Haat Kali sacred grove, Central Himalaya, Uttarakhand

Sacred groves are (small or large) patches of vegetation of varying sizes, conserved on the basis of the religious beliefs of the community. In India 13,720 sacred groves have been identified from 19 states and named differently in various parts of India as *Law lyngdhoh* in Meghalaya, *Kovil Kadu* in Kanyakumari, *Dev Bhumi* in Uttarakhand, etc. These groves are treasure houses of many rare and endemic plant species[1]. Maharashtra, Kerala, Andhra Pradesh and Tamil Nadu have the maximum number of sacred groves. Bhakat[2] has described the Chilkigarh Kanak Durga sacred grove in West Bengal and Dash[3] described the importance of the Kabi sacred grove in Sikkim. The sacred groves represent climax vegetation and exhibit a diversity in species of trees and other various life forms which are dependent for their existence on trees, huge climbers, epiphytes and other shade loving plants[4]. In Uttarakhand, a systematic approach in the study of such groves is lacking except in the Garhwal Himalaya the Tarkeshwar sacred grove and in Pithoragarh district[5], Thalkedar and Nakuleshwar sacred groves[6]. The Haat Kali is one of the important sacred groves in Pithoragarh district, central Himalaya, Uttarakhand and we report here its importance in conserving biodiversity in Himalayan region (Figure 1). It is situated 75 km from the main Pithoragarh town in Gangolihat tehsil at an altitude of 1750 m. It is rich in folk culture, music and religious traditions and had been chosen by Sankaracharya for the installation of *Mahakali shaktipith*. It is covered with luxuriant growth of *Cedrus deodara*, which is believed to be a sacred tree in Kumaon hills and often seen at high altitudes. The local community of the grove is known as '*Rawal*' of Rawalgoan.

A detailed study was conducted in the Haat Kali sacred grove to evaluate its floristic composition, assess its common threats and provide a strategy and action plan for conservation of the existing plant diversity. The grove supports 94 species of both flowering and non-flowering plants; 42 species were angiosperms, 4 were pteriodophytes, 15 were bryophytes and 35 were lichens. There are five species with edible fruits, three species are timber yielding, and two are of sacred value, five species are used in spices and 34 species are medicinally used plants; of which a few plant species are rapidly disappearing due to ethnic and commercial usage. It is important to conserve these plant species. *Bergenia ciliata*, *Malaxis acuminata*, *Berberis asiatica*, *Hedychium spicatum* and *Valeriana wallichii* are some threatened angiospermic medicinal plants; two rare lichens *Caloplaca himalayana* and *Lacanora japonica*, and an endemic moss *Macromitrium rigbyanum* are found in the grove.

Sacred groves are protected areas and trees such as *Cedrus deodara*, *Quercus leucotricophora* and *Pinus roxburghii* provide optimum conditions congenial for the growth of shade and moist plants like, lichens (*Bacidia*, *Chrysothrix* and *Diploschistes*) and bryophytes (*Plagiochasma appendiculatum*, *Thuidium assimile*, *Macromitrium rigbyanum*). Microclimatic condition is suitable for the growth of orchids (*Cymbidium macrorhizon*, *Malaxis acuminata*), shrub (*Ainselia latifolia*), herb (*Valeriana wallichii*), climbers (*Hedera nepalensis*), succulent plants (*Peperomia tetraphylla*), etc. In addition to the floristic diversity, the grove is also harbours by three mammalian and five avian species. Sometimes ritual and traditional practices play a crucial role in fostering threatened species such as Griffon vulture (*Gyps himalayensis*) often seen in Haat Kali sacred grove when an animal sacrifice is performed.

Figure 1. Haat Kali sacred grove.

Although the Haat Kali grove is fairly protected, it is threatened due to anthropogenic pressures such as tourists interference, celebration of rituals and ceremonies, over-grazing, etc. It is essential to preserve these groves by *in situ* and *ex situ* conservation as these are the treasure houses of many important plant species. Under the broad umbrella of protected area network programme, sacred grove conservation involving the traditional administrative bodies should be initiated.

The degraded sacred groves should be immediately restored or regenerated using appropriate technology and by raising awareness among the concerned villagers regarding the importance of sacred grove conservation.

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