant Science Research, held on **December 31, 2020**, Youtube link: <https://youtu.be/CloEo5xwvEs>

9. Aryadeep Roy Choudhury (2021) Invited lecture (as resource person) in a Workshop on “Basic Techniques in Biological Sciences” organized by the Department of Botany and IQAC, Government General Degree College, Singur, West Bengal, held on **June 21, 2021**.

10. Aryadeep Roy Choudhury (2021) Keynote Speaker in the International Webinar on “Priming: an effective technique for good crop stand”, organized by Department of Agronomy, Ghazi University, Pakistan, held on **July 13, 2021**.

11. Aryadeep Roy Choudhury (2021) Plenary Speaker in the 7th International Conference on Environment and Ecology (ICEE 2021) **presenting a paper** entitled “Fluoride Stress Variably Affects the Overall Physiology and Grain Development in Three Contrasting Rice Cultivars, Representing a Potential Biohazard”, through Google Meet, held on **November 26, 27 and 28, 2021**.

12. Aryadeep Roy Choudhury (2022) Plenary Speaker in the International Multidisciplinary Webinar on Climate Change Impact on Agriculture, Environment and Sustainable Development, **presenting a paper** entitled “Promoting Plant Growth and Stress Tolerance through Priming Technique”, through Google Meet, held on **February 11, 12 and 13, 2022**.

13. Aryadeep Roy Choudhury (2022) Guest Speaker at the National Conference on “Technological Interventions in Life Sciences, Food, Agriculture & Allied Health Sciences – A Paradigm Shift towards a Better Future”, organized by Swami Vivekananda University, Barrackpore, West Bengal, held on **May 19 – 24, 2022**.

14. Aryadeep Roy Choudhury (2022) Plenary Speaker in the International Webinar on “Climate Change and Its Impact on Ecosystem: Mitigation and Adaptation”, **presenting a paper** entitled “OSBZ8, the master transcription factor, activates downstream target genes by binding to the abscisic acid responsive elements (ABREs) and ABRE-like sequences during salinity stress in rice” through Google Meet, held on **June 10 – 11, 2022**.

LIVE TALK SHOW:

Invited as the **Solo Expert** by **Doordarsan Kendra, Kolkata** (DD-Bangla) for a phone-in live talk show “HELLO DD: BASUNDHARA” (PROGRAM ON ENVIRONMENT) for the topic “PROSHNER MUKHE PARIBARTITA UDBHID” on **November 16th, 2015, 4 PM to 5 PM**

Link: (<http://www.ddbangla.gov.in/upload/progmanagements/MONDAY%2016.11.15.pdf>)

Youtube Link: <https://youtu.be/gplavSi3v3Y>

AWARDS

1. YOUNG SCIENTIST OF THE YEAR 2019 AWARD on **24th February, 2020**, conferred by the International Foundation for Environment and Ecology, on the occasion of 6th International Conference on Environment and Ecology, hosted and organized by the Department of Botany and Center of Environmental Sciences, University of Allahabad, Prayagraj, Uttar Pradesh.

2. BEST ORAL PRESENTATION AWARD for the paper entitled “Exogenous Application of Higher Polyamines, Spermidine and Spermine Ameliorates Fluoride Toxicity in a Susceptible Rice Cultivar by Restricting Fluoride uptake and Activating Defense Machinery” at the 6th International Conference on Environment and Ecology, hosted and organized by the Department of Botany and Center of Environmental Sciences, University of Allahabad, Prayagraj, Uttar Pradesh, on **24-25-26 February, 2020**

3. OUTSTANDING PAPER AWARD for the paper titled “Exogenous spermidine ameliorates prolonged fluoride toxicity in rice by restricting xenobiotic uptake and refining the molecular defense physiology” at the 4th Regional Science and Technology Congress (Southern Region) jointly

organized by Department of Science & Technology and Biotechnology, Government of West Bengal & Maulana Abul Kalam Azad University of Technology, West Bengal, on **24th December, 2019**

4. ENVIRONMENT EXCELLENCE AWARD conferred by the International Foundation for Environment and Ecology, Kolkata, on **26th November 2021**

OTHER SCIENTIFIC / ACADEMIC INVOLVEMENTS:

1. LIFE MEMBER OF:

a) SOCIETY FOR PLANT BIOCHEMISTRY AND BIOTECHNOLOGY (SPBB), NEW DELHI

b) INDIAN SOCIETY FOR PLANT PHYSIOLOGY (ISPP), NEW DELHI

c) INDIAN SCIENCE CONGRESS ASSOCIATION (ISCA)

d) BOTANICAL SOCIETY OF BENGAL

e) INTERNATIONAL FOUNDATION FOR ENVIRONMENT AND ECOLOGY

f) INSTITUTE OF ECOTOXICOLOGY & ENVIRONMENTAL SCIENCES

2. REVIEWER OF SEVERAL PEER-REVIEWED, HIGH-IMPACT INTERNATIONAL AND NATIONAL JOURNALS

3. PAPER SETTER, EXTERNAL MODERATOR AND EXAMINER (THEORETICAL AND/OR PRACTICAL) AT CALCUTTA UNIVERSITY, BURDWAN UNIVERSITY AND WEST BENGAL STATE UNIVERSITY

4. VISITING GUEST-FACULTY at UNIVERSITY OF CALCUTTA, SCOTTISH CHURCH COLLEGE, KOLKATA, and SERAMPORE COLLEGE, HOOGHLY