



RESUME

- ❖ **NAME:** DR. SUDESHNA SHYAM CHOUDHURY (BHATTACHARYA)
- ❖ **DESIGNATION:** ASSOCIATE PROFESSOR, UG, PG & RESEARCH DEPARTMENT, MICROBIOLOGY DEPARTMENT, ST.XAVIER'S COLLEGE KOLKATA
- ❖ **FATHER'S NAME:** Late Sri Samar Nath Bhattacharya
- ❖ **ADDRESS:**
 - **RESIDENCE:** Snehochhaya Apartment, 1st floor, 105, Rakhal Das Auddy Road, Kolkata-7000227
 - E-mail: sudeshna.s.choudhury@sxccal.edu, sudeshnabhattacharya1976@gmail.com
 - **Mobile:** 09830330439
 - **COLLEGE:** St. Xavier's College, 30 Park Street, Kolkata 700 016.
- ❖ **DATE OF BIRTH:** 30.5.1976
- ❖ **EDUCATIONAL QUALIFICATIONS:**
 - **Madhyamik Examination:** 78.55% , 1st division with star marks under W.B.S.E
 - **Higher Secondary Examination:** 73.4%, 1st division under W.B.C.S.E
 - **B.Sc.:** 55.25%, in Chemistry Hons. under Calcutta University
 - **M.Sc:** 72.3% in Bio-chemistry under Calcutta University (**1st class 2nd rank**)
 - **Ph.D:** Awarded from Jadavpur University under Prof. Swati Sen-Mandi (Ph.D Cantab)-Senior Prof of **Bose Institute, Plant Biology division** ---**Title of thesis:** Cell Molecular Studies on Spontaneous Radiation Namely UV Stress Tolerance in Plants.
 - **Post Doctoral work:** S.N. Bose National Institute for Basic Sciences, Kolkata Govt. Of India, Biophysical and Biochemical Investigation on the Structure, Function and Dynamics of Biomolecules Under Physiologically Relevant Environments.2017-2020
- ❖ **PROFESSIONAL QUALIFICATIONS:**
 - Passed GATE examination (IIT) in 2000-**93.96** percentile
 - Passed NET examination for UGC lectureship conducted by CSIR-UGC.
- ❖ **RESEARCH TRAINING:**
 - Ph.D research work from Bose Institute, Kolkata with Institutional fellowship.
- ❖ **PROFESSIONAL TRAINING:**
 - Orientation Programme-81- Academic Staff College, Calcutta University, UGC. **16.11.2009-14.12.2009**
 - Special Summer School 2014 for Science and Technology. Academic Staff College, Calcutta University, UGC. **12.6.2014-2.7.2014**
 - Refresher Course on Recent Advancement in Food and Bioprocess Technology, UGC-HRDC, Jadavpur University **2.1.2019-19.1.2019**
 - Short term **12.07.2021 to 17.07.2021** course on ICT TOOLS organized by UGC-HRDC Osmania University, Hyderabad, Telangana

- Refresher course on Indian Traditional knowledge and ethics (multi/inter disciplinary) **19.7.2021-31.7.2021** from the Himachal Pradesh university, UGC-HRDC

Faculty Development Program attended:

- Attended 2days Faculty development programme organized by St. Xavier's College, Physics Department on Experimental Physics at Graduate level: Scope and Challenges on 10th and 11th January, 2020
- Attended 5 days Faculty Development Program organized by K.R. Mangalam University on "Recent Advancement in Science and Technology" 9th-13th August, 2021
- Participated in Online Faculty Development Program on "Advancement in Life Science Research: A Bird's eye view" Organized by Amity University, Kolkata, 20th-24th July, 2021
- Participated in online Faculty Development Program organized by Department of Chemistry, St. Xavier's College, Kolkata on "Bioinorganic chemistry" 29th – 30th September, 2021
- **Attended Online Faculty Development Programme (FDP) on "Generative AI Tools for Smart Teaching", scheduled from June 9th to 13th, 2025, organized by AIACHE New Delhi**

❖ PROFESSIONAL EXPERIENCE:

- Head of the Department of UG, PG and Research Department of Microbiology, St. Xavier's College, Kolkata from **2018-2023**
- Departmental (Microbiology) Ph.D subject convener (**2018-2024**)
- Assistant Professor (**2007 July -2024 January**)
- Associate Professor (**2024-**)

❖ PAPER PUBLICATION:

➤ Selected peer-reviewed research publications

Pre Doctoral Publications:

1. Sen-Mandi, S. and **Bhattacharya, S. (2003)**: Varietal difference in cellular damage associated with ageing in dry stored seeds. **Indian Journal of Plant Physiology**, 210-216.
2. **Bhattacharya, S.** and Sen-Mandi, S. (2011): Variation in antioxidant and aroma compounds at different altitude: A study on tea (*Camellia sinensis* L. Kuntze) clones of Darjeeling and Assam, India. **African Journal of Biochemistry Research**, 5(5): 148-159.
3. **Shyam Choudhury, S.** and Sen Mandi, S. (2012): Natural ultraviolet irradiance related variation in antioxidant and aroma compounds in tea (*Camellia sinensis* L. Kuntze) plants grown in two different altitudes. **International Journal of Environmental Biology**, 2 (1): 1-6.
4. **Shyam Choudhury, S.** and Sen Mandi, S. (2012): Natural ultraviolet radiation on field grown rice (*Oryza sativa* L.) plants confer protection against oxidative stress in seed during storage under subtropical ambience. **Environment and Pollution**, 1(2): 21-32.

Post Doctoral Publications:

5. **Shyam Choudhury S.,** Sikder P., Chatterjee S., Chatterjee A., Mukherjee, Roychowdhury M., Misra D., Das S. and Paul I. (2013): Dissemination of potential fungal pathogen from *Eupatorium sp* (a weed plant) in a composite farming backdrop. **International Journal of Advanced and Innovative Research**, 1(7) : 408-432.
6. Saha, S., Mitra, A.K., **Shyam Choudhury, S.,** Mitra, B. (2013): Chromium Uptake by a Bacteria Isolated From Lemna Rhizosphere in a Lentic Ecosystem. Vol-II, Issue-I; 67-73. **International Multidisciplinary e – Journal**.
7. Sengupta D., Mitra A.K., **Shyam Choudhury, S. (2013)** Identification and characterization of the effectively Arsenic tolerant bacterial strains from the potential Arsenic contaminated site in 24 Parganas (North) district of West Bengal, India. Vol 12. Issue 2, **Nature, Environment and Pollution technology**

8. Mal, A., Sengupta D., Ghosh,M., Dasgupta, P., Dey, P., **Shyam Choudhury, S.,** Mitra, A. (2013) Protective algal consortium in the sporocarp of wood rotting fungus from bacterial chitinase activity. **J. Mycopathol, Res**, 51(1): 145-149, 2013;ISSN 0971-3719.
9. Sengupta D., Mitra A.K., **Shyam Choudhury S.** and Chandra A. (2014) Isotherm Study in Arsenic Tolerant Bacteria Isolated from Arsenic Affected Area in West-Bengal, India. **IOSR Journal Of Environmental Science, Toxicology And Food Technology** (IOSR-JESTFT)Volume 8, Issue 1 Ver. II (Jan. 2014), PP 08-19
10. Som Chaudhury S., Sen T., Moitra A., Chaudhuri S., **Shyam Choudhury S.** and Mitra, A.K.(2014) Induction of productivity in *cicer arietinum* by phosphate solubilizing *pseudomonas*. **World journal of pharmacy and pharmaceutical sciences**. Volume 3, Issue 4, 1481-1493.
11. Mustafi P., Siddhanta R., **Choudhury S. S.** (2014) Altitude Related Variation of Antioxidant Properties of Tea Leaf (*Camellia sinensis*). **Research & Reviews: Journal of Microbiology and Virology**. ISSN: 2230-9853 (online), ISSN: 2349-4360 (print). Volume 4, Issue 2. Pg-1-6.
12. S.Datta, **S.Shyam Choudhuri** and A.K.Mitra (2014) Increased Biomedical Potential of *Pleurotus ostreatus* through the usage of Effective Substrate. **Int J Pharm Bio Sci**. 5(4): (B) 882 – 894.(IF.2.958).
13. Adrika Raybarman, Kazi Atikur Rahman, Russel Miranda Vincent, Sayantani Chatterjee, Upasana Sen, Arup Kumar Mitra, **Sudeshna Shyam Choudhury**, Riddhi Majumder (2014) Isolation and characterisation of lignin-degrading fungus from coir. **IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)**.Volume 8, Issue 10 Ver. II PP 07-11(I.F.1.325).
14. **Choudhury S.S.** and Mitra,A.K. (2014) Oxidative stress and its protection in rice (*oryza sativa*) seed during storage. **IJBPAS**, 3(5): 740-760
15. Borar, P., Chowdhury, K., Marathe,N., Das,P., Pal, S.,Mitra, A.K. and **Shyam Choudhury, S.** (2015) Isolation and characterization of *Aeromonas aquariorum* from a dye effluent and its effect in bioaugmentation (2015) **IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)** e-ISSN: 2319-2402,p- ISSN: 2319-2399.Volume 9, Issue 2 Ver. III,PP 10-16.
16. Vincent Souvik Gomes, Priyanka Barui, **Sudeshna Shyam Choudhury**.(2015) Biochemical, Antimicrobial Characterization of Dooars Tea (*Camellia sinensis*) Clone during CTC Manufacturing. **Research & Reviews: Journal of Microbiology and Virology**. 2015; 5(2): 5–14p.
17. Shyam Choudhury, S., Majumder, A., Bera, B.and Singh, M. (2015). Antimicrobial, Antioxidant Evaluation of Majestic Darjeeling Green and Black Tea during Storage. **Research & Reviews: A Journal of Microbiology and Virology** ISSN: 2230-9853(online), ISSN: 2349-4360(print) Volume 5, Issue 3.
18. Mullick A., Shah, H., Datta,S., **Shyam Choudhury, S.** and Mitra, A.K. (2015).Antimicrobial activity of cell free extract of *Pseudomonas areoginosa* MTCC 741 towards human pathogens. **J. Botan. Soc. Bengal** 69 (2): 153-157 ISSN 0971-2976.
19. Saha, G. and Shyam Choudhury, S. (2016) Physicochemical, Biochemical and Microbiological Characterization of Green and Black Tea during Storage in Different Packaging Materials. **Research & Reviews: A Journal of Microbiology and Virology** ISSN: 2230-9853(online), ISSN: 2349-4360(print).Volume 6, Issue 3, 5-30.
20. Saha, G, Shyam Choudhury, S., Bera, B., Mohan Kumar,P., Biswas, P. and Mukherjee, S. (2017) Changes in Physicochemical, Biochemical and Microbiological Quality Parameters of Green and Black Tea during Storage. **RRJoMV**, volume 7, issue 2; 26-31. ISSN: 2230-9853 (Online), ISSN: 2349-4360 (Print) Volume 7, Issue 2.
21. Gargi Saha, Sudeshna Shyam Choudhury, Biswajit Bera, P.Mohan Kumar. Biochemical and Microbiological Characterization of White Tea. (2017) **IOSR Journal of Environmental Science, Toxicology and Food Technology** (IOSR-JESTFT) e-ISSN: 2319-2402,p- ISSN: 2319-2399.Volume 11, Issue 5 Ver. III (May. 2017), PP 74-80.

22. Gargi Saha, Sudeshna Shyam Choudhury, Utpal Bakshi and P. Mohan Kumar. (2018). A note on the anti-microbiological activities of black tea. **European Journal of Pharmaceutical and Medical Research**, 2018,5(2), 484-486.
23. Sudeshna Shyam Choudhury, Rumjhum Mukherjee, Rajanya Ghosh, Modhura Mondal, Sohini Majumdar The positive effect of UV radiation on biochemical and microbiological characteristics of different altitude grown Darjeeling tea clones. (2018) **International Journal of Food Science and Nutrition** ISSN: 2455-4898 .Volume 3; Issue 2; March 2018; Page No. 28-31.
24. Effect of natural and artificial UV radiation on tea plants *Camellia sinensis*-(2019) Sudeshna Shyam Choudhury, Jessica Li Maan Chen, Mohini Basu, Saheli Dey, Sailanki Nandy, Hridi Halder, Reetish Raj Sahoo, Sagnik Bhattacharjee, Suvrangshu Guha and Debashis Das. **Aviskaar: A Xavierian Journal of Research**. Vol XI, Pg-61-69.
25. Hridi Halder, Reetish Raj Sahoo, Shuvrangshu Guha, Sagnik Bhattacharjee, Dyutika Banerjee, Sejuti Ray, Arpita Pareshchandra Mondal, Jaydip Ghosh and Sudeshna Shyam Choudhury.(2020) Identification and Characterization of the Antimicrobial and Active Components of Tea (*Camellia Sinensis*). **IOSR Journal Of Pharmacy And Biological Sciences** (IOSR-JPBS) e-ISSN:2278-3008, p-ISSN:2319-7676. Volume 15, Issue 1 Ser. II (Jan –Feb 2020), PP 51-58
26. Pritam Biswas, Aniruddha Adhikari, Uttam Pal, Priya Singh, Monojit Das, Tanusri Saha-Dasgupta, Sudeshna Shyam Choudhury, Ranjan Das, Samir Kumar Pal (2020) Dynamical Flexibility Modulates Catalytic Activity of a Thermostable Enzyme: Key Information from Optical Spectroscopy and Molecular Dynamics Simulation. **Soft Matter**. 16,3050-3062
27. Sejuti Ray, Srijan Bhattacharya, Jaydip Ghosh, Sudeshna Shyam Choudhury (2020) Comparison of Antioxidant and Antimicrobial Potential of Tea Samples from Seven Valleys of Darjeeling. **Research and Reviews: Journal of Crop Science and Technology**. Vol 9, (2) pg-4-13
28. G. Saha and S. Shyam Choudhury The Change in Physico-chemical, Biochemical and Microbiological Parameters of White, Green, Black and Oolong Tea during Storage in Different Packaging with Different Desiccant.(2020) **Research and Review: A journal of Microbiology and Virology**, ISSN: 2230-9853 (Online), ISSN: 2349-4360 (Print) Volume 10, Issue 3,pg 53-63
29. Maitra, D., Dhara, B., Sultana, S., Choudhury S.S & Mitra, A.K. Mycorrhizal association in Agriculture and their role in preventing climate change. Precision Agriculture and Sustainable Crop Production (2020): 285-306 Editors: H. K. Chourasia, K. Acharya and V. K. Singh **Today & Tomorrow's Printers And Publishers**, New Delhi-110002 (India) ISBN: 9788170196679
30. Debanjana Sengupta, Siddhartha Chakraborty, Sudeshna Shyam Choudhury, Sayak Ganguli , Arup Kumar Mitra (2020) Isolation and Identification of Unique Arsenotolerant *Exiguobacterium indicum* DSM62 from Arsenic Rich Environment. **Advances in Zoology and Botany** 8(4): 298-325, <http://www.hrpub.org> DOI: 10.13189/azb.2020.080403.
31. Pritam Biswas, Aniruddha Adhikari, Susmita Mondal, Monojit Das, Siddhartha Sankar Bhattacharya, Debasish Pal, Sudeshna Shyam Choudhury, Samir Kumar Pal. (2021) Synthesis and spectroscopic characterization of a zinc oxide-polyphenol nanohybrid from natural resources for enhanced antioxidant activity with less cytotoxicity. **Materials Today: proceedings**, 43, 3481-3486.
32. Assessment of Antioxidant and Antimicrobial (Therapeutic) Potentials of Some Medicinally Important Beverages Sudeshna Shyam Choudhury , Ravichandran Velayutham , Dipanjan Ghosh, Arun Jana , Jaydip Ghosh , Sejuti Ray, Debapriya Maitra.(2021) **Research and Reviews: Journal of Herbal Science**, Volume 10, Issue 2, 2021,pg-8-13
33. Meenakshi Mukhopadhyay, Arup Kumar Mitra, Sudeshna Shyam Choudhury, Sayak Ganguli (2021) Metagenome dataset of lateritic soil microbiota from Sadaipur, Birbhum, West Bengal, **India. Data in Brief**. 36. Article 107041. doi.org/10.1016/j. Impact Factor 1.7. ISSN: 2352-3409.
34. Puja Agnihotri, Suchismita Sikdar, Madhumita Maitra, Sudeshna Shyam Choudhury, Arup Kumar Mitra(2022) Effect of combination of *Azolla microphylla* and As(V)resistant bacterial

- consortium on growth, oxidative stress and arsenic accumulation in rice plant under As(V) stress. **Vegetos** (Springer) <https://doi.org/10.1007/s42535-022-00345-y> (I.F.1.34)
35. Essential Loop Dynamics Modulates Catalytic Activity in α -Chymotrypsin, (2022) Pritam Biswas, Dr. Uttam Pal, Aniruddha Adhikari, Susmita Mondal, Ria Ghosh, Dipanjan Mukherjee, Prof. Dr. Tanusri Saha-Dasgupta, Dr. Sudeshna Shyam Choudhury, Prof. Dr. Ranjan Das, Prof. Dr. Samir Kumar Pal, **Chemistry select, Biological chemistry and Chemical biology**, Vol 7; issue 4
 36. Maitra D, Roy B, Choudhury S.S, & Mitra A.K., Dynamics of soil microbiome and their role in sustainable agriculture., Springer Nature Book: "Bioremediation and phytoremediation for sustainable soil management." **Springer Nature** (2022). Pp-27-55, DOI: 10.1007/978-3-031-08830-8_2
 37. Development of therapeutic index of different types of herbal and medicinal teas. (2022) Sudeshna Shyam Choudhury, Jaydip Ghosh, Arun Kumar Jana, Sejuti Roy, Renu Kumari Prasad and Anushree Pratihar. **Journal of Plant Studies**: 10(4), 106-112
 38. Maitra D, Roy B, Chandra A, Choudhury S.S, Mitra A.K, (2022) Biofilm Producing Lignocellulolytic *Bacillus vallismortis* TR01K From Tea Rhizosphere acting as plant growth promoting agent. 45 (1) **Biocatalysis and Agricultural Biotechnology, Elsevier**. <https://doi.org/10.1016/j.bcab.2022.102507>
 39. Spectroscopic studies on a natural biomarker for the identification of origin and quality of tea extracts for the development of a portable and field deployable prototype. (2023) Amrita Banerjee , Ria Ghosh, Soumendra Singh , Aniruddha Adhikari, Susmita Mondal , Lopamudra Roy, Suman Midya , Subhadipta Mukhopadhyay , Sudeshna Shyam Chowdhury, Subhananda Chakraborty, Ranjan Das, Jabir H. Al-Fahemi , Ziad Moussa j , Asim Kumar Mallick , Arpita Chattopadhyay I, Saleh A Ahmed, Samir Kumar Pal **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** 299 (2023) 122842 **IMPACT FACTOR 4.8**
 40. Meenakshi Mukhopadhyay , Ashutosh Mukherjee, Sayak Ganguli, Archisman Chakraborti , Samrat Roy, Sudeshna Shyam Choudhury, Vetriselvan Subramanian , Vinoth Kumarasamy , Amany A. Sayed, Fatma M. El-Demerdash , Mikhliid H. Almutairi , Anca Şuţan , Bikram Dhara and Arup Kumar Mitra (2023) Marvels of Bacilli in soil amendment for plant-growth promotion toward sustainable development having futuristic socio-economic implications. **Frontiers in Microbiology**, 1-19 **IMPACT FACTOR-5.2**
 41. Debapriya Maitra, Bedaprana Roy, Debdatta Das, Archisman Chakraborti, Anirban Das, Indranath Chaudhuri, Sudeshna Shyam Choudhury, Arup Kumar Mitra (2024) Organic farming in the improvement of soil health and productivity of tea cultivation: A pilot study. **Environ. Qual Management. Wiley**. DOI: 10.1002/tqem.22193. I.F.1.09
 42. Sanjana Ghosh, Arup Kumar Mitra, Sudeshna shyam Choudhury, Ayan Chanda. Unleaded agriculture: Myth to reality by wetland microflora. (2024) **Environmental Quality management. Wiley online**. DOI: 10.1002/tqem.22259. If. 1.09.
 43. Ray, Sejuti, Das Raunak, Ghosh Jaydip and Shyam Choudhury Sudeshna. (2024) Biochemical characterization of different tea. **International Journal of Food and nutritional Sciences**. 13(2) 68-80
 44. Debapriya Maitra, Bedaprana roy, Rohan Dan, Subham Sarkar, Sudeshna Shyam Choudhury, Arup Kumar Mitra A Study on the Application and Efficiency of Novel Biofertilizer On Paddy: A Small-Scale Study. (2024). **J. Mycopathol. Res**. 62(2) : 275-283, 2024; ISSN 0971-3719
 45. Adrija Biswas, Rittika Nandi, Rounak Das, Sharanya Sreemani, Tirthankar Roy, Sejuti Ray, Rangan Datta, Biswajit Bera, Jaydip Ghosh and Sudeshna Shyam Choudhury The effect of ambient UV radiation on high and low altitude north Bengal Tea. **Journal of Current Research in Food Science** 2025; 6(1): 85-96
 46. Priyanka Mukherjee, Rina Ghosh , Titas Kumar Mukhopadhyay , Sudeshna Shyam Chowdhury , Sagarika Sanyal , Sanjib Ghosh. Photophysical and structural aspects of poly-L-tryptophan: π - π stacking interaction with an excited state intermolecular proton transfer probe 3-

Hydroxynaphthoic acid revealed by experiments and molecular simulation. Biophysical Chemistry 320–321 (2025) 107416

47. Characterization of Tea Metabolites and Soil of Different Origins in Northeastern India. Debapriya Maitra, Bedaprana Roy, Sejuti Ray, Sony Choubey, Bishista DasGupta, Suman Deb, Ankur Chattopadhyay, Piw Das, Biswanath Ganguly, Arup Kumar Mitra and Sudeshna Shyam Choudhury. (2025) Nutrition and Food Science International Journal, 14(2): NFSIJ.MS.ID.555881, 001-0017 (2025). DOI: 10.19080/NFSIJ.2025.14.555881

❖ **RESOURCE PERSON/INVITED TALKS:**

- (i) In Skill set training in Science and technology, 2007, 2008, 2009, 2012—funded by D.B.T, Govt. Of India
- (ii) In UGC sponsored lecture series (for 3 years 2012-2015) organized by EMMRC, Kolkata.
- (iii) In Bose Institute workshop on hands-on-training regarding medicinal plants and DNA fingerprinting (Plant DNA Fingerprinting & Diagnostics of Medicinal Potential in Plants, 9th-23rd June, 2015)-funded by ICMR, for the years 2014, 2015.
- (iv) **Resource person in UGC EMMRC sponsored documentary films “Darjeeling Tea: Tea of High Value” and “Aroma Of Darjeeling Tea”, 2015**
- (v) Resource person for Ph.D course work in West Bengal State University, June, 2016.
- (vi) Empanelled as a Ph.D supervisor in St. Xavier’s college Microbiology Department-selected by Ph.D committee, 2016.
- (vii) Resource person for Ph.D course work in St.Xavier’s college 2017-2025
- (viii) Resource person in Bose Institute, Kolkata to deliver talk on the biochemical characterization of medicinal plants, 2014;2015
- (ix) Resource Person to deliver talk in **NTRF on the shelf life of tea, 2018**
- (x) Resource person in “LifeCycle Nutrition and Nutrigenomics - Gene & Food Interaction" organized by NutriDiet Kolkata starting from **9th March-12th March 2019.**
- (xi) Resource person to deliver a talk on the quality of tea in Jadavpur University, Physics department colloquium, **December, 2019**
- (xii) Resource person to deliver talk on “Studies on the keeping quality of different types if tea (Black, Green, Oolong and White) and their biochemical aspects and antioxidants properties” **11.9.2020** webinar organized by **NTRF**
- (xiii) Resource person to deliver a talk on **the effect of UV radiation on tea** in Gurudas college, **2021 March.**
- (xiv) Resource person to deliver a talk on **Tea clones and its variation and Product development: Organic tea and it’s quality improvement** in TEDP, organized by St. Xavier’s college Kolkata, **2024 March**
- (xv) Resource Person to deliver a talk on sustainable approach against global environmental degradation in Raghobpur campus, **April 2024**, St.Xavier’s College, Kolkata
- (xvi) Resource person in IVD and Bioinformatics course of LSSDC, Govt. of India, organized by St. Xavier’s college, Kolkata (**April-May, 2024**)
- (xvii) Resource person in webinar (**Therapeutic values of tea**) on the occasion of International tea day on the Safe and wellness drink: A sustainable tea for future, 21.5.2024
- (xviii) Resource person and chief guest in Zoological survey of India to deliver a talk entitled “ **The effects of UV radiation on Plants**”, on the occasion of World Ozone day, **17.9.2024**
- (xix) Resource person organized by India International Tea Webinar Summit **21.5.24** on “Safe and Wellness Drink” (Topic-**Therapeutic values of Tea**) and in

webinar “Tea Industry: Traditional & Transformational Activities-From Farm to cup” (Topic-**Top luxury herbal tea and their unique ingredients**) on **21.5.25**

MOOC COURSES:

Resource person and coordinator of UGC open access online educational platform Massive Online Open Courses (MOOC) by SWAYAM for Courses

- I. Biochemistry (**2018-2024**)
- II. Microbial Genetics (**2018-2024**),
- III. Plant Physiology and metabolism (**2020-2024**)

❖ **Additional responsibility:**

- Judge in event Show it Off (Paper Presentation), on the 9th Feb, 2018, St. Xavier’s College, Kolkata, Organized by Science Association, SIGMA
- Chair a poster session at the National symposium FOCMB-2018 at St. Xavier’s College-16.2.2018
- Convener of the Product and commercialization module of R and D cell, St. Xavier’s college, Kolkata
- Examiner in Vivekananda College for women, Kolkata; Ramkrishna Mission Vivekananda educational and Research Institute, Belur; Ramkrishna Mission Vivekananda centenary college, Rahara, Sreerampore College.
- Chief guest in the inauguration of the course entitled “Industrial Microbiology Certificate Course, Jointly organized by Serampore College on 10.08.2024.
- RAC member of West Bengal State University Ph.D research scholar, September, 2024
- BOS member of PG department of Microbiology West Bengal State University, **2024,2025**
- BOS member of Industrial Microbiology course in Serampore College, 2024
- Laboratory visit at TRA, Tocklai, Jorhat in June 2024
- Moderator (judge) on the technical session on Biotechnology in the Regional Science and Technology Congress 17th-18th january,2025
- Invited online speaker on “The Functional food” by BANGLADESH NUTRITION & WELLNESS ACADEMY BNWA, 21st January, 2025.
- Delivered online 9 lectures on the course METABOLISM (Course No. FN-303, Credit 4) organized by BANGLADESH NUTRITION & WELLNESS ACADEMY BNWA, Bangladesh, March-May, 2025

❖ **RESEARCH AREA:**

- ✓ QUALITATIVE AND QUANTITATIVE PHYTOCHEMICAL SCREENING (BIOPHYSICAL, BIOCHEMICAL AND BIOMEDICAL) AND ANALYSIS OF HIGH ALTITUDE BASED PLANTS (MAINLY TEA) UNDER NATURAL AND ARTIFICIAL UV STRESS
- ✓ EFFECTS OF BIOFERTILIZER ON VARIOUS PLANTS INCLUDING TEA IN COLLABORATION WITH **DR ARUP KUMAR MITRA, COE AND ASSOCIATE PROFESSOR, ST. XAVIER’S COLLEGE, KOLKATA**
- ✓ D
- ✓ DEVELOPMENT AND COMMERCIALIZE NOVEL ORGANIC TEA IN COLLABORATION WITH **DR ARUP KUMAR MITRA, COE AND ASSOCIATE PROFESSOR, ST. XAVIER’S COLLEGE, KOLKATA**
- ✓ E-SENSOR BASED ASSESSMENT OF THERAPEUTIC AND COMMERCIAL QUALITY INDEX OF MEDICINAL BEVARAGES VIZ. BASIC TE, HERBAL AND MEDICINAL TEA (IN COLLABORATION WITH **DR. ARUN JANA, CDAC, KOLKATA**)
- ✓ NANOMEDICINE BASED DRUG DESIGNING; DETECTION OF DEvised BASED BIOMETABOLITE AND AUTHENTICATION OF TEA (IN COLLABORATION

WITH **PROF. SAMIR KUMAR PAL, S.N.BOSE CENTRE FOR BASIC SCIENCES, KOLKATA)**

- ✓ BIOPHYSICAL AND BIOCHEMICAL INVESTIGATION ON THE STRUCTURE, FUNCTION AND DYNAMICS OF BIOMOLECULES (SPECIALLY INDUSTRIALLY IMPORTANT ENZYME LIKE BETA D GLUCOSIDASE) UNDER PHYSIOLOGICALLY RELEVANT ENVIRONMENTS(IN COLLABORATION WITH **PROF. SAMIR KUMAR PAL, S.N.BOSE CENTRE FOR BASIC SCIENCES, KOLKATA)**
- ✓ MARKET SURVEY, CHARACTERIZATION, DEVELOPMENT OF COMPOSITION OF VALUE ADDED TEA AS NEUTRACEUTICAL
- ✓ BIOTIC AND ABIOTIC STRESS INDUCED STUDIES IN PLANTS AND CORRESPONDING PHYTOCHEMICAL ANALYSIS FOR THERAPEUTIC AND COMMERCIAL QUALITIES ENHANCEMENT
- ✓ SPECTROSCOPIC CHARACTERIZATION OF BIOLOGICALLY SIGNIFICANT PROTEINS

❖ **RESEARCH EXPERIENCE:**

Major area: Characterization of tea and its metabolite for last 25 years.

- i. Worked mainly on Marker Assisted Selection (MAS) of two economically important crops (Rice and Tea).
- ii. Plant Biochemistry and Biotechnology related to stress specially natural Ultraviolet stress on different altitude grown tea clones.
- iii. Measurement of natural UV radiation in different altitude
- iv. Altitude related variation of aroma and antioxidant compounds of Darjeeling, Dooars, Terrain, Assam, Ooty, Mysore tea clones.
- v. Effect of natural and artificial UV radiation in rice and tea.
- v. Quality related biochemical analysis (HPLC, TLC, FTIR, spectrophotometric and spectrofluorimetric analysis, Electron paramagnetic resonance (EPR) study of economically important plants (rice— storability/antioxidant, tea—aroma/antioxidant).
- vi. Genetic cataloguing of 2000 tea clones by DNA Fingerprinting method using RAPD, RFLP, ISSR, AFLP techniques.
- vii. Quantitative Trait Loci (QTL) analysis of crop plants.
- viii. Physiological and biochemical marker enzyme detection (including polyphenol oxidase, alcohol dehydrogenase, superoxide dismutase, ascorbate peroxidase, catalase, glutathione reductase etc.).
- ix. Microbial characterization by Biochemical, Morphological and Molecular Biological analysis
- x. Data interpretation via Bioinformatics programming as FASTA, BLAST, NTSYS, RASMOL, PAM, KEGG, Molecular Docking.
- xi. Knowledge of Cloning, sequencing.
- xii. Currently working with E-sensor based quality analysis of medicinal beverages
- xiii. Stress induced changes in tea viz. effect of UV radiation (abiotic)on different altitude grown tea and effects of biofertilizer (biotic)on tea
- xiv. Detection and quantification of marker metabolite (upregulated under stresses)in plants

PROFESSIONAL/ACADEMIC EXCELLENCE RELATED TO TEA:

❖ **Field visits:**

- ✓ Field and Factory visits (collection of tea leaf and manufactured samples) of different seven valleys of **Darjeeling, Kalimpong** and Kurseong tea gardens (DTR and DC, Darjeeling)including Castleton, Thurbo, Badamtam, Goodricke tea gardens, Makaibari Tea Estate, Takdah, Chamong group tea gardens; **Jalpaiguri** (Danguajhar, Goodricke, VVTea tea garden); **Alipurduar** (Majherdabri tea garden and factory), **Tripura** Durgabari tea garden and factory, Tea factory and Museum, **Ooty**, Nilgiri Hill Bagan tea factory **Mysore**, ,

Sikkim Temi tea garden, TRA, Jorhat, Assam tea garden, IHBT, Palampur, Kangra valley
Himachal Pradesh, (2012-2025)

- ✓ Organic tea developed by using microbial consortia in VVTEA, tea garden Jalpaiguri by handcrafting methods **(2023-2025)**
- ✓ The tea field studies including DTRDC, Darjeeling, QCL, Siliguri, 2015-2025 and TRA, Tocklai, Jorhat, **2024**
- ✓ Member of advisory committee for research contribution in Herbal and Spice tea at CRAFT & WEFT, **2025**
- ✓ Field and Institute Visit of IHBT, Palampur, **March 2025**
- ✓ Visited Moonlight Plucking in Majherdabri, Alipurduar Tea Garden **(May, 2025)**
- ✓ Field visit at Upper Shillong Tea Farm, Shillong Meghalaya for organic tea collection, **June, 2025**

❖ **Book publication:**

1. Book entitled “Environmental Studies”—By Dr. Arup Kumar Mitra, Sudeshna Bhattacharya (Shyam Choudhury), Dipanjali Saha. Published by Edutech Solutions (P) Ltd in collaboration with St. Xavier’s College (2008)
2. Book entitled “Fundamentals of Biochemistry” by Dr. Sudeshna Shyam Choudhury Published from Book Syndicate Pvt. Ltd. (2018).

🔗 **Chapters contributed:**

1. Effect of UV radiation on two economically important plants: rice and tea—Sudeshna Bhattacharya (Shyam Choudhury): Environmental Pollution on Biosphere and its Management (vol I), Edited by D. Mitra and A.K. Mitra; The ICFAI University Press. Page 85-101
2. Comparison of efficacies of different water treatment methods—Basu H., Dey I, Ahmed S., Mahapatra, R., Alam, B. and Bhattacharya, S. and Mitra, A.K.M. Environmental Pollution on Biosphere and its Management (vol II), Edited by D. Mitra and A.K. Mitra; The ICFAI University Press. Page 115-124
3. Environmental Science-chapters contributed (Chapter 12,13,14).
4. Contributed a chapter on Molecular Biology in a Himalayan Publishing House book on “Practical Manual of Modern Microbiology”. Edited by Dr. Arup Kumar Mitra and Dr. Kasturi Sarkar.
5. Chapter in Precision Agriculture and Sustainable crop production-Improvement of soybean production in low productive soil by the utilization of native microbial flora-2020; 155-171, **Today & Tomorrow’s Printers and Publishers** ISBN:9788170196679
6. Contributed Chapter in “Transporters and Plant Osmotic Stress “ viz “Regulation of transporters through different exogenously applied chemicals during environmental stress”-by Academic Press publications, Elsevier, pg 195-213. **2021**
7. Agnihotri, Puja; Shyam Chowdhury, Sudeshna; Maitra, Madhumita; Sengupta, Debanjana and Mitra, Arup Kumar **(2023)** Low cost Arsenic mitigation by plantmicrobe Interaction. In Transforming our world together towards sustainable development. Eds. D. Savio, S. Roy and S. Chaudhuri. Cambridge Scholar Publishing, U.K. pp 317-333. P- 370 ISBN1-5275-8995-7.

❖ **Paper Presented:**

- A paper presented entitled “Oxidative stress Vs. Antioxidants” in UGC-Sponsored **National** Level Seminar (Recent Trends in Microbiological Research -RTMR 2010) Organized by- Barrackpore Rashtraguru Surendra Nath College, in **2010**
- UGC sponsored National conference ,Environmental Impacts on Health: Towards a better Future, 27&28 March, 2015. Bangabasi College, In collaboration with Das Research
- National symposium-Bits and Bytes 2017-National Symposium on Computer Science, Electronics and Biotechnology-6th and 7th March, 2017. 3rd Best Poster in BITS TO BYTES

- National Symposium on Advances in Biology: Exploitation of Phyto-Resources, 2-3 Nov, 2017. Dept. Of Botany, Dr. A.P.J. Abdul Kalam Govt. College.
- Participated and presented paper in National Seminar on Applications of Biostatistics in Natural Sciences, held at St. Xavier's College organized by department of Statistics and Physics in collaboration with ICARD, Kolkata-16th and 17th December, 2019
- Participated and presented paper in XXI National Conference on Aerobiology-2019, organized by Department of Botany, Visva-Bharati, Shantiniketan on 18th-20th November, 2019
- Participated and presented poster at the International Symposium on Environment and Climate Crisis-held at St. Xavier's College, organized by Department of Environmental studies St. Xavier's College Kolkata in collaboration with, the Blue patch and Biome, on 20th December, 2019

❖ **Awards received:**

- Presented paper in webinar "Positive effects of UV radiations on Tea plants" in the National Webinar on "Environment and We: Reimagine, Recreate and Restore" organized by the Department of Geography, under the aegis of IQAC, Kazi Nazrul Islam Mahavidyalaya, Churulia, West Bengal, India on 28th August, 2021 and was selected 1st position for the presentation.
- Presented Paper and won first prize in oral presentation in International Conference on Ecotoxicology and Environmental Sciences (ICEES – 2024), 21st – 22nd October, 2024 at Amity University Jharkhand, Ranchi entitled "Positive effect of UV radiation on the quality of tea".

❖ **Research Project awarded:**

1. Awarded with a research Project entitled "Studies on keeping quality of different types of tea (Black, Green, Oolong & White) and their bio chemical aspects & antioxidant properties"- Funded by National Tea Research Foundation, Tea Board, Kolkata, 2016-2017, as a part as Host Institute of Rs 25,00,000/- In-house project. Ref No. NTRF 17(365) 2015-(A)/5347
2. Part of DBT Star College Scheme Project of Department of Microbiology, St. Xavier's College, Kolkata for 2015-2016 (Scheme sanction no.102/IFD/4501/2014-2015 dt 20.2.2015 and (Scheme sanction no. 102/IFD/SAN/371/2015-2016 dated 30.04.2015, total sanctioned amount Rs. 15,00,000/- & (Scheme sanctioned no. 102/IFD/SAN/5214/2018-19) dt. 18.03.2019 for a period of three years from 2019-2022 of Rs. 63,00,000/-
3. Awarded a UGC Minor project entitled "Biochemical, biomedical, molecular evaluation of Darjeeling tea (*Camellia sinensis* L. (O) Kuntze.) clones under natural UV radiation stress". UGC (ER0)No-F-PSW-137/15-16(ERO); 2015-2017, Rs 4,75,000.00/-
4. Development of low cost easy to use instrument for quick validation of Geographic Indication, Darjeeling Tea Code No. NTRF:198/2017, 2017-2018, As Co-PI, Total Rs 6,00,000/-
5. PI of Project III (entitled "Isolation and characterization of economically important secondary metabolites from Plant") under DBT BUILDER grant –DBT Boost to University Interdisciplinary Life Science Departments for education and Research program" Sanction No. BT/INF/22/SP41296/2020 dt. 25.3.2021 of Rs. 2,67,26,826/- (2021-)
6. Awarded with an intramural grant for the project named "Characterization and Commercialization of Organic tea with microbial amendment" of Rs 2,50,000/- from St. Xavier's College, Kolkata as PI, No IMSXC2023-24/002 (2023-2025)

❖ **Patent:**

Had a National patent on "METHOD AND SYSTEM FOR DETECTING TYPE OF TEA SAMPLE BASED ON QUANTUM YIELD", Chakrabarti Subhananda, Pal Samir Kumar, Midya Suman, Bhattacharya Sudeshna Shyam Choudhury, Patent No. IN201721014138A, Published 2018-10-26.

❖ **Ph.D Scholars awarded:**

- ✓ **Dr . Pritam Biswas** –Title of thesis-Biophysical and Biochemical Investigation on the Structure, Function and Dynamics of Biomolecules Under Physiologically Relevant Environments. Awarded from St. Xavier's College,Kolkata (autonomous) under Calcutta University: **2021 (Co-PI Prof. Samir Kumar Pal, SBNCBS,Kolkata)**
- ✓ **Dr Meenakshi Mukhopadhyay**-Title of thesis-Microbial Augmentation of Low Productive Soil Towards Increased Productivity in Organic Farming of Soybean Plants. Awarded from St. Xavier's College, Kolkata (autonomous) under Calcutta University: **2023 (Joint PI Dr. Arup Kumar Mitra, COE and Associate Prof. St. Xavier's College, Kolkata)**
- ✓ **Dr Debapriya Maitra**- Title of the thesis-Holistic management of tea pathogen using microbial consortium and upgradation of its therapeutic value, Awarded from St. Xavier's College,Kolkata (autonomous) under Calcutta University: **2025 (Joint PI Dr. Arup Kumar Mitra, COE and Associate Prof. St. Xavier's College, Kolkata)**

Ph.D registered candidates (ongoing): 3

