

# CURRICULUM VITAE

**Dr. SMITA SUNDARAM**

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**Career Goal:** To work in a challenging and motivating environment towards an ever-growing career in the field of Biological Sciences by making the best use of my potential and interpersonal skills.

**Current Objectives:** Working as Assistant Professor, Environmental Studies at Zakir Husain Delhi College, University of Delhi. Prior to this, I worked as an Assistant Professor in the Department of Environmental Studies at Shaheed Rajguru College of Applied Sciences for Women, University of Delhi from 14th August 2019 to 21 December 2022. I also served as **Research Scientist** in a DBT project entitled “JNU-DBT National Training and Skill Development Facility for State-of-the-Art Equipment Used in Industry and Academics” BT/INF/22/SP27315/2018” at Advanced Instrumentation Research Facility (AIRF), JNU, New Delhi from 20<sup>th</sup> October 2015 to 13<sup>th</sup> August 2019.

## **EDUCATION**

2008-2014: **Ph.D.** awarded in Environmental Science from School of Environmental Sciences, **Jawaharlal Nehru University (JNU)**, New Delhi-110067, India. Thesis entitled “*Isolation, Enrichment and Molecular Characterization of Chemolithotrophic Bacteria for Sequestration of Carbon Dioxide*”.

2006-2008: **M.Sc.** with **first class and distinction** (CGPA 7.709/10) in Plant physiology as a major and minor in Molecular Biology and Biotechnology from **G.B.Pant University of Agriculture and Technology**, Pant Nagar, Uttarakhand, India.

Thesis entitled “*Studies on micronutrients status of rice genotypes (Oryza sativa) at different nitrogen levels*”.

2004-2006: **B.Sc. Agriculture (4 years)** with **First Class** (OGPA- 7.42/10.00), Institute of Agricultural Sciences, **Banaras Hindu University (BHU)**, Varanasi, Uttar Pradesh, India.

2009: ARS/NET qualified in Plant Physiology and Biochemistry.

## **PUBLICATIONS**

1. Kaur, S., **Sundaram, S.**, Meena, R., & Rajamani, P. (2018). Stress-Generated Free Radicals Detected by Electron Paramagnetic Resonance Spectroscopy with Nitron Spin Trap in *Vicia faba* Root. *Reactive Oxygen Species*, 5(14), 134–144 (ISSN: 2380-2367).
2. **Sundaram, S.**, Kaur, S., Thakur, I.S., (2018). Role of electron paramagnetic spectroscopy (EPR) in detection of stress generated free radicals in the plant. *Advances in Plant Physiology Series. Advpp-18 2017-18/IARI/19.* (ISSN: 0972-9917).
3. **Sundaram, S.**, Thakur, I. S. (2018). Induction of calcite precipitation through heightened production of extracellular carbonic anhydrase by CO<sub>2</sub> sequestering bacteria. *Bioresource Technology*. 253,368-371. (**Impact factor- 11.88**, ISSN: 0960-8524. NAAS Score: 11.65).
4. Kumar, M., **Sundaram, S.**, Gnansounou, E., Larroche, C., & Thakur, I. S. (2017). Carbon dioxide capture, storage and production of biofuel and biomaterials by bacteria: A review. *Bioresource technology*. 247, 1059-1068. (**Impact factor- 11.88**, ISSN: 0960- 8524. NAAS Score: 11.65).
5. **Sundaram, S.**, Das, M. T., Thakur, I. S. (2013). Biodegradation of cypermethrin by *Bacillus* sp. in soil microcosm and in-vitro toxicity evaluation on human cell line. *International Biodeterioration & Biodegradation*, 77, 39-44. (**Impact factor-4.9**, ISSN: 0964-8305. NAAS Score: 08.96).
6. **Sundaram, S.**, & Thakur, I. S. (2015). Biosurfactant production by a CO<sub>2</sub> sequestering *Bacillus* sp. strain ISTS2. *Bioresource technology*, 188, 247-250. (**Impact factor- 11.88**, ISSN: 0960-8524. NAAS Score: 11.65).

7. Chhokra, A., Bisht, A., Tyagi, A., Saxena, A., Anand, S., **Sundaram\*, S.** (2022) RO purifier: Working and health implications attributed to low TDS levels. International Journal of Innovation and Multidisciplinary Research,1,111-119. (ISSN:2583-4452).
8. M Kumar, S Kaur, S Kumar R. Yadav, **S Sundaram\*** (2020). Molecular, Physiological and Biochemical Responses of Plants to Abiotic Stress. Advances in Plant Physiology, 19, Advpp-19 2019-20/BHU/11.
9. Mago, Payal, **Sundaram Smita\***, Singh, Alok, Gosain, Nupur and Sarin, Lakshmi and Mishra, Sandeep and Sharma, Bhawana and Bhagat, Mohita and Kumar, Tarun and Anand, Rituraj and Singh, Rajdeep and Manda, Subhash and Sirohi, Saru and Roy, Suha, Sustainable Environmental and Cultural Practices of Majuli, India: A Case Study (June 28, 2022). Print edition. Available at SSRN: <https://ssrn.com/abstract=4148279> or <http://dx.doi.org/10.2139/ssrn.4148279>. ISSN:1556-5068.
10. **Smita Sundaram\*** and Shyam Ranjan, 2019. "Prayawaran Adhayayan ke Awsar Anek". Published in Panchajanya magazine.
11. **Smita Sundaram \***, Srishti Singh, Anjali Singh , Harshita Singh, Preyasi Pal , Poorvi Bhartey , Rekha Mehrotra (2022).Harnessing Sustainable Biogas Energy from Organic Waste. . International Journal of Innovation and Multidisciplinary Research,2,26-29. (ISSN:2583-4452).
12. Gupta, B., Saggi, G., Sundaram, S., Mishra, R., & Thakur, I. S. (2021). Climate Change Impacts on Soil Microorganisms that Regulate Nutrient Transformations. In Climate Change and the Microbiome (pp. 461-476). Springer, Cham.

## **BOOK CHAPTERS**

1. **Sundaram S,** Thakur, IS (2013), "Isolation and characterization of thermoalkalotolerant Bacillus sp. strain ISTS2 for carbon dioxide sequestration" in Pollution and Remediation; Management of Water, Energy and Bio-resources in the Era

of Climate Change: Emerging Issues and Challenges. Springer Science. Editors: Raju NJ, Gossel W, Ramanathan A, Sudhakar, M. ISBN 978-3-319-05968-6.

2. **Sundaram S**, Ranjan.S (2019), “Prayawaran Adhayayan ke Awsar Anek”, Panchjanaya, 52:30-32(ISNN No. 2349-2392).

### **CONFERENCE PROCEEDINGS**

1. Mago, P., Anand, A., Gosain, N., Awasthi, D., **Sundaram, S.** (2022). Cultural Practices of India, A Gateway to Environmental Values: A case study of Bihar. National seminar on “Vishwa Guru Bharat: Exploring the Glorious Past, Promoting Present and the future Roadmap”. Abstract Proceedings. Pp 170. ISBN-978-93-91109-28-8.
2. Arya, N., Datta. P., Mago, P., Gosain, N., **Sundaram, S.**, Anand, R., 2022. Inclusivity of Gender and Environment: A Case Study. Vishva Guru Bharat: Exploring the Glorious Past, Promising Present & Future Roadmap. Proceedings, ISBN-978-93-91109-28-8.

### **AWARDS AND HONOURS**

1. Awarded as Junior Research Fellowship (**JRF**) for Post Graduate degree by Indian Council of Agricultural Research (**ICAR**), July 2006.
2. Qualified Agricultural research scientist-National Eligibility Test (**ARS-NET**), 2009.
3. Awarded “**Sat Paul Mittal Fellowship**” in the School of Environmental Science from 2009 to 2013 for Ph.D. research work.
4. **Best paper award for the young scholar.** International Humboldt Kolleg on "Management of Water, Energy and Bio-resources in Changing Climate Regime: Emerging Issues and Environmental Challenges", 8-9 February 2013, New Delhi- 110067, India.
5. **Travel Scholarship Award** from Department of Biotechnology, New Delhi, India to attend Botany & Plant Biology Joint Congress, July 7-11, 2007, Chicago, USA.

## **COURSE WORK AND TRAINING**

1. Attend training program of xxx National training program in **Electron microscopy for Scientific Investigators** conducted by the department of Anatomy, AIIMS, New Delhi from 10.11.2014 to 22.11.2014.
2. Participated in the Course work of Global Initiative for Academic Networks (GIAN) on **“Solid Waste Management Technology and Biovalorization”** at Jawaharlal University, New Delhi, from 1<sup>St</sup> to 12<sup>th</sup> August, 2016.
3. Participated in the Course work of Global Initiative for Academic Networks (GIAN) on **“Advanced Electron Microscopy for Material Science”** at Jawaharlal University, New Delhi, from 13<sup>th</sup> to 22<sup>nd</sup> March, 2018.
4. Successfully completed online Course work on **“Comprehensive Disaster Risk Management Framework (CDRMF)”** “conducted from 1st October to 11th November 2019 by Global Facility for Disaster Reduction and Recovery and National Institute of Disaster Management.

## **CONFERENCES & WORKSHOPS**

1. **Sundaram S, Satyam A, Sharma A, Shankhdhar SC (2007). Plantibodies (The Antibody Genes in Plants): Their Applications and Advantages** selected for poster presentation in Botany & Plant Biology Joint Congress, July 7-11, 2007, Chicago. Awarded travel grant from Department of Biotechnology, New Delhi, India.
2. **Sundaram S, Thakur IS (2010). Isolation and characterization of extracellular carbonic anhydrase in bacteria involved in carbon concentrating mechanism** selected for poster presentation in 13<sup>th</sup> International Symposium on Microbial Ecology *Microbes – Stewards of a Changing Planet* Seattle, WA, USA, 22-27 August 2010 (Author index-Poster no.02.09, 197A).
3. **Sundaram S, Thakur, IS (2013) Isolation and characterization of thermoalkalotolerant *Bacillus* sp. strain ISTS2 for carbon dioxide sequestration.** International Humboldt Kolleg on "Management of Water, Energy and Bio-resources in Changing Climate Regime: Emerging Issues and Environmental Challenges", 8-9 February 2013, School of Environmental Sciences, Jawaharlal Nehru University (JNU), New Delhi-110067, India. **Awarded as the best paper award for young scholar.**

4. Presented a research paper in International Conference on emerging trends in biotechnology (ICETB 2014) held from 6-9th November 2014 at Jawaharlal Nehru University, New Delhi.
5. Attend training program on **“Fundamentals of GCMS solution work station”** conducted from 22-23<sup>rd</sup> July, 2014 organized by Shimadzu Analytical (India) PVT.TD.at SAIP, Delhi.
6. Participated in workshop entitled with **“Gas Chromatography-Mass Spectrometry”** held on 28<sup>th</sup> January, 2015 at Advanced Instrumentation Research Facility, JNU, New Delhi.
7. Presented a poster and participated in the Women Scientist & Entrepreneurs Conclave as part of **“India International Science Festival (IISF)-2017”** held at Chennai on October 13-16, 2017.
8. Presented a poster and participated in the Women Scientist & Entrepreneurs Conclave as part of **“India International Science Festival (IISF)-2018”** held at Lucknow on October 05-08, 2018.
9. Presented a paper and participated in the Women Scientist & Entrepreneurs Conclave as part of **“India International Science Festival (IISF)-2019”** held at Kolkata on November 05-09, 2019.
10. Presented poster in International Conference on **“Emerging Trends in biotechnology for waste conversion (ETBWC-2017)”** held on 8-10<sup>th</sup> October, 2017 at CSIR-NEERI, Nagpur.
11. Presented poster entitled on **“Significant role of synthesized Iron Oxide nanoparticles induced oxidative stress in plant and EPR based detection of generated free radicals”** at the international conference on **“Applied Nanotechnology and Nanoscience”**(ICANN 2017). Held at Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati, Pune, Maharashtra, India on 7-9<sup>th</sup> December 2017.
12. Presented poster entitled on **“ESR based detection of free radicals induced by Iron Oxide nanoparticles in plants”** at the International Conference on **“Environmental and Biomedical Nanotechnology (ICEBN 2018)”**, which will be held during September 14-15th, 2018 in the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India.

13. Participated in the Enviro-Health conference-2017 organized by Vijnana Bharati (VIBHA) on 2<sup>nd</sup> November, 2017 at the Ministry of Earth science, New Delhi.
14. Presented research paper entitled on “Electron Paramagnetic Resonance (EPR) Spectroscopy of Iron Oxide nanoparticles induced free radicals generated by oxidative stress in plant root” in international conference on the study of nanomaterials and scientific development in 21<sup>st</sup> century (ICSNSDC). Held on 3-5<sup>th</sup> November, 2017 at Jiwaji University, Gwalior.
15. Participated in workshop on “Intellectual Property Rights (IPR)” organized at JNU, New Delhi on 19<sup>th</sup> January 2018.
16. Attended in one day conference on “**Women for science- Science for Women**” organizes by Vijnana Bharati and ARSD College. Held on 9<sup>th</sup> February 2018 at ARSD College, Delhi University.
17. Participated in “National Conference on recent advances in environmental sciences-2018” at School of Environmental Sciences, JNU, New Delhi. Held on 22<sup>nd</sup> March 2018.

#### **CONFERENCES /WORKSHOPS ORGANIZED**

1. International Conference on Emerging Trends in Biotechnology (ICETB 2014) held on 6-9, November 2014 at JNU, New Delhi.
2. International Conference on strategies for Environmental protection and management (ICSEPM-2016) held on 11-13, December 2016 at JNU, New Delhi.
3. One-month-long program “**Women for Science: Science for Women**” conferences & medical camps in association with Vigyan Bharati, Atma Ram Sanatan Dharma College, Vivekananda College, Lakshmibai College, University of Delhi and Jawaharlal Nehru University, New Delhi. Held on 9<sup>th</sup> Feb- 8<sup>th</sup> March, 2018.
4. “Shakti Sthapna Diwas” jointly organized by Shakti VIBHA Delhi and Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, New Delhi. Held on 7<sup>th</sup> April, 2018.
5. “**Tech4Seva**” jointly organized by Unnat Bharat Abhiyan and Vijnana Bharati, a three-day national workshop on technology outreach as an enabler for inclusive and sustainable development held on 10<sup>th</sup> -12<sup>th</sup> August, 2019 at IIT, Delhi.

6. Actively participated as Environmental Nodal Officer at **NATIONAL ENVIRONMENTAL YOUTH PARLIAMENT-2022** held on April 16, 2022, at **Sansad Bhawan**, New Delhi on the theme:” Paryavaran Chetna-Environment and Sustainability”.
7. National seminar on “Vishwa Guru Bharat: Exploring the Glorious Past, Promoting Present and the future Roadmap” organised by Shaheed Rajguru College of Applied Sciences for women and ICSSR, New Delhi, held on 22<sup>nd</sup> 23<sup>rd</sup> March, 2022.

### **EXPERTISE IN BIO-TECHNIQUES**

Animal cancer cell culture, 2D gel electrophoresis, protein purification and enzyme kinetics, GC-MS, ELISA, XRD, FT-IR, FT-Raman, Electron microscopy, EDX, MALDI-TOF, Flow cytometry, Standard Molecular Biology tools, PCR, DNA cloning, expression studies, molecular and bacterial taxonomy, oxidative stress experiments, 16s- rDNA-DGGE based microbial community structure analysis and molecular microbial ecology. Plant tissue culture, Isolation of DNA and Mitochondria from plant, Atomic absorption spectrophotometer, Photosynthetic rate measurement from IRGA, Cultivation and pest control of rice, wheat & Mushroom, biodegradation of pesticide from pesticide contaminated soil. Specialization in Electron Paramagnetic Resonance Spectroscopy (EPR) and Flow Cytometer.

### **MEMBERSHIPS**

1. Lifetime member of the Biotech research society (BRSI) of India. Membership No. LM981.
2. Lifetime member of the Association of Microbiologists of India (AMI).
3. Member of International naturopathy organization (Registration no. DL/1):2150.
4. Lifetime member of Vigyan Bharati.
5. Lifetime member of Nano and Molecular Society of India.