CURRICULUM VITAE

Dr. Swarnendu Roy

Assistant Professor of Botany

OFFICE ADDRESS

Plant Biochemistry Laboratory,
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D.O.B. 01/02/1986 **GENDER:** MALE **NATIONALITY:** INDIAN

SUBJECT SPECIALIZATION: Plant Biochemistry and Molecular Biology

RESEARCH INTERESTS:

- Salinity and drought tolerance mechanism of crop plants and wild relatives of cereals, alleviation strategies using nanobiotechnology.
- Genomics and Bioinformatics based interpretation of stress responsive transcription factors.
- Discovery and characterization of active biomolecules from medicinally important plants of Darjeeling Himalaya.
- Characterization of starch for its industrial applications from underutilized plant resources.

No. of Ph.D. students:
(a) Supervised: Nil
(b) Ongoing: 04

No. of M.Phil. students:
(a) Supervised: Nil
(b) Ongoing: Nil

No. of Publications:
(a) Journal(s): 25
(b) Book(s): 01
(c) Book chapter(s): 06

TEACHING EXPERIENCE (12 Years)

- **Assistant Professor of Botany**
  Kurseong College, Dist. Darjeeling
  Duration of service: 01/04/2010 to 16/08/2016

- **Assistant Professor of Botany**
  University of Gour Banga, Malda
  Duration of service: 17/08/2016 to 10/12/2018

- **Assistant Professor of Botany**
  University of North Bengal, Siliguri
  Duration of service: 11/12/2018 and continuing

ACADEMIC QUALIFICATIONS

- **Ph.D. in Botany**
  Department of Botany, University of North Bengal
  Title of Thesis: Comparative analyses of tolerance mechanisms in salt-tolerant grasses and rice under salinity stress.

- **M.Sc. in Botany**
  Department of Botany, University of North Bengal
  Remark: University Silver Medalist for securing 2nd position in University exam.

- **B.Sc. in Botany (Hons.)**
  Department of Botany, University of North Bengal
  Remark: University Gold Medalist for securing 1st position in University exam.

OTHER ACADEMIC QUALIFICATIONS

- **CSIR-UGC NET 2008**

- **GATE 2008**
  Qualified with a percentile of 95.26.

PROFESSIONAL RECOGNITION/ AWARDS

- **CSIR-Junior Research Fellow**
  Received in 2008 after qualifying UGC-CSIR-NET Exam June 2008 to pursue research project.

- **Post-Graduate Merit Scholarship for University Rank Holder**
  Received in recognition of B.Sc. Gold Medalist of the University of North Bengal from the Ministry of HRD and UGC, Govt. of India during 2006-2008.

- **International Travel Support**
  Received for presenting research paper in an International Seminar from the SERB-DST, Govt. of India – "Integrative Plant Physiology 2019" held during 27-29 October 2019 at Sitges, Spain.

PUBLICATIONS

JOURNALS

- Mathur P, **Roy S**, Mukherjee S (2022) Hydrogen sulphide (H_2S) in the hidden half: Role in root growth, stress signalling and rhizospheric interactions. **Plant Biology** 10.1111/plb.13417. **[Impact Fator 3.081]**
- Karmakar B, Miya FU, Chakraborty R, **Roy S** (2022) Comparative analyses of the starch quality isolated from a local red potato and a commercial non-pigmented potato cultivar. **Vegetos** 10.1007/s42535-021-00331-w.
- **Roy S**, Chakraborty AP, Chakraborty R (2021) Understanding the potential of root microbiome influencing salt-tolerance in plants and mechanisms involved at the transcriptional and translational level. **Physiologia Plantarum** 173:1657-1681. **[Impact Factor 4.5]**
- Chakraborty R, **Roy S** (2021) Angiotensin-converting enzyme inhibitors from plants: A review of their diversity, modes of action, prospects, and concerns in the management of diabetes-centric complications. **Journal of Integrative Medicine** 19:478-492. **[Impact Factor 3]**
- Paul B, Sarkar A, **Roy S** (2021) Appraising the stress responses in Azolla filiculoides elicited by short-term exposure of phenol. **Plant Stress** 2:100032.
- **Roy S**, Mathur P (2021) Delineating the mechanisms of elevated CO_2 mediated growth, stress tolerance and phytohormonal regulation in plants. **Plant Cell Reports** 40:1345-1365. **[Impact Factor 4.5]**
- Mathur P, **Roy S** (2021) Insights in to the plant responses to drought and decoding the potential of root associated microbiome for inducing drought tolerance. **Physiologia Plantarum** 172:1016-1029. **[Impact Factor 4.5]**
- Chakraborty R, Sabruna S, Roy R, Majumdar S, **Roy S** (2021) Banana pseudostem substitution in wheat flour biscuits enriches the nutritional and antioxidative properties with considerable acceptability. **SN Applied Sciences** 3: 75.
- Sarkar MM, **Roy S** (2021) Evaluation of proline-ascorbate mixture (PAM) in alleviation of NaCl stress induced stress in *Vigna radiata* (L.) Wilczek. **Russian Agricultural Sciences** 47: 28-38.
- Mathur P, **Roy S** (2020) Nanosilica facilitates silica uptake, growth and stress tolerance in plants. **Plant Physiology and Biochemistry** 157: 114-127. **[Impact Factor 4.2]**
- Sarkar A, **Roy S** (2020) Effect of phenol on biochemical status of an aquatic fern – *Salvinia natans*. **Environmental and Experimental Biology** 18: 229-236.

- Chakraborty R, Pal D, **Roy S** (2020) Characterization of *Leucas aspera* and evaluation of antioxidant activities before and after being subjected to digestion enzymes. **International Journal of Vegetable Science** 26(3): 302-320. **[Impact Factor 0.5]**
- Chakraborty R, **Roy S** (2019) Evaluation of the diversity and phylogenetic implications of NAC transcription factor members of four reference species from the different embryophytic plant groups. **Physiology and Molecular Biology of Plants** 25(2): 347-359. **[Impact Factor 2.0]**
- Dutta P, Karmakar A, Majumdar S, **Roy S** (2018) *Klebsiella pneumoniae* (HR1) assisted alleviation of Cd(II) toxicity in *Vigna mungo*: a case study of biosorption of heavy metal by an endophytic bacterium coupled with plant growth promotion. **Euro-Mediterranean Journal for Environmental Integration** 3:27.
- Chakraborty R and **Roy S** (2018) Exploration of the diversity and associated health benefits of traditional pickles from the Himalayan and adjacent hilly regions of Indian subcontinent. **Journal of Food Science and Technology** 55(5): 1599-1613. **[Impact Factor 1.9]**
- **Roy S**, Chakraborty U (2017) Role of sodium ion transporters and osmotic adjustments in stress alleviation of *Cynodon dactylon* under NaCl treatment: A parallel investigation with rice. **Protoplasma** 255(1): 175-191. **[Impact Factor 2.8]**
- **Roy S**, Chakraborty U (2017) Screening of salt-tolerance potential of some native forage grasses from the eastern part of Terai- Duar grasslands in India. **Tropical Grasslands - Forrajes Tropicales** 5(3): 129-142. **[Impact Factor 0.7]**
- Choudhury J, Majumdar S, **Roy S**, Chakraborty U (2017) Antioxidant activity and phytochemical screening of two edible wetland pteridophytes *Diplazium esculentum* (Retz) Sw and *Marsilea minuta* L. - A comparative study. **World Journal of Pharmaceutical and Medical Research** 3(9): 195-203.
- Chakraborty R, **Roy S**, Mandal V (2016) Assessment of traditional knowledge of the antidiabetic plants of Darjeeling and Sikkim Himalayas in the context of recent phytochemical and pharmacological advances. **Journal of Integrative Medicine** 14(5): 336-358. **[Impact Factor 2.4]**
- **Roy S**, Chakraborty U (2015) Cross-generic studies with rice indicate that ion homeostasis and antioxidant defense is associated with superior salinity tolerance in *Cynodon dactylon* (L.) Pers. **Indian Journal of Plant Physiology** 20(1): 14-22.
- **Roy S**, Chakraborty U (2014) Structural and functional role of salt glands of cogon grass (*Imperata cylindrica* (L.) Raeuschel) under salinity stress. **NBU Journal of Plant Sciences** 8(1): 91-98.

- **Roy S**, Chakraborty U (2014) Salt tolerance mechanisms in salt tolerant grasses (STGs) and their prospect in cereal crop improvement. **Botanical Studies** 55: 31. **[Impact Factor 2.2]**
- **Roy S**, Majumdar S (2013) Antioxidative properties of the leaves of *Daphniphyllum chartaceum* Rosenthal. **Journal of Medicinal Plants Research** 7(18): 1239-1243.
- **Roy S**, Majumdar S (2012) Antibacterial and antioxidative activity of the leaves of *Daphniphyllum himalense* (Benth.) Muell. Arg. growing in Darjeeling hills. **Asian Journal of Traditional Medicines** 7(2): 81-86.
- Chakraborty U, **Roy S**, Chakraborty AP, Dey PL, Chakraborty BN (2011) Plant growth promotion and amelioration of salinity stress in crop plants by a salt-tolerant bacterium. **Recent Research in Science and Technology** 3(11): 61-70.

BOOKS

- **Roy S**, Mathur P, Chakraborty AP, Saha SP (2022) Plant Stress: Challenges and Management in the New Decade. IEREK series, ASTI. Springer, Cham. https://doi.org/10.1007/978-3-030-95365-2

BOOK CHAPTERS

- Sarkar MM, Mathur P, **Roy S** (2022) Silicon and nano-silicon: New frontiers of biostimulants for plant growth and stress amelioration. In Etesami H, Al Saeedi A, El-Ramady H, Fujita M, Pessarakli M, Hossain MA (Eds.) Silicon and Nano-silicon in Environmental Stress Management and Crop Quality Improvement. Academic Press.
- Sarkar MM, Sarkar A, **Roy S** (2022) Interventions of nanotechnology for the growth and stress tolerance in crop plants. In **Roy S**, Mathur P, Chakraborty AP, Saha SP (Eds.) Plant Stress: Challenges and Management in the New Decade. IEREK series, ASTI. Springer, Cham.
- Sarkar A, **Roy S** (2021) Understanding the regulation of root development towards environmental stresses for crop improvement. In Mukherjee S, Baluska F (Eds.) Rhizobiology: Molecular Physiology of Plant Roots. Signaling and Communication in Plants. Springer, Cham.
- Sarkar B, **Roy S** (2020) Ion transporter genes from wild relatives of cereals hold the key for the development of salinity tolerance. In Roychowdhury R, Choudhury S, Hasanuzzaman M, Srivastava S (Eds.) Sustainable agriculture in the era of climate change. Springer Nature, Switzerland.
- Chakraborty U, **Roy S**, Chakraborty BN (2019) Microorganisms aiding existence and efficiency of plants in saline environment: What we know and what to expect. In Giri B,

Varma A (Eds.) Microorganisms in saline environments: Strategies and functions. Springer Nature, Switzerland.

- Chakraborty U, Chakraborty BN, **Roy S**, Dey PL, Chakraborty AP (2013) Isolation, biochemical and molecular characterization of salt-tolerant bacteria from rhizosphere of *Cynodon dactylon* - a facultative halophyte. In Chakraborty BN, Chakraborty U (Eds.) Microbial resources for crop improvement. Satish Serial publishing House, New Delhi.

WORKSHOPS/ HANDS ON TRAINING

- Workshop on MOOCs – Online Courses & Open Educational Resources on the theme 'ICT Tools for Online Teaching' organized by UGC-HRDC Delhi University, Delhi (23/05/2020 to 29/05/2020).
- Short Course on "Recent Advances in Proteomics for Biomarker Discovery" sponsored by ICAR and organized by Animal Biotechnology Centre, NDRI, Karnal (08/07/2013 to 17/07/2013).
- Workshop on "In silico Approaches to Drug Designing (IADD 2015)" sponsored by DBT and organized by Centre for Bioinformatics, Banaras Hindu University, Varanasi (23/03/2015 to 29/03/2015).