Abhishek **Kumar**

Senior Research Fellow

Department of Botany, Panjab University, Chandigarh

abhikumar.pu@gmail.com | akumar.netlify.app | kumar-a | abkumar_

Education

Doctor of Philosophy (Botany/Plant Ecology) *2017 – Present*

Panjab University, Chandigarh, IN

Master of Science (Botany) *2015 – 2017*

Panjab University, Chandigarh, IN

Bachelor of Science (Botany, Chemistry, Zoology) *2012 – 2015*

Arya PG College, Panipat, IN

Awards and Distinctions

Young Scientist Award

Punjab Academy of Sciences, Patiala *2022*

Best Poster Award

National Conference on Climate Change, CSIR-NBRI, Lucknow *2020*

Junior Research Fellowship

University Grants Commission, New Delhi *2017*

Research Interests

- **Macroecology** Elevational patterns and determinants of plant species richness
- **Population Ecology** Climate-related redistribution of mountain trees (*Pinus*, *Quercus* and *Rhododendron*)
- **Ecosystem Ecology** Patterns and determinants of litter decomposition in terrestrial ecosystems
- **Restoration Ecology** Ecological restoration of coal mine spoils

Selected Publications

A complete list of publications is available from my ORCID (https://orcid.org/0000-0003-2252-7623)

Journal articles

- Kumar, P., **Kumar, A.**, Patil, M., Hussain, S., & Singh, A. N. (2024). Factors influencing tree biomass and carbon stock in the Western Himalayas, India. *Frontiers in Forests and Global Change, 6*, 1328694. https://doi.org/10.3389/ffgc.2023.1328694
- Singh, A. N., & **Kumar, A.** (2022b). Comparative soil restoration potential of exotic and native woody plantations on coal mine spoil in a dry tropical environment of India: A case study. *Land Degradation & Development, 33*(12), 1971–1984. https://doi.org/10.1002/ldr.4286
- Singh, A. N., & **Kumar, A.** (2022a). Ecological performances of exotic and native woody species on coal mine spoil in Indian dry tropical region. *Ecological Engineering, 174*, 106470. https://doi.org/10.1016/j.ecoleng.2021.106470
- **Kumar, A.**, Patil, M., Kumar, P., Kumar, M., & Singh, A. N. (2022). Plant ecology in Indian Siwalik range: A systematic map and its bibliometric analysis. *Tropical Ecology, 63*(3), 338–350. https://doi.org/10.1007/s42965-022-00229-x

- Patil, M., **Kumar, A.**, Kumar, P., Cheema, N. K., Kaur, R., Bhatti, R., & Singh, A. N. (2020). Comparative litter decomposability traits of selected native and exotic woody species from an urban environment of north-western Siwalik region, India. *Scientific Reports, 10*, 7888. https://doi.org/10.1038/s41598-020-64576-2

Book chapters

- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2021). Phosphorus and litter decomposability traits in tropical forest ecosystems under changing environment: A synthesis. In R. K. Chaturvedi, R. Singh, & R. Bhadouria (Eds.), *Tropical dry forests: Emerging features and ecological perspectives* (pp. 311–336). Nova Science Publishers.
- **Kumar, A.**, Yadav, R., Patil, M., Kumar, P., Zhang, L., Kaur, A., Sharma, S., Hussain, S., Tokas, D., & Singh, A. N. (2020). Sustainable management of national parks and protected areas for conserving biodiversity in India. In L. Zhang (Ed.), *Advances in forest management under global change* (pp. 75–91). IntechOpen. https://doi.org/10.5772/intechopen.92435

Under communication

- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2023). Determinants of plant species richness along elevational gradients: Insights with climate, energy and water-energy dynamics. Preprint (Version 1) available at Research Square. https://doi.org/10.21203/rs.3.rs-3352045
- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2024). Exploring elevational patterns of plant species richness: Insights from Western Himalayas. https://github.com/kumar-a/richness-patterns (under review in *Ecology and Evolution*)
- **Kumar, A.**, Patil, M., Kumar, P., & Singh, A. N. (2024). Climate-driven elevational range dynamics of plant distributions: Insights from Western Himalayas. https://github.com/kumar-a/shifting-distributions (submitted to *Ecological Applications*)
- Patil, M., **Kumar, A.**, Kumar, P., & Singh, A. N. (2024). Mycorrhizal fungi accelerate litter decomposition rates in forest ecosystems. https://github.com/kumar-a/patil_et_al-2023 (submitted to *Forests*)

Skills and Qualifications

A full list of accomplishments and certificates is available from my webpage (https://akumar.netlify.app)

Analytical skills

- R statistical environment and `RStudio`
- Data analysis and visualization (`MuMIn`, `stats`, `tidyverse`)
- Mapping and spatial data analysis (`ggplot2`, `sf`, `terra`, `tmap`)
- Species distribution modeling (`biomod2`, `MaxEnt`)
- Structural equation modeling (`piecewiseSEM`)

Academic writing

- Scientific and technical writing
- Reproducible research (`git`, `quarto`, `rmarkdown`, `knitr`)
- Systematic reviews and meta-analysis (`bibliometrix`, `metafor`, `revtools`)

Professional Memberships

Society of Open, Reliable and Transparent Ecology and Evolutionary Biology (SORTEE) — *Salem, Oregon, US*
Student member (#521) — *2023 – Present*

Punjab Academy of Sciences — *Patiala, Punjab, IN*
Life member (#L-1599) — *2022 – Present*

International Association for Vegetation Science (IAVS) — *Bethesda, Maryland, US*
Student member (#67527876) — *2021 – 2025*