

MEDICINAL PLANT DIVERSITY IN NEWLY REPORTED SACRED GROVE OF PITHORAGARH DISTRICT, UTTARAKHAND

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Introduction

Sacred groves are small or large patches of vegetation and are protected on the basis of cultural and traditional practices on the religious ground. Such informal traditional protected groves preserved on religious grounds may be taken as the vegetation type that existed long before human interference. Ramakrishnan (1996) has reported sacred groves from different parts of India, known by different names given to them in ethnic terms as '*Dev Bhumi*' or '*Devta than*' in Uttarakhand, '*Oran*' in Rajasthan, '*Kovil kadu*' in Kanyakumari, '*Deovan*' in Himanchal Pradesh, etc. These sacred groves are rich in rare and endemic species of plants and represent a tradition of conservation, management and even sustainable development of natural resources (Ramakrishnan, 1998) which often represented climax vegetation of the region (Tiwari, 1999). The sacred grove acts as a nursery and storehouse of many local ayurvedic, tribal and folk medicines. Generally, sacred groves are believed to be treasure houses of medicinal, rare and endemic plants as refuge for relic flora of a region and as centres of seed dispersal (Chandran *et al.* 1998). Protection of many medicinal plants are done in Kavus of Kerala (Pushpangadan *et al.*, 1998), 'Hariyali' sacred area of Garhwal Himalaya (Sinha and Maikhuri, 1998) and Zaheerthan of Purulia district of West Bengal (Pandit, 2000) are some of the noteworthy examples. Bhakat and Pandit (2003) gave an idea about the role of sacred grove in conservation of medicinal plants. Negi (2005) and Agnihotri *et al.*, (2009) have reported respectively Thal kedhar and Nakuleshwar sacred groves for the first time from Pithoragarh district. Since then no work on sacred grove has been undertaken in this area.

Realising the importance of medicinal plants and protection of sacred groves, the study was conducted in Haat kali sacred grove, Pithoragarh district, Uttarakhand, which is devoted to God 'Kali' and is reported for the first time in this paper.

Study area

Haat Kali sacred grove is situated 75 km from the main Pithoragarh district in Gangolihat tehsil near Gangolihat police station at an altitude of 1750 m amsl. It is rich in folk culture, music and religious traditions and had been chosen by '*Sankaracharya*' for the installation of '*Mahakali Shaktipith*'. Various religious programmes are performed by the local people of the Gangolihat tehsil such as 'Jag' (for one

day), 'Jagar' (for two day), 'Chauras' (for four day), etc. This grove is covered by luxuriant growth of *Cedrus deodara*, which is believed to be a sacred tree in Kumaon hills and often seen on the religious ground at high altitude. This grove is known for its moist temperate forest with variety of life-forms and covers an area of 1.7 ha. approximately. The dominating gymnosperm *Cedrus deodara* continuously increases its area due to protection of the grove under '*Rawal*' community Panchayat. The local community, known as *Rawal* from Rawal goan living in this area.

Methodology

Existence of this sacred grove came to light through local people. The collections were made in all the four seasons of the year i.e., spring, summer, rainy and winter. During 2007-2009, critical field observations on each plant species were made and samples of plant with high medicinal value were collected either in flowering or fruiting stage from the grove. Further, specimens were processed as per routine herbarium techniques recommended by Jain and Rao (1977) and were deposited in LWG herbarium, Lucknow. The specimens were identified on the basis of morphological as well as micro-morphological characters and making use of different floras, monographs, revisions and other available literature. The traditional and ethnic uses of collected plants were gathered from the local inhabitants. 22 plants of medicinal importance have been listed along with their botanical name, updated nomenclature, common/ vernacular names, part used and therapeutical uses.

Results and Discussion

Haat Kali sacred grove of Gangolihat tehsil is one of the important sacred grove of the Kumaun Himalaya, representing 22 species of 22 genera belonging to 22 families of angiospermic plants. *Berberis asiatica*, *Malaxis acuminata*, *Hedychium spicatum*, *Valeriana wallichii*, *Bergenia ciliata* and *Rubia cordifolia* are threatened medicinal plants found in this grove (Singh *et al.*, 2010). The grove shows medicinal diversity possessing 4 climbers (*Hedera nepalensis*, *Asparagus racemosus*, *Smilax aspera* and *Rubia cordifolia*), 12 herbs, 4 shrubs, and 2 trees. The complexity of medicinal plants at the same altitude is a peculiar feature of the sacred grove as it is a repository of genetic diversity. The groves have originated to protect particularly useful species such as medicinal plants, etc. (Gadgil and Vartak,

Table 1
List of important medicinal plants found in Haat Kali sacred grove.

| S.N. | Botanical name | Local name | Family | Part use | Therapeutic use |
|------|--|--------------------------|----------------|--------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. | <i>Asparagus racemosus</i> Willd. | Kerawa/ Keru | Liliaceae | Root | It is used for stomach disorder and dysuria. |
| 2. | <i>Berberis asiatica</i> Roxb. ex DC. | Kilmora | Berberidiaceae | Root | It is a good source of Berberine, an alkaloid which is used in fever and eye drop popularly known as 'Rasout'. |
| 3. | <i>Bergenia ciliata</i> (Haw.) Sternb. | Patharchur/ Pasanbhed | Saxifragaceae | Rhizome | It is used in treatment of kidney stone, piles, diabetes and heart disease. The paste of fresh rhizomes is very effective in treatment of swelling, especially among live-stock. |
| 4. | <i>Boenninghuinia albiflora</i> (Hk.) Reichb. ex Meissn. | Upiniyahad/ Pissumar | Rutaceae | Leaves and Root | Leaf paste applied on cuts and wounds. Its root powder is used as an antiseptic and juice given in vomiting and dysentery. |
| 5. | <i>Geranium wallichianum</i> Don. ex Sw. | - | Geraniaceae | Root | Decoction of roots used for dysentery and cold. |
| 6. | <i>Hedera nepalensis</i> K. Koch. | - | Araliaceae | Leaves and fruits. | Leaves and fruit paste applied on ulcers. Its leaf juice given in dyspepsia. |
| 7. | <i>Ainsliaea latifolia</i> (D. Don) Schultz-Bipontinus | - | Asteraceae | Roots | Decoction of roots given in colic problems. |
| 8. | <i>Hedychium spicatum</i> Ham. ex Smith. | Van Haldus | Zingiberaceae | Rhizome | Rhizome are used in Ayurvedic system of medicine as febrifuge, carminative, expectorant, tonic and anti-inflammatory, against bowel complaints, vomiting, fever, diarrhoea, bronchitis & swelling in rheumatic condition. The essential oil obtained rhizomes is used in perfumery industry for preparation of attar. |
| 9. | <i>Hypericum oblongifolium</i> Choisy | - | Hypericaceae | Flowers | Flowers are used in boils and wounds. |
| 10. | <i>Leucas lanata</i> Benth. | - | Lamiaceae | Whole plant | Whole plant is used in haemostat and wounds. |
| 11. | <i>Malaxis acuminata</i> Ridl. | Lehsunia | Orchidaceae | Pseudo-bulb | The pseudobulb is refrigerant, aphrodisiac and febrifuge. |
| 12. | <i>Oxalis corniculata</i> L. | Chilmori | Oxalidaceae | Whole plant | Whole plant mixed with black pepper used for skin eruption, alopecia and wounds. |
| 13. | <i>Prinsepia utilis</i> Royle | Jhitalu | Rosaceae | Seeds | Its seed oil used in burns, cuts, wound, rheumatism and pains resulting from over fatigue. |
| 14. | <i>Quercus leucotrichophora</i> A. Camus | Bhanj | Fagaceae | Wood | Its wood is used in scabies, Skin diseases. Seed used in urinary complaints |

Contd.....

| 1 | 2 | 3 | 4 | 5 | 6 |
|-----|----------------------------------|-------------------------------|---------------|-------------------|---|
| 15. | <i>Rhododendron arboreum</i> Sm. | Buras | Ericaceae | Leaves Flowers | and Leaves are applied to the forehead to relieve headache. Purifier of blood, fever, rheumatism, wound. Flowers are used in diarrhoea and dysentery. |
| 16. | <i>Rubia cordifolia</i> L. | Jangli Manjethi /Manjit | Rubiaceae | Roots | The roots are astringent, alternative and tonic; they are used in Ayurvedic, Unani & Siddha system of medicine for the treatment of paralysis, jaundice, fever, obstruction in urinary passages, menstrual disorders, and inflammatory condition of the chest and skin diseases. |
| 17. | <i>Smilax aspera</i> L. | Kukar | Smilacaceae | Roots | Roots are used in diuretic and diaphoretic. |
| 18. | <i>Thalictrum foliolosum</i> DC. | Mamiri | Ranunculaceae | Roots | Root is a tonic, aperients and febrifuge. It is useful in jaundice, flatulence and ophthalmic. It also possesses diuretic properties and considered as a good substitute for rhubarb. |
| 19. | <i>Urena lobata</i> L. | | Malvaceae | Flowers roots | and Flowers are used as a gargle for aphthae, sore throats and bronchitis. Roots are used as abortifacient. |
| 20. | <i>Urtica dioica</i> L. | Shinna/ Bichhughas | Urticaceae | Whole plant | The herb used as a haemostatic in vomiting of blood, uterine haemorrhage & bleeding from the nose. The herb is also used in sciatica, palsy and rheumatism. |
| 21. | <i>Valeriana wallichii</i> DC | Shumiya/ Sameva | Valerianaceae | Rhizome | The drug is much used in making perfumed powder and cardiac preparations. It is regarded as aphrodisiac, antiseptic, cardiac stimulant, carminative, diuretic, expectorant, and febrifuge, nervine tonic, ophthalmic, sedative, and tonic. Dried rhizomes are also employed in hair oils. |
| 22. | <i>Viola serpens</i> Wall. | Banfsha | Violaceae | Whole plant | It is used in asthma, bleeding piles, cancer of the throat, constipation, cough, fever, headache and skin diseases. |

1975). Sacred groves have higher richness and regeneration of medicinal plants than reserve forests (Boraiah *et al.*, 2003). These important medicinal plants of Haat Kali sacred grove are used in Indian systems of medicine for various diseases and generally used by local community known as *Rawal* of Rawalgaun. They maintain this grove as a part of their tradition and culture but they were not able to protect these plants from anthropogenic pressures (forest fires, lopping of fuel wood and fodder, illegal harvesting for fuel, etc). This grove now facing new threats such as pilgrimage and tourism, celebration of ritual ceremonies, over grazing by animals, etc. which destroy and disturb the actual area and

diversity of the grove. This grove is important in having medicinal plants which are not found in other areas of the district at the same altitude. In addition to the medicinal plants, this grove supports 94 species of both flowering and non flowering plants, out of which 42 species are Angiosperms, 4 Pteridophytes, 15 Bryophytes and 35 Lichens. Thus, Haat Kali sacred grove supports a wide variety of different life forms.

Ex-situ and *in-situ* conservation of the fast disappearing plants from the grove is to be undertaken on a priority basis. It is important to first document the diversity of the grove and later on restoration of its medicinal and non-medicinal plants.

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SUMMARY

Sacred groves are small or large patches of vegetation dedication to local ancestor or deities and often represented climax vegetation of the region. Haat Kali sacred grove, which is newly reported, is one such example in having important medicinal plants and many non - medicinal plants. The grove covers an area of 1.7 approximately and consists of 22 species belonging to 22 genera and 22 families of medicinal plants which are not found in the other parts of the district at the same altitude of 1750 m. It is important to conserve this type of grove in having maximum genetic diversity of medicinal plants by strong steps.

Key words: Sacred grove, Haat Kali sacred grove, Medicinal plant, Conservation.

नये सूचित किए पिथौरागढ़ जिले के पावन निकुंज, उत्तराखण्ड की औषध पादप विविधता

हर्ष सिंह, पुष्पी सिंह व तारिक हुसैन

सारांश

पावन निकुंज छोटे या बड़े वनस्पतियों के टुकड़े होते हैं जिन्हें स्थानीय पुरखाओं या देवताओं को समर्पित किया हुआ होता है और वे बहुधा उस क्षेत्र की काष्ठ वनस्पतियों के प्रतिनिधि होते हैं। हाट काली पावन निकुंज जिसे पहली बार सूचित किया गया है, ऐसा ही एक उदाहरण है जिसमें कुछ महत्वपूर्ण औषधीय पादप और बहुत सारे गैर औषधीय पेड़-पौधे पाए जाते हैं। यह निकुंज लगभग 1.7 हेक्टेयर क्षेत्र में विस्तृत है और यहां चिकित्सीय पेड़ पौधों के 22 कुलों की 22 प्रजातियों की 22 पादप जातियां मिलती हैं जो इस जिले के अन्य भागों में इसके बराबर वाली ऊंचाई 1750 मी० में नहीं पाई जाती। इस तरह के निकुंजों का संरक्षण किया जाना महत्वपूर्ण है ताकि मजबूत कदम उठाए जाने के फलस्वरूप औषध पादपों की अधिकतम आनुवांशिक विविधता बनी रह सके।

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