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Medicinal and Aromatic Plants of Kashmir Himalaya: A Sustainable Pathway for Bioeconomy, Livelihoods and Biodiversity Conservation

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Medicinal plants have been used in traditional healthcare for centuries, mainly because they contain active compounds like alkaloids, flavonoids, terpenoids, phenolics, tannins, and essential oils, that are responsible for their bioactivity like antioxidant, antimicrobial, anti-cancer properties. Lately, these plants (often called MAPs) have become more popular worldwide. People are buying herbal medicines, supplements, cosmetics, and plant-based drugs in record numbers. The numbers tell the story: About 70–80% of the world still relies on plant-based medicine for basic healthcare. One in four modern prescription drugs comes directly or indirectly from plants. Kashmir's mountains are packed with MAPs that matter both ecologically and economically. With the advancement in science and technology the state of Jammu and Kashmir can make use of her rich biodiversity to sustain the livelihood of the poor farmer by sustainable production and utilization of medicinal & aromatic plants for the value-added products (Schippmann *et al*., 2004). However, about 90% of medicinal plants used by the industries are collected from the wild. The collection and, more recently, marketing of these plants has provided an important source of income for communities living in mountain areas. However, this increasing dependence on wild resources has created serious ecological concerns. Wild harvesting is stripping natural populations, habitats are degrading, and climate change is shifting suitable growing zones. In many regions, trade regulations are either absent or poorly enforced, placing several important Himalayan medicinal plants under severe threat of endangerment. At the same time, there is significant opportunity for sustainable cultivation. If farmers in Jammu and Kashmir adopt the cultivation of medicinal plants instead of relying solely on wild harvesting, it could generate substantial income while conserving natural populations. Recent initiatives by the Division of Forest Product and Utilization, Faculty of Forestry, SKUAST-K, along with the CSIR Aroma Mission and the successful Lavender Revolution in Bhaderwah, Doda, Pulwama, and other parts of the region, have demonstrated how aromatic crop cultivation can enhance farmer income, promote rural entrepreneurship, and reduce pressure on wild medicinal plant resources.

Economic Importance of Medicinal and Aromatic Plants

Medicinal plants are widely used in pharmaceutical industries, cosmetic industries, food supplements, aromatherapy, perfumery, and nutraceutical sectors (Dhar *et al*., 2014). The herbal medicine market has exploded in the last 20 years (WHO, 2002). People are shifting from synthetic to natural products. Essential oils and herbal products, such as lavender, rosemary, peppermint, lemongrass, and *Artemisia*, are particularly valuable due to their high

essential oil concentration. The Kashmir Himalaya provides optimal agro-climatic conditions for the growth of several commercially important MAP species, which could become successful alternatives to traditional crops. The cultivation of medicinal and aromatic plants has emerged as an economically feasible option for rural communities in Jammu and Kashmir. Most farmers in mountainous areas have fragmented landholdings, and conventional agriculture usually yields low economic returns. Lavender is the clearest example. The CSIR Aroma Mission sparked the "Purple Revolution." Farmers who grew maize switched to lavender. Their yearly income went up noticeably. Besides lavender, cultivation of medicinal plants such as *Saussurea costus*, *Artemisia* species, Mint and Rosemary species can provide additional income opportunities to high-altitude farmers (Phondani *et al*., 2011).

Conservation of Endangered Medicinal Plants through Cultivation

Unsustainable and illicit wild harvesting continues to pose a threat to natural population of MAPs in the Kashmir Himalaya. Several economically valuable species such as *Podophyllum hexandrum*, *Aconitum heterophyllum*, and *Saussurea costus*, have suffered significant population decline as a result of overexploitation and habitat degradation (Rather *et al*., 2016). Cultivation-based conservation is becoming recognized as one of the most successful approaches to preserve endangered medicinal plants (Chen *et al*., 2016). Domestication and commercial cultivation relieve pressure on natural populations while maintaining the continuing supply of herbal raw materials for drug manufacturing companies. Scientific cultivation also allows for ex situ conservation, germplasm preservation, quality planting material production, and regulated harvesting.

MAPs Species: *Saussurea costus, Podophyllum hexandrum, and Aconitum heterophyllum*

Challenges in the MAP Sector of Kashmir Himalaya

Despite its vast potential, the medicinal and aromatic plant field in Kashmir faces a number of challenges, including a shortage of structured markets, inadequate processing facilities, low farmer consciousness, intermediaries' exploitation, limited availability of high-quality planting material, weak farmer-industry linkage, climate change impacts, and lack of adequate policy adoption (Phondani *et al*., 2011; Chen *et al*., 2016). Furthermore, a lack of certification and quality control frequently limits the exportability of medicinal plant products from the Valley.

Conclusion

MAPs have enormous ecological, medicinal, and commercial value not only in the Kashmir Himalaya but all over the world. Sustainable production and sale of these plants can serve as an effective conduit for biodiversity conservation and socioeconomic development in rural agricultural communities. Successful initiatives, such as the Lavender Revolution, show that scientific farming, value addition, and market integration can revolutionize the rural economy in Himalayan regions. With rising global demand for herbal goods and natural treatments/products, the Kashmir Himalaya has the potential to become a significant hub for medicinal and aromatic plant production, as well as herbal bioeconomy development. However, long-term sustainability necessitates a concerted effort that includes scientific research, conservation methods, farmer participation, regulatory backing, and industrial collaboration.

References

1. Chen, S.L., Yu, H., Luo, H.M., Wu, Q., Li, C.F. and Steinmetz, A. (2016). Conservation and sustainable use of medicinal plants: Problems, progress, and prospects. *Chinese Medicine*, ***11***(1): 37-47.
2. Dhar, U., Manjkhola, S., Joshi, M., Bhatt, A., Bisht, A.K. and Josh, M. (2014). *Current status and future strategy for development of medicinal plants sector in India.* New Delhi, India. *Current Science*, **83**(8): 956-964.
3. Phondani, P.C., Maikhuri, R.K., Kala, C.P. and Saxena, K.G. (2011). Medicinal plants cultivation and their contribution to livelihood enhancement in the Indian Himalaya. *Journal of Mountain Science, **8**(2): 160–171*.
4. Rather, M.A., Dar, B.A., Sofi, S.N., Bhat, B.A. and Qurishi, M.A. 2016. Foeniculum vulgare: A comprehensive review of its traditional use, phytochemistry, pharmacology, and safety. *Arabian Journal of Chemistry*, ***9***(2): S1574–S1583.
5. Schippmann, U., Leaman, D.J. and Cunningham, A.B. (2004). Impact of cultivation and gathering of medicinal plants on biodiversity: Global trends and issues. In *Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries*, pp. 1–21. Rome, Italy: FAO.
6. World Health Organization. (2002). *Traditional medicine strategy 2002–2005.* Geneva, Switzerland: World Health Organization.