Name: ARYADEEP ROY CHOUDHURY

Designation: PROFESSOR

Contact address: Room No.138, Discipline of Life Sciences, School of Sciences, Indira Gandhi National Open University, Maidan Garhi, New Delhi-110068

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EDUCATIONAL QUALIFICATIONS:

Degree	Institute/University
B.Sc.(Honours) in Botany	Presidency College, Kolkata (under Calcutta University)
M.Sc. in Biophysics and Molecular Biology	University of Calcutta
Ph.D. in Science (specialization in Plant Molecular Biology and Biotechnology)	Jadavpur University

POST DOCTORAL RESEARCH:

Collaborative program with Bose Institute and University of Calcutta on “Transgenic rice for improved stress tolerance”

CAREER PROFILE:

- Assistant Professor at the Post Graduate Department of Biotechnology, St. Xavier’s College (Autonomous), Kolkata, from March 2010 to November 2022
- Professor at the Discipline of Life Sciences, School of Sciences, Indira Gandhi National Open University, New Delhi, from November 2022 till date

RESPONSIBILITIES AT IGNOU:

- Design, Development and Coordination work of programs at Certificate, Diploma, Graduate, Post Graduate and Ph. D. level

- Maintenance of programs and courses
- Participation in the Interactive Radio Counselling through Gyan Vani and teleconference sessions through Gyan Darshan
- Discipline Group Co-ordinator (DGC) for the Discipline of Life Sciences
- Committee member of the Four Year Under Graduate Program (FYUP)

RESEARCH AREA/SPECIALIZATION:

1. Broad area: Plant Physiology, Biochemistry, Molecular Biology and Biotechnology with special emphasis on multiple environmental stress response in plants

2. Outline of research:

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 ofmy research. In addition, my interest is also directed towards comparative physiological and molecular behavior 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.

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.

GOOGLE SCHOLAR LINK: https://scholar.google.com/citations?user=2z52kIAAAAAJ&hl=en
Citations: 9414; h-index: 43; i-10 index: 113

RESEARCH PROJECTS UNDERTAKEN AS SOLE PRINCIPAL INVESTIGATOR:

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 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

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

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]

RESEARCH GUIDANCE:

A. Ph.D. (AS SOLE PRINCIPAL INVESTIGATOR)

Sl. Number	Name of registered Ph.D. student	Ph.D. awarded / Thesis submitted	Year of Ph.D. award /Thesis submission
1	Dr. Saikat Paul	Awarded	2019
2	Dr. Puja Ghosh	Awarded	2022
3	Dr. Aditya Banerjee	Awarded	2023
4	Dr. Santanu Samanta	Awarded	2023
5	Mr. Ankur Singh	Submitted	2023

B. M.Sc. DISSERTATION

Guided 13 M.Sc. students of Biotechnology from St. Xavier's College (Autonomous), Kolkata and of Botany from Scottish Church College, Kolkata

RESEARCH PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL/NATIONAL JOURNALS:

Last 10 years only

1. 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

2. 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

3. 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

4. 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

5. **Aryadeep Roychoudhury***, Aditya Banerjee **(2015)** Transcriptome analysis of abiotic stress response in plants. **Transcriptomics** October; 3 (2): e115

6. **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

7. **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

8. **Aryadeep Roychoudhury***, Aditya Banerjee **(2016)** Endogenous glycine betaine accumulation mediates abiotic stress tolerance in plants. **Tropical Plant Research** April; 3(1): 105–111

9. 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

10. 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

11. 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

12. 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

13. Aditya Banerjee, Shabir H. Wani, **Aryadeep Roychoudhury*** **(2017)** Epigenetic Control of Plant Cold Responses. **Frontiers in Plant Science** September; 8:1643

14. **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

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

16. 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

17. 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

18. 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

19. 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

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

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

22. 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

23. 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

24. Aditya Banerjee, **Aryadeep Roychoudhury* (2018)** Interactions of Brassinosteroids with Major Phytohormones: Antagonistic Effects. **Journal of Plant Growth Regulation** December; 37: 1025-1032

25. 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

26. 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

27. 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

28. Aditya Banerjee, **Aryadeep Roychoudhury*** **(2019)** Structural introspection of a putative fluoride transporter in plants. **3 Biotech** March; 9: 103

29. 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

30. 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

31. 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

32. 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

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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

39. 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

40. 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

41. 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

42. 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

43. 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

44. Moumita Ganguly, **Aryadeep Roychoudhury**, Dibyendu N. Sengupta, Swapan K. Datta, KarabiDatta **(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

45. Ankur Singh, **Aryadeep Roychoudhury*** **(2020)** Silicon-regulated antioxidant and osmolyte defense and methylglyoxal detoxification functions co-ordinately in attenuating fluoride toxicity and conferring protection to rice seedlings. **Plant Physiology and Biochemistry** September; 154: 758-769

46. Ankur Singh, Aditya Banerjee, **Aryadeep Roychoudhury*** **(2020)** Alleviation of Fluoride-Mediated Toxicity via Seed Priming with Calcium Oxide in *Oryza sativa* L. cv. Khitish. **Science and Culture** September-October; 86: 317-321

47. 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

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

49. 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

50. 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

51. 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

52. Ankur Singh, **Aryadeep Roychoudhury***, Santanu Samanta, Aditya Banerjee **(2021)** 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** 40:1579–1593

53. 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

54. 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

55. 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

56. 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

57. 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

58. **Aryadeep Roychoudhury***, Ankur Singh, Tariq Aftab, Poulomi Ghosal, Nilanjana Banik **(2021)** Seedling Priming with Sodium Nitroprusside Rescues *Vigna radiata* from Salinity Stress-Induced Oxidative Damages. **Journal of Plant Growth Regulation** 40: 2454-2464

59. Puja Ghosh, **Aryadeep Roychoudhury*** **(2020)** Nutrition and antioxidant profiling in the unpolished and polished grains of eleven indigenous aromatic rice cultivars. **3Biotech** 10(12):548

60. Roel Rabara, Joseph Msanne, Supratim Basu, Marilyn Ferrer, **Aryadeep Roychoudhury*** **(2021)** Coping with inclement weather conditions due to high temperature and water deficit in rice: An insight from genetic and biochemical perspectives. **Physiologia Plantarum** 172: 487- 504

61. Ankur Singh, **Aryadeep Roychoudhury*** **(2023)** Salicylic acid–mediated alleviation of fluoride toxicity in rice by restricting fluoride bioaccumulation and strengthening the osmolyte,

antioxidant and glyoxalase systems. **Environmental Science and Pollution Research** 30: 25024–25036

62. Ankur Singh, **Aryadeep Roychoudhury* (2023)** Abscisic acid in plants under abiotic stress: crosstalk with major phytohormones. **Plant Cell Reports** June; 42: 961-974

63. Aditya Banerjee, **Aryadeep Roychoudhury* (2021)** Fluoride-induced toxicity is ameliorated in a susceptible indica rice cultivar by exogenous application of the nitric oxide donor, sodium nitroprusside. **Vegetos** 34: 568-580

64. Aditya Banerjee, **Aryadeep Roychoudhury* (2021)** Functional and molecular characterization of fluoride exporter (FEX) from rice and its constitutive overexpression in *Nicotiana benthamiana* to promote fluoride tolerance. **Plant Cell Reports** 40: 1751-1772

65. Santanu Samanta, Aditya Banerjee, **Aryadeep Roychoudhury* (2021)** Exogenous melatonin regulates endogenous phytohormone homeostasis and thiol-mediated detoxification in two indica rice cultivars under arsenic stress. **Plant Cell Reports** 40: 1585-1602

66. Ankur Singh, **Aryadeep Roychoudhury* (2021)** Gene regulation at transcriptional and post transcriptional levels to combat salt stress in plants**. Physiologia Plantarum** 173: 1556-1572

67. Santanu Samanta, Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Arsenic Toxicity is Counteracted by Exogenous Application of Melatonin to Different Extents in Arsenic-susceptible and Arsenic-tolerant Rice Cultivars. **Journal of Plant Growth Regulation** 41: 2210–2231

68. Santanu Samanta, **Aryadeep Roychoudhury* (2021)** Recent trend in nanoparticle research in regulating arsenic bioaccumulation and mitigating arsenic toxicity in plant species. **Journal of Plant Biochemistry and Biotechnology** 30: 793–812

69. Tariq Aftab, **Aryadeep Roychoudhury (2021)** Cross talk among plant growth regulators and signaling molecules during biotic and abiotic stresses: molecular responses and signaling pathways. **Plant Cell Reports** 40: 2017–2019

70. **Aryadeep Roychoudhury***, Tariq Aftab **(2021)** Phytohormones, plant growth regulators and signaling molecules: cross-talk and stress responses. **Plant Cell Reports** 40: 1301-1303

71. Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Explicating the cross-talks between nanoparticles, signaling pathways and nutrient homeostasis during environmental stresses and xenobiotic toxicity for sustainable cultivation of cereals. **Chemosphere** 286: 131827

72. Ankur Singh, Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Fluoride tolerance in rice is negatively regulated by the 'stress phytohormone' abscisic acid (ABA), but promoted by ABA-antagonist growth regulators, melatonin, and gibberellic acid. **Protoplasma** 259:1331-1350

73. Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Dissecting the phytohormonal, genomic and proteomic regulation of micronutrient deficiency during abiotic stresses in plants. **Biologia** 77: 3037–3058

74. Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Rhizofiltration of combined arsenic-fluoride or lead-fluoride polluted water using common aquatic plants and use of the 'clean' water for

alleviating combined xenobiotic toxicity in a sensitive rice variety. **Environmental Pollution** 304:119128

75. Ankur Singh, **Aryadeep Roychoudhury*** **(2023)** Differential transcriptome and metabolite profile with variable fluoride tolerance and altered genomic template stability in the identification of four fluoride-tolerant or fluoride-sensitive rice cultivars. **Plant Stress** 10:100249

76. Aditya Banerjee, **Aryadeep Roychoudhury*** **(2022)** Assessing the rhizofiltration potential of three aquatic plants exposed to fluoride and multiple heavy metal polluted water. **Vegetos** 35:1158–1164

77. Santanu Samanta, Aditya Banerjee, **Aryadeep Roychoudhury*** **(2022)** Regulatory Role of Exogenous Melatonin in Maintaining Mineral Nutrient Homeostasis in rice (*Oryza sativa* L.) During Arsenic Stress. **Science and Culture** 88 (7–8): 275-280

78. Swarnavo Chakraborty, Ankur Singh, **Aryadeep Roychoudhury*** **(2022)** Extensive cross-talk among stress-regulated protective metabolites, biogenic-amines and phytohormone-signalling, co-ordinated by dopamine-mediated seed-priming, governs tolerance against fluoride stress in rice. **Plant Cell Reports** 41: 2261–2278

79. Swarnavo Chakraborty, Ankur Singh, **Aryadeep Roychoudhury*** **(2022)** Biogenic nanoparticles and generation of abiotic stress-resilient plants: A new approach for sustainable agriculture. **Plant Stress** 6: 100117

80. Swarnavo Chakraborty, **Aryadeep Roychoudhury*** **(2022)** Functional regulation of *Responsive to abscisic acid* (*Rab*) genes from representative plant species and their stress response. **Plant Physiology Reports** 27:653–664

81. Ankur Singh, **Aryadeep Roychoudhury*** **(2023)** Fluoride Toxicity Imposes Differential Reprogramming of the Representative Intermediates and Enzymes Belonging to Nitrogen Metabolism in Two indica Rice Varieties, Varying in their Pattern of Fluoride Stress Response. **Journal of Plant Growth Regulation 42:** 6091–6103

82. Ankur Singh, **Aryadeep Roychoudhury*** **(2023)** Deciphering the biochemical regulation of metabolic pathways in abating stress-induced damages during co-exposure of arsenic and fluoride in a non-aromatic and an aromatic rice variety. **Physiology and Molecular Biology of Plants** DOI: 10.1007/s12298-023-01355-z

83. Ankur Singh, Swarnavo Chakraborty, **Aryadeep Roychoudhury*** **(2023)** Activated charcoal alleviates fluoride stress by restricting fluoride uptake and counteracting oxidative damages in the rice cultivar MTU1010. Turkish Journal of Botany **47:** 97-110

***Corresponding author**

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) Nanobiolistics: 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

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13. Aryadeep Roychoudhury* (2020) Edible Vaccines and Oral Immunization against Viruses: Prospects, Promises and Pitfalls. **SF Journal of Medicine and Research** September; 1: 1012.

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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

85. Aryadeep Roychoudhury*, Kankan Datta, Rajarshee Tagore **(2022)** Influence of chitosan and chitosan based nanoparticles against abiotic stress in plants. In: Kumar S, Madihally SV (Ed.) Role of Chitosan and Chitosan-Based Nanomaterials in Plant Sciences. **Academic Press (Elsevier),** Pp. 297-320

86. Ankur Singh, **Aryadeep Roychoudhury*(2022)** Protective Chemicals and Metabolites in Stabilizing Photosynthesis and Respiration Machinery during Abiotic Stresses. In: Roychoudhury A (Ed.) Photosynthesis and Respiratory Cycles during Environmental Stress Response in Plants. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 351-372

87. Kankan Datta, **Aryadeep Roychoudhury*** **(2022)** Cadmium-induced oxidative stress and

remediation in plants. In: Naeem M, Aftab T, Ansari AA, Gill S, Macovei A (Ed.) Hazardous and Trace Materials in Soil and Plants. **Academic Press (Elsevier),** Pp. 247-261

88. Ankur Singh, **Aryadeep Roychoudhury* (2022)** Role of nanoparticles in remediation of environmental contaminants. In: Naeem M, Aftab T, Ansari AA, Gill S, Macovei A (Ed.) Hazardous and Trace Materials in Soil and Plants. **Academic Press (Elsevier),** Pp.327-340

89. Aditya Banerjee, **Aryadeep Roychoudhury* (2022)** Understanding the effects of lanthanum toxicity in plants. In: Aftab T, Hakeem K (Ed.) Metals Metalloids Soil Plant Water Systems. **Academic Press (Elsevier),** Pp. 417-426

90. Ankur Singh, **Aryadeep Roychoudhury* (2022)** Mechanism of Crosstalk Between Cytokinin and Gibberellin. In: Aftab T (Ed.) Auxins, Cytokinins and Gibberellins Signaling in Plants. Signaling and Communication in Plants. **Springer, Cham,** Pp. 77–90

91. Swarnavo Chakraborty, **Aryadeep Roychoudhury* (2022)** Seed Priming as a Sustainable Solution to Mitigate Salinity and Drought Stress in Plants. In: Aftab T (Ed.) Sustainable Management of Environmental Contaminants. Environmental Contamination Remediation and Management. **Springer, Cham,** Pp. 357-370

92. Gouranga Upadhyaya, **Aryadeep Roychoudhury* (2022)** Arsenic-Toxicity and Tolerance: Phytochelatin-Mediated Detoxification and Genetic Engineering-Based Remediation. In: Niazi NK, Bibi I, Aftab T (Ed.) Global Arsenic Hazard Ecotoxicology and Remediation. **Springer Nature Switzerland,** Pp. 481-508

93. Aryadeep Roychoudhury*, Rituparna Bhowmik **(2023)** Nanoremediation of Heavy Metals in Agricultural Soil. In: Fernandez-Luqueno F, Patra JK (Ed.) Agricultural and Environmental Nanotechnology. **Springer Nature Singapore Pte Ltd,** Pp. 433-450

94. Swarnavo Chakraborty, **Aryadeep Roychoudhury* (2023)** Classification, Structure, Function, and Evolution of Transposable Elements in *Oryza sativa*. In: Pandita D, Pandita A (Ed.) Plant Transposable Elements: Biology and Biotechnology. **Apple Academic Press Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 349-362

95. Aditya Banerjee, **Aryadeep Roychoudhury* (2023)** Genome Editing Using CRISPR/Cas9 System for Crop Improvement, Nutrient Enrichment, and Abiotic Stress Tolerance in Rice. In: Pandita D, Pandita A (Ed.) CRISPR/Cas-Mediated Genome Editing in Plants. **Apple Academic Press, Inc. Co- published with CRC Press (Taylor & Francis),** New York, Pp. 133-137

96. Swarnavo Chakraborty, **Aryadeep Roychoudhury* (2023)** Metabolic Engineering of Essential Micronutrients in Plants to Ensure Food Security. In: Upadhyay S, Singh SP (Ed.) Plants as Bioreactors for Industrial Molecules. **John Wiley & Sons Ltd, USA,** Pp. 255-272

97. Gouranga Upadhyaya, Subhankar Mondal, **Aryadeep Roychoudhury* (2023)** Arsenic and Cadmium Toxicity in Plants: Mitigation and Remediation Strategies. In: Aftab T (Ed.) Emerging Contaminants and Plants. **Springer Nature Switzerland AG**, Pp. 249-285

98. Ankur Singh, **Aryadeep Roychoudhury* (2023)** Antioxidants and Secondary Metabolites of

Mushrooms as a Source of Nutraceuticals and Functional Food. In: Pandita D, Pandita A (Ed.) Mushrooms Nutraceuticals and Functional Foods. **CRC Press, Taylor & Francis group,** Pp. 1-14

99. Ankur Singh, **Aryadeep Roychoudhury[*] (2023)** Role of Phenolic Acids and Flavonoids in the Mitigation of Environmental Stress in Plants. In: Roychoudhury A (Ed.) Biology and Biotechnology of Environmental Stress Tolerance in Plants: Secondary Metabolites in Environmental Stress Tolerance, Volume 1. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 227-248

100. Ankur Singh, **Aryadeep Roychoudhury[*] (2023)** Exogenous Application of Trace Elements and Their Uptake by Plants to Mediate Abiotic Stress Tolerance. In: Roychoudhury A (Ed.) Biology and Biotechnology of Environmental Stress Tolerance in Plants: Trace Elements in Environmental Stress Tolerance, Volume 2. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 147-171

101. Aditya Banerjee, **Aryadeep Roychoudhury[*] (2023)** Application of Nanomaterial-Based Technology in Stress Management of Plants. In: Roychoudhury A (Ed.) Biology and Biotechnology of Environmental Stress Tolerance in Plants: Trace Elements in Environmental Stress Tolerance, Volume 2. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 533-543

102. Ankur Singh, **Aryadeep Roychoudhury[*] (2023)** Advances in Metabolomics Research in Environmental Stress Response in Plants. In: Roychoudhury A (Ed.) Biology and Biotechnology of Environmental Stress Tolerance in Plants: Sustainable Approaches for Enhancing Environmental Stress Tolerance Volume 3. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 431-448

103. Aditya Banerjee, **Aryadeep Roychoudhury[*] (2023)** Crop Improvement in Deserts. In: Mukherjee S, Mukherjee P, Aftab T (Ed.) Crop sustainability and intellectual property rights. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 133-149

104. Ankur Singh, **Aryadeep Roychoudhury[*] (2023)** Hydrogen Peroxide as a Signaling Molecule in Plant Abiotic Stress. In: Mukherjee S, Mukherjee P, Aftab T (Ed.) Crop sustainability and intellectual property rights. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 237-264

105. Aditya Banerjee, **Aryadeep Roychoudhury[*] (2023)** Rice Physiology and Sustainability in the Face of Increasing Carbon Dioxide Concentration. In: Mukherjee S, Mukherjee P, Aftab T (Ed.) Crop sustainability and intellectual property rights. **Apple Academic Press, Inc. Co-published with CRC Press (Taylor & Francis),** Pp. 111-118

106. Arunima Bhattacharya, **Aryadeep Roychoudhury[*] (2023)** Microplastics in the Aquatic Environment – Effects on Ocean Carbon Sequestration and Sustenance of Marine Life. In: Vithanage M, Prasad MNV (Ed.) Microplastics in the Ecosphere: Air, Water, Soil, and Food. **John Wiley and Sons, USA,** Pp. 189-200

107. Swarnavo Chakraborty, **Aryadeep Roychoudhury* (2023)** MicroRNA-mediated Regulation of Heavy Metal Stress in Plants. In: Pandita D, Pandita A (Ed.) Plant MicroRNAs and Stress Response. **CRC Press (Taylor and Francis group),** Pp. 183-197

108. Aditya Banerjee, **Aryadeep Roychoudhury* (2023)** Signaling crosstalk between brassinosteroids and ethylene in plant defense, growth, and development Hormonal Cross-Talk. In: Husen A, Zhang W (Ed.) Plant Defense and Development. **Academic Press (Elsevier),** Pp. 111-122

109. Aryadeep Roychoudhury*, Subhajit Sarkar, Swarnavo Chakraborty **(2023)** Fungal-mediated synthesis of gold and titanium nanoparticles and their application in agriculture. In: Kuddus M, Ahmad IZ, Hussain CM (Ed.) Myconanotechnology and application of nanoparticles in biology. **Academic Press (Elsevier),** Pp. 79-92

110. Ankur Singh, **Aryadeep Roychoudhury* (2023)** RNA Interference (RNAi) Technology: An Effective Tool in Plant Breeding. In: Raina A, Wani MR, Laskar RA, Tomlekova N, Khan S (Ed.) Advanced Crop Improvement, Volume 1. **Springer Nature Switzerland AG,** Pp. 309-320

111. Nilanjana Das, **Aryadeep Roychoudhury* (2023)** Genetic Engineering of Plants for Enhancing Secondary Metabolites with Anticancerous Properties. In: Pandita D, Pandita A (Ed.) Plant-Derived Anticancer Drugs in the OMICS Era: Biosynthesis, Functions, and Applications. **CRC Press (Apple Academic Press),** Pp. 127-150

***Corresponding author**

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

PAPERS/LECTURES PRESENTED IN CONFERENCES/SEMINARS

Last 10 years

1. 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**)**

2. 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 andmicrobes", organized by Department of Botany, University of Gour Banga, Malda, West Bengal**)**

3. 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 andmicrobes", organized by Department of Botany, University of Gour Banga, Malda, West Bengal**)**

4. 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**)**

5. 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**)**

6. 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**)**

7. Saikat Paul, **Aryadeep RoyChoudhury (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**)**

8. 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**)**

INVITED LECTURE/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/CIoEo5xwvEs

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 (2023) Invited Speaker at the International Conference on Recent Trends in Materials Science & Devices 2023, organized by Research Plateau Publisher & G.A.V. Degree College, Patauda, Jhajjar, Haryana, held on **July 22-23, 2023**

15. Aryadeep Roy Choudhury (2023) Session chair at the International Conference on Recent Trends in Materials Science & Devices 2023, organized by Research Plateau Publisher & G.A.V. Degree College, Patauda, Jhajjar, Haryana, held on **July 22-23, 2023**

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/gpIavSi3v3Y

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**

5. Included, for three consecutive years, in the **World Top 2% Scientists' List,** as released by Stanford University, USA, in 2021, 2022 and 2023

OTHER PROFESSIONAL ASSOCIATIONS:

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, WEST BENGAL STATE UNIVERSITY, ALIGARH MUSLIM UNIVERSITY AND UTTARAKHAND STATE UNIVERSITY

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

5. LABORATORY IN CHARGE at the DEPARTMENT OF BIOTECHNOLOGY, ST.XAVIER'S COLLEGE (AUTONOMOUS), KOLKATA, from August 2021 to November 2022