

CURRICULUM VITAE



Name: Bhumi Nath Tripathi

Date of Birth: November 3, 1975

Present Position:

Associate Professor at Department of Botany, Guru Ghasidas University, Bilaspur, India

Academic Qualification

2002: Ph. D. (Botany)-Banaras Hindu University, Varanasi, India.

Specialization/Research Interests

Plant Biotechnology/Molecular Biology of Abiotic Stress Tolerance in Plants and Algae

Ph.D. Topic

Responses of Algae to Elevated Levels of Zinc and Copper in Batch and Semi-continuous Cultures (Mentor: Professor J. P. Gaur, Banaras Hindu University).

Post-doctoral Research

- Copper and Zinc-induced oxidative stress in algae: Pattern of damage, defense and recovery at Department of Botany, Banaras Hindu University, Varanasi, India.
- The expression of peroxiredoxin genes of Maize under abiotic stress conditions at University of Bielefeld, Germany (Mentor: Professor Karl-Josef Dietz).
- Isolation and characterization of metal tolerant genes from wild and crop plants at Research Institute of Bioresources at Okayama University, Japan.
- Role of cysteine protease inhibitor in abiotic stress tolerance in plants at Centre for Plant Sciences, University of Leeds, UK (Mentor: Professor CH Foyer).

Research Projects:

Completed

- Mechanisms of metal-induced hyperaccumulation of proline and its role in conferring metal tolerance in plants funded by DST.
- Oxidative stress in plant: Expression of peroxiredoxin and their importance in detoxification of reactive oxygen species funded by DBT.
- Identification and characterization of metal tolerant genes from crop and wild plants funded by DST-JSPS (Indo-Japan collaborative project).

Ongoing

- Isolation and characterization of resistant genes for aluminium and other heavy metals in plants funded by UGC.
- Comparative analyses of differentially expressed transcripts of the contrasting genotypes of wheat and chick pea exposed to heavy metals funded by DRDO, New Delhi.
- Detection of heavy metal responsive genes and their role in conferring stress resistance in wheat funded by CSIR, New Delhi.
- Expression of peroxiredoxin and their relationship with metal stress in chick pea funded by DST, New Delhi.
- Elucidation of cellular redox homeostasis of chickpea under arsenic stress funded by DST-BMWF (Indo-Austria Collaborative Project)

List of Publications

Research Papers:

1. Bhatt I and Tripathi BN (2011) Plant peroxiredoxins: Catalytic mechanisms, functional significance and future perspective. **Biotechnology Advances** (In Press).
2. Chaudhary S, Sharma V, Prasad M, Bhatia S, Tripathi BN, Yadav G and Kumar S (2011) Characterization and genetic linkage mapping of the horticulturally important mutation leafless inflorescence (lli) in periwinkle *Catharanthus roseus*. **Scientia Horticulturae** 129: 142-153.
3. Bhatt I and Tripathi BN (2011) Interaction of engineered nanoparticles with various components of the environment and possible strategies for their risk assessment. **Chemosphere** 82: 308-317.

4. Kumari R, Chaudhary S, Mishra RK, Rai SP, Rai SK, Sharma V, Tripathi BN and Kumar S (2010) Regulation of lifespan by the LLI and EGD genes in the perennial plant species *Catharanthus roseus*. Proceedings of the Indian National Science Academy 76: 27-39.
5. Tripathi BN (2010) Stress metabolism of plants. **Protoplasma** 245: 1. (Editorial).
6. Singh V, Bhatt I, Aggarwal A, Tripathi BN, Munjal AK and Sharma V (2010) Proline improves copper tolerance of chickpea. **Protoplasma** 245: 173-181.
7. Prasad V, Tripathi BN and Rao M (2010) Distinct role of non-covalent interactions to the function and structural stability of Glutaredoxins: a multifunctional redox protein. **International Journal of Bioinformatics Research and Applications** 6: 241-259.
8. Tripathi BN, Kasana R, Singh V, Bhatt I, Singh A, Sharma V and Gaur JP (2009) Carotenoids and pH of the culture medium play important role in displaying metal stress in batch and semi-continuous cultures of *Anabaena doliolum*. **Annals Limnology** 45: 1-7.
9. Tripathi BN, Bhatt I and Dietz KJ (2009) Peroxiredoxins: A less studied component of hydrogen peroxide detoxification in photosynthetic organisms. **Protoplasma** 235: 3-15.
10. Sharma I, Singh R and Tripathi BN (2007) Biochemistry of arsenic toxicity and tolerance in plants. **Biochem. Cell. Arch.** 7: 165-170.
11. Joshi GK, Kumar S, Tripathi BN and Sharma V (2006) Production of Alkaline Lipase by *Corynebacterium paurometabolum*, MTCC 6841 Isolated from Lake Naukuchiatal, Uttaranchal State, India. **Current Microbiology**. 52: 354-358.
12. Tripathi BN and Gaur JP (2006) Physiological behaviour of *Scenedesmus* sp. during exposure to elevated levels of Cu and Zn, and after withdrawing metal stress. **Protoplasma** 229: 1-9.
13. Tripathi BN, Mehta SK, Anshu Amar and Gaur JP (2006) Oxidative stress in *Scenedesmus* sp. during short- and long-term exposure to Cu and Zn. **Chemosphere** 62: 538-544.
14. Tripathi BN and Gaur JP (2004) Relationship between Copper and Zinc-induced oxidative stress and proline accumulation in *Scenedesmus* sp. **Planta** 219: 397-404.

15. Tripathi BN, Mehta SK and Gaur JP (2004) Recovery of nitrate uptake and assimilation in *Scenedesmus* sp. previously exposed to elevated levels of Cu and Zn. **Journal of Plant Physiology**. 161: 543-549.
16. Tripathi BN, Mehta SK and Gaur JP (2003) Differential sensitivity of the cyanobacterium *Anabaena doliolum* to Cu and Zn in batch and semi-continuous cultures. **Ecotoxicology and Environmental Safety**. 56: 311-318.
17. Mehta SK, Tripathi BN and Gaur JP (2002) Enhanced Sorption of Cu²⁺ and Ni²⁺ by Acid-Pre-treated *Chlorella vulgaris* from Single and Binary Metal Solutions. **Journal of Applied Phycology** 14: 267-273.
18. Tripathi BN, Pradhan S; Dudnicenco TI, Gaur JP and Rai LC (2002) Use of immobilised *Microcystis* sp. packed in a continuous flow column system for the treatment of wastewater contaminated with copper. Advances and Prospects of Ecological Chemistry. Proceedings of the Second International Conference on Ecological Chemistry. Chisinau, Republic of Moldova. pp. 159-167.
19. Mehta SK, Tripathi BN and Gaur JP (2000) Influence of pH, temperature, culture age and cations on adsorption and uptake of Ni. *Chlorella vulgaris*. **European Journal of Protistology** 36: 443-450.
20. Tripathi BN, Singh A and Gaur JP (2000) Impact of heavy metal pollution on algal assemblages. **Envsciences**. 9, 1-7.

Chapters in Books

21. Tripathi BN, Kumari N, Sharma V, Singh V, Bhatt I and Kasana R (2007) Biomonitoring of metal pollutants: A review of algal bioassay methods. Applications of Biotechnology (edited by Tripathi BN, Shekhawat GS and Sharma V), Aavishkar Publishers, Jaipur.
22. Tripathi BN, Anshu Amar and Gaur JP (2009) Use of the green microalga *Scenedesmus* sp. in studying metal ion toxicity symptoms: Assay of physiological parameters in Protocols of Algal and Cyanobacterial Research (Eds. P Mohanty, SN Bagachi and D Cleiner) Narosa Publishing House, New Delhi

Book: one

Tripathi BN, Shekhawat GS and Sharma V (2007) Applications of Biotechnology, Avishkar Publishers, Jaipur.

Sharma V and Tripathi BN (2011) Molecular Biology and Biotechnology. Lambert Academic Publishers, Germany.

Fellowships/Scholarships/Awards

- BOYSCAST Fellowship from DST to work at University of Leeds, UK for four months, 2010.
- JSPS Invitation Research Fellowship to work at Shimane University, Japan, 2010-11.
- Young Investigator Grant from DBT under RGYI Scheme.
- Visiting Research Fellowship from Okayama University, Japan. 2007-2008.
- DBT Associateship for specialized training of young scientists in niche area of Biotechnology in the laboratory abroad, May 2006 by DBT, New Delhi
- New Phytologist Grant from New Phytologist Trust, Lancaster, UK, 2008.
- JSPS Post-doctoral Fellowship, awarded by Japan 2005.

Membership of Professional/ Scientific Societies/Recognitions

- Editor of **Protoplasma** (An International Journal from **Springer-Verlag**) from 2009.
- Editor of **Journal of Environmental Studies and Sciences** (Springer-USA) from 2011.
- Life member of the Indian Society for Plant Physiology from 2004.
- Life member of Indian Science Congress Association, India.
- Editor, Biochemical and Cellular Archives (An Indian Journal of Cell Biology) from 2005.
- Editor, American Journal of Plant Sciences from 2010.