

ACADEMIC PROFILE



DR. Bhaskar Gupta

Associate Professor in Zoology
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- **Specialization:** Cell Biology, Molecular Biology, Biotechnology
- **Date of joining in this college:** 30.11.2006
- **Total teaching experience in college and University level:** ≈ 20 years
- **Area of research:** Plant Abiotic Stress Signalling
- **Title of Ph.D. thesis (if any):** '*Molecular analysis of ABRE-DNA binding protein in rice cultivars*', Bose Institute (Kolkata), Guide – Prof. D. N. Sengupta
- **Research guidance (if any):** Nil
- **Research projects [completed / ongoing] (if any):** 4

RESEARCH GRANT AND EXTRAMURAL SUPPORT:

- Principal Investigator and Project Coordinator in a multi-institutional major research project (3 years; Funded by DBT(RGYI), Govt. of India) entitled 'Molecular dissection of polyamine mediated hyper-osmotic stress tolerance in cultivars of indica rice' [2013-2016] Amount- Rs. 17.75 Lakhs approx.: 1 JRF
- Principal Investigator in UGC- Major Research Project, Govt. of India, entitled 'Molecular analyses of polyamine action during arsenic stress in rice cultivars' [2015-2018] Rs. 12, 97, 500/-: 1 JRF
- Principal Investigator in the Major Research Project (3 years; Funded by West Bengal Biodiversity Board, Govt. of West Bengal) entitled "Culture dependent and independent analyses of prokaryotic communities from the burrows, casts, and guts of earthworms from in and around Kolkata" [2013-2016: Rs. 14,98,000/- only]: 1JRF

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- Principal Investigator in West Bengal Dept. of Science & Technology Major Research Project (3 years) [2014-2017]. Co-PI: Dr. Kamala Gupta, Asst. Professor, Dept. of Biological Sciences, Presidency University. (Rs. 23 Lakhs approx) Completed
- Principal Investigator in UGC-BSR grant [2014-2016] Rs. 6,00,000/-
- Co-Investigator of CSIR (Govt. of India) funded MRP, 'Identification and phylogenetic characterization of genes regulating unique flowering behavior in tree bamboo', PI: Dr. Malay Das [2014-2017] Rs 20 Lakhs
- Principal Investigator of University Grants Commission (UGC) New Delhi, funded project entitled, "Some Molecular Biological Studies on Chronic Arsenic toxicity in a Murine model" UGC-MRP No. F. PSW-071/09-10(ERO) 2009 -2011 (Rs. 1, 25,000/- only): Completed
- Host Scientist and Mentor in FICCI-DST (Govt. of India) sponsored project to Dr. Houneida Attia, Asst. Professor, University Tunis El Manar, entitled 'Physiological and Biochemical Responses of fennel, *Foeniculum vulgare*, to salinity and gibberellic acid'. The project is a 1month programme under 'C V Raman International Fellowship for African Researchers' awarded to Dr. Houneida Attia in 2014. <http://www.indoafrica-cvrf.in/> and <http://www.indoafrica-cvrf.in/CVRF2013-14.pdf> Completed

➤ List of selected publications:

A. Published papers in Journals:

1. "Editorial: Abiotic stress adaptation and tolerance mechanisms in crop plants", B. Gupta, J. Shrestha, *Frontiers in Plant Science*, 2023, 14, 1183650; [DOI: <https://doi.org/10.3389/fpls.2023.1183650>] [IF: 5.6].
2. "Gibberellic acid interacts with salt stress on germination, growth and polyamine gene expression in fennel (*Foeniculum vulgare* Mill.) seedlings", H. Attia, K. Gupta, B. Gupta, *Physiology and Molecular Biology of Plants*, 2022, 28, 1-14; [DOI: <https://doi.org/10.1007/s12298-022-01183-z>] [IF: 3.5].
3. "Hydrogen peroxide and polyamines act as double edged swords in plant abiotic stress responses", K. Gupta, A. Sengupta, M. Chakraborty, B. Gupta, *Frontiers in Plant Science*, 2016, 7, 1343; [DOI: <https://doi.org/10.3389/fpls.2016.01343>] [IF: 5.6].
4. "Polyamines as redox homeostasis regulators during salt stress in plants", J. Saha, E.K. Brauer, A. Sengupta, S.C. Popescu, K. Gupta, B. Gupta, *Frontiers in Environmental Science*, 2015, 3, 21; [DOI: <https://doi.org/10.3389/fenvs.2015.00021>] [IF: 5.4].
5. "Molecular phylogenetic study and expression analysis of ATP-binding cassette transporter gene family in *Oryza sativa* in response to salt stress", J. Saha, A. Sengupta, K. Gupta, B. Gupta, *Computational Biology and Chemistry*, 2015, 54, 18-32; [DOI: <https://doi.org/10.1016/j.compbiolchem.2014.10.004>] [IF: 3.1].
6. "Mechanism of Salinity Tolerance in Plants: Physiological, Biochemical, and Molecular Characterization", B. Gupta, B. Huang, *International Journal of Genomics*, 2014, 2014, Article ID 709051; [DOI: <https://doi.org/10.1155/2014/709051>] [IF: 2.3].
7. "Genome-wide analysis and evolutionary study of sucrose non-fermenting 1-related protein kinase 2 (SnRK2) gene family members in *Arabidopsis* and *Oryza*", J. Saha, C. Chatterjee, A. Sengupta, K. Gupta, B. Gupta, *Computational Biology and Chemistry*, 2014, 49, 59-70; [DOI: <https://doi.org/10.1016/j.compbiolchem.2014.01.002>] [IF: 3.1].

8. "Plant polyamines in abiotic stress responses", K. Gupta, A. Dey, B. Gupta, *Acta Physiologiae Plantarum*, 2013, 35(7), 2015-2036; [DOI: <https://doi.org/10.1007/s11738-013-1239-4> [IF: 2.6].
9. "Plant Abiotic Stress: 'Omics' Approach", B. Gupta, A. Sengupta, J. Saha, K. Gupta, *Journal of Plant Biochemistry and Physiology*, 2013, 1, e108; [DOI: <https://doi.org/10.4172/2329-9029.1000e108> [IF: 1.2].
10. "High-performance thin-layer chromatographic analysis of antioxidants present in different parts of *Saraca asoca* (Roxb.) de Wilde", J. Saha, S. Mukherjee, K. Gupta, B. Gupta, *Journal Of Pharmacy Research*, 2013, 7(9), 798-803; [DOI: <https://doi.org/10.1016/j.jopr.2013.08.019> [IF: 0.5].
11. "Human GMDS Gene fragment Hypermethylation in Chronic high level of Arsenic Exposure with and without Arsenic Induced Cancer", S. Chanda, U.B. Dasgupta, D. Guha Mazumder, J. Saha, B. Gupta, *SpringerPlus*, 2013, 2(55), 1-12; [DOI: <https://doi.org/10.1186/2193-1801-2-55> [IF: 1.2].
12. "Recent Advances on Virus Induced Gene Silencing (VIGS): Plant Functional Genomics", B. Gupta, J. Saha, A. Sengupta, K. Gupta, *Journal of Plant Biochemistry & Physiology*, 2013, 1(5), e116; [DOI: <https://doi.org/10.4172/2329-9029.1000e116> [IF: 1.2].
13. "Isolation and characterization of heavy metal tolerant Gram-positive bacteria with bioremedial properties from municipal waste rich soil of Kestopur canal (Kolkata), West Bengal", K. Gupta, C. Chatterjee, B. Gupta, *Biologia*, 2012, 67(5), 827-836; [DOI: <https://doi.org/10.2478/s11756-012-0070-5> [IF: 1.5].
14. "Traditional phytotherapy against skin diseases and in wound healing of the tribes of Purulia district, West Bengal, India", A. Dey, B. Gupta, J.N. De, *Journal of Medicinal Plants Research*, 2012, 6(33), 4825-4831; [DOI: <https://doi.org/10.5897/JMPR12.709> [IF: 0.8].
15. "Spermidine and abscisic acid-mediated phosphorylation of a cytoplasmic protein from rice root in response to salinity stress", K. Gupta, B. Gupta, B. Ghosh, D.N. Sengupta, *Acta Physiologiae Plantarum*, 2012, 34(1), 29-40; [DOI: <https://doi.org/10.1007/s11738-011-0802-0> [IF: 2.6].
16. "Spermidine-mediated in vitro phosphorylation of transcriptional regulator OSBZ8 by SNF1-type serine/threonine protein kinase SAPK4 homolog in indica rice", B. Gupta, K. Gupta, D.N. Sengupta, *Acta Physiologiae Plantarum*, 2012, 34(4), 1321-1336; [DOI: <https://doi.org/10.1007/s11738-012-0929-7> [IF: 2.6].
17. "Trans-acting factor designated OSBZ8 interacts with both typical abscisic acid responsive elements as well as abscisic acid responsive element-like sequences in the vegetative tissues of indica rice cultivars", A. RoyChoudhury, B. Gupta, D.N. Sengupta, *Plant Cell Reports*, 2008, 27(4), 779-794; [DOI: <https://doi.org/10.1007/s0299-007-0487-1> [IF: 4.0].
18. "An ABRE-binding factor, OSBZ8, is highly expressed in salt tolerant cultivars than in salt sensitive cultivars of indica rice", K. Mukherjee, A. Choudhury, B. Gupta, S. Gupta, D.N. Sengupta, *BMC Plant Biology*, 2006, 6(1), 18; [DOI: <https://doi.org/10.1186/1471-2229-6-18> [IF: 4.3].
19. Brauer EK, Popescu GV, Singh DK, Calviño M, Gupta K, **Gupta B**, et al. (2018) Integrative network-centric approach reveals signaling pathways associated with plant resistance and susceptibility to *Pseudomonas syringae*. PLoS Biol 16(12): e2005956. <https://doi.org/10.1371/journal.pbio.2005956> [IF: 6.9]
20. Saha S, **Gupta B**, Gupta K, Ghosh Chaudhuri M (2016) Production of putrescine-capped stable silver nanoparticle: its characterization and antibacterial activity against

multidrug-resistant bacterial strains. *Appl. Nanosci.* (Springer)

<http://dx.doi.org/10.1007/s13204-016-0528-9>

21. **Gupta B***, Sengupta A and Gupta K (2016) Commentary: Conservation of AtTZF1, AtTZF2, and AtTZF3 homolog gene regulation by salt stress in evolutionarily distant plant species. *Front. Plant Sci.* 7:254. <http://dx.doi.org/10.3389/fpls.2016.00254>

22. Saha J, Gupta K, Gupta B et al. (2017) Molecular characterization of rice antioxidative isoenzymes and their tissue specific response to exogenous spermidine during salinity in two cultivars. *Research Journal of Life Sciences, Bioinformatics, Pharmaceutical and Chemical Sciences*, 3(4) Page No.152, December 2017 (ISSN: 2454-6348)

Published papers in Seminars/Symposia/Conferences:

1. Bose S, Mukherjee S, **Gupta B**, Banerjee KK (2010) A study of butterfly diversity in four protected areas of central India during summer. *Proceedings of National Symposium on Dimensions of Animal Science Researches and Human need*; UGC, Presidency College, September 07 to 09, 2009. pp 77-80.
2. Dutta A, Mukherjee S, Banerjee KK, **Gupta B**, Ghorai N (2010) On the occurrence of some spider species in the Northern Peninsular India. *Proceedings of National Symposium on Dimensions of Animal Science Researches and Human need*; UGC, Presidency College; September 07 to 09, 2009. pp 84-89.
3. Basu S, Ghosh S, **Gupta B**, Gupta K (2010) Isolation and biochemical characterization of lead and chromium tolerant bacteria from contaminated soil and their role as potential bioremediator. *Proceedings of National Symposium on Dimensions of Animal Science Researches and Human Need*; UGC, Presidency College (Kolkata); September 07 – 09, 2009, pp 48-55.
4. Mukherjee S, **Gupta B**, Banerjee KK and Singh R (2011) Isolation, purification and biochemical characterization of aliphatic hydrocarbon degrading strains from faecal Samples of chital deer (*Axis axis*), *Proc. Nat. Symp. on Modern Trends in Animal Science Research and Challenges of the Day*, Presidency University, March 2011.
5. Gupta B and Gupta K (2010) Characterization of microbes from sewage effluents. *Proceedings of UGC-Sponsored National Symposium on Recent Trends in Microbiological Research*, Rashtraguru Surendranath College Barrackpore: 13-14

Published Books / Chapters in Books:

- Shrestha, J., Liu, J.-H., Gupta, B., Hasanuzzaman, M., eds. (2023). Abiotic stress adaptation and tolerance mechanisms in crop plants, 2nd edition. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-8325-5092-2
- Gupta B*, Debmallik T, Gupta K* (2017) Polyamines and ROS: Understanding their Role in Plant Drought Homeostasis, In V.P.Singh, S.Singh, S.M.Prasad (eds.) Mechanisms Behind Phytohormonal Signalling and Crop Abiotic Stress Tolerance, Chapter 3, Nova Science Publishers, USA (ISBN: 978-1-53610-713-5)
- Khatun S, Islam A, Gupta K*, **Gupta B***(2017) Detection of Edible Mushroom Species by Using Molecular Markers, In: B.P. Singh, V.K. Gupta (eds.), Molecular Markers in

Mycology, Fungal Biology, Chapter 9, Springer International Publishing Switzerland, http://dx.doi.org/10.1007/978-3-319-34106-4_9 (ISBN: 9783319341040)

- Sengupta A, Chakraborty M, Saha J, **Gupta B***, Gupta K* (2016) Polyamines: Osmoprotectants in Plant Abiotic Stress Adaptation, In: Noushina Iqbal et al. (Eds): Osmolytes and Plants Acclimation to Changing Environment: Emerging Omics Technologies (1st Edition), Springer, Chapter 7, 97-127. http://dx.doi.org/10.1007/978-81-322-2616-1_7 (ISSN: 9788132226154)
- **Gupta B**, Gupta K, Huang B (2014) Role of Polyamines in Plant Abiotic Stress Responses. In: Pessarakli M (ed), Handbook of Crop Stress Physiology (3rd Edition), CRC Press (Taylor & Francis), Chapter 19, 369-388. <http://dx.doi.org/10.1201/b16675-24>
- Dey A, Gupta K, **Gupta B*** (2014) Role of Polyamines in Plant-Pathogen Interactions. In: Anjum NA, Gill SS & Gill R (eds), Plant Adaptation to Environmental Change: Significance of Amino Acids and their Derivatives, CABI, Oxfordshire, UK, Chapter 12, Page no: 222. <http://dx.doi.org/10.1079/9781780642734.0222>
- Gupta K., Dey A. and **Gupta B*** (2013) Polyamines and their Role in Plant Osmotic Stress Tolerance, in Climate Change and Plant Abiotic Stress Tolerance (eds N. Tuteja and S. S. Gill), Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, Chapter 40, 1053-1071. <http://dx.doi.org/10.1002/9783527675265.ch40>

Participation in Seminars/Symposia/Conferences/Workshops:

PAPER(S) AND POSTER(S) PRESENTED BY SELF/RESEARCH SCHOLARS:

- Poster presentation on ‘Polyamine Mediated Biomimetically Stabilized Silver Nanoparticles: Synthesis, Characterization and Antimicrobial Efficacy Against Multi-drug Resistant Bacterial Strains’ by Kamala Gupta and **Bhaskar Gupta** in the **National Symposium** on ‘Advances in Biology : Exploitation of Phytoresources from 02/11/2017 to 03/11/2017 organized by Department of Botany, Dr. A.P.J. Abdul Kalam Govt. College, New Town, Kolkata.
- Poster presentation “Enhanced cellular uptake of silver nanoparticles by means of bio-mimic action” by **Bhaskar Gupta**, Saswati Saha, Kamala Gupta at the **International Science Seminar** on 10.10.2017 organized by Burdwan Raj College & Indian Chemical Society.
- Poster presentation, “Polyamines: A prima facie role in orchestrating ion homeostasis during salinity stress in rice” by Mayukh Chakraborty, Atreyee Sengupta, Jayita Saha, **Bhaskar Gupta** and Kamala Gupta at the **National Symposium** on Germplasm to Genes: Harnessing Biotechnology for Food Security and Health, organized by SPBB at NRCPB-IARI, New Delhi, 9th – 11th August, 2015.
- Poster presentation, “Polyamines: unexplored elixir conferring tolerance in rice against arsenic induced toxicity” by Atreyee Sengupta, Jayita Saha, Mayukh Chakraborty, Kamala Gupta and **Bhaskar Gupta** at the **National Symposium** on Germplasm to Genes: Harnessing Biotechnology for Food Security and Health, organized by SPBB at NRCPB-IARI, New Delhi, 9th – 11th August, 2015.
- Poster presentation, “Molecular Phylogenetic and Expression Analysis of ATP-Binding Cassette Transporter Gene Family in *Oryza sativa* in Response to Salt Stress” by Jayita Saha, Atreyee Sengupta, Mayukh Chakraborty, Chitrita Chatterjee, **Bhaskar Gupta** and Kamala Gupta at the **National Symposium** on “Molecules to System” organized by Department of Biological Sciences, Presidency University, Kolkata, 29th - 31st January, 2015.

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- Poster presentation, “Are polyamines boons or bane for the rice cultivars growing in arsenic affected areas of the world?” by Atreyee Sengupta, Mayukh Chakraborty, Jayita Saha, Sampurna Mukherjee, Kamala Gupta and **Bhaskar Gupta** at the **National Symposium** on “Environmental impact on biodiversity and plant development” organized by Department of Biological Sciences, Presidency University, Sponsored by DBT-BUILDER Program, 19th - 20th February, **2015**. [**3rd Best Poster Award to Ms. Atreyee Sengupta**]
- Poster presentation, “Spermidine ameliorates the harmful effect of salt stress in rice seedlings” by Jayita Saha, Mayukh Chakraborty, Atreyee Sengupta, Ushasi Bhaumik, **Bhaskar Gupta** and Kamala Gupta at the **National Symposium** on “Environmental impact on biodiversity and plant development” organized by Department of Biological Sciences, Presidency University, Kolkata, 19th -20th February, **2015**.
- Poster presentation, “Exogenous Application of Spermidine Mitigate The Harmful Effect of Salt Stress in Rice Seedlings” by Jayita Saha, Atreyee Sengupta, Mayukh Chakraborty, Chitrita Chatterjee, **Bhaskar Gupta** and Kamala Gupta at the **National Symposium** on “Evolving Plant Biology: From Chromosomes to Genomics” organized by West Bengal Academy Of Science And Technology (WAST) in collaboration with Bose institute, Kolkata, University of Calcutta and The Ramakrishna Mission Institute of Culture, 27th -29th November, **2014**.
- Poster presentation, "A large-scale interaction screen of tomato kinases and *Pseudomonas syringae* type III effectors reveals SnRKs as effector targets and players in plant immune signaling", in **Plant Biology-14 International Conference** organized by ASPB, in Portland (OR), USA, July 12-16th, **2014**.
- Poster presentation, "Analysis of spermidine activated SnRK2 interacting proteins in Arabidopsis during salinity stress by high throughput protein microarray", in **Plant Biology-14 International Conference** organized by ASPB, in Portland (OR), USA, July 12-16th, **2014**.
- Poster presentation, "Molecular Phylogenetic and Expression Analysis of ATP-Binding Cassette Transporter Gene Family in *Oryza sativa* in response to salt stress" by Jayita Saha, Atreyee Sengupta, Chitrita Chatterjee, Swagata Majumdar, Kamala Gupta, **Bhaskar Gupta** at the "**National Symposium** on Advances in Plant Molecular Biology and Biotechnology" and the 35th Annual meeting of PTCA, IISER Pune, India, during March 10-12, **2014**.
- Poster presentation, ‘A new insight into the role of spermidine in alleviating arsenic toxicity in rice’-**Bhaskar Gupta** and Kamala Gupta in **Acharya P C Ray National Young Scientists’ Conference** Organised by The Presidency University, The Calcutta University and Vivekananda Vijnana Mission, Kolkata, February 17 – 18, **2012**.
- Chitrita Chatterjee, **Bhaskar Gupta**, Kamala Gupta. “Isolation & partial characterization of heavy metal tolerant bacteria”. **International Conference on Ecotoxicology & Environmental Sciences (ICEES2011)** from Nov. 28, 2011 to Nov. 30, 2011 at-Miramar Residency, Panaji, Goa, India.
- Kamala Gupta, **Bhaskar Gupta**, Sabari Sarkar, Anamika Das, Shemushi Banerjee, Hemlata “Isolation and partial characterization of bacterial strains showing heavy metal tolerance” **National seminar** on Bioresource and Human welfare, Lady Brabourne College, Kolkata, January 20th -21st, **2011**
- Poster presentation, “Isolation and Characterization of Aliphatic Hydrocarbon Degrading Bacterial strains- An Insight into the Microbial Diversity of Nilgiri Biosphere Reserve, India” - **Bhaskar Gupta**& Souryadeep Mukherjee, **National symposium** on Biodiversity, 30th October & 1st November, **2010**, Hooghly Mohsin College, Chinsurah, India.

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- Poster presentation entitled “Molecular mechanism of polyamine action during salinity stress in Rice”- Kamala Gupta, **Bhaskar Gupta**, K.P.Das, D.N.Sengupta” in an **International Symposium** on A Journey from Plant Physiology to Plant Biology, **Bose Institute, Kolkata**, November 24-28, **2008**.
- Oral paper presentation entitled “An insight on the role of polyamines- Kamala Gupta and **Bhaskar Gupta**” in UGC sponsored **National Symposium** on Current Trends in Zoological Research, Presidency College (**2007**), Kolkata, p.16.
- Oral paper presentation entitled “Expression of ABRE – Binding Factor OSBZ8 in Lamina Is High in Salt Tolerant and Low in Salt Sensitive Rice Cultivars-**Bhaskar Gupta** and Dibyendu N Sengupta” in **National Plant Physiology Symposium**, Pune University, Dec, **2004**.
- Poster presentation entitled “Expression of Absciscic Acid Responsive Element – Binding Proteins In Salt Sensitive and Salt Tolerant Rice Cultivars-Bhaskar Gupta and Dibyendu N Sengupta” in the **International 10th FAOBMB Congress, Indian Institute of Science, Bangalore**, Dec 6-11, **2003**.

INTERNATIONAL/NATIONAL WORKSHOPS

- Title: “Mentoring Undergraduate Researchers: Setting Expectations and Designing Doable Projects” at ILR Conference Centre, Cornell University, USA on 28th February, 2014.
- Title: "Identifying Your Mentoring Philosophy and Putting it into Practice with Students" at ILR Conference Centre, Cornell University, USA on 14th March, 28th March and 11th April, 2014

cDNAs CLONED AND SEQUENCES SUBMITTED TO GENBANK:

- **Gupta, B.**, Mukherjee, K. and Sengupta, DN. *Oryza sativa* (indica cultivar-group) salt-stressed inducible bZIP protein mRNA, complete cds, GenBank Sequence Accession Number AY606941. (26.04.2004).
- **Gupta, B.**, Gupta, K. and Sengupta, DN. *Oryza sativa* (indica cultivar-group) serine kinase mRNA, complete cds, GenBank Sequence Accession Number DQ408431.(20.02.2006).
- **Gupta, B.** and Gupta, K. GenBank Accession Nos. of bacterial 16S rDNA seq: JN392001, JN392002, JN392003, JN392004, JN392005, JN392006, JN392007, JN392008, JN392009, JN392010, JN392011, JN392012, JN392013

➤ Participation in OP/RC/FIP/FDP:

- Successfully completed the **NEP - 2020 Orientation Programme** on the theme: Holistic and Multidisciplinary Education under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC) organized by the UGC Malaviya Mission Teacher Training Centre, Aligarh Muslim University, Aligarh from 07 February to 16 February 2024.
- **Orientation Program (OP) & Refresher Course (RC):** Achieved Grade ‘A’ in *OP (2009)*, *RC (2012)* and *RC (2015)* conducted by UGC Academic Staff College (ASC), Jadavpur University, Kolkata.
- **Successfully completed a comprehensive Training curriculum** which included Laboratory safety, Chemical and Hazardous waste handling, Greenhouse facility training and Radioactive materials training (January 2014-July 2014) in Boyce Thompson Institute for Plant Research, Cornell University, Ithaca, New York.

➤ **Membership of Learned Societies/ Editorial Boards, etc. (if any):**

- (i) Life member of '*Society for Plant Biochemistry and Biotechnology*' located at the National Research Centre on Plant Biotechnology, Agricultural Research Institute, New Delhi- 110 012.
- (ii) Life member of '*Plant Physiology Forum*' Kolkata

Patents (if any): Nil

Awards (if any):

- Invitation as Visiting Scientist in Boyce Thompson Institute (BTI), Cornell University, Ithaca (USA). Visited BTI (lab of Dr. Sorina Popescu) for collaborative research program. Duration: 7 months (2013-2014)
- Awarded DBT-RGYI Grant (Major Research Project) for young investigators 2012.
- Qualified the prestigious National Eligibility Test (NET) for Lecturer-ship and Junior Research Fellowship (NET-LS, 2001 & CSIR NET-JRF, 2002), conducted by Council for Scientific & Industrial Research and University Grants Commission (CSIR & UGC), New Delhi, INDIA.
- Qualified Graduate Aptitude Test in Engineering (GATE-1999) with subjects Chemistry, Microbiology, and Biotechnology; conducted by Indian Institute of Technology, INDIA.

Other notable activities (if any):

- **Convenor:** Post-Graduate Board of Studies in Biotechnology, Presidency University, 2010-2012.
- **Joint Convenor:** DBT-Star College program for Hands-on-Training (Molecular Biology Techniques) to Undergraduate students in erstwhile Presidency College, Kolkata (2010).
- **Convenor:** Departmental Working Committee 2013, Department of Biological Sciences, Formed by the Honourable Vice Chancellor, Presidency University Kolkata
- **Outreach:** Invited Paper-Setter, Examiner, Moderator, External evaluator of M.Sc curriculum in various College/Universities (Presidency University, Burdwan Univ., Vidyasagar Univ., Bethune College, Maulana Azad College, St. Xaviers College, Vidyasagar College etc.); Participating in National Service Scheme (NSS), Govt. of India [delivered lectures and seminars to College/University students].
- **Invited Peer Reviewer:** International Journals like *Plos One*, *Physiologia Plantarum*, *Acta Physiologiae Plantarum*, *Plant Growth and Regulation*, *Journal of Plant Physiology*, *Frontiers in Genetics*, *Journal of Plant Growth & Regulation*, *Frontiers in Plant Science*, *Frontiers in Genomics*, *Archives of Agronomy and Soil Science*, *Journal of Plant Research* etc. Till date more than 138 Invited Reviews in Internationally Acclaimed High Impact Factor Peer-Reviewed Journals [<http://orcid.org/0000-0001-6955-7673>]
- **Member** Undergraduate Board of Studies (UGBoS), University of Burdwan, 2025-2027
