

## CURRICULUM VITAE

**Dr. Shubhi Srivastava**

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**Date of birth: 27/07/1984.**

### **Awards:**

- Dr. D.S. Kothari Post Doctoral Fellowship award from UGC (April 2013 to April 2016).
- Senior Research Fellowship award from Council of Scientific and Industrial Research(CSIR) (April 2009 to April 2012).

### **EDUCATION**

➤ **Post Doctorate Fellowship** awarded by DR. D.S. Kothari fellowship program of UGC.

- **Project title:** Diversity and Functional Metabolites of Endophytic Bacterial Communities of Medicinal Ferns of Darjeeling Hills.
- **Working place:** Microbiology laboratory in department of Botany university of Calcutta, Ballygunge Science Collage, Kolkata.
- **Guide Name:** Dr. A.K. Paul (Professor)
- **Number of Published Research Papers from PDF:** Two (International)
- **Working Period:** April 2013 to April 2016

During my PDF, I have also led seminars, supervised undergraduates and post graduates in the laboratory and I have also take some extra teaching classes which were needed accordingly.

➤ **Phd.** from Lucknow University.

- **Thesis title:** Microbe assisted bioremediation of arsenic pollution.
- **Working place:** CSIR institute, National Botanical Research Institute, Lucknow. Under Senior Research Fellowship scheme of CSIR.
- **Guide Name:** Dr. Nandita Singh
- **Number of Published Research Papers:** Four (International).  
**One Chapter:** Book name: In-Situ Remediation of Arsenic-Contaminated Sites, *CRC press*, volume 6, Editors: Jochen Bundschuh, Hartmut M. Holländer, Lena Qiying Ma – 2014.
- **Working Period:** March 2010 to September 2013(Awarded)

During my Phd., I have also led seminars, supervised my juniors and undergraduates in the laboratory.

## **Employment**

### **Professional Experience**

#### **(a) Current experience**

Worked as a post doctorate fellow **from (April 2013 to April 2016)** in project entitled “Diversity and Functional Metabolites of Endophytic Bacterial Communities of Medicinal Ferns of Darjeeling Hills.” under supervision of **Dr. Amal Kanti Paul, Professor** at Microbiology laboratory of Botany Department in University of Calcutta. This work has been designed to characterized the various endophytic microbial strains for biotechnological importance. The work will be carried out through following specific objectives:

The main objectives of this research are:

1. Evaluation of the status of culturable endophytic bacterial community in medicinally important ferns of Darjeeling hills.
2. Taxonomic consideration and phylogenetic analysis of bacterial endophytes following standard polyphasic approach.
3. Qualitative and quantitative analysis of endophytic bacterial population for production of functional metabolites for beneficial purposes.

#### **(b) Phd. work experience as CSIR- Senior research fellow**

Worked as a *CSIR-SRF* **from (April 2009 to March 2012)** in project entitled “**Microbe assisted bioremediation of arsenic**” under supervision of **Dr. Nandita Singh Head Scientist and group leader** at Eco- auditing laboratory (NABL & CPCB accredited laboratory) of Environmental Division of National Botanical Research Institute, Lucknow (CSIR). This work has been designed to exploit various microbial strains for an enhanced remediation of arsenic contaminated soil. The work will be carried out through following specific objectives:

- Isolation and culture of microbial strains from As contaminated soil.
- Screening of arsenic tolerant microbes for As bioremediation.
- Study the bioremediation potential of selected strains against As.
- Exploiting the biochemical capacities of bacteria for remediation of As from soil.
- Study the role of mycorrhiza in enhancing the As accumulation in As–hyperaccumulator.
- Molecular characterization of tolerant microbial strains.

### **Expertise in microbial techniques**

- Isolation and enumeration of microorganisms from soil by the serial dilution – agar plating method.
- Measurement of cells concentration of bacteria by the use of a counting
- Counting of bacterial population by the use of spectrophotometer.
- Preparation of basic liquid media (broth) for the routine cultivation of bacteria.
- Preparation of basic solid medium and pouring into Petri plates.
- Preparation of agar slants and deep tubes.
- Methods of obtaining pure cultures of Microorganisms by streak – plate method, Pour – plate method, Spread plate method, Sub culturing techniques.
- Maintenance of pure cultures by Paraffin method, by preservation in Glycerol.
- Maintenance of mold cultures on distilled water.
- The effect of different metals on the growth of microorganisms.
- The effect of pesticide on the growth of microorganisms.
- The antifungal activity of microorganisms.
- The effect of microbial cultures on plant growth.
- The Biochemical activities of bacteria.
- The effect of temperature and pH and molecular oxygen on the bacterial strains.
- The Bioaccumulation and biovolatilization potential of the selected strains.
- Isolation of DNA from bacterial pellets.

#### **Expertise in Biochemical characterization of plants**

- Chlorophyll estimation
- Protein estimation
- Sugar estimation
- Lipid peroxidation estimation

#### **Expertise in Physico chemical and Biochemical characterization of soil**

- pH
- Ec
- Total Organic Carbon
- Microbial Biomass Carbon
- Nitrogen
- Potassium
- Phosphorus
- Calcium
- Dehydrogenase enzyme activity
- Phosphatase enzyme activity

#### **Expertise in water analysis**

- BOD
- COD
- Hardness
- Dissolved oxygen
- Fluoride
- Chloride
- Total suspended solid
- Total dissolved solid
- *E. coli* count

### (c) Past experience

- One year experience (Feb 2008 to March 2009) as a **Project Assistant** in project entitled “Environmental contaminants–New Screening technologies and effect on human health” under supervision of Dr. R. D. Tripathi at Environmental Division of National Botanical Research Institute, Lucknow (CSIR).
  - Screening of plants for phytoremediation of heavy metals from soil.
  - Isolation of microbes from arsenic contaminated soil.
  - The tolerance of microbes in arsenic.
  - Screening of microbes for remediation of arsenic.
  - Isolation and counting of mycorrhiza spores from soil.
  - Preparation of bulk culture of mycorrhiza.
  
- One and the half year experience (June 2006 to Feb 2008) as a **Project Assistant** in Biomass Biology and Eco-Auditing Group of National Botanical Research Institute, Lucknow (CSIR) under Dr. Nandita Singh, Group Leader under project entitled “**ENVIS-NBRI Centre on Plant & Pollution**” sponsored by Environmental Management Capacity Building Technical Assistance (EMCBTA) Project of Ministry of Environment & Forests, GoI.
  - Search of recent References, Articles & Text related to Plant & Pollution.
  - Screening, Editing and Coding of references, articles & text for database entry.
  - Development of MS-ACCESS files for ready to upload at respective web pages.
  - Searched and edited the references with contents for Publication, Books, Thesis and Articles.
  - Maintaining the green file from leading dailies like the Hindu, The Times of India, Hindustan Times, The Pioneer, The Statesman, Dainik Jagaran, Hindustan, Swatantra Bharat, and Rashtriya Sahara etc.
  - Collected the information from various article such as Down to Earth, Vigyan Pragati, Paryavaran Pragati.
  - Maintaining the ENVIS Library, having books, journals, research papers, magazines etc. related to this centre.

### **Training and Dissertation Work**

- Two-months Training on different microbial techniques (01.06.2004 to 30.07.2004) at Central Drug Research Institute (CSIR) in the Department of Microbiology under the guidance of Dr. Raj Kamal Tripathi, Scientist and learned various cell culture techniques and mice handling for screening of antiviral compounds.
  
- Four-months Project work (04.03.2005 to 30. 06.2005) at National Botanical Research Institute (CSIR) in the Department of Floriculture under the guidance of Dr. S.K. Datta. (Scientist-F & Head) on “*In vitro* propagation of *Pereskia aculeata* and *Pereskia bleo* and Molecular characterization of *Aloe sp.*, *Euphorbia spp.*, *Pereskia aculeata* and *Pereskia bleo*”.

## Skills

General skills in research project management and data analysis specific expertise and interest in computing skills

- Microsoft Word
- Microsoft Excel
- Microsoft Power Point

## Other Skills

- Statistical analysis.
- Data analysis and information collection.
- Writing and presenting reports.

## Conferences and Presentations

1. International Symposium on Perspectives in Pteridophytes NBRI Lucknow. November 27-29, page 93. Poster presented on Effect of arsenic on gametophyte of *Pteris vittata L.*, an hyperaccumulator of arsenic.
2. International Symposium on Perspectives in Pteridophytes”, NBRI Lucknow. November 27-29, page 94. Poster presented on Screening the Phytoremediation potential of *Adiantum capillus-veneris L.*, *Diplazium esculantum (RETZ.) SW.* and comparing it with *Pteris vittata L.*, an hyperaccumulator of arsenic.
3. Fourth international Conference on Plant & Environmental Pollution, December, 2010, Page.155, SessionVII/P-23. Poster presented on Significance of arsenic hypertolerant bacteria *Staphylococcus sp.* Strain *NBRIEAG-6*, as a bioinoculant for concurrent plant growth promotion and arsenic translocation by *Brassica juncea(L.) Czern. Var. R-46*.
4. National Seminar on Environmental Concerns and Sustainable Development: Issues and Challenges for India at Institute of Environment and Sustainable Development Banaras Hindu University, Varanasi, 2-4 March, 2012. Paper presented on Recent developments on arsenic remediation.

## Publications

1. Kalpna V. Kumar, N. Singh, H.M. Behl, **Shubhi Srivastava, 2008:** Influence of plant growth promoting bacteria and its mutant on heavy metal toxicity in *Brassica Juncea* grown in fly ash amended soil. *Chemosphere, Elsevier* 72, 678-683.
2. Kalpna V Kumar, **Shubhi Srivastava**, N. Singh, H.M. Behl, **2009:** Role of metal resistant plant growth promoting bacteria in ameliorating fly ash stress on the growth of *Brassica juncea*. *Journal of Hazardous Materials, Elsevier* 170, 51-57.
3. P.C. Abhilash, **Shubhi Srivastava**, Nandita Singh **2011:** Comparative bioremediation potential of four microbial species against lindane. *Chemosphere, Elsevier* 82: 56–63.

4. P.C. Abhilash, **Shubhi Srivastava**, Pankaj Srivastava, Bindu Singh, Amina Jafri, Nandita Singh, **2011**: Influence of rhizospheric microbial inoculation and tolerant plant species on the rhizoremediation of lindane. *Environmental and Experimental Botany, Elsevier*, 74, 127– 130.
5. **Shubhi Srivastava**, Praveen C. Verma, Ankit Singh, Manisha Mishra, Namrata Singh, Neeta Sharma, Nandita Singh, **2012**: Isolation and characterization of Staphylococcus sp. strain NBRIEAG-8 from arsenic contaminated site of West Bengal. *Applied microbiology and Biotechnology, Springer*. Accepted in 15 February, 2012, Sep; 95(5):1275-1291.
6. **Shubhi Srivastava**, Praveen C. Verma, Vasvi Chaudhry, Namrata Singh, P.C. abhilash, Kalpana V. Kumar, Neeta Sharma, Nandita Singh, 2012: Influence of inoculation of arsenic-resistant Staphylococcus arlettae on growth and arsenic uptake in Brassica juncea (L.) Czern. Var. R-46, *Journal of Hazardous Matererials, Elsevier*. <http://dx.doi.org/10.1016/j.jhazmat.2012.08.019>.
7. **Shubhi Srivastava** Nandita Singh, 2014: Mitigation approach of arsenic toxicity in chickpea grown in arsenic amended soil with arsenic tolerant plant growth promoting Acinetobactersp. *Ecological Engineering, Elsevier*. 70 (2014) 146–153.
8. Nandita Singh, Pankaj Kumar Srivastava, Rudra Deo Tripathi, **Shubhi Srivastava**, Aradhana, Vaish, Chapter-6, Microbial in-situ mitigation of *arsenic* contamination in plants and soils. Book name: In-Situ Remediation of Arsenic-Contaminated Sites, *CRC press*, volume 6, Editors: Jochen Bundschuh, Hartmut M. Holländer, Lena Qiying Ma – 2014.
9. Namrata Singh, **Shubhi Srivastava**, Sushma Rathaur , Nandita Singh, 2016: Assessing the bioremediation potential of arsenic tolerant bacterial strains in rice rhizosphere interface. *Journal of Environmental Sciences, Elsevier*, DOI:10.1016/j.jes.2015.12.034.
10. **Shubhi Srivastava** and A. K. Paul, 2016: Associated microflora of medicinal ferns: biotechnological potentials and possible applications. *International journal of bioassay*. ISSN-2278-778X. 5.3, 4927-494.
11. **Shubhi Srivastava**, Manvi Singh and A. K. Paul 2016: Arsenic bioremediation and bioactive potential of endophytic bacterium Bacillus pumilus isolated from Pteris vittata L. *International Journal of Advanced Biotechnology and Research (IJBR)* ISSN 0976-2612, Online ISSN 2278 –599X, Vol-7, Issue - 1, 2016, pp 77-92.

## Abstracts

1. **Shubhi Srivastava**, Anshita Raj, Ashutosh Panday, P.B. Khare and Nandita Singh **2008**. Effect of arsenic on gametophyte of *Pteris vittata L.*, an hyperaccumulator of arsenic. In “International Symposium on Perspectives in Pteridophytes”, NBRI Lucknow. November 27-29, page 93.
2. Anshita Raj, **Shubhi Srivastava**, Sarah Jamil and Nandita Singh **2008**. Screening the Phytoremediation potential of *Adiantum capillus-veneris L.*, *Diplazium esculantum (RETZ.) SW.* and comparing it with *Pteris vittata L.*, an hyperaccumulator of arsenic. In “International Symposium on Perspectives in Pteridophytes”, NBRI Lucknow. November 27-29, page 94.
3. **Shubhi Srivastava**, Shailza Singh, Ankit Singh, Praveen c. Verma, Neeta Sharma, Nandita Singh Significance of arsenic hypertolerant bacteria *Staphylococcus sp.* Strain *NBRIEAG-6*, as a bioinoculant for concurrent plant growth promotion and arsenic translocation by *Brassica juncea(L.) Czern. Var. R-46*. Fourth international Conference on Plant & Environmental Pollution, December, **2010**, Page.155, SessionVII/P-23.
4. **Shubhi Srivastava**, Neeta Sharma, Nandita Singh, Recent developments on arsenic remediation. National seminar on Environmental concerns and sustainable development: Issues and challenges for India. 2-4 March, 2012. Page .5.

## Professional Profile

- Reviewer in *Elsevier* and *Springer journals*.

## Academic Qualification

EXAM	YEAR	UNIVERSITY/ BOARD	SUBJECT	DIVISION
M.Sc.	2005	Budelkhand University, Jhansi	Microbiology	First
B.Sc.	2003	C.S.J.M. University, Kanpur	Botany, Chemistry, Zoology	First
Intermediate science	2000	U.P.Board	Science group (Biology)	First
High School	1998	U.P. Board	Science group	First

## REFERENCES

1. Dr. Nandita Singh  
Scientist & Head, Plant Ecology and Environment  
N.B.R.I., Lucknow, U.P., India, Mobile No.- +91 9415110314

2. Dr. Neeta Sharma  
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3. Dr. A.K. Paul  
Professor  
Microbiology lab,  
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I hereby declare that the information provided above is true to the best of my knowledge.

(Dr. Shubhi Srivastava)