

IBD Celebration at Chaudas Valley, Pithoragarh, Uttarakhand



Himalaya is the youngest mountain chain and globally important biodiversity hotspot. Among the Himalayan mountain chains, Indian Himalayan Region (IHR) is designated as one of the biodiversity hotspots and has been recognized as a rich repository of unique biodiversity, which supports 18,440 plant species, including 1,748 medicinal plants, of which 25.3% are endemic to Himalaya. The different topography, micro and macroclimatic conditions, and habitats show variation among the life forms. The flora and fauna of the Himalaya vary with climate, rainfall, altitude and soils. The climate ranges from tropical at the base of the mountains to permanent ice and snow at the highest elevations. The amount of yearly rainfall increases from west to east along the southern front of the range. This diversity of altitude, rainfall and soil conditions combined with the very high snow line supports a variety of distinct plant and animal communities. The Himalaya represents a vast mountain system and globally valued for its significant role in regulation of global as well as regional climate that has direct impact on biodiversity and ecosystem services crucial for sustenance of millions people in Himalaya and adjoining areas. The Chaudas valley is inhabited by an ethnic community known as Bhotia or Shauka located in inhabits Dharchula area of Kumaon Himalayas in Pithoragarh district, Uttarakhand in North India. This biodiversity rich area is culturally connected to Nepal and Tibet and supports plant species used in India, Chinese and Tibetan systems of medicines. These communities utilize their agriculture land in cultivating specialized crops such as buckwheat (*Fagopyrum esculentum*), sweet buckwheat (*Fagopyrum tataricum*), and barley, potato and other vegetables to meet the nutritional and food security of these communities. In 2019, Centre for Biodiversity Conservation and Management of GBPNIEHSD Kosi-Katarmal, Almora celebrated International Biodiversity Day (IBD) under theme "Our Biodiversity, Our Food, Our Health" at Sri Narayan Ashram, Chaudas area, Pithoragarh district by organizing a series of events with diverse stakeholders under the support of National Mission on Himalayan Studies (NMHS). The major stakeholders i.e., local farmers, school students and teachers of the area actively participated in the IBD celebration. Total 31 students and 2 teachers represented Government Inter College, Pangu and Government Inter College Makhm Kailash and rest stakeholders representing different villages i.e., Jaykot, Pangu, Sosa, Niyang, Pasti, Chalmachilanso, Dharpangu etc., of Chaudas area. The aim of the programme was to create awareness among villagers, farmers and students towards mountain biodiversity and its value for support of our life, food value, health and highlighted major threats of biodiversity due to over-exploration, deforestation and to create interest among the participants towards conservation of the forest resources, promotion of their cultivation and conservation. The stakeholder of region know about rich biodiversity of forest used as fodder species (i.e., *Quercus glauca*, *Quercus leucotrichophora*), wild edible fruit species (i.e., *Myrica esculenta*, *Rhododendron arboreum*, *Prunus cerasoides*, *Pyracantha crenulata*, *Berberis asiatica*), and a number of medicinal and aromatic plants. The wild edible fruit species were major sources of vitamins, minerals, amino acids, carbohydrates, proteins, natural antioxidants and other health promoting substances and their regular consumption in diets (fresh or raw products) useful for reducing several degenerative and neurodegenerative diseases. Their sustainable utilization and formulation of products such as juice, jam, sauce, jelly, etc also plays a significant role in upliftment of economic condition of local inhabitants. This event provides an opportunity to local farmers, students to discuss on conservation and cultivation of high value medicinal plants, establishment of seed banks and linking these practices with their livelihood opportunity. The various techniques of propagation (i.e., seed germination, vegetative propagation), land



preparation, agro-techniques, demand of herbal products, organic farming, and conservation of genetic diversity, gene bank, improvement of quality material, cultivation technique/approaches were also discussed. For promotion and conservation of threatened plant species at high altitude institute developed *ex-situ* conservation demonstration model and polyhouse at Sri Narayan Ashram, Dharchula. The several high value medicinal plant species such as *Hedychium spicatum* (Van haldi), *Valeriana jatamansi* (Samyo), *Allium stracheyi* (Faran), *Picrorhiza kurrooa* (Kutki), *Saussurea costus* (Kuth), *Angelica glauca* (Gandrayan) etc were grown. The stakeholders knew that how these plant species can be conserved through various cultivation approaches, which will reduce pressure on its wild population and domestication of these will be provide *ex-situ* conservation of these species and also make an alternative source of income generation to the local farmers. Total 11 farmers of the region started cultivation of *Hedychium spicatum* (Van haldi), *Valeriana jatamansi* (Samyo), *Allium stracheyi* (Faran) on their fields and institute also provided technical support on their cultivation, post harvesting techniques and marketing. This module was to create awareness and sensitize local inhabitants of the region for the mass cultivation and conservation of medicinal plants and develop linkages between human and nature. This kind of participatory approaches will be helpful for conservation of the species, fulfil market demand, cultivate quality of plant material and also helpful for reducing migration of local inhabitants from high altitude region.



Amit Bahukhandi, Kuldeep Joshi, Digvijay Singh and Dalbeer Farshwan (dalbeerp3@gmail.com)
GBPNIEHSD, Kosi-Katarmal,
Almora (Uttarakhand)