CURRICULUM VITAE

Full Name: **Dr. Surya Kant Mehta**

Designation: **Professor**

Date of Birth: **1st January, 1970**

Gender: **Male**

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EDUCATION

M.Sc. (Botany)	1992	Purvanchal University, Jaunpur, U. P., India First Class
B.Sc. (B.Z.C)	1990	Purvanchal University, Jaunpur, U. P., India First Class
Post-Doctoral	2005-2006	Nanjing Agricultural University, Republic of China

Doctoral Thesis

- Title : Adsorption and uptake of Cu and Ni by *Chlorella vulgaris* Beijerinck
- Guide's Name: Professor J. P. Gaur
- University name : Banaras Hindu University, Varanasi, India
- Year : 1999

SPECIALIZATION

Biochemistry and Physiology :	Physiology and biochemistry of algae and cyanobacteria. Oxidative stress metabolism. Lipid biochemistry
Algal Biotechnology:	Bioremediation; Algal biofuel (biodiesel)
Microbial Biodiversity:	Morphological and molecular (16s RNA gene profiling)

Details of Employments:

- CSIR Research Associate, Department of Botany, Banaras Hindu University, Varanasi, UP (2000-2005)

- Senior Lecturer at Department of Biotechnology, Banasthali Vidyapeeth, Rajastha- (2006-2007)
- Reader at the Department of Botany, Mizoram University, Aizawl- (2007-2010)
- Associate Professor (2010-2012) at the Department of Botany, Mizoram University, Aizawl, India.
- Professor at the Department of Botany, Mizoram University, Aizawl (2012-Continuing)

Subjects Taught

- Phycology
- Plant Biochemistry and Physiology
- Palaeobotany
- Microbiology
- Cryptogams (Bryophyta, Pteridophyta), Gymnosperm
- Cell and Molecular biology

Administrative Positions

- Head, Department of Botany, Mizoram University, Aizawl (2007-2009)
- Head, Department of Botany, Mizoram University, Aizawl (2013-2015)
- Head Department of Botany, Mizoram University, Aizawl (2018- Continuing)
- Dean, School of Life Sciences, Mizoram University, Aizawl (2018-Continuing)
- Chairman, Board of Studies in Life Science (Pachunga University College)

Other Positions

- Chairman, Board of Studies in Botany, Mizoram University
- Chairman, Postgraduate CBCS Committee, Mizoram University
- Chairman, UG-CBCS Committee, Mizoram University
- Coordinator, B.Voc (software development), School of Engineering and Technology, Mizoram University
- Coordinator, B.Voc (web design and multimedia), School of Engineering and Technology, Mizoram University

- Coordinator, Central Instrument Laboratory, Mizoram University
- Director, MOOCS and Online Courses, Mizoram University
- Member of School Board, School of Life Sciences, Dr. Hari Sing Gaur Central University, MP
- Member of Board of Studies in Zoology, Mizoram University
- Member of Board of Studies in Biotechnology, Mizoram University
- Member of Board of Studies in Geology, Mizoram University
- Member of Board of Studies in HAMP, Mizoram University
- Member of Board of Studies in Chemistry, Mizoram University
- Member of Board of Studies in Forestry, Mizoram University
- Member of School Board, SEMIS, Mizoram University
- Member of School Board, School of Physical Sciences, Mizoram University
- Member of Board of School of Medical and Paramedical Sciences (SMPS), Mizoram University
- Member in Editorial Board of Science and Technology Journal of Mizoram University
- Member in Biosafety committee, Mizoram Univesity
- Member in MoU Committee, Mizoram University
- Member, NAAC steering committee (2nd time), Mizoram University

Award/Distinctions

- JRF DST, New Delhi (1996)
- SRF-Extended, CSIR, New Delhi (1999)
- UGC Research Associateship (2000)
- Postdoctoral Fellow, Nanjing Agricultural University, Nanjing, China (2005)

Memberships in professional bodies:

- **Member**: British Phycological Society,UK,
- **Member:** International Society of Applied Phycology,
- **Member:** International Phycological Society,
- **Life member:** Palaeobotanical Society of India.

Development of Academic Programmes/Courses

- Worked on CBCS system and drafted the regulations on CBCS
- Developed the CBCS model for undergraduate courses in Mizoram university
- Drafted regulations on conducting of Examinations and Evaluation system under the CBCS
- Responsible for B.Voc Software Development at MZU
- Responsible for M.Sc. Botany at Mizoram University
- Responsible for M.Sc. Life Science at PUC
- Developed Open Elective course in Botany at MZU
- Development of course on Applied Phycology at MZU

Development of MoU

- Responsible for developing and signing of MoU with Prathista Group of Industries, Hyderabad
- Responsible for developing and signing of MoU with Himalayan University Consortium, Kathmandu, Nepal
- Responsible for compilation of Tripartite MoU between MHR, New Delhi, UGC New Delhi and Mizoram University Aizawl
- Responsible for signing of MoU between online service provider SchoolGuru, Mumbai and Mizoram University, Aizawl
- Responsible for development and signing of MoU between Mizoram University, Aizawl and SARTHAK, New Delhi.

Research Guidance

- Ph.D. supervisor at Department of Biotechnology, School of Biotechnology and Molecular Biology, Banasthali, Vidyapeeth, Rajasthan
- PhD Supervisor at Department of Botany, Mizoram University, Mizoram
- Ph.D. awarded to 5 students; 8 students are working at the Department of Botany for doctoral degree.

Research Interest

- Oxidative stress biology

- Cyanobacteria
- Development of Biofuel
- Nanobiotechnology
- Environmental biotechnology

Research Experience

- Twenty three years of research experience in the area of algal biology, biochemistry and physiology.
- Eighteen years of postdoctoral research experience
- As postdoctoral fellow at Nanjing Agricultural University worked on microRNA in abiotic stress tolerance, nitric oxide signaling in abiotic stress tolerance, Hg-induced oxidative stress, metal ion transporter protein.
- At the Department of Biotechnology, Banasthali, worked on heavy metal induced changes in cell wall bound peroxidases and nitric oxide toxicity in plants root.
- Currently working on biological synthesis of metal nanoparticles; nanometal toxicity and tolerance in cyanobacteria; detection of cyanotoxins in natural and artificial water bodies; As toxicity and tolerance in cyanobacteria of paddy fields; micropollutant removal using algal biomass.

RESEARCH CONTRIBUTIONS

Oxidative stress and signaling:

- Oxidative stress and tolerance mechanisms in algae and cyanobacteria
- Nitric Oxide (NO) signaling in abiotic stress and tolerance
- Diversity of cyanobacteria : morphological, RAPD finger prints, 16s RNA gene profiling by DGGE. (iv)Screening of oil yielding freshwater algal strains
- Biological synthesis of metallic nanoparticles (Ag-NP and Zn-NP) using freshwater microalgae and Cyanobacteria
- Toxicity of metallic nanoparticles in algae and cyanobacteria
- Carbon sequestration by the microalgae

Heavy metal uptake and toxicity in algae and plants

- Distinguished intracellular metal accumulated from surface bound fraction.
- Studied the kinetics of intracellular metal accumulation and extracellular adsorption of metal ions.

Oxidative stress in algae, cyanobacteria and higher plants

- Antioxidative enzymes (SOD, CAT, APX, GR) and compounds (NPT, ascorbate, glutathione) in response to heavy metal and salt stress.
- First time showed that **proline** protects algae from damaging effects of ROS free radicals.
- ***Nitric oxide (NO) signaling*** in abiotic stress metabolism
- Showed that NO participates as signaling molecule for induction of proline accumulation in green alga *Chlamydomonas*.

Development of algal biofuel

- Collection and isolation of **256 algal and cyanobacterial strains** (about 200 genera) from two NE states (Mizoram, Tripura).
- Screening of over 100 strains for total lipid content, TAG, and fatty acid composition.
- Lipid productivity of 5 algal strains.
- 50 algal strains submitted to DBT sponsered algal repository at IBSD, Imphal, Manipur.

Expertise in operation and maintenance of following major Analytical Instruments

- HPLC, LC-MS, Transmission Electron Microscope, Atomic Emission Spectrometer (AES), CHNS analyzer, Dual PAM

Ongoing and Completed Research Projects

- DBT (2009-2012) worth of Rs. 50,00,000/-
- Title of Project : Screening and characterization of freshwater microalgae of North East India for the biodiesel production
- MoEF (2010-2013) worth of Rs. 48,00,000/-
- Title of Project : Morphological and molecular assessment of cyanobacterial biodiversity and its functional roles in nitrogen and carbon dynamics of Tamdil wet land, Miozram

- DBT (2018) Sanctioned. Worth of Rs. 75,00,000/-
- Title of Project : Exploitation of bananas for therapeutic uses: evaluation of pseudostem and corm extract of banana germplasm for their antilithiatic potential
- DBT (2018) Under Consideration
- Title of submitted project : Impact of climate change on soil microbes and microbe-plant interaction in Dampa Tiger Reserve, Mizoram

Reviewer for journals

- Brazilian Archives of Biology and Technology
- Journal of Hazardous materials
- Protoplasma
- Journal of Applied Phycology
- Current Microbiology
- Water, SA
- FONDECYT INITIATION INTO RESEARCH 2015, Chile- Competitive Research Project review
- Talanta
- International Journal of Environmental Analytical Chemistry
- ACS, Sustainable Chemistry and Engineering
- African Journal of Microbiology Research
- Colloids and Surfaces B: Biointerfaces
- Water and Environment Journal
- Pedosphere
- Chemical Papers
- Process Biochemistry
- Canadian Journal of Chemical Engineering

Citations and Impact Factor

Commutative Impact Factor (JCR 2017) : 56.615

Google Scholar

(*Link : https://scholar.google.com/citations?hl=en&user=3uTHnF0AAAAJ)*

- Total citations : 2138
- h-index : 19
- i10-index : 20

Research Gate

(Link : https://www.researchgate.net/profile/Sk_Mehta3)

- RG Score : 18.08
- Reads : 1775
- h-index : 9
- Total citations : 1518

List of Publications

Impact Factors (JCR 2016)

1. **Mehta, S.K.** and Gaur J.P. (1999) Heavy-metal-induced proline accumulation and its role in amelioration of metal toxicity in *Chlorella vulgaris*. ***New Phytologist***, 143: 253-259. **7.330**

2. **Mehta, S.K**., Tripathi, B.N. and Gaur J.P. (2000) Influence of pH, temperature, culture age and cations on adsorption and uptake of Ni by *Chlorella vulgaris*. ***European Journal of Protistology***, 36: 443-450. **2.581**

3. **Mehta, S.K.** and Gaur J.P. (2001) Concurrent sorption of Ni^{2+} and Cu^{2+} by *Chlorella vulgaris* from a binary metal solution. ***Applied Microbiology and Biotechnology***, 55: 379-382. **3.420**

4. **Mehta, S.K.** and Gaur, J.P. (2001) Characterization and optimization of Ni and Cu sorption from aqueous solution by *Chlorella vulgaris*. ***Ecological Engineering***, 18: 1-13. **2.914**

5. **Mehta, S.K.** and Gaur, J.P. (2001) Removal of Ni^{2+} and Cu^{2+} from single and binary metal solutions by free and immobilized *Chlorella vulgaris*. ***European Journal of Protistology***, 37: 261-271. **2.581**

6. **Mehta, S.K.**, Tripathi, B.N. and Gaur, J.P. (2002) Enhanced sorption of Cu^{2+} and Ni^{2+} by acid-pretreated *Chlorella vulgaris* from single and binary metal solutions. ***Journal of Applied Phycology***, 14: 267-273. **2.616**

7. **Mehta, S.K.,** Singh, A. and Gaur, J.P. (2002) Kinetics of adsorption and uptake of Cu by *Chlorella vulgaris*: influence of pH, temperature, culture age, and cations. ***Journal of Environmental Science and Health, Part A,*** 37: 399-414. **1.425**

8. Tripathi, B.N., **Mehta, S.K.** and Gaur, J.P. (2003) Differential sensitivity of *Anabaena doliolum* to Cu and Zn in batch and semicontinuous cultures. **3.743**

Ecotoxicology and Environmental Safety, 56: 331-318.

9. Tripathi, B.N., **Mehta, S.K.** and Gaur J.P. (2004) Recovery of uptake and assimilation of nitrate in *Scenedesmus* sp. previously exposed to elevated levels of Cu^{2+} and Zn^{2+}. ***Journal of Plant Physiology***, 161: 543-549. **3.121**

10. **Mehta, S.K.** and Gaur J.P. (2005) Use of algae for removing heavy metal ions from wastewaters: progress and prospects. ***Critical Reviews in Biotechnology***, 25: 113-152. **6.542**

11. Tripathi, B.N., **Mehta, S.K**. and Gaur, J.P. (2006) Oxidative stress in *Scenedesmus* sp. during short- and long-term exposure to Cu^{2+} and Zn^{2+}. ***Chemosphere,*** 62: 538-544. **4.208**

12. Zhou, Z.S., Huang, S.Q., Guo, K., **Mehta, S.K**., Zhang, P.C. and Yang, Z.M. (2007) Metabolic adaptation to mercury-induced oxidative stress in roots of *Medicago sativa* L. ***Journal of Inorganic Biochemistry***, 101: 1-9. **3.348**

13. Singh, A., **Mehta, S.K.** and Gaur, J.P. (2007) Removal of heavy metals from aqueous solution by common freshwater filamentous algae. World Journal of *Microbiology and Biotechnolog*, 23:1115-1120. **1.658**

14. Xiao-Hua LONG, S.K. MEHTA, Zhao-Pu LIU.2008. Effect of NO^{-}_{3}-N Enrichment on Seawater Stress Tolerance of Jerusalem Artichoke (*Helianthus tuberosus*). Pedosphere113-123 **1.734**

15. Zhang, L.-P., Mehta, S.K., Liu Z.P. and Yang Z.M. (2008) Copper-induced proline synthesis is associated with nitric oxide generation in *Chlamydomonasreinhardtii*. *Plant and Cell Physiology*, 49: 411:419. **4.760**

16. Xue, Y.F., Ling Liu, **Mehta, S.K.,** Liu, Z.P., and Zhao, G.M. (2008) Protective role of Ca against NaCl toxicity in Jerusalem Artichoke by -regulation of antioxidant enzymes. ***Pedosphere***, 18:766-774. **1.734**

17. Verma, K., Shekhawat, G.S., Sharma, A., **Mehta, S.K.** and Sharma, V. (2008). Cadmium induced oxidative stress and changes in soluble and ionically bound cell **2.869**

wall peroxidase activities in roots of seedlings and 3-4 leaf stage plants of *Brassicajuncea* (L.) czern. ***Plant Cell Report***, 27: 1261-1269.

18. Wang, H., Liu, Z.-P., **Mehta, S.K.** and Zhao, G. (2008) Algaecidal activity of *Achromobacter* sp. (strain YZ) from yellow sea: an assessment with bloom causing cyanobacterium *Microcystisaeruginosa*. ***Journal of Biotechnology***, 136: 563. **2.599**

19. Verma, K., Mehta, S. K. Shekhawat, G. S. 2014. Nitric oxide (NO) counteracts cadmium induced cytotoxic processes mediated by reactive oxygen species (ROS) in Brassica juncea: cross-talk between ROS, NO and antioxidant responses. ***Biometals***, 26(2): 255-269. 2013-2014 **2.183**

20. Devi, Y. M. and S. K. Mehta. 2014. Changes in antioxidative enzymes of cyanobacterium Nostoc muscorum under copper (Cu2+) stress. Science Vision 14: 207-214. **1.79**

21. Devi, Y. M. and Mehta, S. K. 2014. Effect of copper (Cu2+) on PS II and PS I photochemical activities and electron transport as studies by chlorophyll fluorescence in cyanobacterium Nostoc muscorum L. Science and Technology Journal 2: 81-94.

22. Devi, Ks. M. and Mehta, S. K.. 2015. Screening of blue-green algae *Lyngbya* for its antimicrobial activities. Science Vision 15: 98-105.

23. Devi, Ks. M. and Meha, S. K. 2015. Antimicrobial activities of three freshwater cyanobacterial species of Tamdil wetland of Mizoram. Biojournal 10: 59-73.

24. Devi Ksh. M. and Mehta, S. K. 2016. Antimicrobial activities of freshwater cyanobacterium Nostoc sp. from Tamdil wetland of Mizoram, India: an identification of bioactive compounds by GC-MS. Int J. Pharm. Sci Res. 7: 1179-1191.