CURRICULUM VITAE

Dr. Awadhesh Kumar Shukla
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Department of Botany
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Specialization: Environmental microbiology/Molecular microbiology

Educational Qualifications:

Degree	Board/University	Year	Percentage/CGPA	Division
Ph.D. (Botany)	Banaras Hindu University, Varanasi	2010	-	**Awarded**
M.Sc. (Botany)	Banaras Hindu University, Varanasi	2006	CGPA 8.19	**First**
B.Sc (Hons.) Botany	Banaras Hindu University, Varanasi	2003	65.94	**First**
Intermediate	U.P. Board	1998	70.4	**First**
High School	U.P. Board	1996	82.17	**First**

Thesis Topics:

M. Sc.: *Study the Photosynthetic Pigments of Aquatic and terrestrial Cyanobacteria in BHU campus.*

Ph. D.: *Biodegradation of trichloroethylene using diazotrophic and methanotrophic bacterial communities.*

Post-doctoral Research:

- **CSIR-Research Associate** from April 2012 to April 2015 at Department of Botany, Banaras Hindu University, Varanasi.
- Project **SRF** from August 2016 to 31st March 2017, at ICAR-National Bureau of Agriculturally Important Microorganisms (ICAR-NBAIM), Mau, Uttar Pradesh.
- **UGC-Dr. D.S. Kothari, Post-doctoral fellowship** awarded in the year 2017.

Fellowships/Awards:

- Recipient of National Scholarship.
- Qualified GATE in 2005 and 2006 (Twice).
- JRF (NET) UGC Sept 2006-August 2007.
- JRF (NET) CSIR Sept 2007- August 2008.
- SRF CSIR Sept 2008- August 2011.

- CSIR-Research Associate (2012-15)
- UGC-Dr. D S Kothari Post-doctoral Fellowship in the year 2017.
- Young Scientist & Outstanding Scientist Award 2018 (Society of Tropical Agriculture, New Delhi)

Life Membership of Scientific Societies:

- Biotech Research Society of India (BRSI)
- Association of Microbiologists of India (AMI)

Participation in Trainings/Workshop:

- Participated in National workshop on ***"Electrophoresis technique"*** was held from 16-25 May 2007 at Yercaud (Tamil Nadu).
- Participated in National workshop on ***"Functional Genomics and Evolutionary Biology"*** at Institute of Life sciences Bhubaneswar, Orissa, was held from 21st to 23rd Nov. 2007.

Research/review articles in National/International Journals:

1. **Shukla AK.**, Pranjali Vishwakarma, S.N. Upadhyay, Anil K Tripathi, H.C. Prasanna and Suresh K Dubey **(2009).** Biodegradation of trichlroethylene (TCE) by methanotrophic community. ***Bioresource Technology***, 100, 2469-2474. **[IF: 9.0]**
2. **Shukla AK**, Pranjali Vishwakarma , R. S. Singh , S.N. Upadhyay , Suresh K. Dubey **(2010a).** Biofiltration of trichloroethylene using diazotrophic bacterial community. ***Bioresource Technology***. 101, 2126-2133. **[IF: 9.0]**
3. **Shukla AK**, R. S. Singh , S.N. Upadhyay , Suresh K. Dubey **(2010b).** Kinetics of biofiltration of trichloroethylene by methanotrophs in presence of methanol. ***Bioresource Technology***. 101, 8119- 8126. **[IF: 9.0]**
4. **Shukla AK**, R. S. Singh , S.N. Upadhyay , Suresh K. Dubey **(2011).** Substrate inhibition during bio-filtration of TCE using diazotrophic bacterial community. ***Bioresource Technology*** . 102, 3561-3563. **[IF: 9.0]**
5. Yadav M, Srivastava N, **Shukla AK,** R.S.Singh, S.N Upadhyay, Suresh K Dubey **(2015)** Efficacy of *Aspergillus* sp. for degradation of chlorpyrifos in batch and continuous aerated packed bed bioreactors. ***Applied Biochemistry and Biotechnology.*** 175, 16-24. **[IF: 3.3]**
6. Srivastava N, **Shukla AK,** Singh RS, Upadhyay SN, Dubey SK **(2015)** Characterization of bacterial isolates from rubber dump site and their use for biodegradation of isoprene in batch and continuous bioreactors. ***Bioresource Technology.*** 188, 84-91. **[IF: 9.0].**
7. **Shukla AK,** S.N. Upadhyay, Suresh. K. Dubey **(2014).** Current trends in trichloroethylene biodegradation:a review: ***Critical Reviews in Biotechnology***. 34, 101-114. **[IF: 7.7].**
8. Yadav M*, **Shukla AK*,** N Srivastava*, S.N Upadhyay, Suresh K Dubey **(2016).** Utilization of microbial community potential for removal of chlorpyrifos: a review. ***Critical Reviews in Biotechnology.*** 36, 727-42 (* Equal contribution). **[IF:** 7.7**].**
9. Geed S Kureel MK, **Shukla A K**, Singh RS and Rai BN **(2016).** Biodegradation of malathion and evaluation of kinetic parameters using three bacterial species. ***Resource Efficient Technologies***. 2, S3-S11.
10. Kureel MK, Geed S, Giri BS, **Shukla A K**, Rai BN and Singh RS **(2016).** Removal of aqueous benzene in the immobilized batch and continuous packed bed bioreactor by isolated *Bacillus* sp.M1. ***Resource Efficient Technologies*** 2, Pages S87-S95.
11. **Shukla AK (2018).** Phytoremediation of xenobiotics using arbuscular mycorrhiza from contaminated soil. ***International Journal of Tropical Agriculture***. 36, 901-906. **[NAAS rating: 3.49].**

12. **Shukla AK (2018).** Plant growth promoting rhizobacteria (PGPR): An alternative source of biofertilizer for sustainable agriculture. ***International Journal of Tropical Agriculture***. 36, 729-736. **[NAAS rating: 3.49].**
13. Vaishnav A, **Shukla AK**, Sharma A, Kumar R and Choudhary DK **(2019).** Endophytic bacteria in plant salt stress tolerance: current and future prospects. ***Journal of Plant Growth Regulation*****,** 38, 650-668 **[IF: 4.4].**
14. **Shukla AK** and Singh AK **(2020).** Exploitation of potential extremophiles for bioremediation of xenobiotics compounds: a biotechnological approach. ***Current Genomics***, Doi: 10.2174/1389202921999200422122253. **[IF: 1.4].**
15. U Anand, Anukool Vaishnav, Sushil K. Sharma, Jagajjit Sahu , Sarfaraz Ahmad , Kumari Sunita, S. Suresh, Abhijit Dey, Elza Bontempi, Amit Kishore Singh, Jarosław Proćków, **AK Shukla (2022).** Current advances and research prospects for agricultural and industrial uses of microbial strains available in world collections. ***Science of The Total Environment*** , 842, 156641**. [IF: 8.0]**.
16. Anand U, Pal T, Yadav N, Singh VK, Tripathi V, Choudhary KK, **Shukla AK**, Sunita K, Kumar A, Bontempi E, Ma Y. Current scenario and future prospects of endophytic microbes: promising candidates for abiotic and biotic stress management for agricultural and environmental sustainability. ***Microbial Ecology***. **2023** Oct;86(3):1455-86. **[IF: 4.0]**.
17. Tripathi M, Singh S, Pathak S, Kasaudhan J, Mishra A, Bala S, Garg D, Singh R, Singh P, Singh PK, **Shukla AK**. Recent strategies for the remediation of textile dyes from wastewater: a systematic review. ***Toxics.*** **2023** Nov 19;11(11):940. **[IF: 4.1]**.
18. Maurya S, Tripathi M, Tiwari KK, **Shukla AK**. Analyses of water quality using different physico-chemical parameters: A study of Saryu river. ***The Scientific Temper***. **2023** Aug 2;14(03):674-9.
19. Maurya S, Tripathi M, Tiwari KK, **Shukla AK**. Isolation and molecular characterization of microbial isolates from Saryu river water. ***The Scientific Temper.*** **2023** Dec 27;14(04):1142-7.
20. Tripathi, M.; Pathak, S.; Singh, R.; Singh, P.; Singh, P.K.; **Shukla, A.K**.; Maurya, S.; Kaur, S.; Thakur, B. A Comprehensive Review of Lab-Scale Studies on Removing Hexavalent Chromium from Aqueous Solutions by Using Unmodified and Modified Waste Biomass as Adsorbents. ***Toxics*** **2024**, 12, 657. https://doi.org/10.3390/ toxics12090657. **[IF: 4.1]**.
21. M Tripathi, S Pathak, R Singh, P Singh, PK Singh, N Prasad, S Maurya and **Shukla AK 2024**. Adsorptive remediation of hexavalent chromium using agro-waste rice husk: Optimization of process parameters and functional groups characterization using FTIR analysis. ***The Scientific Temper*** 15 (04), 2958-2963.
22. Abhinav P Yadav, Shubham Gudadhe, Sarika Kumari, Sadanand Maurya, Manikant Tripathi, **Shukla AK 2024.** Assessment of heavy metal contamination in *Trifolium alexandrium* and *Spinacia oleracea* using ICP-MS: A comparative analysis across different districts in eastern Uttar Pradesh. ***The Scientific Temper*** 15 (03), 2440-2446.
23. Manikant Tripathi, Shivpujan Shukla, Ranjan Singh, Sangram Singh, Pankaj Singh, Pradeep Kumar Singh, **Awadhesh Kumar Shukla**, Sadanand Maurya, Sukriti Pathak, Vinod Kumar Chaudhary, Ajay Kumar Shukla and R. Manimekalai. Physicochemical investigations of textile wastewater and process parameter optimization for bio-decolorization of congo red dye by *Pseudomonas aeruginosa* MT-2 strain. ***J Pure Appl Microbiol***. Published online 16 November **2024**. doi: 10.22207/JPAM.18.4.29. **[IF: 0.6]**.
24. A.K Singh, V.K., **Shukla, A.K**. & Singh, **2024**. Endophytic *Bacillus* species as multifaceted toolbox for agriculture, environment, and medicine. ***Environment Development and Suistainability***, https://doi.org/10.1007/s10668-024-05706. **[IF: 4.2]**.
25**.** Abhinav Prakash Yadav, Shubham Gudadhe, Sarika Kumari, Ratna Shukla, Manikant Tripathi **Awadhesh Kumar Shukla**. **2025**. Impact of heavy metals assessments on the physiological aspects of spinach plant (*Spinacia oleracea* L.). ***The Scientific Temper*** 16, 3592-3600.

26. P Kumar, AK Sharma, Pal K, **Shukla AK, 2025.** Effect of environmental factors on the communal roosting behavior of House crow (*Corvus splendens*). ***Journal of Environmental Biology***, 46, 792-801. **[IF:0.7].**
27. Sadanand Maurya. **Awadhesh Kumar Shukla**. Bhaskar Reddy , Amit Kishore Singh. Vipin Kumar Singh . Manikant Tripathi **2026.** Metagenomic insights into microbial community, antibiotic resistance genes and virulence factor in Saryu river water, India. **Environmental Science and Pollution Research (Revision).**

Books/Book Chapters :

1. Dubey SK, Vishwakarma P, **Shukla AK**, Maya K, Singh AK, Singh A. **(2011).** Metabolic engineering: a multifarious promising tool of post genomic era. In: Roy BK, Chaudhary BR, Sinha RP.(Eds.). Plant Genome, Diversity, Conservation and Manipulation. Narosa Publishing House, New Delhi, pp 59-68. **ISBN No: 978-81-8487-113-5.**
2. **Shukla AK (2018).** Factors affecting the diversity of plant growth promoting rhizobacteria in agricultural fields. Contemporary climate issues and challenges: A multidisciplinary approach. Eds.(Yadav M, Rani V and Kumar A).Anamika Publishers and Distributers (P) LTD. New Delhi. **ISBN No. 978-81-7975-959-2.**
3. **Shukla AK (2019).** Ecology and diversity of plant growth promoting rhizobacteria in agricultural landscape. pp 1-11. Elsevier. PGPR Amelioration in Sustainable Agriculture. Eds. (Singh AK, Kumar A and Singh PK). DOI: https://doi.org/10.1016/B978-0-12-815879-1.00001-X. **ISBN: 978-0-12-815879-1 (print) ISBN: 978-0-12-816019-0 (online).**
4. Singh VK, **Shukla AK** and Singh AK **(2019).** Impact of climate change on plant_microbe interactions under agro-ecosystems. pp 153-179. Elsevier, Climate Change and Agricultural Ecosystems Current Challenges and Adaptation. Eds.(Chaudhary KK, Kumar A and Singh AK). DOI: https://doi.org/10.1016/B978-0-12-816483-9.00007-4, **ISBN: 978-0-12-816483-9.**
5. **Shukla AK,** Singh AK and Sharma A **(2019).** Mycorrhizal assisted phytoremediation of xenobiotics from contaminated soil. Pp 53-59, Springer Nature Singapore Pte Ltd. Mycorrhizosphere and Pedogenesis, Eds. (A. Varma, D. K. Choudhary). https://doi.org/10.1007/978-981-13-6480-8_3. **ISBN 9789811364808 (online), 9789811364792 (print).**
6. **Shukla AK (2019).** Emerging infectious diseases caused by fungi in animals and their prevention. pp 1-15. Springer Nature Switzerland AG, Eds. (Gupta A and Singh NP), Recent Developments in Fungal Diseases of Laboratory Animals. https://doi.org/10.1007/978-3-030-18586-2. **Print ISBN 978-3-030-18585-5, Online ISBN 978-3-030-18586-2.**
7. A Sharma, A Srivastava, **AK Shukla**, K Srivastava, AK Srivastava, Saxena AK **(2020).** Entomopathogenic Fungi: A Potential Source for Biological Control of Insect Pests. Phytobiomes:

Current Insights and Future Vistas, Springer, Singapor, 225-250. **DOI: 10.1007/978-981-15-3151-4-9**.

8. **AK Shukla**, YK Singh, VK Pandey **(2020).** Phytoremediation of Pollutants from Soil. In: Singh P., Singh S.K., Prasad S.M. (eds), Plant Responses to Soil Pollution, Springer, Singapor, 155-161. https://doi.org/10.1007/978-981-15-4964-9_9 .
9. Bacterial Endophytes for Sustainable Agriculture and Environmental Management **(2022). Editors:** AK Singh, V Tripathi, **AK Shukla,** P Kumar. **Springer Singapore.**
10. **AK Shukla,** V K Singh, and S Maurya **(2022).** Climate Change: A Key Factor for Regulating Microbial Interaction with Plants. A. Vaishnav et al. (eds.), Plant Stress Mitigators, https://doi.org/10.1007/978-981-16-7759-5_2.

Conference Papers:

1. Sharma SK, **Shukla AK**, Gupta AK, Ahmad E, Sharma PK and Saxena AK **(2016)**. Microbial resource centers: treasure house of resources for today and tomorrow. Conference paper XI National Symposium on **Soil Biology and Ecology** is being organized on 19-21st December 2016 at Bangalore**.**

2. Sharma SK, Gupta AK, **Shukla AK**, Ahmad E, Sharma MP and Ramesh A **(2016)**. Microbial Conservation Strategies and Methodologies: Status and Challenges. ***Indian Journal of Plant Genetic Resources***. 29, 114-116. **[IF: 0.6; NAAS rating: 4.61].**

3. Kureel MK, **Shukla A K**, Geed S, Rai BN and Singh RS **(2016).** Benzene biodegradation and its kinetics study by *Sphingomonas* sp. and *P. putida.* ***International Journal of Basic and Applied Biology*.** Vol3, 18-21. **ISSN: 2349-2539.**

4. Kureel MK, Geed S, **Shukla A K**, Rai BN and Singh RS **(2015).** Bioremediation of volatile organic compound benzene by *P. putida* 1192. ***Journal of Basic and Applied Engineering Research***. Vol2, pages 1997-1999. **ISSN: 2350-0077.**

5. Singh RS, Rai BN, Srivastav MK, **Shukla AK**, Dubey SK. **(2014).** Bacterial contamination in air borne particulates ($PM_{2.5}$ and PM_{10}). IASTA, Indian Aerosols Science and Technology Association, Department of Geophysics, Banaras Hindu University, Varanasi. **ISSN No: 09714510.**

Paper presented in International/National/ Seminar/Conference/Symposia:

Studies on Trichloroethylene degradation by methanotrophs in tropical soils. **2008.** International symposium on Microbial biotechnology: Diversity, Genomics and Metagenomics. AMI, Department of Zoology, Delhi University, New Delhi.

Biodegradation of isoprene by diazotrophic bacterial community. **2009.** International conference on Emerging trend in biotechnology (ETBT 2009). 6th annual convention on BRSI. Institute of Technology and School of Biotechnology BHU, Varanasi, India.

Biofiltration of trichloroethylene (TCE) using methanotrophs. **2011.** International conference on microorganisms in environmental management and biotechnology Department of Biotechnology and Bioinformatics Centre, Barkatullah University, Bhopal, India.

Studies on biofiltration of trichloroethylene (TCE) using diazotrophic bacteria. **2012.** International conference on mycology and plant pathology biotechnological approaches. Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi.

Bioremediation of methylene blue dye bearing wastewater using sequential batch reactor. **2014.** ICETB, School of Environmental Science, JNU, New Delhi.

Biodegradation of isoprene by diazotrophic methanotrophs isolate. **2015.** ETCPSR, Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi.

Awadhesh Kumar Shukla