



**Name:** Dr. Ashok Singh

**Designation:** Sr. Scientist

**Division:** High Altitude Biology

**Research Area:** Biodiversity Conservation and Management, Plant Ecology

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**Research focus:**

In nature, a rapid decrease in population of threatened and commercially important medicinal and aromatic species by over-exploitation and habitat degradation is recorded. Ex-situ conservation of recorded threatened, commercially viable, and important species through conservation is not much attempted in the Cold Desert area. While understanding the importance of conservation, my focused research is based on the following objectives:

- Ecological and ethnobotanical studies of high altitude ecosystems, and Western Himalayan Region.
- Domestication/introduction of important plant bioresource (threatened and commercially important medicinal and aromatic plant) in the high altitude region
- Ex-situ conservation in the conservatories (field genebank, herbal garden, seed banks) at CSIR-IHBT Centre for High Altitude Biology Ribling, Lahaul-Spiti (H.P.)
- Characterization studies to find out variations
- Snow water harvesting technologies and management

**Award Recognition:** ICAR-NET 2007 (Forestry)

Researcher (sponsored by World Pheasant Association, New Delhi),

JRF/SRF (sponsored by MOEF&CC New Delhi),

Research Associate (sponsored by ICAR-NAIP New Delhi, & CSIR 12<sup>th</sup> FYP New Delhi)

**Research Experience:** Working experience of 16 years in the Cold Desert and high altitude areas in India

**Research projects completed as PIs/Co-PIs:** 8 numbers

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

**Research publications:**

1. 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.
2. **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
3. **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
4. 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.
5. 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
6. **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
7. 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
8. **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
9. **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

10. 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.
11. **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
12. **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
13. 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.
14. 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.
15. 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.
16. 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.
17. 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
18. 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.
19. 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.
20. 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.
21. 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.
22. **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.
23. 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 7<sup>th</sup> Conference of International Seabuckthorn Association on *Seabuckthorn: Emerging Technologies for health protection & Environmental Conservation*, from November 24 - 26, 2015, NASC Complex, New Delhi, India. pp.57-61
24. Rana, R.K., **Singh Ashok**, Dhaliwal, Y.S. and Singh Virendra. 2016. Selection of High Yeilding landraces of Seabuckthorn 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 7<sup>th</sup> Conference of International Seabuckthorn Association on *Seabuckthorn: Emerging Technologies for health protection & Environmental Conservation*, from November 24 - 26, 2015, NASC Complex, New Delhi, India. pp.108-111
  25. 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.
  26. 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.
  27. 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.
  28. 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.
  29. **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.
  30. Butola, J. S., Sharma, S. Oinam, S.S. and **Singh, A.** 2008. Kullu Zila me Byaparic mahatua vale oshydiyom avum sugandit padap avum unn par aadharit udyog. *Vanoshidi Darpan* 4(2): 11-17.
  31. **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.
  32. 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.
  33. Butola, J.S. Samant,S.S. and **Singh, A.** 2009. Aoshadi avum sagand padpon se rojgar ki badi sambhabnayen.- Kullu avum Mandi jile par ek najar. *Vanoshdhi outlook*. 1(January-March): 15-19.
  34. 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.
  35. **Singh, A.**, Rana, R.K. and Sharma, P.K. 2012. Lahaul 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.

#### Research Team:

- Mr. Rajat Bhardwaj (PA-I), All CeHAB field staffs
- Visiting technical staff at Centre for High Altitudes Biology (CeHAB) in the Lahaul – Spiti (HP), India

#### Other works:

- 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"