

## Dr. SUDEEP CHANDRA

### Senior Scientific Officer

High Altitude Plant Physiology Research Centre (HAPPRC)  
Hemwati Nandan Bahuguna (HNB) Garhwal University  
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## ACADEMIC QUALIFICATIONS

1. **Ph.D. in Plant Physiology** – HAPPRC, H.N.B. Garhwal University. Ph.D. Title: Impact of Elevated CO<sub>2</sub> on Aconitum Species.
2. **Qualified ASRB-NET (2018)** in Plant Physiology.
3. **M.Sc.** – Specialization in Medicinal and Aromatic Plants; HAPPRC, H.N.B. Garhwal University.
4. **B.Sc. in Life Sciences** (Botany, Chemistry and Zoology) – H.N.B. Garhwal University.

## RESEARCH INTERESTS & COMPETENCIES

Climate change studies on plants; Biochemical analyses; Plant tissue culture and agricultural techniques of RET (Rare, Endangered and Threatened) plants; Plant eco-physiology; Allelopathy; Alpine plant ecology and conservation.

## TEACHING INTERESTS

Plant Eco-physiology, Biostatistics, Herbal Biochemistry, Analytical Techniques in Medicinal and Aromatic Plants.

## TECHNICAL SKILLS & INSTRUMENTATION

**Instrumentation:** Spectrophotometer, Flame Photometer, HPLC, GC, AAS, Kjeldahl, IRGA, UV-Vis Spectrophotometry, Open Top Chambers (OTCs).

**IT Skills:** MS Office Suite, SPSS, R, PAST, Internet Applications.

## WORK EXPERIENCE

| S.No. | Position Held             | Name of the Institute                                                           | From      | To         |
|-------|---------------------------|---------------------------------------------------------------------------------|-----------|------------|
| 1     | Senior Scientific Officer | High Altitude Plant Physiology Research Centre (HAPPRC), HNB Garhwal University | June 2024 | Till Date  |
| 2     | Research Associate        | HAPPRC, HNB Garhwal University                                                  | Nov 2021  | May 2024   |
| 3     | Senior Research Fellow    | HAPPRC, HNB Garhwal University                                                  | May 2019  | Oct 2021   |
| 4     | Junior Research Fellow    | HAPPRC, HNB Garhwal University                                                  | June 2015 | March 2017 |
| 5     | Project Assistant         | GB Pant National Institute of Himalayan Environment and Development             | Oct 2014  | April 2015 |

## RESEARCH PUBLICATIONS (29 IN PEER-REVIEWED JOURNALS)

| S.No. | Authors                                                                                                    | Title                                                                                                                                                           | Journal (IF)                                            | Vol.  | Year |
|-------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------|------|
| 1     | Trivedi VL, Nautiyal P, <b>Chandra S</b> , et al.                                                          | <i>Biochemical changes in photosynthetic pigments and phenolic compounds in Cinnamomum tamala under whitefly infestation</i>                                    | Phytoparasitica (IF: 1.6)                               | 54    | 2026 |
| 2     | Purohit VK, Dobhal P, Chauhan JD, ..., <b>Chandra S</b> , et al.                                           | <i>Enhancing Livelihoods and Conservation: A Decade-Long Analysis of Medicinal Plant Cultivation in the Indian Himalayas</i>                                    | Environmental and Sustainability Indicators (5.9)       | 31    | 2026 |
| 3     | Negi RS, Purohit VK, Maikhuri RK, Nautiyal V, Chandra S, Rawat LS, Nautiyal MC, <b>Chandra S</b> , Singh R | <i>Biocultural and nutritional significance of Sauromatum diversifolium in Central Himalayan communities, India</i>                                             | Biodiversitas Journal of Biological Diversity (IF: 1.5) | 26(8) | 2025 |
| 4     | Joshi A, Purohit VK, <b>Chandra S</b> , Amarnath V, Rawat N                                                | <i>Angelica glauca: A comprehensive review of ethnobotanical significance and conservation strategies</i>                                                       | International Journal of Research in Agronomy           | 8(7)  | 2025 |
| 5     | Jangpangi D, Patni B, Chandola V, Sudeep Chandra                                                           | <i>Medicinal plants in a changing climate: understanding the links between environmental stress and secondary metabolite synthesis</i>                          | Frontiers in Plant Science (IF: 4.8)                    | 16    | 2025 |
| 6     | Sati P, Chandola V, <b>Chandra S</b> , Trivedi VL, Purohit VK, Nautiyal MC                                 | <i>Global environmental change mediated response of wetland plants: Evidence from past decades</i>                                                              | Science of the Total Environment (IF: 8.0)              | 966   | 2025 |
| 7     | Dobhal P, Purohit VK, <b>Chandra S</b> , et al.                                                            | <i>Nutrient Dynamics and Growth Responses of Angelica glauca Edgew. to Elevated CO<sub>2</sub> and Temperature: A Three-Year Field Study</i>                    | Journal of Soil Science and Plant Nutrition (IF: 3.4)   | -     | 2024 |
| 8     | Dobhal P, Purohit VK, <b>Chandra S</b> , et al.                                                            | <i>Climate-Induced Changes in Essential Oil Production and Terpene Composition in Alpine Aromatic Plants</i>                                                    | Plant Stress (IF: 6.8)                                  | 11    | 2024 |
| 9     | <b>Chandra S</b> , Chandola V, et al.                                                                      | <i>Scoping allelopathic potential of Elsholtzia strobilifera for managing Himalayan Knotweed Koenigia polystachya, an invasive species in Alpine Ecosystems</i> | Folia Geobotanica (IF: 1.2)                             | 58    | 2024 |
| 10    | Chandola V, <b>Chandra S</b> , et al.                                                                      | <i>TDZ and zeatin induced in vitro shooting for efficient vegetative propagation in Trillium govanianum, an</i>                                                 | Vegetos (1.5)                                           | -     | 2023 |

| S.No. | Authors                                                                                 | Title                                                                                                                                                                               | Journal (IF)                                                    | Vol.   | Year        |
|-------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------|-------------|
|       |                                                                                         | <i>endangered alpine medicinal herb</i>                                                                                                                                             |                                                                 |        |             |
| 11    | Chandola V, <b>Chandra S</b> , Kumar RR, Nautiyal AR                                    | <i>Reproductive behavior of an endangered Himalayan medicinal herb Trillium govanianum Wall. ex D. Don</i>                                                                          | Vegetos (1.5)                                                   | 36(4)  | <b>2022</b> |
| 12    | <b>Chandra S</b> , Singh A, Mathew JR, et al.                                           | <i>Phenocam observed flowering anomaly of Rhododendron arboreum Sm. in Himalaya: a climate change impact perspective</i>                                                            | Environmental Monitoring and Assessment (IF: 2.9)               | 194    | <b>2022</b> |
| 13    | Trivedi VL, <b>Chandra S</b> , Nautiyal MC                                              | <i>Impact of Polygonum polystachyum Wall. ExMeisn. (Himalayan knotweed) infestation on physio-biochemical parameters of the Picrorhiza kurroa Royle</i>                             | Acta Physiologiae Plantarum (IF: 2.2)                           | 44(11) | <b>2022</b> |
| 14    | <b>Chandra S</b> , Chandola V, Sultan Z, Singh CP, Purohit VK, Nautiyal BP, Nautiyal MC | <i>Climate change adversely affects the medicinal value of Aconitum species in Alpine region of Indian Himalaya</i>                                                                 | Industrial Crops and Products (IF: 6.3)                         | 186    | <b>2022</b> |
| 15    | <b>Chandra S</b> , Chandola V, Nautiyal MC, Gallacher D, Singh CP, Purohit VK           | <i>Varied multi-season response of Aconitum heterophyllum Wall. to increased CO<sub>2</sub> in the Indian Himalaya</i>                                                              | J. Appl. Res. Med. Aromatic Plants (IF: 3.9)                    | 29     | <b>2022</b> |
| 16    | Chandola V, <b>Chandra S</b> , Nautiyal AR, Concenço G                                  | <i>Antioxidant potential and impact of different extraction solvents on the free, esterified and insoluble-bound phenolics, flavonoid and tannin content of Trillium govanianum</i> | Vegetos (1.5)                                                   | 35     | <b>2022</b> |
| 17    | <b>Chandra S</b> , Chandola V, Nautiyal MC, Purohit VK                                  | <i>Elevated CO<sub>2</sub> causes earlier flowering in an alpine medicinal herb Aconitum heterophyllum Wall.</i>                                                                    | Current Science (IF: 0.9)                                       | 118    | <b>2020</b> |
| 18    | Mohapatra J, Singh CP, Hamid M, Verma A, <b>Chandra S</b> , et al.                      | <i>Modelling Betula utilis distribution in response to climate-warming scenarios in Hindu-Kush Himalaya using random forest</i>                                                     | Biodiversity and Conservation (IF: 3.1)                         | 28     | <b>2019</b> |
| 19    | Singh A, Hart R, <b>Chandra S</b> , Nautiyal MC, Sayok AK                               | <i>Traditional Herbal Knowledge among the Inhabitants: A Case Study in Urgam Valley of Chamoli Garhwal, Uttarakhand, India</i>                                                      | Evidence-based Complementary and Alternative Medicine (IF: 2.6) | - eCAM | <b>2019</b> |
| 20    | <b>Chandra S</b> , Singh A, Singh CP, Nautiyal MC, Rawat LS                             | <i>Vascular plants distribution in relation to topography and environmental variables</i>                                                                                           | Journal of Mountain Science (IF: 2.5)                           | 15(9)  | <b>2018</b> |

| S.No. | Authors                                                                                                                           | Title                                                                                                                                                                  | Journal (IF)                                  | Vol.   | Year        |
|-------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------|-------------|
|       |                                                                                                                                   | <i>in alpine zone of Kedarnath Wild Life Sanctuary, West Himalaya</i>                                                                                                  |                                               |        |             |
| 21    | Mathew JR, Singh CP, Solanki H, Mohapatra J, Nautiyal MC, <b>Chandra S</b> , Bhattacharya BK                                      | <i>Improvement in the delineation of alpine treeline in Uttarakhand using spaceborne light detection and ranging data</i>                                              | Journal of Applied Remote Sensing (IF: 1.7)   | 17(2)  | <b>2023</b> |
| 22    | Trivedi VL, Semwal P, <b>Chandra S</b> , Nautiyal MC, Attri DC, Singh Y                                                           | <i>Impact of silver nitrate on the survival and regeneration potential of explants of Hippophae salicifolia (Seabuckthorn) D. Don</i>                                  | Materials Today: Proceedings (Scopus Indexed) | 73     | <b>2023</b> |
| 23    | Jamloki A, Singh A, <b>Chandra S</b> , Shukla V, Nautiyal MC, Malik ZA                                                            | <i>Population structure, regeneration potential and leaf morphological traits of Rhododendron campanulatum D.Don along an altitudinal gradient in Western Himalaya</i> | Plant Biosystems (IF: 1.8)                    | 157(1) | <b>2023</b> |
| 24    | Dobhal P, <b>Chandra S</b> , Sultan Z, Prasad P, Purohit VK                                                                       | <i>Effect of elevated CO<sub>2</sub> and temperature on growth and biomass production of Nardostachys jatamansi DC.</i>                                                | Bioinfolet                                    | 18(4)  | <b>2021</b> |
| 25    | Singh CP, Mohapatra J, Mathew JR, Khuroo AA, Hamid M, Malik AH, Ahmad R, Kumar A, Verma A, Nautiyal MC, <b>Chandra S</b> , et al. | <i>Long-term observation and modelling on the distribution and patterns of alpine treeline ecotone in Indian Himalaya</i>                                              | Journal of Geomatics                          | 15(1)  | <b>2021</b> |
| 26    | Concenço G, Tomazi M, Marques RF, <b>Chandra S</b> , et al.                                                                       | <i>Sustainability of cassava cultivation in indigenous communities of Brazilian Pantanal</i>                                                                           | Research Society and Development              | 10(1)  | <b>2021</b> |
| 27    | Chandola V, <b>Chandra S</b> , Nautiyal AR, Kumar RR                                                                              | <i>A short report on the first account of morphological variants of Trillium govanianum observed at Tungnath, Indian Himalayas</i>                                     | Ecology Environment and Conservation          | 36(4)  | <b>2020</b> |
| 28    | Chandola V, Nautiyal AR, <b>Chandra S</b> , Kumar RR                                                                              | <i>A review on prioritizing conservation of Himalayan medicinal plant species: Case of Trillium govanianum</i>                                                         | Journal of Medicinal Plant Studies            | 7(5)   | <b>2019</b> |
| 29    | Charak SS, Prasad P, Pandey BN, <b>Chandra S</b>                                                                                  | <i>Evaluation of ecological attributes of Jurinea macrocephala (Royle) C.B.Clarke, a threatened medicinal herb of Western Himalayas</i>                                | Eco Chronicle                                 | 13(3)  | <b>2018</b> |

## BOOKS

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1. Purohit VK, Dobhal P, Chauhan J, Patni B, Trivedi VL, **Chandra S** (2025). *Farmers Guide: Cultivation Technology of Selected Medicinal and Aromatic Plants (MAPs) of Himalayan Region*. M/s BS MS Dehradun India.

## BOOK CHAPTERS (6)

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1. **Chandra S**, Trivedi VL, Purohit VK, Nautiyal MC, Chandra S (2025). *Climatic Change and Physiological Adaptations in Alpine Medicinal Plants*. Springer Nature. In: High Altitude Medicinal Plants.
2. Purohit VK, Chauhan JD, Dobhal P, **Chandra S**, Patni B, Trivedi VL, Nautiyal PC, Nautiyal MC (2025). *Conservation and Cultivation of Medicinal and Aromatic Plants in the High Altitudes of Uttarakhand, India*. Springer Nature. In: High Altitude Medicinal Plants.
3. Chandola V, Sati P, **Chandra S**, Purohit VK, Nautiyal AR, Chandra S (2025). *Changes in Growth and Metabolism of Alpine Plants Along Altitudinal and Microhabitat Gradients*. Springer Nature. In: High Altitude Medicinal Plants.
4. Chandola V, Nautiyal P, **Chandra S** (2024). *Phytochemistry of rhizomatous plants of the Indian Himalaya*. Springer Nature, In: High Altitude Medicinal Plants.
5. **Chandra S**, Chandola V, et al. (2023). *Responses of Herbaceous Species of Alpine Treeline to Elevated CO<sub>2</sub>*. Springer Nature. In: Ecology of Himalayan Treeline Ecotone, Chapter 18.
6. Concenço G, Tomazi M, Marques RF, **Chandra S**, et al. (2021). *Sustainability of cassava cultivation in indigenous communities of Brazilian Pantanal*. Research Society and Development.

## PATENT

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### Granted:

- ***A Device for Aeroponics Growing System*** – Nautiyal P, Trivedi VL, Faraswan AS, Dimri S, Chandola V, **Chandra S**, Purohit VK, Nautiyal MC (2024). Patent for an innovative aeroponics system designed for growing rhizomatous plants.

### Published:

- ***A Method for Preparing A Nutraceutical Tablet***- Maikkhuri RK, Saklani S, Negi RS, Purohit VK, Nautiyal V, Chandra S, **Chandra S** (2026). Patent for nutraceutical tablet prepared using corms/tubers of *Sauromatum diversifolium*.
- ***A Device for Cultivation and Secondary Metabolite Stimulation in High-Altitude Plant Species***- Purohit VK, Patni B, Chandra S, et al., (2025). Walk-in plant growth chamber developed/customized for enhancing growth and secondary metabolite production in alpine plants.

## CONFERENCES & WORKSHOPS

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1. Presented an oral paper on "Long term exposure to elevated CO<sub>2</sub> caused acidity in alpine soil affecting plant physiology and biochemistry" at the National Conference on Remote Sensing for Environment Monitoring & Climate Change Assessment, IIRS and SAC Ahmedabad, December 18–19, 2020.
2. Abstract entitled "Impact of elevated CO<sub>2</sub> on an alpine herb Aconitum heterophyllum Wall ex. Royle" published in the 4th ISSE National Conference (INAC-4) on "System for Transforming India: Challenges and Opportunities," SAC Ahmedabad, September 26–27, 2019.
3. Poster paper at Summit on "Climate Resilient Mountain Agriculture," Watershed Management Directorate, Dehradun, May 02–04, 2018.
4. Poster paper at National Conference on "Recent Advances in Ayurvedic Herbal Medicine – From Source to Manufacturing," sponsored by NMPB (Ministry of AYUSH, Govt. of India), Uttarakhand Ayurved University, Dehradun at IIP Dehradun, September 15–16, 2017.
5. Oral paper at National Conference organized by SMP and HAPPRC, sponsored by NMPB New Delhi, February 08–09, New Delhi.
6. Workshop on Statistical Techniques Using Software (STUS-2016), DIT University, Dehradun, December 23–24, 2016.
7. National Workshop on "Popularisation of Remote Sensing Based Maps & Geospatial Information," jointly organised by ISRS and ISRO, August 11, 2017.
8. Workshop on "Laboratory Bio-safety Protocols," organized by IBSC & Department of Zoology, HNB Garhwal University, April 24, 2018.
9. Training Programme on "Remote Sensing Applications in Forest, Environment & Climate Change," SAC, ISRO Ahmedabad, August 19–23, 2019.

## PERSONAL INFORMATION

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**Father's Name:** Late Sh. Santram Semwal

**Date of Birth:** 24th January 1990

**Nationality:** Indian

**Marital Status:** Married

**Languages:** Hindi and English (Read, Write, Speak)

**Hobbies:** Reading, Badminton, Chess and Travelling

*I hereby declare that the information furnished above is true to the best of my knowledge and belief.*



**(Dr. Sudeep Chandra)**

Place: Srinagar Garhwal