# CURRICULUM VITAE


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## PROFESSIONAL AND ACADEMIC DETAILS

- Assistant Professor ( Senior Scale, August 2017- Present)
- Teaching Experience: Aug. 2017– continuing at UG and PG levels
- Ph.D. in Botany (CSIR-National Botanical Research Institute, Lucknow)
- MSc. in Botany (University of Lucknow, Lucknow)
- UGC-CSIR NET in year 2012
- CSIR- Senior Research Fellow (CSIR-SRF) in year 2012
- National Post-Doctoral Fellow Award (NPDF) from DST, Gov. of India.
- UGC DS Kothari Post Doctorate Fellow Award, UGC, New Delhi.
- Projects: Completed: 02 (UGC- BSR, DST-SERB (CRG), Ongoing: 01 (ISRO)

## RESEARCH AREA &TEACHING EXPERIENCE

- Working in area of Plant community dynamics, Vegetation structure and composition, forest understory, Eco-physiology in diverse regions, and ecosystem fluxes in tropical and alpine ecosystems.
  1. No. of Ph.D. Supervised: awarded:02, Ongoing: 01
  2. Dissertation(s) guided:15
  3. Teaching: UG, PG and Ph.D. students in Department of Botany at Indira Gandhi National Tribal University, (IGNTU), Amarkantak, M.P. since 2017

## AWARDS & RESEARCH GRANTS/PROJECTS

### ❖ RESEARCH GRANTS/PROJECTS:

- Received research grant from Indian Space Research Organisation **(ISRO)** in year 2021-2024 for research project entitled "Modelling forest Phenological parameters from time series remote sensing data (Achanakmar-Amarkantak Biosphere Reserve)". **Funding amount: 15,24,000 (Fifteen Lakhs Twenty four thousand), Role: Principal Investigator**

- Received research grant from **DST-SERB** for year 2020-2023 for research project entitled "Dynamics of Soil $CO_2$ and $NO_X$ effluxes by invasive plant species: implications for accelerated climate change in tropical deciduous forests of Central India". **Funding amount: 46,34,600 (Fourty Six Lakhs Thirty four thousand six hundred), Role: Principal Investigator**

- Received Start-up Grant **(UGC-FRPS)** from UGC, New Delhi in year 2018. **Funding amount: 10,00,000 (Ten Lakhs),Role: Principal Investigator**

❖ **AWARDS/RECOGNITION:**

- **Invited Lecture** in International Conference on Multidisciplinary approaches in lichenology, September 2022, **CSIR, NBRI.**
- **Invited Lecture** on "Ecophysiological Investigations: Approaches and Challenges in climate Modelling" in 3rd International Workshop on 'Biodiversity and Climate Change – Sustainable Development Perspective' during 16-19 February, 2023 at **IIT Kharagpur**
- **Invited Lecture** on Ecological modelling and Instrumentation in International Workshop on Biodiversity and Climate Change (BDCC) at **IIT Kharagpur, 2018.**
- Received **Best Appreciation Award** in International Workshop on Biodiversity and Climate Change (BDCC) **at IIT Kharagpur, 2018.**
- **National Post-Doctoral Fellow Award (NPDF)** from DST, Gov. of India in year 2017.
- **UGC DS Kothari Post Doctorate Fellow Award**, 2017 from UGC, New Delhi
- **CSIR- Senior Research Fellow (CSIR-SRF) Award** from Council of Scientific and Industrial Research, New Delhi in year 2012.
- **UGC NET** in year 2012.
- **Best Poster award** in National Symposium on Current Status and New horizons of Ecological Sciences and Environmental Biotechnology (ESEB-13) at **BHU, Varanasi**, India from 1-3 March 2013.

## RESEARCH PUBLICATIONS

1. Mallick, S., Kumar, N., Dubey, A., Upadhyay, A. K., Gautam, A., Ranjan, R., Srikrishna, S., **Sahu, N.**, & Behera, S. K. (2017). GABA accretion reduces Lsi-1 and Lsi-2 gene expressions and modulates physiological responses in *Oryza sativa* to provide tolerance towards arsenic. *Scientific Reports*, 7, 8786. https://doi.org/10.103/10.1038/s41598-017-09428-2 (Impact Factor: 3.8)

2. Behera, S. K., Mishra, A. K., **Sahu, N.**, Kumar, A., Singh, N., Kumar, A., Bajpai, O., Chaudhary, L. B., Khare, P. B., & Tuli, R. (2012). The study of microclimate in response to different plant community association in tropical moist deciduous forest from northern India. *Biodiversity and Conservation*, 21, 1159–1176. https://doi.org/10.1007/s10531-011-

0227-7 (Impact Factor: 3.05)

3. Chaudhary, L. B., Bajpai, O., Behera, S. K., & **Sahu, N.** (2013). A new species of *Oxytropis* (Fabaceae: Papilionoideae) from India. *Phytotaxa*, 155(1), 50–58. https://doi.org/10.11646/phytotaxa.155.1.4 (Impact Factor: 1.0)

4. Pandey, A. K., Majumder, B., Keski-Saari, S., Kontunen-Soppela, S., Mishra, A., **Sahu, N.**, Pandey, V., & Oksanen, E. (2015). Searching for common responsive parameters for ozone tolerance in 18 rice cultivars in India: Results from ethylene diurea studies. *Science of the Total Environment*, 532, 230–238. https://doi.org/10.1016/j.scitotenv.2015.05.112 (Impact Factor: 8.2)

5. Kumar, A., Bajpai, O., Mishra, A. K., **Sahu, N.**, Behera, S. K., Bargali, S. S., & Chaudhary, L. B. (2015). A checklist of the flowering plants of Katerniaghat Wildlife Sanctuary, Uttar Pradesh, India. *Journal of Threatened Taxa*, 7(7), 7309–7408. https://doi.org/10.11609/JoTT.o3787.7309-7408 (Impact Factor: Not available)

6. Pandey, V. C., **Sahu, N.**, Behera, S. K., & Singh, N. (2016). Carbon sequestration in fly ash dumps: Comparative assessment of three plant association. *Ecological Engineering*, 95, 198–205. https://doi.org/10.1016/j.ecoleng.2016.06.053 (Impact Factor: 3.9)

7. Kumar, N., Dubey, A. K., Jaiswal, P. K., **Sahu, N.**, Behera, S. K., Tripathi, R. D., & Mallick, S. (2016). Selenite supplementation reduces arsenate uptake greater than phosphate but compromises the phosphate level and physiological performance in hydroponically grown *Oryza sativa*. *Environmental Toxicology and Chemistry*, 35(1), 163–172. https://doi.org/10.1002/etc.3164 (Impact Factor: 3.6)

8. Dubey, A. K., Kumar, N., **Sahu, N.**, Verma, P. K., Chakrabarty, D., Behera, S. K., & Mallick, S. (2016). Response of two rice cultivars differing in their sensitivity towards arsenic differs in their expression of glutaredoxin and glutathione S-transferase genes and antioxidant usage. *Ecotoxicology and Environmental Safety*, 124, 393–405. https://doi.org/10.1016/j.ecoenv.2015.11.030 (Impact Factor: 6.2)

9. Behera, S. K., **Sahu, N.**, Mishra, A., Bargali, S. S., Behera, M. D., & Tuli, R. (2017). Aboveground biomass and carbon stock assessment in Indian tropical deciduous forest and relationship with stand structural attributes. *Ecological Engineering*, 99, 513–524. https://doi.org/10.1016/j.ecoleng.2016.11.043 (Impact Factor: 3.9)

10. **Sahu, N.**, Singh, S. N., Singh, P., et al. (2019). Microclimatic variations and their effects

on photosynthetic efficiencies and lichen species distribution along elevational gradients in Garhwal Himalayas. *Biodiversity and Conservation*, 28, 1953–1970. https://doi.org/10.1007/s10531-019-01782-z (Impact Factor: 3.05)

11. Dubey, A. K., Kumar, N., Kumar, A., Ansari, M. A., Ranjan, R., Gautam, A., Meenakshi, **Sahu, N.**, Pandey, V., Behera, S. K., Mallick, S., & Pande, V. (2019). Over-expression of *CarMT* gene modulates the physiological performance and antioxidant defense system to provide tolerance against drought stress in *Arabidopsis thaliana* L. *Ecotoxicology and Environmental Safety*, 171, 54–65. https://doi.org/10.1016/j.ecoenv.2018.12.053 (Impact Factor: 6.2)

12. Tripathi, P., Behera, M. D., Behera, S. K., & **Sahu, N.** (2019). Investigating the contribution of climate variables to estimates of net primary productivity in a tropical deciduous forest in India. *Environmental Monitoring and Assessment*, 191, 798. https://doi.org/10.1007/s10661-019-7684-9 (Impact Factor: 2.9)

13. Mishra, S., Singh, K., **Sahu, N.**, et al. (2019). Understanding the relationship between soil properties and litter chemistry in three forest communities in tropical forest ecosystem. *Environmental Monitoring and Assessment*, 191, 797. https://doi.org/10.1007/s10661-019-7691-x (Impact Factor: 2.9)

14. Pandey, V. C., **Sahu, N.**, & Singh, D. P. (2020). Physiological profiling of invasive plant species for ecological restoration of fly ash deposits. *Urban Forestry & Urban Greening*, 54, 126773. https://doi.org/10.1016/j.ufug.2020.126773 (Impact Factor: 6.45)

15. Gautam, A., Kumar, N., Dubey, A. K., Ranjan, R., **Sahu, N.**, Behera, S. K., Shah, K., Tripathi, R. D., & Mallick, S. (2020). Sucrose plays key role in amelioration of arsenic induced phytotoxicity through modulating phosphate and silicon transporters, physiological and biochemical responses in C3 (*Oryza sativa* L.) and C4 (*Zea mays* L.). *Environmental and Experimental Botany*, 171, 103930. https://doi.org/10.1016/j.envexpbot.2019.103930 (Impact Factor: 4.5)

16. Behera, S. K., Mishra, S., **Sahu, N.**, et al. (2022). Assessment of carbon sequestration potential of tropical tree species for urban forestry in India. *Ecological Engineering*, 181, 106687. https://doi.org/10.1016/j.ecoleng.2022.106687 (Impact Factor: 3.9)

17. Shweta, S., Dwivedi, A., Subramaniam, B., Kaushik, S., & **Sahu, N.** (2024). Herbaria: A valuable resource of the time treasured historic plant specimens with boundless research potential for environmental sustainability. *Environment, Development and Sustainability*.

https://doi.org/10.1007/s10668-024-05301-1 (Impact Factor: 4.7)

18. Shukla, A. R., **Sahu, N.**, Hurrah, I. A., Ahmad, M., & Wagh, V. V. (2023). *Geranium janakianum* (Geraniaceae), a new species from Uttarakhand, India. *Phytotaxa*, 630(2), 123–132. https://doi.org/10.11646/phytotaxa.630.2.3 (Impact Factor: 1.0)

## TRAINING/ WORKSHOPS/ABSRACTS

- Attended meeting cum workshop on "Status and Future Prospects of Studies on Harnessing Remote Sensing for Environment and Climate programme with special emphasis to Mountain Ecosystem and Phenological studies in forests" **organized** by **ISRO**, in Leh, Ladakh during 12-13 September, 2022.
- Attended training course on "Geostatistics in Ecological Modelling" **organized by IIT Kharagpur** from November 2014 to December 06, 2014.
- Attended training course on "Eddy Covariance" **organized by LICOR BIOSCIENCES, USA**from November 11 to 13, 2013.
- Attended workshop on "Methods and Approaches in Plant Systematics" **organized by CSIR- NBRI**, Lucknow from December 5 to 14, 2011.
- Attended symposium on "Instrumentation for Global Climate Change Research" **organized by LICOR BIOSCIENCES, USA** from December 7 to 8, 2010.

- **Abstracts in conferences** :

- Comparison of Physiological performance in understory tree (*Mallotus philippensis*) in different forest communities in Tropical moist deciduous forest of Uttar Pradesh, India. International Workshop on Biodiversity & Climate Change BDCC, 2010, IIT Kharagpur.

- Comparison of Phytodiversity status in three different types of Tropical Forest. International Conference on Plants & Environmental Pollution. ICPEP- 4, 2010, CSIR-NBRI.

- Role of Micro-Climate in Plant Community Association: A Case study in Tropical moist deciduous forest of Uttar Pradesh, India. International Conference on Plants & Environmental Pollution, ICPEP- 4, 2010. CSIR-NBRI

- Assessment of diversity of tree flora of Katerniaghat Wildlife Sanctuary, Uttar Pradesh. International Conference on Plants & Environmental Pollution, ICPEP- 4, 2010, CSIR-NBRI.

- Phenological study in tropical moist deciduous forest to access the impact of climate change from the Northern India. International Workshop on Biodiversity & Climate Change, BDCC, 2010, IIT Kharagpur.

- Phytosociological observation and Phytodiversity of moist deciduous forest of Katerniaghat wildlife Sanctuary, Uttar Pradesh. The XIX Annual conference of Indian Association for Angiosperm Taxonomy (IAAT) & International Symposium on Angiosperm Systematic & Phylogeny: Retrospects& Prospects, CSIR-NBRI.

- Physiological performance of *Mallotus nudiflorus* saplings in tropical lowland forests of Terai region. National Conference on Climate change: Socio-Economic and environmental issues- Problems and challenges, Meerut College, Meerut.

- Diurnal Pattern of Soil Carbon Flux In Different Forest Types in Tropical moist deciduous forest of Uttar Pradesh, India International Workshop on Biodiversity & Climate Change, BDCC, 2010, IIT Kharagpur.

- Physiological performance of regenerating Sal (*Shorea robusta* Gaertn.) sapling in understory of tropical moist deciduous forest ecosystem of Northern India. (2nd Best Poster award). National Symposium on Current Status and New horizons of Ecological Sciences and Environmental Biotechnology (ESEB-13), BHU, 2013.

- Diversity and distribution of *Oxytropis* DC.(Leguminosae- Papilionoideae) in India. National Symposium on Current Status and New horizons of Ecological Sciences and Environmental Biotechnology (ESEB-13), BHU, 2013.

- Physiological Performance of two lichen species along altitudinal gradients in Western Himalayas (Govind wildlife Sanctuary, Uttarakhand). National Conference on Himalayan Devastation and Ecosystem balancing, University of Lucknow, 2013

- Relationship of Tree Species Composition in Soil CO2 Fluxes: An Overview in Tropical Dry Deciduous ForestEcosystem in Vindhyan Plateau. International Conference on Plants & Environmental Pollution, ICPEP-5, 2015.

- Lichens as Early Warning Systems of Climate Change in Alpine Ecosystems. National Conference on Cryptogam Research in India: progress and Prospects, CSIR-NBRI.

- Interspecific Physiological variations in ex situ conserved Genus *Ficus* L.(Moraceae). National Conference on Indian Botanic gardens NCIBG 2015, CSIR-NBRI.

- Searching for Common Responsive Parameters for Ozone Tolerance in Rice: Results from Ethylenediurea Studies. International Conference on Plants & Environmental Pollution, ICPEP-5, 2015, CSIR-NBRI.

- Comparison of Physiological performance in understory tree (*Mallotusphilippensis*) in different forest communities in Tropical moist deciduous forest of Uttar Pradesh, India. International Conference in Plant sciences Post genomic Era ICPSPGE-2011, Sambalpur University, Orissa.

- Aboveground biomass and Carbon Stock assessment in Indian Tropical deciduous forest and relationship with stand structural attributes. XIX Common wealth Forestry Conference, CFC, 2017, FRI, Dehradun.

- Carbon Sequestration potential of some tropical tree species in Agroforestry system in Northern India. XIX Common wealth Forestry Conference, CFC, 2017, FRI, Dehradun.

- Ecophysiological Investigations on Lichens: Challenges and Approaches, in International Conference on Multidisciplinary approaches in lichenology, September 2022, CSIR, NBRI

- Ecophysiological Investigations: Approaches and Challenges in climate Modelling in 3rd International Workshop on 'Biodiversity and Climate Change – Sustainable Development Perspective' during 16-19 February, 2023 at IIT Kharagpur

## MEMBERSHIP OF PROFESSIONAL BODIES

❖ Membership of professional Bodies:

1. Indian Botanical Society (IBS) : Life member
2. Indian Lichenological Society (ILS) : Life member

## INSTRUMENTATION /TECHNIQUES ACQUIRED

- LICOR-6400 XT Portable Photosynthesis system (LICOR,USA)
- GFS-3000 Portable Gas Exchange Fluorescence System (Heinz- Walz Germany)
- LAI-2000, Plant Canopy Analyzer (LICOR,USA)
- LI-8100 Soil CO2 Flux. (LICOR,USA)
- LI-8150 Soil CO2 Multiplexer. (LICOR,USA)
- LI-840 CO2/H2O Vapour analyzer (LICOR,USA)
- LAI-190 Line Quantum Sensor (LICOR,USA)
- Plant Water Status Console (Soil Moisture Inc. USA)
- Water Potential System (Psypro, Wescor Inc., Utah, USA)
- NOx analyser, 2b technologies, USA
- Soil C flux, PP Systems, USA
- Microclimate sensors, Campbell Scientific, USA
- Plant canopy analyser, CI-110, USA
- Pulse amplified modified Chlorophyll Fluorometer Opti-Sciences, Inc, USA