Curriculum Vitae (As on 27.11.24)

Name: Dr. Sourav Chakraborty

Designation: Assistant Professor in Botany (**W.B.E.S.**)

Highest qualification: M.Sc., Ph.D.

Contact details/ Office address: Plant Biochemistry and Molecular Biology Laboratory,
U.G. & P.G. Department of Botany,
Darjeeling Government College,
Darjeeling, PIN-734101

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Date of joining to this institution: 01.09.2021

Date of joining W.B.E.S.: 01.09.2021

Previous position(s) held:

1. Senior Research Assistant (SRA) in Department of Biotechnology, West Bengal (WBDBT) sponsored Project entitled 'A Bioinformatics Perspective to impede the tubercle bacillus (TB) devastation in West Bengal' (January, 2016 to July, 2016).
2. Guest Teacher in Botany at Parimal Mitra Smriti Mahavidyalaya, Malbazar (August, 2016 to July, 2017).
3. Assistant Master in Life Science (**W.B.Sub.E.S.**) at Government Model School, Old Malda, Malda (August, 2017 to August, 2021).

Teaching experience in years & months: 8 years & 3 months+

Awards, Recognition and Honours:

1. Gold medal for B.Sc. 1st Class first position in Botany Honours under University of North Bengal (2012).
2. Qualified Eighteenth West Bengal State Eligibility Test (SET-2014) in Life Sciences.
3. Qualified Joint CSIR-UGC NET-LS (2016) with AIR-44 in Life Sciences.
4. Qualified Graduate Aptitude Test in Engineering (GATE-2017) with AIR-28 in Life Sciences.
5. Ranked 1st in Assistant Professor (W.B.E.S.) recommendation panel in Botany (Advt. 19/2017).
6. Best oral presentation award for presenting a paper in 2 days National seminar (online mode) on 'Advancement of Plant Sciences for Food Diversity and Nutritional Security' (30th September and 1st October, 2021) organized by DST (FIST) & UGC-SAP assisted DRS Department of Botany, University of North Bengal and UGC-HRDC, University of North Bengal.
7. Received outstanding paper award at 5th Regional Science & Technology Congress, 2022-2023 [Region-1] (17th and 18th January, 2023) organized by Cooch Behar Panchanan Barma University & Department of Science and Technology and Biotechnology, Government of West Bengal.
8. Received outstanding paper award at 30th West Bengal Science & Technology Congress, 2022-2023 (28th February and 1st March, 2023) organized by Department of Science and Technology and Biotechnology, Government of West Bengal.
9. Received best oral presentation award at 7th International Conference (Kathmandu Chapter 2.0) on Global Approaches in Agricultural, Biological, Environment and Life Sciences for sustainable future (GABELS-2024); Venue: Buddha Hall, D.A.V. College, Lalitpur, Kathmandu, Nepal; Date: 08th – 10th June, 2024) organized by Agricultural Technology Development Society (ATDS) Ghaziabad, Uttar Pradesh, India.

Courses taught: B.Sc. (Honours/Major and Programme/Minor under CBCS & FYUGP curricula) & **M.Sc.** (New CBCS curriculum) in Botany

1. **U.G.** (Genetics, Plant Breeding, Molecular Biology, Biostatistics & Plant Biotechnology).
2. **P.G.** (Microbiology, Plant Physiology, Cytogenetics, Himalayan Tea Science) & **Special Paper** on **Plant Biochemistry & Molecular Biology**.

Research area/ interest: Plant Biochemistry, Cytogenetics, Molecular Biology & Tissue Culture

Number of Publications-
***Peer reviewed journals:** 45
***Conference proceedings:** 01
***Chapters in books:** 02
***Sequences submitted to NCBI GenBank/DDBJ**: 03 (Accession Numbers-MZ613346; LC713403 & OM095378)

Detailed list of publications

1. **Sourav Chakraborty** and M Bhattacharya. DNA barcoding and comparative bioinformatic analysis of the endangered genus *Herpetospermum* with special reference to *Herpetospermum darjeelingense*. Biology Bulletin (2024). (Accepted- in press)
2. Bhattacharya, M., Majumder, S., Nandi, S., Ghosh, A., Subba, P., Acharyya, S., & **Chakraborty, Sourav***. (2024). Comprehensive analysis of water and sediment from holy water body 'Pokhri' reveals presence of biomolecules that may educe skin, gastroenterological and neurological dysfunction. *Science of the Total Environment*, *956*, 177373. https://doi.org/10.1016/j.scitotenv.2024.177373 [IF-8.2]
3. S Majumder, **Sourav Chakraborty**, A Ghosh, S Subba, M Bhattacharya. Pain healing potential of famous traditional fermented *Rhododendron* (Lali-Guras) beverages from Indo-Nepal Himalaya: *In vitro* and *in silico* evaluation (2024). Maso International 1.2024: 001–011; https://10.2478/mjfst-2024-0001
4. **Sourav Chakraborty** and M Bhattacharya. PAS: the versatile domain. North Face Vol.2. No.1 2024: ISSN 2455-5002
5. A Ghosh, **Sourav Chakraborty**, S Majumder, S Sarkar and M Bhattacharya (2024). Natural alkanes from *Senna siamea* as possible contenders against inflammatory disorders: an *in silico* and metabolomics perspective Khulna University Studies 21(1):162-177. https://doi.org/10.53808/KUS.2024.21.01.1109-ls
6. A Ghosh, A Nag, S Acharyya, S Saha, S Majumder, **Sourav Chakraborty**, M Bhattacharya. Tea plantation shade tree leaf influences the susceptibility of rhizosphere microbial consortium: A comprehensive study on their leaf extract cross tolerance (2024). Eurasian Journal of Soil Science 2024, 13(3), 234-246. https://doi.org/10.18393/ejss.1476125
7. S Majumder, A Ghosh, **Sourav Chakraborty** & M Bhattacharya. Zooming into CTC black-tea wine metabolites: A GC-MS-based study (2024) Acta Univ. Sapientiae, Alimentaria, 17, 15–38. https://doi.org/10.47745/ausal-2024-0002
8. S Majumder, A Ghosh, S Saha, S Acharyya, **Sourav Chakraborty**, P Subba, S Nandi, S Sarkar and M Bhattacharya. *In vitro* bioactivities and gastrointestinal simulation validate ethnomedicinal efficacy of five fermented *kodo*-based Himalayan traditional drinks and bioaccessibility of bioactive components (2024). Food Production, Processing and Nutrition 6:4. https://doi.org/10.1186/s43014-023-00184-7 [IF 4.7]
9. S Majumder, **Sourav Chakraborty**, A Ghosh and M Bhattacharya. *In silico* insights into the efficacy of Darjeeling Himalaya's traditional fermented beverages to combat various high-altitude sicknesses (2024). Acta Universitatis Cibiniensis Series E: Food Technology Vol. XXVII, No. 2. https://doi.org/10.2478/aucft-2023-0022
10. D Das, S Majumder, S Sarkar, A Ghosh, S Nandi, P Subba, S Saha, S Acharyya, B Ghosh, **Sourav Chakraborty** and M Bhattacharya. Conversion of potato fields into small tea plantations at Bhotepatty, Mainaguri: consequences of this shifting agriculture through survey and soil analysis. Contemporary agriculture. Contemporary Agriculture, Vol. 72, No. 3 (2023): 98-106 https://doi.org10.2478/contagri-2023-0013
11. **Sourav Chakraborty**, S Saha and M Bhattacharya. Synthesized green silver nano particles of *Herpetospermum darjeelingense* shows enhanced *in vitro* antimicrobial, antioxidant and hepatoprotective activity. Research

Journal of Pharmacognosy and Phytochemistry. Vol 15, Issue 4 2023. https://doi.org/10.52711/0975-4385.2023.00044

12. A Ghosh, S Majumder, R Samadder, S Sarkar, S Nandi, P Subba, **Sourav Chakraborty**, S Acharyya, S Saha, M Bhattacharya. Study of *in vitro* antioxidant and antibacterial potential of different tea clones Pharmacological Research- Modern Chinese Medicine. (2023) https://doi.org/10.1016/j.prmcm.2023.100312
13. **Sourav Chakraborty**, S Majumder, A Ghosh and M Bhattacharya Endemic and endangered ethno-herbal medicinal climber of Darjeeling Hills (*Edgaria darjeelingensis* C.B.Clarke) is a treasure of anti-cancer molecules: a study on GC-MS analysis and probable biosynthetic pathways. Indian Journal of Traditional Knowledge, Vol 22(2), April 2023, pp. 371-380. 10.56042/ijtk.v22i2.38484
14. A Ghosh, S Saha, S Majumder, **Sourav Chakraborty** and M Bhattacharya. *In vitro* assessment of the antioxidant and antibacterial activities of some shade tree barks from tea plantation of Terai region of West Bengal. 2023. Journal of Pharmacognosy and Phytochemistry. 12(1): 556-561. https://doi.org/10.22271/23957476.2023.v9.i1b.1405
15. S Majumder, A Ghosh, **Sourav Chakraborty** and M Bhattacharya. The Himalayan ethnic beverage Tongba with therapeutic properties in high-altitude illness and metabolic similarities to Japanese Sake Acta Universitatis Sapientiae, Alimantaria 15(1):67-83. https://doi.org/10.2478/ausal-2022-0006
16. S Sarkar, S Majumder, A Ghosh, S Saha, S Acharyya, **Sourav Chakraborty**, M Bhattacharya. Metabolomic exploration of CTC tea manufacturing waste validates its potentiality as organic fertilizer (2022). Turk J. Food Agric. Sci. 2022, 4(2). 10.53663/turjfas.1164579
17. S Majumder, A Ghosh, **Sourav Chakraborty** and M Bhattacharya. Brewing and biochemical characterization of *Camellia japonica* petal wine with comprehensive discussion on metabolomics. (2022). Food Production, Processing and Nutrition, 4:29. https://doi.org/10.1186/s43014-022-00109-w
18. A Ghosh, **Sourav Chakraborty**, S Majumder, M Bhattacharya. Comprehensive *In silico* investigation validates two flavonoid compounds of *Derris robusta* (Roxb. ex DC.) Benth. to supplant Remdesivir as natural therapeutic remedy against a range of Coronaviruses. Letters in Applied NanoBioScience. Volume 12, Issue 4, 2023, 108 https://doi.org/10.33263/LIANBS124.108
19. B Ghosh, S Majumder, S Acharyya, A Ghosh, S Saha, S Sarkar, **Sourav Chakraborty**, M Bhattacharya. Comparative phytochemical analysis of mature mango leaves from nineteen cultivars of Murshidabad district, India. Asian J Natural Product Biochemistry. Vol. 20, Number 2, December 2022: 48-55. https://doi.org/10.13057/biofar/f200202
20. S Majumder, A Ghosh, S Saha, S Acharyya, **Sourav Chakraborty**, S Sarkar, M Bhattacharya. Valorization of CTC tea waste through Kombucha production and insight into GC-MS based metabolomics. Canrea Journal: Food Technology, Nutritions, and Culinary, (2022); 5 (1): 38–56 https://doi.org/10.20956/canrea.v5i1.594
21. S Majumder, S Saha, A Ghosh, **Sourav Chakraborty**, S Acharyya, S Sarkar and M Bhattacharya Comparative *in vitro* biological characterization of black and green tea infusions fermented with brewer's yeast and SCOBY with special emphasis on antioxidant activity. Nutrafoods (2022) 1:357-369. https://doi.org/10.17470/NF-022-0045
22. S Majumder, S Saha, A Ghosh, **Sourav Chakraborty**, S Acharyya, S Sarkar and M Bhattacharya Fusion of tea infusion and bakhar (starter of ethnic liquor haria) to develop "Tea haria": a novel approach to ferment tea with insight into *in vitro* biochemical attributes and metabolomics. Journal of Food Technology Research (2022). 9:1, 1-17. https://doi.org/10.18488/jftr.v9i1.2909
23. S Sarkar, S Saha, S Majumder, A Ghosh, **Sourav Chakraborty**, S Acharyya and M Bhattacharya (2021). *In vitro* antioxidant and antibacterial potential of tea leaves harvested from small tea plantations of sub-Himalayan Terai region. Nutrafoods 2:300-312. https://DOI.org/10.17470/NF-021-0039
24. A Ghosh, S Majumder, S Saha, **Sourav Chakraborty**, M Bhattacharya (2021). Leaves and barks of *Albizia* shade trees in tea plantation shows both insect attractant and pesticidal properties: a GC-MS based investigation. Asian Journal of Agriculture; 5:2; 84-89. https://doi.org/10.13057/asianjagric/g050205
25. S Majumder, S Saha, A Ghosh, S Acharyya, S Sarkar, **Sourav Chakraborty** and M Bhattacharya (2021). Production of fermented tea petal decoction with insights into *in vitro* biochemical tests, antioxidant assay and GC-MS analysis. Food Production, Processing and Nutrition; (2021) 3:32 1-10. https://doi.org/10.1186/s43014-021-00075-9

26. S Sarkar, **Sourav Chakraborty**, M Mukherjee, A Ghosh, S Majumder, S Saha, M Bhattacharya (2021). Soil physicochemical characterization of supervised and unsupervised plantations in terai region of Sub-Himalayan West Bengal, India. European Journal of Biotechnology and Bioscience; 9:4; 19-21.
27. A Ghosh, S Majumder, S Saha, **Sourav Chakraborty** & M Bhattacharya (2021). Leaves and barks of *Albizia* shade trees in tea plantation shows both insect attractant and pesticidal properties: a GC-MS based investigation. Asian Journal of Agriculture, 5:2. https://doi.org/10.13057/asianjagric/g050205
28. S Majumder, A Ghosh, **Sourav Chakraborty**, S Saha, & M Bhattacharya (2021). Metabolomics affirms traditional alcoholic beverage raksi as a remedy for high-altitude sickness. *Journal of Ethnic Foods*, *8*(1), 1-10. https://doi.org/10.1186/s42779-021-00094-4 [IF-1.82]
29. **Sourav Chakraborty**, S Majumder, A Ghosh & M Bhattacharya. Comprehensive profiling of aroma imparting biomolecules in foliar extract of *Hibiscus fragrans* Roxburgh: a metabologenesis perspective. (2021). Journal of Biomolecular Structure and Dynamics. 10.1080/07391102.2021.1943525 [IF-3.6]
30. Majumder, A Ghosh, **Sourav Chakraborty** and M Bhattacharya. The rhythmic growth pattern of microbes is antithetical to antioxidant activity of Kombucha: A new finding. Food Biochemistry. (2021) Asian Journal of Biochemistry, Genetics and Molecular Biology 8(2): 1-7. 10.9734/AJBGMB/2021/v8i230188
31. S Majumder, S Acharyya, A Ghosh, **Sourav Chakraborty**, S Sarkar, S Saha, and M Bhattacharya. Insights into low biological activity of wax apple (*Syzygium samarangense*) juice by *in vitro* phytochemical investigation with special reference to metabolomics. (2021). Asian Journal of Natural Product Chemistry. 19:1; 30-38. 10.13057/biofar/f190106
32. **Sourav Chakraborty**, S Sarkar, Malay Bhattacharya. GC-MS profiling of petroleum benzene extracts of *Herpetospermum darjeelingense* displays distinct metabolic profile from 'tea' and 'non-tea' growing habitat of Darjeeling hills (2021). Multi-Disciplinary Approaches for Development of Agriculture and Allied Sectors in Global Scenario, ISBN: 978-93-92403-14-9.
33. R Samanta, **Sourav Chakraborty**, M Mukherjee & M Bhattacharya. Withdrawal of nutrients by weed biomass aggravates soil nutritional deficiencies in young tea plantations of Sub Himalayan West Bengal (2021). European Journal of Biotechnology and Bioscience 9:2; 22-24
34. **Sourav Chakraborty**, S Majumder, A Ghosh, S Saha and Malay Bhattacharya. Metabolomics of potential contenders conferring antioxidant property to varied polar and non-polar solvent extracts of *Edgaria darjeelingensis* C.B.Clarke. (2021) Bulletin of the National Research Centre. 45:48 https://doi.org/10.1186/s42269-021-00503-3
35. S Majumder, A Ghosh, **Sourav Chakraborty** and M Bhattacharya. Withdrawal of stimulants from tea infusion by Scoby during Kombucha fermentation: A biochemical investigation (2020). Int. J. Food Ferment. Technol., 10(1): 21-26. 10.30954/2277-9396.01.2020.5
36. M Mukherjee, **Sourav Chakraborty**, S Sarkar, S Saha, S Majumder, A Ghosh and M Bhattacharya. Soil Nutritional Status of Tea Plantations In Plains of Sub Himalayan West Bengal, India (2020). Current Agriculture Research Journal, 8(3) 239-246. http://dx.doi.org/10.12944/CARJ.8.3.10
37. S Saha, **Sourav Chakraborty**, S Acharyya, S Sarkar, S Majumder, A Ghosh, M Bhattacharya. Phosphate solubilizing microorganism consortium of virgin Tiger hill forest soil shows high level tolerance to pesticide, antibiotic, antifungal and heavy metals (2020). Ecobiotech 3(4) 578-588. 10.31163/2618-964X-2020-3-4-578-588
38. S Majumder, S Sarkar, A Ghosh, S Acharyya, S Saha, **Sourav Chakraborty** & M Bhattacharya. Photosynthetic organs of wild Indian tea tree are rich in patchouli components: a GC-MS based metabolomics. (2020). Natural Product Research. https://doi.org/10.1080/14786419.2020.1851222 [IF-2.82]
39. S Majumder, A Ghosh, **Sourav Chakraborty** and M Bhattacharya. GC-MS analysis reveals *Dendrobium candidum* is a mosquito-attractant orchid with mosquitocidal compounds. (2020); International Journal of Mosquito Research; 7(6): 09-12. https://doi.org/10.22271/23487941.2020.v7.i6a.483
40. A K Das, A Ghosh, S Majumder, S Saha, S Acharyya, S Sarkar, **Sourav Chakraborty**, M Mukherjee and M Bhattacharya. Characterization of tea and tea infusion: A study of marketed black tea samples from some tea growing regions of India. (2020). Journal of Pharmacognosy and Phytochemistry 2020; 9(5): 1532-1540. https://doi.org/10.22271/phyto.2020.v9.i5v.12553

41. M Bhattacharya, A K Roy, S Majumder, A Ghosh, **Sourav Chakraborty**, S Saha, S Acharyya and S Sarkar. Free radical scavenging activity versus flavonoid content in twelve *Dendrobium* orchids collected from Darjeeling Hills of Eastern Himalaya. (2020) Species, 21(68), 222-226.
42. **Sourav Chakraborty** and Malay Bhattacharya. Phytomolecules in alleviating free radicals for cellular harmony-a short review (2019). Book chapter antioxidants. Emerging trends of Bioscience Research. Ed. A K Sarkar. Educreation Publishing, ISBN: 978-81-933081-7-2.
43. Halder, K., & **Chakraborty, Sourav**. (2018). An account of antioxidant potential in Pteridophytes: a biochemical perspective. *International Journal of Bioinformatics and Biological Science*, *6*(1), 15-24. http://dx.doi.org/10.30954/2319-5169.01.2018.3
44. Roy, A., Sen, A., **Chakraborty, Sourav**, & Sarkar, I. (2018). Comprehensive profiling of functional attributes, virulence potential and evolutionary dynamics in mycobacterial secretomes. *World Journal of Microbiology and Biotechnology*, *34*, 1-19. https://doi.org/10.1007/s11274-017-2388-1
45. **Chakraborty, Sourav**, Sarkar, I., & Sen, A. (2016). Characterization of PAS domain containing genes in selected terrestrial and aquatic Actinobacteria. Advances in Biology-Eastern Himalayan Perspective, National Publishers, Siliguri, 48-62. ISBN: 978-9385375057
46. M Bhattacharya & **Sourav Chakraborty**. Efficient *in vitro* regeneration of pathogen free mango ginger (*Curcuma amada* Roxb .) from rhizome bud (2015). Research in Plant Biology, 5(6): 09-13.
47. M Bhattacharya & **Sourav Chakraborty**. Free Radicals and Naturally Occurring Antioxidants (2015). Research & Reviews: Journal of Pharmacognosy and Phytochemistry. 3(3):1-7.
48. **Sourav Chakraborty** & M Bhattacharya. Associated vegetation of sundew (*Drosera burmannii* Vahl.) in plains of Eastern Himalayan region of West Bengal. (2013). Environment & Ecology. 31(2B)840-843.

Google Scholar link: https://scholar.google.com/citations?hl=en&pli=1&user=6dsWgqoAAAAJ
ResearchGate link: https://www.researchgate.net/profile/Sourav-Chakraborty-22
ORCID ID: 0000-0002-6798-0061

Participation in Workshops/ Training programme/ Certificate course:

1. 3 months Certificate course on Plant Tissue Culture organized by Department of Life Long Learning & Extension, Department of Botany and Department of Tea Science, University of North Bengal (January, 2019 - March, 2019).
2. 5 days training program on 'Transcriptomic data analysis' organized by National Institute of Electronics & Information Technology, Government of India, Guwahati, India (03.04.2023 to 07.04.2023).
3. 7 days training program on 'Competency development in high-end research equipments in Biotechnology' organized by Department of Biotechnology, Indian Institute of Technology Kharagpur, Kharagpur-721302, West Bengal, India (25.04.2023 to 01.05.2023).
4. 15 hrs Online Certificate Course on Food Fermentation Technology: Basics And Application (Course Code: MB2327), Organized by Microbiologists Society, India, in collaboration with Dhruba Chand Halder College, Dakshin Barasat and Ramakrishna Mission Vivekananda Centenary College, Rahara, West Bengal, in the academic session 2023-2024 (November & December, 2023).
5. UGC sponsored 2nd Faculty induction programme from 29th January, 2024 to 27th February, 2024 organized by MMTTC, The University of Burdwan.
6. UGC sponsored two weeks online Refresher course in Basic Sciences (Interdisciplinary) organized by the MMTTC, Jamia Millia Islamia, New Delhi from 24th October, 2024 to 8th November, 2024.