



ETHNOBOTANICAL STUDIES IN THE TRIBAL AREAS OF DISTRICT KUPWARA, KASHMIR, INDIA.

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ABSTRACT

This paper reports an ethnobotanical study conducted during the year 2010 and 2011 in the tribal areas of District Kupwara. The study was aimed to document the traditional folklore knowledge of the local people about the use of different plants or their products. A large number of people belonging to various tribal groups or races were interviewed during field trips and asked questions regarding the traditional use of plants. The data collected reveals that about 48 plant species belonging to 30 families find use in day to day life including medicinal, aromatic and cultural.

KEYWORDS: Ethnobotany, Tribal areas, Folklore knowledge, Medicinal herbs, District Kupwara



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INTRODUCTION

The term Ethnobotany was coined by J.W. Harshberger, an American botanist in 1895 to describe the studies of plants used by primitive people and aboriginals. He defined Ethnobotany as "the study of the utilitarian relationship between human beings and vegetation in their environment, including medicinal uses". This relationship is not limited to the use of plants for food, clothing, shelter and medicine but also includes their use for religious ceremonies¹. Knowledge of plants used by humans is based on thousands of years of experience. By trial and error people learnt how to recognize and use plants. Although the term Ethnobotany was not used until 1895, practical interests in this field go back to the beginning of civilization when people relied more on plants as a way of survival. Among the oldest testimonies to plant use were the pollen remains of medicinal plants, about 6000 years old, found in an archaeological dig in Iraq². In 77 AD the Greek surgeon Dioscorides published 'De Materia Medica' which was a catalog of about 600 plants from Mediterranean containing information how the Greeks used plants, especially for medicinal purposes. Dioscorides thus highlighted the economic potential of plants. Over the last century, ethnobotany has evolved into a specific discipline that looks at the people-plant relationship in a multidisciplinary manner, such as ecology, economic botany, pharmacology, public health and social and cultural systems^{3, 4, 5}.

India is known for its valuable heritage of herbal medicinal knowledge⁶, therefore, experiencing a great pressure on its resources due to fast growing population⁷. The World Health Organization (2003) has estimated that 80% of the population of the developing countries being unable to afford pharmaceutical drugs, rely on traditional medicines, mainly plant based, to sustain their primary health needs. Biodiversity constitutes the resource upon which families, communities, nations and future generations

depend. Plants provide us food, building material, medicines, oils, lubricants, rubber and other latexes, resins, waxes, perfumes, dyes and fiber. So far only about 10% of plants have ever been evaluated for their medicinal and agricultural potential and so there is immense pressure on the select group of plants, especially medicinal, which are overexploited by man for his welfare. The present study aims at documenting the tribal use of some of the plants which can prove beneficial for the industry and such plants need to be propagated on large scale to narrow down the ever increasing pressure on these plants. Efforts were made to meet and interact with the elderly people of all these areas for documentation of the hidden knowledge of plants because traditional healers are believed to provide considerable information about the use of many plants or plant parts as medicine⁸.

STUDY AREA

District Kupwara is one of the eight districts of Kashmir province (Fig 1). The district with its headquarters at Kupwara lies in the northern most part of Kashmir valley and is located between 34° 16' and 34° 50' north latitude and between 73° 45' and 75° 20' east longitude. It is bound by Line of Actual Control from north and west that separates it from Pakistan occupied Kashmir, towards the east lies District Bandipora and District Baramulla while towards south lies District Baramulla. The district has a total geographical area of 2,379 sq km, comprising 370 villages. As per 2001 census, the district has a population of 6,50,393 persons with population density of 273 persons per sq. km. The schedule caste population 0.001% and Scheduled tribe population is 8% of the total population. The tribals, comprising Gujjars and Bakerwals, live in higher belts of the district such as Machil, Keran, Karnah, Bangus, Kumkadi, Lashdat, Jungand, Kethanwali and Budnambal etc.

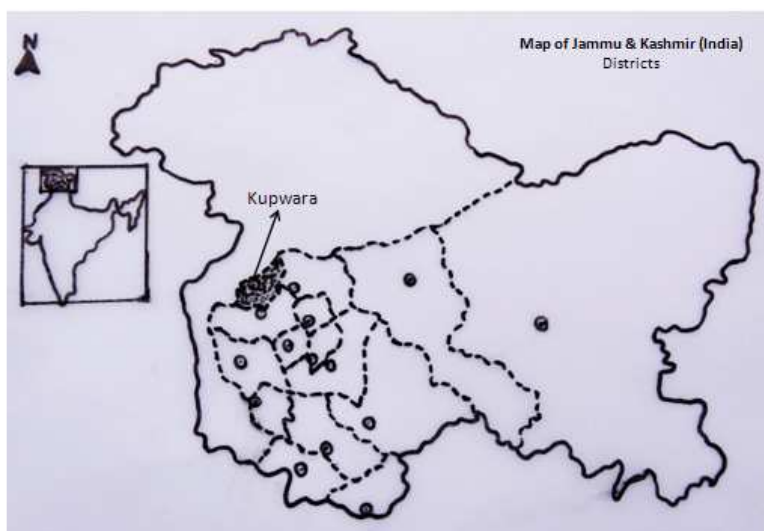


Figure 1
Map of Jammu and Kashmir showing the location of District Kupwara.

MATERIALS AND METHODS

Plant collection and data regarding their traditional uses in the study area have been done periodically in different flowering/fruiting seasons. A number of locals of the age group of 45 and above including local physicians practicing indigenous system of medicine, priests and tribal folks were personally interviewed during field trips from 2010 to 2011. The plant specimens were collected, pressed, dried and mounted on herbarium sheets. The plants were identified by using hand lenses, monographs and floras and by matching with the specimens already present in KASH.

RESULTS AND DISCUSSION

The present study reveals that 48 plant species belonging to 30 families have ethnobotanical importance in the study area (Table 1). These plants belong to both angiospermic as well as

gymnospermic families, the former being more prevalent. The plants may be categorized into herbs, shrubs, lianas and trees. The herb life form is represented by 31 species, shrub by 3 species, lianas by 1 species while tree is represented by 11 species. Highest number of plant species having ethnobotanical importance belong to family Ranunculaceae (5) followed by Asteraceae (4) while Apiaceae, Rosaceae and Pinaceae are represented by 3 species each (Fig 2). The largest proportion of plants having ethnobotanical importance (Fig. 3) belongs to the category of wild herbs (52%) followed by cultivated herbs (13%), cultivated trees (13%), wild trees (10%), wild shrubs (4%), and the least proportion belongs to the categories of cultivated lianas (2%), wild/cultivated herbs (2%), wild/cultivated shrubs (2%) and fungus (2%). Most of these plant species have either medicinal or aromatic importance while a few have cultural importance finding use in ceremonies and festivals. The common diseases that are.

Table 1

Checklist of ethnobotanically important plants with family, vernacular name, part used, recipe/ folk use and habit in District Kupwara, Kashmir, India.

Botanical name	Family	Vernacular name	Part used	Recipe/Folk use	Status & Habit
<i>Abies pindrow</i> Royle	Pinaceae	Budul, Revand	Wood & Bark	The timber is used for construction of houses and furniture. The bark is removed and the innermost red part is scalped out and made into small pieces. These pieces are boiled in water and milk with sugar or table salt and made into tea.	Wild tree
<i>Aconitum chasmanthum</i> Stapf	Ranunculaceae	Mohund	Whole plant	The over ground part of the plant is poisonous and is used as a rodenticide after mixing and grinding with walnut kernels, and a little of sarson oil is mixed at the end.	Wild herb
<i>Aconitum heterophyllum</i> Wall. ex Royle	Ranunculaceae	Patrees	Root & Rhizome	Dried roots are finely powdered and taken orally for the treatment of abdominal pain and throat infections. The powder is also used as anthelmintic.	Wild/cultivated herb
<i>Allium sativum</i> L.	Liliaceae	Rohun, Lehsun	Bulb	Chutney made of coarsely ground bulb and turnip is an effective medicine for hypertension and diabetes. The chutney is taken with bread or rice.	Cultivated herb
<i>Anemone obtusiloba</i> D. Don	Ranunculaceae	Rattanjog	Rhizome	The dried rhizome is ground into fine pieces and mixed with boiling water or milk followed by sieving. The sieved liquid extract is taken for treatment of acidity and joint pains. Sometimes the fine ground powder is mixed with coarse wheat flour or 'Suji' and made into 'Halwa'.	Wild herb
<i>Arnebia benthamii</i> (Wall. ex G. Don)l. M. Johnston	Boraginaceae	Gao-Zaban	Whole plant	Roots are crushed and boiled in water. The decoction is taken as medicine for fever and urinary tract infections. Decoction of leaves and flowers is used for liver problems.	Wild herb

<i>Artemisia absinthium</i> L.	Asteraceae	Tethwen	Leaves and flowers	The leaves and flowers are boiled in water and the decoction is used as an anthelmintic and is effective for the treatment of diabetes.	Wild herb
<i>Berberis lyceum</i> Royle	Berberidaceae	Kawdach	Whole plant	The fruit is eaten fresh and is given to children as a laxative. The roots are washed, dried and powdered, locally called as 'Danlider', and boiled in water and used as a tonic and for the treatment of joint pains.	Wild shrub
<i>Bergenia ciliata</i> Sternb.	Saxifragaceae	Batpeva	Rhizome	The rhizome is cleaned with a scalp and ground into coarse powder. The powder is mixed with boiling milk and taken as tea which is a good medicine for diarrhoea, and other gastrointestinal infections.	Wild herb
<i>Betula utilis</i> D. Don	Betulaceae	Burza	Wood & Bark	The wood is used as fire wood and papery bark is used by Muslim priests, locally called as 'Peer', for writing amulets.	Wild tree
<i>Cannabis sativa</i> L.	Cannabinaceae	Bhang, Charas	Whole plant	The green leaves, twigs, flowers and young fruits are rubbed between hands and the black dirt that sticks the palms is removed and made into small balls and sold in the market as 'Charas' which is narcotic and hallucinating after mixed with tobacco and smoked as cigarette.	Wild herb
<i>Cedrus deodara</i> (Roxb.) Loud.	Pinaceae	Deodar	Wood	The resinous wood is chopped into small pieces of about 9-12" length and burnt in an earthen pot whose bottom is having a hole. This pot is tightly placed over another pot that is buried in soil. The dark oil extracted due to burning of wood gets collected into the lower pot and latter preserved in bottles. During paddy transplantation and manual weeding of paddy fields the oil, locally called as 'deodar', is applied on the legs before venturing into the paddy fields to protect them from a water borne	Wild tree

<i>Cichorium intybus</i> L.	Asteraceae	Kasni	Whole plant	irresistible itching allergy called as 'Khaez'. Timber is used for construction purposes. The dried plant material is ground and boiled in milk or water. The decoction is used for fever and diarrhea.	Wild herb
<i>Colchicum leutum</i> Baker	Liliaceae	Suranjan	Bulbs	The bulbs are ground and mixed with hot milk or water which is a good medicine for liver disorders.	Wild herb
<i>Coriandrum sativum</i> L.	Apiaceae	Dhania, Dhaniwal	Leaves & Seeds	Green leaves are put on roasted chicken and other meat preparations as a condiment and plate decoration. Seeds are used for making pickles.	Wild herb
<i>Dioscorea deltoidea</i> Wall.	Dioscoreaceae	Krish	Tuber	Powdered tubers mixed with water or milk is an effective anthelmintic. Tribal ladies apply the decoction to head to kill lice. In some areas the powder is used to catch fish as it is a good fish poison.	Wild herb
<i>Foeniculum vulgare</i> Mill.	Apiaceae	Saunf, Badiyan	Seeds	The dried seeds are ground into powder and added to many dishes including pickle as condiment. Unground seeds are used in bakery for making 'Kulcha' and chewed after meals as mouth freshener.	Cultivated herb
<i>Gentiana kurroo</i> Royle	Gentianaceae	Nilkanth	Rhizome	Dried rhizome and roots are ground into coarse powder and boiled in water and sieved. The decoction is taken as tonic and for treatment of kidney and urinary tract infections.	Wild herb
<i>Juglans regia</i> L.	Juglandaceae	Doon	Wood, Bark & fruit	The wood is excellent for furniture especially for carving furniture, gun stocks. The bark is used for gums and teeth under the name 'Dandasa'. A small strip of the 'Dandasa' is first chewed on one end so as to make it soft and then brushed on gums and teeth. The teeth become shiny and gums get dyed red. The fruit, immersed in water for a few days, is used by Kashmiri Pandits on a religious festival, 'Shivratri'	Wild herb

<i>Malva neglecta</i> L.	Malvaceae	Sochal	Leaf	The green leaves are crushed by pestle and mortar and made into a small ball which is fed to young calves as treatment against diarrhea. It is also cooked as vegetable.	Wild herb
<i>Morchella esculenta</i> (L.) Pers.ex Fr.	Helveliaceae	Guchi	Fruiting body	The fruiting body is cooked as vegetable. It is powdered and taken as medicine for stomach troubles. The powder is applied to wounds for quick healing.	Fungus
<i>Morus alba</i> L.	Moraceae	Toot, Tul	Wood & Fruit	The wood is used for making ploughs and disc shaped pieces of stem are used by butchers and professional cooks for cutting and mincing of meat. The fruit is harvested simply by shaking the canopy or by thrashing the branches by a long bamboo stick and collected by people by spreading blankets and sheets beneath the canopy and eaten fresh. The fruit is refrigerant and laxative. The trees are lopped and used as fodder for cattle and leaves are used for rearing silk worms.	Cultivated tree
<i>Morus nigra</i> L.	Moraceae	Shahtoot, Shahtul	Fruit	The fruit is eaten fresh or made into jams, jellies, sherbet and wine.	Cultivated tree
<i>Ocimum basilicum</i> L.	Lamiaceae	Baber	Seed	The mature seeds are soaked in water for about an hour or so, milk and sugar is added to it and used as a fast-breaking drink by Muslims during the month of 'Ramadan'.	Cultivated herb
<i>Parrotiopsis jacquemontiana</i> (Decne) Rehd.	Hamamelidaceae	Poush, Poh	Stem & branches	The twigs are used for making fire pots locally called as 'Kangri', and for making baskets. Older branches and stems after cutting and slight burning are used for making handles of axes and handles of agricultural tools like shovels, spades, rakes etc.	Wild shrub
<i>Peganum harmala</i> L.	Zygophyllaceae	Izband	Seed	The dried seeds are burnt as incense in specially-made/decorated fire pots during wedding ceremonies in front of the bride, groom or other important	Wild herb

<i>Picrorhiza kurroa</i> Royle ex Benth	Scrophulariaceae	Kour, Kutki	Rhizome, root	<p>guests as a mark of respect and love.</p> <p>Dried rhizomes and roots are ground into fine powder and subjected to decoction in boiling water. The material is sieved and the resulting liquid is taken orally as tonic, laxative and stomachic.</p>	Wild herb
<i>Pinus wallichiana</i> A. B. Jackson	Pinaceae	Kayar	Whole plant	<p>The timber is used for construction of houses, furniture etc. The stems produce a latex, locally called as 'Kangul', that is applied to cracked heels for healing. The wood, cones and needles are used as fire wood.</p> <p>Good quality charcoal is also prepared from cones, branches and needles and sold in local markets.</p>	Wild tree
<i>Plantago major</i> L.	Plantaginaceae	BadaGul	Rhizome	<p>The rhizome is ground into small pieces and salt is added to it and given to mulching cows for treatment of udder and milk infections. The powder can directly be added to infectious milk which becomes disinfected and fit for consumption.</p>	Wild herb
<i>Platanus orientalis</i> L.	Platanaceae	Chinar, Booni	Wood & bark	<p>The timbered logs are used for making carpet weaving machine and planks are used for making boxes. Logs cut into 1-2" long disc shaped pieces are used by butchers and professional cooks for cutting and mincing meat. The bark, ground by pestle and mortar, is mixed with vinegar and lemon juice and used for treatment of diarrhoea and dysentery.</p>	Wild tree
<i>Podophyllum hexandrum</i> Royle	Berberidaceae	Banwangun, Kakri	Rhizome, Roots	<p>The ground rhizome or root is mixed with boiling water or milk and taken orally as an effective vermifuge.</p>	Wild herb
<i>Prunella vulgaris</i> L.	Lamiaceae	Kalyuth	Fruit	<p>The mature and dried inflorescence bearing fruit is boiled in water. The hot extract is massaged over legs for relieving muscular pain developed after hard labour or during fevers and colds.</p>	Wild herb

<i>Prunus armeniaca</i> L.	Rosaceae	Chaer	Fruit	Ripe fruits are eaten fresh. Oil extracted from kernels is used for massaging joints to get relief from pain.	Cultivated tree
<i>Prunus cerasus</i> L.	Rosaceae	Alich	Fruit	Ripe and dark red coloured fruits are eaten fresh. Being sour it is also used for preparation of wine. Kernels are used as a nervine tonic.	Cultivated tree
<i>Ranunculus arvensis</i> L.	Ranunculaceae	Churim	Whole plant	The green plant before flowering is cooked and used as vegetable. Women in groups, carrying wicker baskets, are seen in fields singing and collecting this plant.	Wild herb
<i>Ranunculus muricatus</i> L.	Ranunculaceae	ThulHakh	Whole plant	Before flowering the plant is used as a vegetable.	Wild herb
<i>Rheum emodi</i> Wall. ex Meissn	Polygonaceae	Pamb-chalan, Pamb-hakh	Rhizome & leaf	Dried and powdered rhizomes are used as purgative, tonic, and for cleaning teeth. Leaves cooked as vegetable.	Wild herb
<i>Robinia pseudoacacia</i> L.	Fabaceae	Kikar	Leaf & Wood	The fresh leaves are ground into a coarse paste by simple chewing or by pestle and mortar and applied on cuts and wounds to stop blood loss and speed up healing. The timber is used for making carts.	Cultivated tree
<i>Rosa × damascene</i> Mill.	Rosaceae	Gulab	Flower	Dried flowers mixed with little sugar are fermented to form 'Khambeer' or 'Gulkand', which is used for treatment of cough, colds and other respiratory ailments. Attar of rose petals is mixed with water and sprinkled on devotees in shrines on special occasions.	Wild/cultivated shrub
<i>Salix alba</i> L.	Salicaceae	Veer	Wood & tender branches	The timber is used for making apple boxes, cricket bats and bigger spoons and spatulas for professional cooks. The tender branches are used for brushing teeth and as mouth freshener under the local name 'Miswak'. The dry tender branches are used for wicker work. The leaves are boiled in water along with <i>Prunella vulgaris</i> and the resulting warm water is applied to the legs and feet of a tired person or a patient as an analgesic.	Cultivated tree

<i>Saussurea lappa</i> C. B. Clarke	Asteraceae	Kuth	Rhizome	Dried roots are ground into fine powder and mixed with boiling water or milk. The filtered extract is taken as tonic and for the treatment of joint pain, rheumatism, asthma and cough.	Wild herb
<i>Solanum tuberosum</i> L.	Solanaceae	Alu	Underground modified stem	The peeled potato is ground into a paste by mixing with a little of water and the paste is applied on the forehead for treatment of headache.	Cultivated herb
<i>Taraxacum officinale</i> Weber ex Wiggers	Asteraceae	Hand	Leaves	The leaves are consumed as vegetable. The vegetable is especially served to women, as a tonic, who have recently delivered a baby.	Wild herb
<i>Trachyspermum ammi</i> (L.) Sprague	Apiaceae	Jawind	Fruit	Ground seeds are used for the treatment of bronchitis. Along with Ginger and Black Pepper the seeds of 'Jawind' are ground into fine powder and made into small balls with the help of water; the balls are given to cattle for treatment of stomach disorders and for increasing their appetite. Paste of crushed fruit is applied to the abdomen externally for relief from colic.	Cultivated herb
<i>Valeriana jatamansi</i> Jones	Valerianaceae	Mushki-bala	Rhizome	The dried rhizome is burnt in the rooms on important occasions like festivals, marriage ceremonies etc. for fragrance.	Wild herb
<i>Viola odorata</i> L.	Violaceae	Nunposh	Flower	Dried flowers mixed with sugar are fermented to form 'Khambeer', which is used for cough and colds.	Wild herb
<i>Vitis vinifera</i> L.	Vitaceae	Angoor, Dach, Kishmish	Fruit & stem sap	Fresh fruits are laxative, diuretic and tonic. Dried fruit is marketed as 'Kishmish' and is served to guests on important occasions like wedding ceremonies. Stem is given a cut and the sap collected is massaged to head for hair elongation and for increasing their density.	Cultivated liana
<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Adrak, Shounth	Rhizome	Dried rhizome is ground into coarse powder is mixed with a small quantity of water. The slurry is applied to the forehead for treatment of headache.	Cultivated herb

Small pieces of rhizome are boiled in 'Kahwa', a special type of tea, for getting relief from common cold. Pieces of green rhizome locally called as 'Adrak' are added to tea as a flavouring agent.

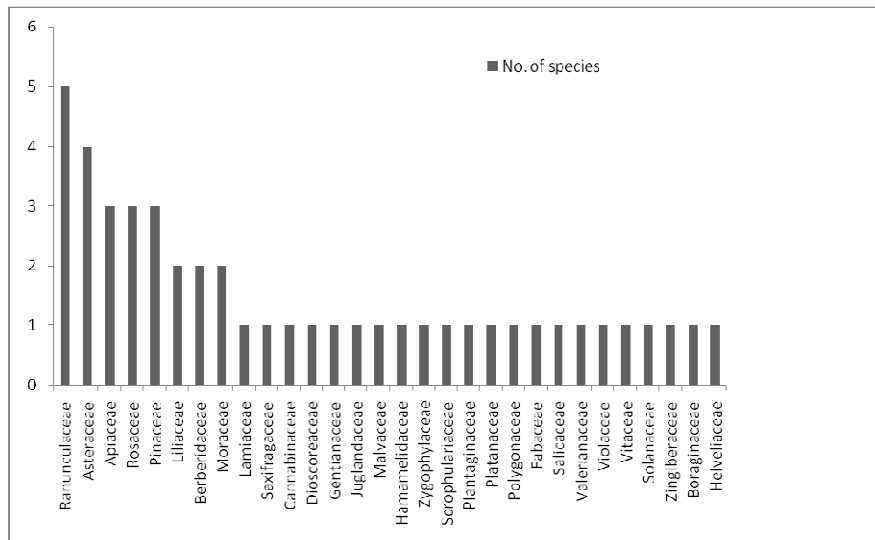


Figure 2.

Number of plant species of various families used by tribal folks of District Kupwara, J&K

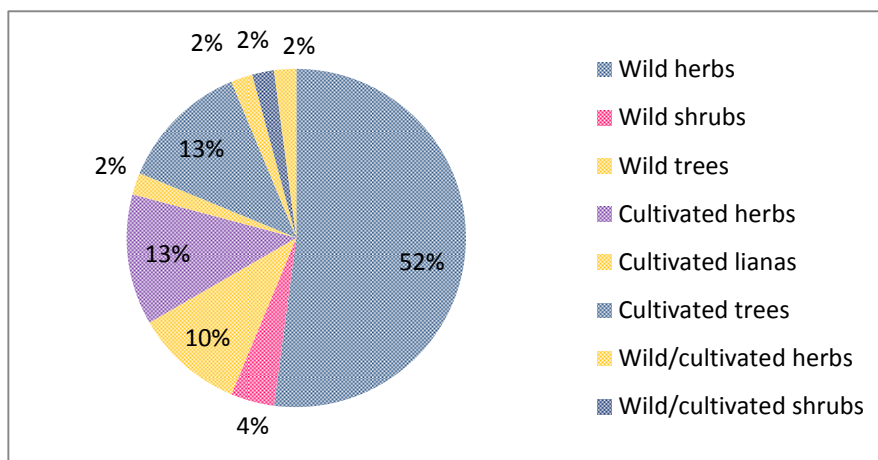


Figure 3.

Types of plants with ethnobotanical uses in District Kupwara, J&K

Treated by these herbs include cold, fever, cough, diarrhoea, dysentery, worm infestation and wound healing. This is in agreement with the observations reported in relation to medicinal plant studies by the Indian traditional system of medicine like Siddha and Ayurvedha^{9,10,11}. Different types of preparation made from medicinally important plants include decoction, powder or paste. Some of the plants are extensively used for timber. Both medicinal as well as timber yielding plants are over exploited due to human greed or need. Some

medicinal plants such as *Saussurea lappa*, *Aconitum heterophyllum*, *Arnebia benthami* were once exploited judiciously by the tribals or by the select people who knew their importance for their personal use but now such plants are exploited, marketed/smuggled at alarming rates for revenue generation. *Morchella esculenta*, found in the moist conifer forest zones, fetches high price in local market. Resultantly, local people extensively search the forest to collect it damaging young seedlings of medicinal plants and disturb the

moist layer of forest organic matter as well, causing negative impact on propagation of mushroom and other natural flora. During field survey it was also found that cattle-grazing is another threat to the survival and conservation of medicinal herbs. With the onset of summer common people from the villages send their

cattle and sheep to these meadows for about 3-4 months and most of the herbs are either trampled by these animals or they are grazed away even before flowering. Necessary steps need to be taken to safeguard such plants which can prove a boon for the pharmaceutical industry.

ACKNOWLEDGEMENTS

The authors are thankful to the elderly people of the study area especially the tribal folks having traditional knowledge for sharing the information on plants that are used by them in day to day life.

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