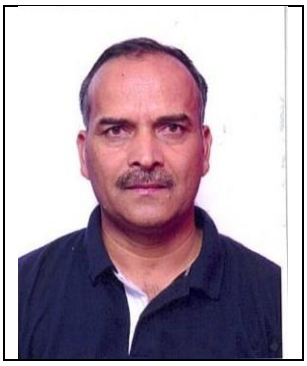

Name: Dr. Ashok Singh
Designation: Principal Scientist
Division: Environmental Technology Division
Research Area: Biodiversity Conservation and Management, Plant Ecology
E-mail: ashoksingh@ihbt.res.in

Research Interest:

In nature, a rapid decrease in the population of threatened and commercially important medicinal and aromatic species by over-exploitation and habitat degradation is recorded. To overcome the pace of rarity, *ex-situ* conservation, re-introduction in the natural habitats, and conversion of RET species into non-RET species is challenging work that requires a lot of effort. Therefore, by knowing importance of the conservation, my research is mainly focused on the following objectives:

- Ecological and ethnobotanical studies of high altitude ecosystems/Western Himalayan Region.
- Domestication of important wild plant bioresources
- *Ex-situ* conservation of important medicinal plants in the '*Plant Conservatory*' at CSIR-IHBT Centre for High Altitude Biology at Ribling (CeHAB), Lahaul & Spiti (H.P.)
- Characterization studies to find out elite germplasms
- Fresh snowmelt water harvesting technology for the dry temperate climatic conditions
- Organic conservation of medicinal plants by bio fertilizer applications from improved dry bio toilets

Award/Recognition:

- ASRB ICAR-NET 2007 (Forestry)
- Researcher (sponsored by World Pheasant Association, New Delhi), from 18.03.2005 to 14.09.2005 at GBPIHED Mohal-Kullu (HP)
- JRF/SRF (sponsored by MOEF&CC New Delhi), w.e.f. 15.09.2005 to 23.06.2009 at GBPIHED Mohal-Kullu (HP)
- Research Associate (sponsored by ICAR-NAIP New Delhi), at KVK Kukumseri Lahaul & Spiti (under CSKHPKV Palampur, HP)
- Research Associate (sponsored by CSIR 12th FYP New Delhi), at CeHAB Ribling Lahaul & Spiti (HP) (under CSIR- IHBT Palampur, HP)

Position and Employment (Starting after Ph.D.):

Positions/ Awards/Recognition	**Institution Place**	**From (Date)**	**To (Date)**
Principal Scientist	CSIR-Institute of Himalayan Bioresource Technology Palampur (H.P.)	21.08.2022	continuous
Senior Scientist and Assistant Professor AcSIR	CSIR-Institute of Himalayan Bioresource Technology Palampur (H.P.)	21.08.2018	20.08.2022
Scientist and Assistant Professor AcSIR (Appointed for the New Centre CeHAB of CSIR-IHBT, a Cold desert)	CSIR-Institute of Himalayan Bioresource Technology Palampur (H.P.)	21.08.2014	20.08.2018
Project 1. As **Research Associate** "*Establishment of Centre for High Altitude Biology*" (Ist RA appointed for the New Centre established by CSIR-IHBT)	*Centre for High Altitude Biology* at Ribling, Lahaul & Spiti (H.P.). {(a research centre of CSIR-IHBT Palampur (H.P.)}	10.5.2012	19.08.2014
Project 2. As **Research Associate**	Krishi Vigyan Kendra	29.6.2009	09.5.2012

"*Evaluation, development of gene bank and mass multiplication of high yielding forms of Seabuckthorn in Lahaul valley*" under NAIP (ICAR) main project "*A value chain on Seabuckthorn* (*Hippophae* L.)"	Kukumseri, Lahaul & Spiti (HP) {a centre under CSK Himachal Pradesh Krishi Vishvavidyalaya Palampur, H.P.}		

Educational back-ground:

- **Ph.D. (Forestry); Thesis title**: *"Assessment of Plant Diversity and Conservation Status of Forest Vegetation in a Cold Desert Biosphere Reserve of North-Western Himalaya".*
- **M.Sc. (Silviculture-Forestry); Thesis title**: *"Biometric Studies on Stand Characteristics of Different Aged Deodar Forests".*
- **B.Sc. (Forestry**) 4-years program

- **Research Experience:** Working experience 20 years in the Cold Desert and high altitude areas in India

Research Work Recognized:

- Pioneer work in the field of Plant Ecology, Biodiversity Conservation and Management in the Cold Desert areas of India
- Plant Conservatory establishment of >40 species at Centre for High Altitude Biology Ribling (CeHAB), Lahaul & Spiti (3450 mamsl) for Threatened, Economically/Ecologically/Commercially Important species of High altitude area
- Received appreciation for my work in the cold desert areas many times

Research projects completed as PIs/Co-PIs: 12 numbers

On-going projects going on as PI/Co-PIs: 3 numbers

Research publications: RG Citations (530): h-index (9); research reads (>39000)

International and National Journals:

Thakur, U., Shashni, S., Thakur, N., Rana, S.K., **Singh, Ashok.** 2023. A review on *Peris polyphylla* Smith: A vulnerable medicinal plant species of a global significance. Journal of Applied Research on Medicinal and Aromatic Plants. 33: March 2023, online 100447 (IF 3.945)

Singh, Ashok. 2022. Sustainable snowmelt water harvesting technology: an irrigation water solution under climate change effect in the dry cold deserts, Indian Himalayan region—a case study. *Sustainable Water Resources Management.* 8, 103.

Singh Ashok, Samant, S.S., Manohar, L., Sharma, P. 2022. Conservation Prioritization Criteria to Identify Rarity of the Plant Species, Habitats and Communities in the Lahaul Valley, Trans North-Western Himalaya, India. *Arid Ecosystems.* 12, 251–271.

Devi, A., Seth, R., Masand, M., Singh, G., Holkar, A., Sharma, S., **Singh Ashok,** Sharma, R.K. 2022. Spatial Genomic Resource Reveals Molecular Insights into Key Bioactive-Metabolite Biosynthesis in Endangered *Angelica glauca* Edgew. *International Journal of Molecular Sciences. 23*, 11064. (IF: 6.208)

Kumar Anil, Shashni Sarla, Kumar Pawan, Pant Deepak, **Singh A.,** & Verma Raj Kumar. 2021. Phytochemical constituents, distributions and traditional usages of *Arnebia euchroma*: A review. *Journal of Ethnopharmacology*. 271: 10 May 2021, 113896 (IF: 4.36)

Singh, A. and Samant, S.S. 2020. Population and Community Structure Pattern of *Juniperous polycarpos* K. Koch with Climate Change Effect in the Cold Desert Trans Himalayan Region, India. *Arid Ecosystems*,2020. 10(1):17-26

Walia, S., Rana, A., **Singh, A.,** Sharma, M., Reddy, S.G.E, and Kumar, R. 2019**.** Influence of Harvesting Time on Essential Oil Content, Chemical Composition and Pesticidal Activity of *Artemisia maritima* Growing Wild in the Cold Desert Region of Western Himalayas, *Journal of Essential Oil Bearing Plants*, 22:396-407.

Singh A., Vats S.K., and Kumar Sanjay. 2017. Present Trend of Research and Developmental Activities taking over by Global Mountain Organizations. *Octa Journal of Environmental Research*, vol. 5(4): 258-269

Kumar Parveen, Singh, Virendra, **Singh, A.** and Kumar, Suresh. 2014. Ethno-botanical studies of plant species associated with *Hippophae* sp. in Chandra Valley a part of Cold Desert Biosphere Reserve Himachal Pradesh, India. *Annals of Plant Sciences*. pp. 3(7): 754-757

Singh, A., Butola, J.S., Samant, S.S., Sharma, P., Lal, M. and Marpa, S. 2012. Indigenous Techniques of Product Development and Economic Potential of Seabuckthorn: A Case Study of Cold Desert Region of Himachal Pradesh, India Proceedings *of the National Academy of Sciences*, India Section B: Biological Sciences: 82(3): 391-398

Sharma, P.K., Thakur, S.K., Manuja, S., Rana, R.K., Kumar, Pardeep, Sharma, Sanjay, Chand, Jagdish, **Singh, A.** and Katoch, K.K. 2011. Observation on traditional phototherapy among the inhabitants of Lahaul valley with reference to medicinal & aromatic plants and minerals through Amchi system of medicine. *Chinese medicine*. - **2&3 (3):** 93-102; DOI: 10.4236/cm.2011.23016

Sharma, P.K., Thakur, S.K., Manuja, S., Kumar, Pradeep, Rana, R.K., Jagdish Chand, Sharma, Sanjay, **Singh, A.** and Singh, Neetu. 2011. Traditional usage of food products prepared by local tribal inhabitants of Lahaul valley in the Northwestern Himalayan region of Himachal Pradesh. *Asian Agri History*. January-March-2011.

Singh, A. and Samant, S.S. 2010. Conservation prioritization of habitats and forest communities in the Lahaul valley of proposed Cold Desert Biosphere Reserve, North-Western Himalaya, India. *Applied Ecology and Environmental Research*. **18(2):**101-117

Singh, A., Lal, M. and Samant, S.S. 2009. Diversity, indigenous uses and conservation prioritization of medicinal plants in Lahaul valley, proposed Cold Desert Biosphere Reserve, India. *International Journal of Biodiversity Science and Management.* **5(3):** 132-154

Singh, A. and Gupta, N.K. 2009. Assessment of floristic diversity and regeneration status of *Cedrus deodara* (Roxb.) Loud. stands under forest management systems in Western Himachal Himalaya-a case study. *Indian Journal of Forestry*. **32(1):** 45-54

Singh, A. and Gupta, N.K. 2008. Growth and standing volume estimation of *Cedrus deodara* (Roxb.) Loud. stands under the present system of management in Himachal Himalayas - a case study. *Indian Forester* **134(4):** 458-468

Samant, S.S., Pant, S., Singh, M., Lal, M., **Singh, A.**, Sharma, A. and Bhandari, S. 2007. Medicinal plants in Himachal Pradesh, northwestern Himalaya, India. *International Journal of Biodiversity Science and Management* **3:** 234-251.

***Research Papers in Book-Chapters*:**

Samant, S.S., **Singh, A.,** Lal, M. and Sharma, P. 2011. *Diversity, distribution and conservation prioritization of economically important species in Lahaul valley, North-Western Himalaya, India*. In: Global change, Biodiversity and Livelihoods in Cold Desert Region of Asia. (Eds.) K. G. Saxena, Luohui Liang and Xian Xue, Published by; Gajendra Singh Gahlot, Bishan Singh Mahendra Pal Singh, Dehradun, India. pp. 31-42.

Kumar, Parveen, Singh, Virendra and **Singh, A.** 2012. *Diversity, distribution of vascular plant species associated with Hippophae species under threat to be submerged within proposed Hydroelectric Project in Bhaga valley, Lahaul-Spiti district in Himachal Pradesh, India*. In: Energy-Water-Waste Nexus, For Environment Management. eds.: Rani Devi, Mohd. Kashif Kidwai, Pawan Kumar Rose, Alok Kumar Saran. Published by Narosa Publishing House Pvt. Ltd. Delhi. pp. 95-102.

Rana, R.K., **Singh, A.,** Singh, Virendra, Sharma, L.K., Devi, Reena, Katoch, Pankaj and Lal, Manohar. 2014. Seabuckthorn (*Hippophae* L.) propagation and plantation is a new avenue to farmers and future scope of cultivation in Cold Desert area of Himachal Pradesh, India. IN: Singh, Virendra; Yang Baoru; Choudhary Sonika; Morsel Jorg-Thomas; Zubarev Yury A.; Mohini K.; Singh, Sonika; Sharma, V.K.; Rana, R.K. and Lal Manohar. Eds.: *Seabuckthorn (Hippophae* L.*) A multipurpose wonder plant. Vol. IV. Emerging Trends in Research Technologies.* pp. 59-71. Daya Publishing House New Delhi.

Sharma, Alpy, Singh Virendra, Lal, Manohar, **Singh, A.** and Dixit, S.P. 2014. Status of soil nutrients under Seabuckthorn (*Hippophae rhamnoides*) vegetation in Lahaul valley, Himachal Himalayas. IN: Singh, Virendra, Yang Baoru, Choudhary Sonika, Morsel Jorg-Thomas, Zubarev Yury A., Mohini K., Singh, Sonika, Sharma, V.K., Rana, R.K. and Lal Manohar. Eds.: *Seabuckthorn (Hippophae* L.*) A multipurpose wonder plant. Vol. IV. Emerging Trends in Research Technologies.* pp. 521-532.

Samant, S.S., Singh, M., Lal, M., Sharma, A., Bhandari, S., **Singh, A.**, Pant, S. and Butola, J.S. 2006. Diversity, Distribution pattern and Economic importance of the Agroforestry trees and shrubs in Kullu district, Himachal Pradesh. Proceeding in "*Status and potential of Agroforestry in North-Western Himalayas"*. Organized by: Himalayan Forest Research Institute. Sponsored by: State Land Use Board (SLUB). pp. 34-42

Singh, V., Sharma, V.K., Sharma, M., Tyagi, S.P., Dhaliwal, Y.S., Rana, R.K., Saini, J.P., Pathania, P., Lal, M., **Singh, A.,** Sharma, R.K., Sharma, V., Devi, R. and Kumar, R. 2010. *Fifteen years of research on seabuckthorn in CSK Himachal Pradesh Agriculture University, Palampur*. In: "*National Conference on Seabuckthorn: Emerging Trends in Production to Consumption"* Organized by CSK HPKV Himachal University, Palampur on February 16-18, 2010. pp. 1-12.

Kumar, Parveen, Singh, Virendra and **Singh, A.** 2011. Vegetation associated with Seabuckthorn (*Hippophae* spp.) in Lahaul valley of Himachal Pradesh. In: Proceedings of National conference on Seabuckthorn (*Hippophae* L.): Emerging trends in R & D on health protection & Environment conservation' (eds.): Virendra Singh *et al*., Organized by CSK HPKV Himachal University, Palampur on December 1-3, 2011. pp. 1-8.

Alpy, Singh, Virendra, Lal, M., **Singh, A.** and Dixit, S.P. 2011. Impact assessment of Seabuckthorn (*Hippophae rhamnoides*) on soil fertility status. In: Proceedings of National conference on Seabuckthorn (*Hippophae* L.): Emerging trends in R & D on health protection & Environment conservation' (eds.): Virendra Singh *et al*., Organized by CSK HPKV Himachal University, Palampur on December 1-3, 2011. pp. 9-16.

Singh, Virendra, Gupta, R.K., Arumughan, C., Sawhney, R.C., Rana, R.K., **Singh, A.,** Lal, M., Devi, R. and Sharma, N. 2011. Biochemical evaluation of *Hippophae salicifolia* and *H. mongolica* as Horticultural crops in dry temperate Himalayas. In: Proceedings of National conference on Seabuckthorn (*Hippophae* L.): Emerging trends in R & D on health protection & Environment conservation' (eds.): Virendra Singh *et al*., Organized by CSK HPKV Himachal University, Palampur on December 1-3, 2011. pp. 75-92.

Singh, A., Samant, S.S., Lal, M., Sharma, P., Butola, J.S. and Marpa, S., 2011. Assessment, mapping and harnessing economic potential of *Hippophae* species for the socio-economic development of Tribal communities in Himachal Pradesh, India. In: Proceedings of National conference on Seabuckthorn (*Hippophae* L.): Emerging trends in R & D on health protection & Environment conservation' (eds.): Virendra Singh *et al*., Organized by CSK HPKV Himachal University, Palampur on December 1-3, 2011. pp. 260-69.

Sharma, L.K., Rana, R.K., **Singh Ashok** and Singh Virendra.2016. *Experiences on Mass multiplication and Systematic plantation of Seabuckthorn in Cold Desert Condition of Himachal Pradesh*. (eds.) Virendra Singh, Poonam Thakur, V.K. Sharma, S.P. Tyagi, A. Kumar, R. Verma, Y.S. Dhaliwal, Ankit Kumar, Ashima, Sonika Singh, Monika Sharma, Ankita Singh, Kusum Devi, Jai Singh, T. Stobdan, S.K.Dwevedi, Madhu Bala, and R.C. Sawhney. In: Proceedings of 7th Conference of International Seabuckthorn Association on *Seabucthorn: Emerging Technologies for health protection & Environmental Conservation*, from November 24 - 26, 2015, NASC Complex, New Delhi, India. pp.57-61

Rana, R.K., **Singh Ashok**, Dhaliwal, Y.S. and Singh Virendra. 2016. Selection of High Yeilding landraces of Seabucthorn from Wild seedling population of Lahaul and Spiti District of Himachal Pradesh, India. (eds.): Virendra Singh, Poonam Thakur, V.K. Sharma, S.P. Tyagi, A. Kumar, R. Verma, Y.S. Dhaliwal, Ankit Kumar, Ashima, Sonika Singh, Monika Sharma, Ankita Singh, Kusum Devi, Jai Singh, T. Stobdan, S.K. Dwivedi, Madhu Bala, and R.C. Sawhney. In: Proceedings of 7th Conference of International Seabuckthorn Association on *Seabucthorn: Emerging Technologies for health protection & Environmental Conservation*, from November 24 - 26, 2015, NASC Complex, New Delhi, India. pp.108-111

Singh, V., Rana, R.K., Khan, A.R., Sharma, S.K., Kumar, A., Saini, J.P., Sharma, V.K., Sharma, M., Dhaliwal, Y.S., Tyagi, S.P., Vatsa, D.K., Thakur, D.R., Pathania, P., Arya, D.S., Manuja, S., Verma, R., Kumar, P., Chahota, R., Sharma, P.C., Guleria, J.S., Kumar, A., Singh, Sukhbir, **Singh, A.,** Sharma, V., Lal, M., Devi, Reena, Sharma, Rakesh, Palial, A., Kumar, Raj, Anand, S., Kumar, A., Thakur, B., Jaryal, A.K. and Sharma, M. 2011. *Seabuckthorn: An Introduction.* CSKHPKV Palampur, India, 60p.

Books/ Booklets:

Singh, A. and Chawla, A. 2021. Plant Conservatory at CeHAB of CSIR-IHBT. Book Published by CSIR-IHBT

Palampur (H.P.) 59p

Singh, V., Thakur, S.K., Rana, R.K., Pathania, P., Kumar, A., Saini, J.P., Sharma, S., Dancholia, S., Sharma, V.K., Sharma L.K., Dhaliwal, Y.S., Sharma, M., Tyagi, S.P., Saini, A.S., Thakur, D.R., Vats, D.K., Lal, M., **Singh, A.,** Kumar, V., Devi, R., Anand, S. and Ambedkar, S.K., 2009. *Chharma (Seabuckthorn) ka bag lagane ki vidhiyan*. CSKHPKV Palampur. India. 42p.

Khan, A.R., Kumar, Anil, Manuja, S., Sharma, S., Kumar, Pardeep, Rana, R.K., Sharma, S.K., Chand, Jagdish, and **Singh, A.** 2011. *Lahaul Krishi Patrika*. Vol.2., CSK HPKV, Krishi Vigyan Kendra Lahaul & Spiti at Kukumseri. 10p.

Popular Articles:

Pant, S., Butola, J.S. and **Singh, A.** 2007.Traditional Foods and Beverages of Kullu Valley, Himachal Pradesh. *More Expressions: Mountain Researchers Expression Newsletter.* Vol.1 Inaugural Issue. 14-15 pp.

Singh, A. and Butola, J.S. 2008. Prospects of Apple cultivation in Cold Desert of Lahaul valley in Himachal Pradesh. *More Expressions: Mountain Researchers Expression Newsletter.* 5: 4-6.

Butola, J. S., Sharma, S. Oinam, S.S. and **Singh, A.** 2008. Kullu Zila me Byaparic mahatuoa vale oshydiyon avum sugandit padap avum unn par aadharit udyog. *Vanoshidi Darpan* 4(2): 11-17.

Singh, A. and Samant, S.S. 2008. *Prastavit sheeth marusthal jeb mandal bhandar key Lahaul ghati ke jeb vividtta: ek ablokan*. In: Samant, S.S. Jeb vividtta saraksan me janta key bhagidari. GBPIHED, Mohal Kullu. 32-48pp.

Butola, J.S., Samant, S.S., **Singh, A.** and Lal, M. 2008. Kullu Zila main Ashawgandha (*Withania somnifera*): ek sarwavyadhihar ausdhiya padap. *Vanoshdhi Darpan*. 4(3):3-12.

Butola, J.S. Samant,S.S. and **Singh, A.** 2009. Aoshadi avum sagand padpon se rojgar ki badti sambhabnayen.- Kullu avum Mandi jile par ek najar. *Vanoshdhi outlook.* 1(January-March): 15-19.

Samant, S. S. and **Singh, A.** 2009. Seabuckthorn ki prajatiyon ka sheet marusthal ke kabaliyon key aarthik vikas par prabhav- ek sarvekshan. *Him Prabha (Rajbhasha Patrika).*2:48-51.

Singh, A., Rana, R.K. and Sharma, P.K. 2012. Lahual evum Spiti Jila me mojudh durlab aaushidhiye Padpon dwara jebik krishikaran kar kwailyon ki aarthiki sudharne me Krishi Vigyan Kendra Kukumseri ka yogdaan- ek Ablokan. *Parvatiyan Khetibaddi*. (January- March):24-27.

Other achievements:

- Important Contributions to Establish new centre i.e., CSIR- IHBT Centre for High Altitude Biology at Ribling, Lahaul - Spiti (HP), since May 2012 onwards till continue
- Faculty member "Assistant Professor ACSIR"
- Reviewer of various National/International Journals (>5 No.)

Research Team:

- Mr. Rajat Bhardwaj (Ph.D. Scholar), Ms. Phoola Devi (PA-I), Mr. Sachin Negi (Ph.D. Scholar)
- Technical staff and All CeHAB field staff

Looking for a dedicated research team, Ph.D. students with patience to work in the high-altitude areas of the Western Himalayas. Especially, the experience will be provided in the field of Plant Ecology, Biodiversity Conservation & Management, Forestry, Botany, Environmental Science, Natural resources management, *etc*.