

ETHNO-BOTANY OF SOME USEFUL FOREST TREES OF NARENDRA NAGAR BLOCK, TEHRI GARHWAL (UTTARAKHAND), INDIA.

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Abstract : An ethno-botanical study was carried-out in order to document the folk uses of forest trees in the Narendra Nagar Block, District Tehri Garhwal, (Uttarakhand). The population of the region primarily depends upon plant resources for their domestic needs. A wide variety of tree species are present in the study area but this paper includes only those species whose common use is either known locally or they are in daily use for various purposes. Although the authors observed only 20 tree species are utilized for multiple purposes in the study area. Most of these tree species are also used for medicinal purposes. The informative data on ethno-botanical plants were conducted with the local inhabitants and selected informants. The ethno-medicinal data was gathered from the tribal medicine men, villagers and vaidhyas. Questionnaires were adopted during the surveys in order to get qualitative and participatory approach about the plant resources and their utilization by the local people. Questions concerning the utility of different plants, quantity of plants used, rate of consumption, availability, economics/ market value and fuel wood / fodder head loads had been asked.

Keywords : Ethno-botany, Forest, Trees, Tehri

INTRODUCTION

Ethno-botany, an area of human ecology, defines the interface between people and their forests, and offers clues needed for rural development based on sustainable yields of forest products (Thomas *et al.*, 1989). The importance of timber and other tree products from outside forests is interesting to increase attention, to help meet growing demands and reduce pressure on natural forests and plantations (Holding *et al.*, 2001). Trees growing in open areas seem to have potentials to provide options for rural livelihoods and biodiversity conservation (Pasicznik *et al.*, 2006). These trees can contribute to poverty mitigation serving as subsistence "safety nets" or low income "gap fillers". In addition to environmental stabilization, trees are useful for industrial, cultural, pharmaceutical, and socio-economic purposes to man, contributing billions of dollars yearly to the world's economy. Estimates have shown that about 90 percent of cooking and heating energy comes from trees (WWF, 1994). Traditional societies in Africa and elsewhere have always used plants to promote healing and traditional medicine is still the predominant means of health care in developing countries (Bussmann *et al.*, 2006; Okali *et al.* 2007). Trees growing in the open areas of this region can contribute to the wide-ranging needs of the local people. These trees are currently used in the region for multiple purposes such as honey production, food, dye, fibre, fodder, medicines, fuel wood, building materials and production of kitchen utensils. Some of these trees have support roles for sustainable agriculture, livestock production, and hunting activities while others have cultural, religious or judicial functions. Most of the activities of forest trees are to generate major income of local

inhabitants. For example, collection and marketing of the wide range of non-timber products such as edible fruits, nuts, seeds and medicines. The barks of some trees are used to produce ropes, straps and traditional oil containers while the woods of some are often valued for fuel wood and furniture. While the knowledge on the usefulness of these plants remains high and lead to the high percentage of exploitation. Ethnobotanical studies have reported useful plant species in Garhwal Himalaya (Gaur, 1999), but no ethnobotanical surveys of trees in the area of Narendra Nagar block, Tehri Garhwal (Uttarakhand) have been carried out by earlier plant explorers. The purpose of this investigation was therefore, to document the uses of indigenous and cultivated species of forest trees growing in this block

MATERIAL AND METHOD

Study area

Garhwal Himalaya is famous for its natural assets, landform, water sedges, lush green forest and floristic diversity. The Large human populace with diverse life styles, beliefs, traditions and cultural heritage inhabiting Garhwal Himalaya has learnt to utilize natural resources and products in various ways. Tehri Garhwal is one of the hilly district of Uttarakhand state, India. It has nine (9) blocks. Out of these one of the botanically interesting block in the district Tehri Garhwal is Narendra Nagar which sustains unique and rich vegetation in wide range of habitats from Tarai- Bhabar tracts (275-1900m asl.) to the high range of lesser Himalaya. It lies in between 30° 10' - 30° 17' N Latitude and 78° 18' - 78° 30' E Longitude and covering in the area of 6,8123 hectares. It stretches from Dhalwala to Than, Amsera,

Jaikot, Gaja to Marora, Nigyer and Dhalwala to Kauriyala etc. Eight villages were investigated in this study (Dhalwala, Than, Amsera, Jaikot, Gaja, Marora, Nigyer, Dhalwala and Kauriyala). Semi-structured questionnaires were used to interview the local population about their ethnobotanical knowledge of trees.

Plant survey and Identification

Field surveys have been made during 2008–2011 to gather data on traditional uses of medicinal plants across various villages in the block. Personal interviews and inquiries were also conducted during field trips. Interviewees were chosen without distinction of gender after seeking the consent from each respondent. People from all age groups, except children below 18 years were interviewed on their

knowledge about the uses of trees in this region. The random sampling technique was used and a total of 80 questionnaires were distributed out to 35 males and 45 females in the site of the study. Information regarding the different folk uses of trees, parts used, availability status, and vernacular names was recorded. Informants were asked to name trees they knew, and to reveal the uses of the respective species. Informants often accompanied the investigators to the field to collect plant material. In cases of illiterate informants, photographs and fresh plant specimens from the field were presented to them and questionnaires were filled from their responses. Information was also recorded on the medicinal use of trees, plant parts used, diseases treated, modes of preparation and administration (Table 1).

Table 1. Ethno-Botany of Some Useful Forest Trees of Narendra Nagar Blocks Tehri Garhwal (Uttarakhand), India.

Botanical name\Family	Local name	Status	Plant parts used and mode of administration
Trees			
<i>Acacia catechu</i> (L.f.) Willd. (Mimosaceae)	Khair	+++	Decoction of wood and bark is given in cough and inflammations of throat. It is given in diarrhea and applied on mouth sores. Wood is used locally for making agricultural tools and fuel wood. Sometimes leaves are used as fodder.
<i>Acacia nilotica</i> (L.) Willd. (Mimosaceae)	Kikar	++	Infusion of bark and leaves used in fever, bronchitis, asthma and dysentery. Wood is used locally for making agricultural tools and fuel wood. Leaves are used as fodder.
<i>Aegle marmelos</i> (L.) Correa (Rutaceae)	Bel	+	Decoction of root is given in fever, cough and hoarse throat. Fruit pulp useful in diarrhea, dysentery, stomach infection and bronchial inflammation.
<i>Bombax ceiba</i> L.	Semal	++	Gum from stem given in diarrhea, dysentery and leucorrhoea. Decoction of fruits is given in suppressed urination. Sometimes roots powder used in epilepsy.
<i>Dendrocalamus strictus</i> (Roxb.) Nees	Bans	++	Leaves are given to horses for curing cough and cold. Branches are used as building material, for making ladder, thatching huts, carts and pipes. The splits stem is woven into baskets and mats. Low cost fuel wood.
<i>Ficus religiosa</i> Roxb.	Peepal	++	Bark decoction is given in gonorrhea and scabies while fruit are edible, laxative and also given in infertility. Leaves used in psychomedicine especially in snake bite
<i>Grewia optiva</i> J.R. Drummond ex Burret (Tiliaceae)	Bheemal	+++	Fruit is used in digestive disorders. Bark juice is given to women to facilitate delivery and used in shampoo. Leaves are used as fodder. Bark from branches is used for fiber and making ropes.
<i>Juglans regia</i> L. Juglandaceae	Akrot	+++	It is used in standard furniture, also used for carving. Bark is used for cleaning and sparkling teeth. Leaves are also used as lips make-up. Nuts can infect throat due to its oily nature. It has warm nature and can cause jaundice. It is also used as a dye. Decoction of leaves is given in eczema and

			intestinal worms.
<i>Mallotus philippensis</i> (Lam.) Muell.-Arg. (Euphorbiaceae)	Ruina	+++	Bark juice is given to children in diarrhea and dysentery. Paste of fruit powder is applied externally on cuts, wounds and also used in natural dye. It is used as fuel wood.
<i>Melia azedarach</i> L. (Meliaceae)	Dharik	++	Decoction of bark used in gonorrhea, bark paste is applied on skin eruptions. Infusion of heart wood is given in asthma. Leaves, fruits and seeds are useful in skin diseases.
<i>Phyllanthus emblica</i> L. (Euphorbiaceae)	Amla	++	Fruits are used in digestive disorders and fruit juice useful in leucorrhoea. Fruit powder is given in fever. Fruit is a best source of vitamin-C, hair oil, conditioner, shampoo, aches, and mouth ulcer, quench thirst and mixed with Triphalla Churna (Seeds powder of <i>Terminellia bellirica</i> and Seeds powder of <i>T. chebula</i>).
<i>Pinus roxburghii</i> Sargent. (Pinaceae)	Chir	+++	Timber wood, fuelwood, used for making furniture, cones are used for burning and decoration purposes. It yields edible seeds. Needles are used for sheltering and for keeping fruits in crates. Resin of bark, locally known as "Jaula", is stimulant used in ulcer, snake bites, scorpion stings, skin diseases and blood purifier. Saw dust is used by barbars to warm water, it is also used for cleaning utensils.
<i>Punica granatum</i> L. (Punicaceae)	Darim	++	Leaves are used in skin diseases, dysentery. Fruit is astringent, cooling, blood purifier. Fruit pericarp is used for whooping cough, it is laxative. Seeds are dried and known as "anardana" which are condiments and used as spices. Bark of stem and root is anthelmintic, mouthwisher, antipyretic and expectorant.
<i>Pyrus pashia</i> Buch.-Ham. ex D. Don (Rosaceae)	Melu	++	Fruits are edible, astringent, febrifuge, sedative and laxative. Fuel wood. It serves as rootstock for grafting apple and pear. Honey bee species.
<i>Quercus leucotrichophora</i> A. Camus	Banj	+++	Stem used as best agricultural implements, gun butts and walking sticks, fuel. Leaves used as fodder. Seeds are sometimes edible, astringent and diuretic, used in diarrhea, indigestion and asthma. Children use seed cups as playing tops
<i>Syzygium cumini</i> (L.) Skeels (Myrtaceae)	Jamun	++	Stem used in making furniture. Root bark is given in cough. Fruit paste is applied on burns. Fruits are edible and best source of vitamins and minerals. Rind chewed as Paan for curing the diabetes
<i>Rhododendron arborium</i> Smith (Ericaceae)	Burans	+++	Its wood is used as fuel. Flowers are ornamental and are sold in the market. Flower petals are used as heart tonic and are eaten by local people. Juice makes from petals (Burans Juice)
<i>Terminalia alata</i> Heyne ex Roth (Combretaceae)	Asin	+	Fruit powder used in dropsy, asthma, fever, cough and cold. Bark decoction is given in cough and headache
<i>Terminalia bellirica</i> (Gaertn.) Roxb. (Combretaceae)	Bahera	+	The dried fruits used in indigestion with honey. Fruit mixed with the ginger juice is taken in loss of appetite
<i>Terminalia chebula</i> Retz. (Combretaceae)	Hedera	+	The dried fruits used in indigestion with honey. Fruit mixed with the ginger juice is taken in loss of appetite. It is a product of triphala.

+++ (Very common), ++ (common), + (Uncommon)

RESULT AND DISCUSSION

A total of 20 tree species were recorded in this study and all of them were reported as being useful in the lives of the local populations. Many people in the villages are still depends on plants and plant products growing around them for most of their needs. The younger generations in this region are more interested in modern lifestyles but some indigenous knowledge of plants still remains. All of the species are utilized by the local people to improve their livelihoods. The population has to be educated on propagation and conservation of the plants especially those used to treat the most common ailments.

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