CURRICULUM VITAE

Bhaskar Gupta *M.Tech, Ph.D*

Assistant Professor, Department of Biotechnology,
Presidency University, 86/1 College Street,
Kolkata-700073, West Bengal, INDIA
Phone: 91-09831128734
E-mail: bhaskarzoology@gmail.com
bhaskar.biotechnology@presiuniv.ac.in
URL: http://www.presiuniv.ac.in/web/staff.php?staffid=11

Residence

Shivam Apartment, Flat-2B,
AF/2 Jyangra
Kolkata-700059, West Bengal
INDIA

EDUCATION

- **Ph.D. in Plant Molecular Biology (2009)**: Research carried out in *Bose Institute*, Kolkata, INDIA; registered from Department of Life Sciences and Biotechnology, *Jadavpur University*, Kolkata. Thesis title '*Molecular analysis of ABRE-DNA binding protein in rice cultivars*'. **Advisor:** *Prof. Dibyendu N. Sengupta***,** Senior Professor at Bose Institute, Division of Plant Biology, Kolkata.
- **Master of Technology in Biotechnology (2002),** 1st Class (Plant Biotechnology Special paper), *Jadavpur University*, Kolkata. M.Tech dissertation on *'Systematic study of 16S rDNA sequences by single strand conformation polymorphism of thermophilic bacteria present in Bakreswar hot spring'*. **Advisor:** *Prof. Subrata Pal***,** Dept. Of Life Sc. & Biotechnology, Jadavpur University, Kolkata.
- **Master of Science in Zoology (1999)**, 1st Class (Cell Biology Special paper), Burdwan University, Burdwan.
- **Bachelor of Science (Honours) in Zoology (1997)**, 1st Class, Hooghly Mohsin College (Chinsurah), Burdwan University.

HONOURS AND AWARDS

- 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.

SELECTED SYNERGISTIC ACTIVITIES

- **Teaching:** M.Sc Biotechnology Sem I Molecular Biology theory and lab sessions, Sem II Genetics theory and lab sessions, Sem III-Recombinant DNA Tech. theory and lab sessions, Sem IV Molecular Ecology theory and lab sessions.
- **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 etc.); Participating in National Service Scheme (NSS), Govt. of India [delivered lectures and seminars to College/University students].
- **Centre-in-Charge:** M.Sc Biotechnology Examinations 2012-2013
- **Convenor:** Post-Graduate Board of Studies in Biotechnology 2010-2012.
- **Joint Convenor:** DBT-Star College program for Hands-on-Training (Molecular Biology Techniques) to Undergraduate students in erstwhile Presidency College, Kolkata (2010).
- **Invited Peer Reviewer**: International Journals '*Physiologia Plantarum*', *'Plant Growth and Regulation'*, '*Journal of Medicinal Plants Research'* and '*African Journal of Microbiology Research.*
- **Member of Professional Societies:** 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.
- **Orientation Program (OP) & Refresher Course (RC):** Achieved Grade 'A' in both *OP (2009)* and *RC (2012)* conducted by UGC Academic Staff College (ASC), Jadavpur University, Kolkata.

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]: 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" [2012-2015: Rs. 14,98,000/- only]: 1 JRF (Arijit De)
- *DST-INSPIRE Fellowship* of Ms. Torsha Goswami (Ph.D. registration from Jadavpur University under joint supervision with Dr. Amit Dutta [Co-Guide: Reader, Dept. of Civil Engg., Jadavpur University]). Thesis title: 'Biochemical and Molecular Aspects of Arsenic Tolerance in Rice Cultivars'.
- *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

PUBLICATIONS (Refereed Journals): *Published/Accepted/Communicated*

1. Saha J, Gupta K, **Gupta B* (2013)** A new insight into the phylogeny of vascular cryptogams with special reference to *Selaginella* and *Isoetes* inferred from nuclear ITS/5.8S rDNA sequences. ***Journal of Plant Biochemistry and Biotechnology*** **(**Springer-Verlag) [In-Press] dx.doi.org/10.1007/s13562-013-0198-6
2. Gupta K, Dey A, **Gupta B* (2013)** Plant polyamines in abiotic stress responses. ***Acta Physiologiae Plantarum*** **(**Springer-Verlag) [In-Press] dx.doi.org/10.1007/s11738-013-1239-4
3. **Gupta B**, Gupta K, Mukherjee S **(2012)** Lipase production by *Serratia marcescens* strain SN5gR isolated from the scat of lion tailed macaque (*Macaca silenus*) in Silent Valley National Park, a biodiversity hotspot in India. ***Annals of Microbiology*** **(**Springer-Verlag) [In-Press] dx.doi.org/10.1007/s13213-012-0515-7
4. Gupta K, Chatterjee C, **Gupta B* (2012)** Isolation and characterization of heavy metal tolerant Gram positive bacteria with bioremedial properties from municipal waste rich soil of Kestopur Canal (Kolkata), West Bengal, India. ***Biologia*** 67(5):827-836 (Springer-Versita) dx.doi.org/10.2478/s11756-012-0099-5
5. Gupta K, **Gupta B***, Ghosh B, Sengupta DN (**2012**) Spermidine and abscisic acid mediated phosphorylation of a cytoplasmic protein from rice root in response to salinity stress. ***Acta Physiologiae Plantarum*** 34(1):29–40 (Springer-Verlag) dx.doi.org/10.1007/s11738-011-0802-0 *(Joint 1st Author)*
6. **Gupta B***, Gupta K, Sengupta DN **(2012**) Spermidine-mediated in vitro phosphorylation of transcriptional regulator OSBZ8 by SNF1-type serine/threonine protein kinase SAPK4 homolog in indica rice**.** ***Acta Physiologiae Plantarum*** 34(4):1321–1336 **(**Springer-Verlag) dx.doi.org/10.1007/s11738-012-0929-7
7. Dey A*, **Gupta B***, Dey JN **(2012)** Traditional phytotherapy against skin diseases and in wound healing of the tribes of Purulia district, West Bengal, India. ***Journal of Medicinal Plant Research*** 6(33): 4825-4831. dx.doi.org/10.5897/JMPR12.916
8. Mukherjee TK, Banerjee KK, **Gupta B**, Mukherjee S (**2010**) New record of a phasmid, *Sipyloidea fontanesina* Giglio-Tos, 1910 (Necrosciinae: Diapheromeridae) from Barnwapara, Chhattisgarh, India. ***Journal of Threatened Taxa*** 2(6): 978-979
9. **Gupta B**, Sarkar NK (**2010**) A study of adverse effect of arsenic on sperm structure and function in swiss mice. ***Indian Journal of Environment & Ecoplanning*** 17(03):445-449 (ISSN:0972-1215)
10. RoyChoudhury A, **Gupta B**, Sengupta DN (**2008**) 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. ***Plant Cell Reports*** 27:779-794 (Springer-Verlag) dx.doi.org/10.1007/s00299-007-0498-1

11. Mukherjee K, RoyChoudhury A, **Gupta B**, Gupta S, Sengupta DN (**2006**) An ABRE-binding factor, OSBZ8, is highly expressed in salt tolerant cultivars than in salt sensitive cultivars of indica rice. ***BMC Plant Biol*** 6: 18. dx.doi.org/10.1186/1471-2229-6-18

12. Saha J, Gupta K, **Gupta B***. Genome-wide analysis and evolutionary study of sucrose non-fermenting 1-related protein kinase 2 (SnRK2) gene family members in *Arabidopsis* and *Oryza*.(Revised Manuscript submitted: CBAC-D-13-00078R1)

13. Saha J, Gupta K, **Gupta B***. *In silico* characterization and evolutionary analysis of CCAAT binding proteins in the lycophyte plant *Selaginella moellendorffii* genome: a growing comparative genomics resource. (Revised Manuscript submitted: CBAC-D-13-00061R1)

14. Saha J, Gupta K, **Gupta B***. Phylogenetic analyses and evolutionary relationships of Saraca asoca with their allied taxa (Tribe-Detarieae) based on the chloroplast matK gene. Journal of Plant Biochemistry and Biotechnology. (Revised Manuscript submitted: JPBB-D-13-00079R2)

BOOK CHAPTERS: *(Published/Accepted)*

1. Dey A, Gupta K, **Gupta B* (2013)** Role of Polyamines in Plant-Pathogen Interactions. In: Gill SS & Anjum NA (eds), Amino Acids and Their Derivatives: Significance for Plant Stress Adaptations, **CABI**, Oxfordshire, UK (Accepted: In Press)

2. **Gupta B***, Gupta K, Huang B **(2013)** Role of Polyamines in Plant Abiotic Stress Responses. In: Pessarakli M (ed), Handbook of Crop Stress Physiology**, CRC Press** (Taylor & Francis), U.S.A (Accepted: In Press)

****Corresponding Author***

PUBLICATIONS (Proceedings in National/International Symposia):

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.

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

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

- 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 (ICEES 2011**) 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, Chisurah, India.
- 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 Abscisic 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**.

CURRENT RESEARCH:

Abiotic stresses caused by drought, salinity, toxic metals, temperature extremes, and nutrient poor soils are among the major constraints to plant growth and crop production worldwide. While crop breeding strategies to improve yields have progressed, a better understanding of the genetic and biological mechanisms underpinning stress adaptation is needed. Recent research is uncovering a combination of key genes, quantitative trait loci and molecular networks that mediate plant responses to drought, salinity, heat and other abiotic stresses. Despite these advances there are still gaps in our knowledge particularly in the molecular mechanisms underpinning abiotic stress tolerance in important crop species such as rice. Understanding these processes is essential for breeding or engineering stress-tolerant crop plants. The focus of my research is on the physiological and molecular responses that operate during environmental stresses in plants.

Objectives:

- Physiological manifestations, perception and transduction of stress signals and regulation of stress responsive gene expression and efficient screening techniques for abiotic stress tolerance

- Mining of genes involved in stress tolerance from indigenous sources for improvement of major food and horticultural crops
- Use of genomics, phenomics, proteomics and metabolomics for enhancing abiotic stress tolerance in major food crops with focus on rice and pulses
- Plant-microbe interactions in the rhizosphere, which enhance salt tolerance

In addition, my interest is also directed towards isolation and characterization of biotechnologically important enzyme/protein producing bacteria. Recently a high temperature tolerant lipase producing bacteria, with potential industrial significance, has been isolated and characterized from the scat of an endangered monkey (*Macaca silenus*).