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Department: BIOTECHNOLOGY
Qualification: B.Sc. (Honours in Botany) from Presidency College, Kolkata
M.Sc. (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, Molecular Biology, Metabolism, Microbial and Plant Biotechnology, Ecology and Environmental Biotechnology, Evolution & Behavior, Bioethics

RESEARCH INTERESTS:

- **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 Higher Education, Science & Technology and Biotechnology, Govt. of West Bengal]

PROJECT - 2

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 - 3 (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 – 4 (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. Ms. Puja Ghosh (Qualified GATE, 2014)
2. Mr. Aditya Banerjee (Qualified CSIR-UGC NET- JRF, 2016, Rank 11)
3. Mr. Santanu Samanta (Qualified CSIR-UGC NET-LS)
4. Mr. Ankur Singh (Qualified GATE, 2018 and NET-LS, 2018)



Ms. Puja Ghosh
CSIR – Project Fellow



Mr. Aditya Banerjee
UGC-Adhoc Fellow



Mr. Santanu Samanta
DHESTBT (GoWB)–
- Project Fellow



Mr. Ankur Singh
SERB-DST - Project
Fellow

SCHOLAR AWARDED Ph.D.

Dr. Saikat Paul

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

68. Aditya Banerjee, Santanu Samanta, **Aryadeep Roychoudhury**^{*} (2020) Spermine ameliorates prolonged fluoride toxicity in soil-grown rice seedlings by activating the antioxidant machinery and glyoxalase system. **Ecotoxicology and Environmental Safety** February; 189:109737
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** doi.org/10.1007/s00344-020-10110-7
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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78. Santanu Samanta, Ankur Singh, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Exogenous supplementation of melatonin alters representative organic acids and enzymes of respiratory cycle as well as sugar metabolism during arsenic stress in two contrasting indica rice cultivars. **Journal of Biotechnology** December; 324: 220-232

79. Aditya Banerjee, Ankur Singh, M. Sudarshan, **Aryadeep Roychoudhury**^{*} (2021) Silicon nanoparticle-pulsing mitigates fluoride stress in rice by fine-tuning the ionic and metabolomic balance and refining agronomic traits. **Chemosphere** January; 262: 127826

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**^{*} (2020) Melatonin application differentially modulates the enzymes associated with antioxidative machinery and ascorbate

glutathione cycle during arsenate exposure in indica rice varieties. **Plant Biology**
doi:10.1111/plb.13181

83. Ankur Singh, **Aryadeep Roychoudhury**^{*}, Santanu Samanta, Aditya Banerjee (2020) Fluoride Stress-Mediated Regulation of Tricarboxylic Acid Cycle and Sugar Metabolism in Rice Seedlings in Absence and Presence of Exogenous Calcium. **Journal of Plant Growth Regulation**
doi.org/10.1007/s00344-020-10202-4

84. Aditya Banerjee, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2020) Fluoride toxicity variably affects overall physiology and grain development in three contrasting rice genotypes, representing a potential biohazard. **Environmental Science and Pollution Research** doi.org/10.1007/s11356-020-10604-7

GENERAL / POPULAR ARTICLES

1. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2014) Metabolic engineering of lipids in plants. **Journal of Plant Science & Research** November; 1:112

2. S. Krishnamoorthi, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2015) Immobilized enzyme technology: potentiality and prospects. **Journal of Enzymology and Metabolism** October; 1: 104

3. **Aryadeep Roychoudhury**^{*} (2020) 'Desert locust': a menace to Indian agriculture and economy. **Young Scientist - Tomorrow's Science Begins Today** June; 4: 14-20

4. **Aryadeep Roychoudhury**^{*} (2020) Silicon-Nanoparticles in Crop Improvement and Agriculture. **International Journal on Recent Advancement in Biotechnology & Nanotechnology** July; 3: 54-65

5. **Aryadeep Roychoudhury**^{*} (2020) Multifaceted Clinical and Therapeutic Potential of Omega-3 Fatty Acids in Humans. **International Journal of Recent Advances in Medical & Pharma Research** July; 3: 11-22

6. Aryadeep Roychoudhury^{*} (2020) Neurotransmitter Acetylcholine Comes to the Plant Rescue. **Journal of Molecular and Cellular Biology Forecast** July; 3:1019
7. Aryadeep Roychoudhury^{*} (2020) Nanobiologics: New Generation Transfection System for Animals and Plants. **Journal of Molecular and Cellular Biology Forecast** July; 3:1020
8. Aryadeep Roychoudhury^{*} (2020) Next Generation Sequencing: Prospects in Plant Breeding and Crop Improvement. **SF Journal of Agricultural and Crop Management** July; 1: 1004
9. Aryadeep Roychoudhury^{*} (2020) Agronomic and Genetic Biofortification of Rice Grains with Microelements to Assure Human Nutritional Security. **SF Journal of Agricultural and Crop Management** July; 1: 1005
10. Aryadeep Roychoudhury^{*} (2020) Convalescent Plasma Therapy: Solution to COVID-19? **SF Journal of Medicine and Research** July; 1:1011
11. Aryadeep Roychoudhury^{*} (2020) Global Warming and Methane Emissions: Some Recent Case Reports. **SF Journal of Biotechnology and Biomedical Engineering** July; 3: 1011
12. Aryadeep Roychoudhury^{*}, Rituparna Bhowmik (2020) Health Benefits of Plant-Derived Bioactive Secondary Metabolites as Dietary Constituents. **SF Journal of Clinical Pharmacology Research** August; 2: 1002.
13. Aryadeep Roychoudhury^{*} (2020) Edible Vaccines and Oral Immunization against Viruses: Prospects, Promises and Pitfalls. **SF Journal of Medicine and Research** September; 1: 1012.
14. Aryadeep Roychoudhury^{*} (2020) Bioactive Quorum Quenchers Antagonizing Pseudomonas Aeruginosa Biofilm. **International Journal on Current Trends in Drug Development & Industrial Pharmacy** September; 4(1): 29-45.

15. **Aryadeep Roychoudhury**^{*} (2020) Yeast-mediated Green Synthesis of Nanoparticles for Biological Applications. **Indian Journal of Pharmaceutical and Biological Research** September; 8(3): 26-31

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SUBMISSION OF NUCLEOTIDE SEQUENCES TO GENBANK:

1. Supratim Basu, Sanjay Kumar Singh, **Aryadeep Roychoudhury (2010)** (PubMed Accession Numbers **HM102353** and **HM102354**: Promoter regions of ***SamDC*** from IR-29 and Pokkali)
2. Saikat Paul, Dibyendu N. Sengupta, **Aryadeep Roychoudhury (2014)** (PubMed Accession Numbers **KJ561575.1** and **KJ561574.1**: Promoter regions of ***TRAB-1*** from IR-29 and Nonabokra respectively)
3. Saikat Paul, Dibyendu N. Sengupta, **Aryadeep Roychoudhury (2014)** (PubMed Accession Numbers **KJ671538.1** and **KJ702429.1**: Promoter regions of ***RITA-1*** from IR-29 and Nonabokra respectively)
4. Saikat Paul, **Aryadeep Roychoudhury (2015)** (PubMed Accession Number **KT037117.1**: ***TRAB1*** mRNA, complete cds from Nonabokra)
5. Puja Ghosh, Arnab Purohit, **Aryadeep Roychoudhury (2017)** (PubMed Accession Number **KY951991.1**: Intron 2 of ***betaine aldehyde dehydrogenase 2 (BADH2)*** gene from IR-64)
6. Aditya Banerjee, Puja Ghosh, **Aryadeep Roychoudhury (2018)** (PubMed Accession Number **MH271203**: **Fluoride exporter (FEX)** mRNA, complete cds from IR-64)
7. Aditya Banerjee, Puja Ghosh, **Aryadeep Roychoudhury (2018)** (PubMed Accession Number **MH107146**: Promoter region of ***FEX*** from IR-64)
8. Puja Ghosh, Aditya Banerjee, **Aryadeep Roychoudhury (2018)** (PubMed Accession Numbers **MG698905**, **MG714815**, **MG714816** and **MG714817**: Intron 2 of ***betaine aldehyde dehydrogenase 2 (BADH2)*** gene from Satabdi, Gobindobhog, Kalonunia and Radhunipagal)
9. Puja Ghosh, Aditya Banerjee, **Aryadeep Roychoudhury (2018)** (PubMed Accession Numbers **MG757575**, **MG757576**, **MG757577**, **MG757578** and **MG757579**: Intron 4 of ***betaine aldehyde dehydrogenase 2 (BADH2)*** gene from IR-64, Satabdi, Gobindobhog, Kalonunia and Radhunipagal)

10. Puja Ghosh, Aditya Banerjee, Saikat Paul, **Aryadeep Roychoudhury (2018)** (PubMed Accession Numbers **MG967454, MG967455, MG967456, MG967457** and **MG967458: Exon 7 and partial cds of *betaine aldehyde dehydrogenase 2 (BADH2)* gene** from IR-64, Satabdi, Gobindobhog, Kalonunia and Radhunipagal)
11. Puja Ghosh, Aditya Banerjee, **Aryadeep Roychoudhury (2019)** (PubMed Accession Numbers **MH844513, MH844514, MH844515, MH844516** and **MH844517: Intron 8 of *betaine aldehyde dehydrogenase 2 (BADH2)* gene** from Gobindobhog, Kalonunia, Radhunipagal, IR-64 and Satabdi)
12. Puja Ghosh, Aditya Banerjee, **Aryadeep Roychoudhury (2019)** (PubMed Accession Numbers **MH666053, MH666054, MH666055, MH777891** and **MH777892: Promoter region of *betaine aldehyde dehydrogenase 2 (BADH2)* gene** from Gobindobhog, Kalonunia, Radhunipagal, IR-64 and Satabdi)
13. Puja Ghosh, Aditya Banerjee, **Aryadeep Roychoudhury (2019)** (PubMed Accession Number **MH817633: Truncated exon 8 of *betaine aldehyde dehydrogenase 2 (BADH2)* gene** from Gobindobhog)

BOOKS EDITED:

1. Molecular Plant Abiotic Stress, ISBN No. 978-1-119-46369-6, **John Wiley & Sons Ltd, Hoboken, New Jersey, 2019**
2. Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, ISBN: 978-1-119-55164-5, **John Wiley & Sons Ltd, Hoboken, United States, 2020**
3. Rice Research for Quality Improvement: Genomics and Genetic Engineering, Volume 1: Breeding Techniques and Abiotic Stress Tolerance, ISBN: 978-981-15-4119-3, **Springer Nature Singapore, 2020**
4. Rice Research for Quality Improvement: Genomics and Genetic Engineering, Volume 2: Nutrient Biofortification and Herbicide and Biotic Stress Resistance in Rice, ISBN: 978-981-15-5336-3, **Springer Nature Singapore, 2020**

SPECIAL ISSUES EDITED:

1. **Guest Editor** of a Special issue “Abiotic stress tolerance in plants: growth regulators and transcriptional control of multiple signaling pathways” in the journal, *Plant Gene* Volume 11 Part B (Elsevier) in 2017.

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.

BOOK CHAPTERS:

1. **A. Roychoudhury**, Karabi Datta, S.K. Datta (2011) Abiotic stress in plants: From Genomics to Metabolomics. In: Tuteja N, Gill SS, Tuteja R (Eds.). *Omics and Plant Abiotic Stress Tolerance*, **Bentham Science Publishers**, Pp. 91-120

2. **Aryadeep Roychoudhury**^{*}, Supratim Basu (2012) Ascorbate-Glutathione and Plant Tolerance to Various Abiotic Stresses. In: Anjum NA, Umar S, Ahmad A (Eds.), *Oxidative stress in plants: Causes, Consequences and Tolerance*, **IK International Publishers**, New Delhi, Pp. 177-258

3. **Aryadeep Roychoudhury**^{*}, Anindita Paul (2012) Abscisic Acid-Inducible Genes during Salinity and Drought Stress. In: Berhardt LV. (Ed.), *Advances in Medicine and Biology*, Volume 51, **Nova Science Publishers**, New York, Pp. 1-78

4. **Aryadeep Roychoudhury**^{*}, Sreeparna Pradhan, Bodhisatwa Chaudhuri, Kaushik Das (2012) Phytoremediation of Toxic Metals and the Involvement of *Brassica* Species. In: Anjum NA, Pereira ME, Ahmad I, Duarte AC, Umar S, Khan NA (Eds.), *Phytotechnologies: Remediation of Environmental Contaminants*, **CRC press, Taylor and Francis Group**, Boca Raton, Pp. 219-251

5. **Aryadeep Roychoudhury**^{*}, Kaushik Das (2014) Functional Role of Polyamines and Polyamine-metabolizing Enzymes during Salinity, Drought and Cold Stresses. In: Anjum NA, Gill SS, Gill R (Eds.) *Plant Adaptation to Environmental Change: Significance of Amino acids and their derivatives*, **CAB International Publishers**, Nosworthy Way, Wallingford, Oxfordshire, UK, Pp. 141-156

6. **Aryadeep Roychoudhury**^{*}, Subhayu Nayek (2014) Structural Aspects and Functional Regulation of Late Embryogenesis Abundant (LEA) Genes and Proteins Conferring Abiotic Stress

Tolerance in Plants. In: Ferro A (Ed.), Abiotic Stress: Role in Sustainable Agriculture, Detrimental Effects and Management Strategies, **Nova Science Publishers**, New York, Pp. 43-109

7. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2016) Plant Responses to Light Stress: Oxidative Damages, Photoprotection, and Role of Phytohormones. In: Ahammed GJ, Yu J-Q (Ed.) Plant Hormones under Challenging Environmental Factors, **Springer Publishers**, Pp. 181-213

8. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2017) Melatonin as a regulator of abiotic stress tolerance in plants. In: Singh VP, Singh S, Prasad SM (Ed.) Mechanisms behind phytohormonal signaling and crop abiotic stress tolerance, **Nova Science Publishers**, New York, Pp. 47-60

9. **Aryadeep Roychoudhury**^{*}, Aditya Banerjee (2017) Abscisic Acid Signaling and Involvement of Mitogen Activated Protein Kinases and Calcium-Dependent Protein Kinases During Plant Abiotic Stress. In: Pandey GK (Ed.) Mechanism of Plant Hormone Signaling Under Stress (Vol. 1), **John Wiley & Sons**, Inc., Hoboken, New Jersey, Pp. 197-241

10. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2017) Effect of Salinity Stress on Growth and Physiology of Medicinal Plants. In: Ghorbanpour M, Varma A (Ed.) Medicinal Plants and Environmental Challenges, **Springer International Publishing**, Pp. 177-188

11. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2017) Abiotic Stress, Generation of Reactive Oxygen Species, and Their Consequences: An Overview. In: Singh VP, Singh S, Tripathi DK, Prasad SM, Chauhan DK (Ed.) Reactive Oxygen Species in Plants: Boon or Bane? Revisiting the Role of ROS, First Edition, **John Wiley & Sons Ltd**, Pp. 23-50

12. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Regulation of Photosynthesis Under Salinity and Drought Stress. In: Singh VP, Singh S, Singh R, Prasad SM (Ed.) Environment and Photosynthesis: A Future Prospect, **Studium Press, India**, Pp. 134-144

13. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Small Heat Shock Proteins: Structural Assembly and Functional Responses Against Heat Stress in Plants. In: Ahmad P, Ahanger MA,

Singh VP, Tripathi DK, Alam P, Alyemeni MN (Ed.) Plant Metabolites and Regulation Under Environmental Stress, **Elsevier (Academic Press)**, Pp. 367-376

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15. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Seed Priming Technology in the Amelioration of Salinity Stress in Plants. In: Rakshit A, Singh HB (Ed.) Advances in Seed Priming, **Springer Nature** Singapore, Pp. 81-93

16. Saikat Paul, **Aryadeep Roychoudhury**^{*} (2018) Transgenic Plants for Improved Salinity and Drought Tolerance. In: Gosal SS, Wani SH (Ed.) Biotechnologies of Crop Improvement, Vol. 2, **Springer International Publishing**, Pp. 141-181

17. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Nanoparticle-Induced Ecotoxicological Risks in Aquatic Environments: Concepts and Controversies. In: Tripathi DK, Ahmad P, Sharma S, Chauhan DK, Dubey NK (Ed.) Nanomaterials in Plants, Algae, and Microorganisms Concepts and Controversies, Vol. 2, **Elsevier (Academic Press)**, Pp.129-141

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19. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Genetic Engineering in Plants for Enhancing Arsenic Tolerance. In: Prasad MNV (Ed.) Transgenic Plant Technology for Remediation of Toxic Metals and Metalloids, **Elsevier (Academic Press)**, Pp. 463-475

20. Aditya Banerjee, Puja Ghosh, **Aryadeep Roychoudhury**^{*} (2018) Salt Stress Responses in Pigeon Pea (*Cajanus cajan* L.). In: Wani SH, Jain M (Ed.) Pulse Improvement Physiological, Molecular and Genetic Perspectives, **Springer Nature Switzerland**, Pp. 99-108

21. Jigeesha Mukhopadhyay, **Aryadeep Roychoudhury**^{*} (2018) Cold-Induced Injuries and Signaling Responses in Plants. In: Wani SH, Herath V (Ed.) Cold Tolerance in Plants Physiological, Molecular and Genetic Perspectives, **Springer Nature Switzerland**, Pp. 1-35
22. Saikat Paul, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2018) Role of Polyamines in Mediating Antioxidant Defense and Epigenetic Regulation in Plants Exposed to Heavy Metal Toxicity. In: Hasanuzzaman M, Nahar K, Fujita M (Ed.) Plants Under Metal and Metalloid Stress Responses, Tolerance and Remediation, **Springer Nature Singapore**, Pp. 229-247
23. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) The Regulatory Signaling of Gibberellin Metabolism and Its Crosstalk With Phytohormones in Response to Plant Abiotic Stresses. In: Khan M Iqbal R, Reddy PS, Ferrante A, Khan NA (Ed.) Plant Signaling Molecules, **Woodhead Publishing (Elsevier) United Kingdom**, Pp. 333-339
24. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Biotechnological Production of Aromatic Oils from Plants. In: Malik S (Ed.) Essential Oil Research Trends in Biosynthesis, Analytics, Industrial Applications and Biotechnological Production, **Springer Nature Switzerland**, Pp. 353-364
25. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Role of Selenium in Plants Against Abiotic Stresses: Phenological and Molecular Aspects. In: Roychoudhury A, Tripathi DK (Ed.) Molecular Plant Abiotic Stress, **John Wiley & Sons Ltd**, Pp. 123-133
26. Prabal Das, Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Polyamines Ameliorate Oxidative Stress by Regulating Antioxidant Systems and Interacting with Plant Growth Regulators. In: Roychoudhury A, Tripathi DK (Ed.) Molecular Plant Abiotic Stress, **John Wiley & Sons Ltd**, Pp. 135-143
27. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Role of Glutathione in Plant Abiotic Stress Tolerance. In: Hasanuzzaman M, Fotopoulos V, Nahar K, Fujita M (Ed.) Reactive Oxygen, Nitrogen and Sulfur Species in Plants, Volume 1, **John Wiley & Sons Ltd**, Pp. 159-172

28. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2019) Cold Stress and Photosynthesis. In: Ahmad P, Ahanger MA, Alyemeni MN, Alam P (Ed.) Photosynthesis, Productivity, and Environmental Stress, **John Wiley & Sons Ltd**, Pp. 27-37
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30. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Seed Priming as a Method to Generate Heat-stress Tolerance in Plants: A Minireview. In: Wani SH, Kumar V (Ed.) Heat Stress Tolerance in Plants Physiological, Molecular and Genetic Perspectives, **John Wiley & Sons Ltd**, Pp. 23-32
31. **Aryadeep Roychoudhury**^{*}, S. Krishnamoorthi, Rupam Paul (2020) Arsenic Toxicity and Molecular Mechanism of Arsenic Tolerance in Different Members of Brassicaceae. In: Wani SH, Thakur AK, Khan YJ (Ed.) *Brassica* Improvement, **Springer Nature Switzerland**, Pp. 159-186
32. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) The role of aquaporins during plant abiotic stress responses. In: Tripathi DK, Singh VP, Chauhan DK, Sharma S, Prasad SM, Dubey NK, Ramawat N (Ed.) Plant Life Under Changing Environment Responses and Management, **Elsevier Academic Press**, Pp. 643-661
33. Murat Dikilitas, Eray Simsek, **Aryadeep Roychoudhury** (2020) Role of Proline and Glycine Betaine in Overcoming Abiotic Stresses. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 1-23
34. Santanu Samanta, Ankur Singh, **Aryadeep Roychoudhury**^{*} (2020) Involvement of Sulfur in the Regulation of Abiotic Stress Tolerance in Plants. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 437-466

35. Murat Dikilitas, Eray Simsek, **Aryadeep Roychoudhury**^{*} (2020) Modulation of Abiotic Stress Tolerance Through Hydrogen Peroxide. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 147-173
36. Saket Chandra, **Aryadeep Roychoudhury**^{*} (2020) Penconazole, Paclobutrazol, and Triacantanol in Overcoming Environmental Stress in Plants. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 510-534
37. Ankur Singh, **Aryadeep Roychoudhury**^{*} (2020) Role of γ -Aminobutyric Acid in the Mitigation of Abiotic Stress in Plants. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 413-423
38. Aditya Banerjee, **Aryadeep Roychoudhury**^{*} (2020) Oxylipins and Strobilurins as Protective Chemical Agents to Generate Abiotic Stress Tolerance in Plants. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 483-490
39. Saket Chandra, **Aryadeep Roychoudhury** (2020) Role of Selenium and Manganese in Mitigating Oxidative Damages. In: Roychoudhury A, Tripathi DK (Ed.) Protective Chemical Agents in the Amelioration of Plant Abiotic Stress: Biochemical and Molecular Perspectives, **John Wiley & Sons Ltd**, Pp. 597-621
40. Insha Amin, Aditya Banerjee, Abbu Zaid, Mudasir A. Mir, Shabir H. Wani, Nazeer Ahmed, **Aryadeep Roychoudhury**^{*}, Khalid Z. Masoodi (2020) Spectrum of Physiological and Molecular Responses in Plant Salinity Stress Tolerance. In: Khan MIR, Singh A, Poór P (Ed.) Improving Abiotic Stress Tolerance in Plants. **CRC Press** (Taylor & Francis Group), Boca Raton, Pp. 1-11

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

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

11. 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)

12. 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)

13. 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)

14. 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)

15. 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)

16. 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)

17. 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)

18. 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)

19. 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)

20. **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)

21. **Aryadeep Roy Choudhury (2020)** Journey of rice research from salinity to fluoride stress response **(Guest Speaker** in the Webinar organized by the Bioingene) on **31st December** (11 AM to 1 PM), Youtube link: <https://youtu.be/CloEo5xwvEs>

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) 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)

2. 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**.

3. 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

4. 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.

5. 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**.

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**

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