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Environmental Science

ETHNOBOTANICAL STUDY OF MARH BLOCK OF JAMMU DISTRICT

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ABSTRACT Trees are precious gift of nature and are regarded as "Green lungs of earth". They are the vital natural assets to rural people and provide a wide range of useful products which when incorporated into the livelihood strategies of rural people, help to reduce their vulnerability to external shocks and risks (Kaimowitz, 2003). Simultaneously tree contributes to range of ecosystem services such as ecological and agricultural productivity, biodiversity conservation, water regulation and land rehabilitation. We totally depend upon plants for our daily needs such as food, fodder for animals, raw material for industries etc. Peepal, banyan and Tulsi are some of plants that hold special cultural and religious significance in India. common trees *like Emblica officinalis, Mangifera indica ,Cordia dichhotoma, Moras alba zizyphus muritiana,* etc have been used as food. Species like *Melia azadirech, Albizia lebbek , Morus alba* has been widely used as fodder. The present paper is all about the trees outside the forest of block Marh. Ethno-botanical study was conducted to know about the importance of plants in the daily life of locals.

KEYWORDS : Ethno-botanical, cultural, ecosystem, natural assets, vulnerability, agrarian productivity

Introduction

Trees are the life lines of the terrestrial ecosystem as they are primary producers, air purifier, thermo regulators and support varied varieties of insects, birds and animals. Trees have always been associated with wisdom and immortality in India. Hindu literature describes a Celestial tree as having its roots in the heaven and its branches in the underworld that unites and connects beings of every kind. Banyan is the National tree of India. Peepal, banyan and Tulsi are some of plants that hold special cultural and religious significance in India. These are important indicators of ecological condition prevailing in any area on the other hand are building.The Himalayan forests are most biologically diverse habitats. As they cover only 18% of the geographical area of India,but accounts for more than 50% of Indian's forest cover and 40% of the species endemic to Indian subcontinent (Maikhuri et al.,2000).

Extensive tree wealth exist outside continuous forested area in every country and is termed as 'Tree outside forest'(TOF). All those patches of trees less than one hectare in extent is considered as tree cover i.e. TOF. These are in small woodlots and block plantation, trees along linear features such as road, canal, bunds etc. and scattered trees on farmland, homestead, community lands and urban areas. Trees outside forest (TOF) are considered an alternative but significant source of fuel, fodder and timber. They give economic stability, support and development and also provide environmental relief to local people. Boofa et al.(2005) investigated the role of farm tree diversity as a mean of conserving landscape-based biodiversity. TOF are characterized by relatively small sizes, multiplicity of ownership and by diverse character of individual woodlots scattered over the country. It is important for the forest management to understand the key issue relating to role, current and potential of TOF and to identify measure to enhance their contribution. It has long assumed that local demand is sustained by products from forest estate. But in the recent past data are becoming available which indicate that majority of wood in rural area is obtained locally outside forests.

The state J&K has a geographical area of 2, 22,336km^2 with 22,539 km^2 of forest cover which is 10.14% of state's geographical area. In Jammu the flora ranges from thorn bush type of the arid plane to the temperate and alpine flora of the higher altitude. The present study was conducted in village Jhiri, Marh Block of Jammu district to study about the importance of plants outside the forest such as medicinally important plants and other economical important plants.

Study area and Methodology

The present study has been carried out in Marh block of Jammu and is situated at a distance of about 20 km from Jammu. It is located at 32^0 43' N latitude and 74^0 54'E longitude.The study area shows varied climatic and edaphic conditions. The climate of the study area is of subtropical with cold and dry climate in winter and hot climate in summer. May and June are hottest month while December and January are coldest month. Rainy season start at the end of June or at the beginning of July. There are four well defined seasons in a year on the basis of annual rainfall and temperature i.e winter (mid November to mid March), Summer season (mid March to the end of June), Monsoon season (July to September), Autumn season (October to mid Novem ber).

Temperature varies from 5^{0}c during winter to about 45^{0}c during summers. Rainfall is observed during July to September. Average rainfall during rainy season is 100 to 120 cm.The type of soil mainly observed in the study area and its adjoining areas is loamy soil. The soil is slightly acidic to neutral and texture in general varies from loam to sandy loam .

Methodology

The study area has been surveyed thoroughly for the floristic composition in order to obtain information about the general pattern and characteristics of vegetation of the area. The entire field visits were carried out well keeping in mind the different seasons and the flowering period. During field visit in most of the cases plants specimen were collected as the samples for the plant identification. Mostly the plants were photographed in their natural habitat for the purpose of identification. In order to collect the primary field date, floristic study of all the sample sites were undertaken for the period of six months. Whole of the accessible area was well surveyed on the basis of regular field visits on monthly basis. For the identification of plants, various regional, local and national floras were used besides consulting taxonomic expertise. Majority of the plants were identified on the spots by their vernacular names. Photography was done for the different plant species in the area and of other such features which help in the identification of species. In the present study, identification is easy at some extent, because most of the trees have not attached plates with their vernacular names, botanical name and family. Information has been collected by simple approach of questioning, cross questioning, discussion and later on conformation. Information from published literature also provided excellent input.

Results and Discussions

The present study revealed the presence of 68 plant species out of which 53 are trees and15 are shrubs belonging to 62 genera and spread over 36 families. The trees belong to 47 genera and shrubs belong to 15 genera. Both belong to 36 families. Among the different genera present in study area , Ficus is represented by 5 species, Citrus by 3 and Acacia by 2 species, while rest of genera represented by 1 species each. Fabaceae and Moraceae has been observed to be the dominant family with 7 species followed by Apocynaceae by 5 species ; Myrtaceae and Rutaceae by 4 species ; Acanthaceae, Euphorbiaceae and Meliaceae by 3 species And remaining families has been represented by 1 species each.

Different species are used for different purposes.About 22 species of trees like Azardirachta indica, Syzygium cumini, Cassia fistula, Emblica officinalis etc.have been widely used for medicinal purposes. Different parts of trees are specifically used for different medicinal purposes.While 12 Species of trees like Emblica officinalis, Mangifera indica ,Cordia dichhotoma, Moras alba zizyphus muritiana, etc have been used as food. Species like Melia azadirech, Albizia lebbek , Morus alba has been widely used as fodder.

Many trees like Acacia nilotica , Dalbergia sisoo, Mangifera indica etc. have been exploited for their timber value .About 8 species like Ficus racemosa, Mangifera indica, Azadirachta indica have been used as household purpose. And about 8 species like Acacia nilotica ,Syzygium cumini etc have been used as fuel wood.

Sundriyal and Sundriyal (2004) conducted study on the wild edible plants and a total of 190 species have been screened has edible species, out of which nearly 47 species come to the market. For this, there is a need to study the distribution and the status of plant resources. The present study area revealed the presence of 68 plant species out of which 53 are trees and15 are shrubs belonging to 62 genera and spread over 36 families. The trees belong to 47 genera and shrubs belong to 15 genera. /Among the different genera present in study area, Ficus is represented by 5 species, Citrus and Acacia by 3 species, while rest of genera represented by 1 species each. Moraceae and Fabaceae has been observed to be the dominant family with 7 species followed by Apocynaceae with 5 species Myrtaceae and Rutaceae by 4 species ; Acanthaceae, Euphorbiaceae and Meliaceae by 3 species And remaining families has been represented by 1 species each.

Various uses of plants by locals in their daily life are tabulated as under:

3.1: Plants used for Medicinal purpose:

S.No.	SCIENTIFIC NAME	COMMON NAME	USES
1.	*Acacia nilotica*	Kikar	Bark decoction given in urino-genital diseases. Leaves and bark are useful in arresting secretion or bleeding. It is also useful in diarrhoea.
2.	*Acacia catechu*	Khair	Katha produced from bark is used in curing mouth ulcers. Bark processes astringent, anti-flammatory, anti bacterial, anti-fungal and large amount of anti-oxidant activities.
3.	*Aegle marmelos*	Bel	Marmelosin, a compound act as cardiac depressant. Leaves, fruits & roots have anti-biotic properties. Its sharbat is useful for stomach & has cooling effect.
4.	*Albizia Lebbek*	Siris	Root powder act as excellent gum tonner & aphrodisiac. It is also used as astringent to treat boils, cough, eye flu, lung problems. It is used to treat abdominal tumors. Bark is used to treat inflammation.
5.	*Alstonia scholaris*	Satpatra	In India, bark is used solely for medicinal purposes, ranging from Malaria & Epilepsy to skin problems & Asthma. It is used as bitter and as an astringent herb. The milky juice of tree is applied to ulcers.
6.	*Azardurachta indica*	Neem	Neem oil is extracted from its seeds, is used in medicines, pest control & cosmetics. Leaves are used to treat Chickenpox and other skin diseases. Bark act as malgesic & can cure high fever as of Malaria & also used for skin troubles. Tender twigs are used to clan teeth. Flowers tonic & stomachic and used to cure intestinal problems.
7.	*Bombox ceiba*	Seemal/ Simbal	Dried buds are used in dysentery, diarrhoea, piles and decoction of roots is used to treat dyspepsia.
8.	*Crataeva religiosa*	Barna	Bark is especially useful for urinary complaints such as kidney, bladder stone, and fever & to relieve from vomiting.
9.	*Cordia dishotoma*	lasoora	Bark is used for headache and stomachache, & for mouth ulcers. Bark is rubbed on teeth to strengthen them. Leaves used for ulcers & headache. Fruit is used for coughs, & ailments of chest, uterus & urethra.
10.	*Emblica officinalis*	Amla	Fruit rich source of vitamin C & serve as a cooling astringent, diuretic & laxative. It is an important ingredient of Trifala it is used to enhance digestion, treat constipation, reduce fever, purify blood, and reduce Asthma.
11.	*Eucalyptus citriodora*	Safeda	The oil from eucalyptus is used to treat diabetes, reduce congestion & case breathing in colds. It acts as antiseptic that help in killing bacteria and fungi. It helps in purifying blood & also lower sugar level.
12.	*Ficus benegalensis*	Bhor/Bargad	Milky latex applied in reheumatism & lumbago (muscular pain in the lumbar regions), infusion of bark is considered astringent & its tonic is used in diabetes, diarrhoea & dysentery.
13.	*Ficus racemosa*	Rumbal /Goolar	It is used in dysentery, diarrhoea diabetes, stomachache, piles & as carminative & astringent.
14.	*Ficus religiosa*	Peepal	Bark is astringent, young shoots & leaves are purgative, infusion of bark is given internally in Scabies.
15.	*Kigelia pinnata*	African kakdi	Fruits are used for treatment of skin afflictions, intestinal worms.
16.	*Leucaena leucocephala*	Subabool /lacoon	Bark is eaten for internal pain.
17.	*Melia azadarach*	Drenk	Leaves bark & fruit are insect repellant. Leaf extract antihelmenthic, diuretic.
18.	*Moringa Oleifera*	Sohanjana	It is used for diabetes relief, healthy skin, for nutrition; improve sensory perception, to sleep better, decreased depression & anxiety..
19.	*Parkinsonia aculeate*	Vilayti Kikar	Leaf, fruit & stem decoctions are taken orally as to treat fever, malaria.
20.	*Syzygium cumini*	Jamun	Fresh bark juice milk is used to cure diarrhoea. Bark & seed extract given for diabetes.
21.	*Tamarindus indica*	Imli	It is used for gastric & digestion problems and in the cardio protective activity.
22.	*Tonna ciliate*	Toon	Bark is used for chronic dysentery of infants & also used for ulcers.

3.2 Plants used as food

S.No.	SCIENTIFIC NAME	COMMON NAME
1.	*Aegle marmelos*	Bel
2.	*Cordia dichotoma*	Lasoora
3.	*Emblica officinalis*	Amla
4.	*Ficus racemosa*	Rumbal/Goolar
5.	*Mangifera indica*	Amb/Mango
6.	*Moras albra*	Mulberry/Toot
7.	*Syzygium sylvestris*	Jamun
8.	*Tamarindus indica*	Imli
9.	*Zizyphus mauritiana*	Ber
10.	*Litchi chinensis*	Litchi
11.	*Eribotrya Japonica*	Laquat
12.	*Prunus persica*	Aru

1.3 Plants used as fodder

S.No.	SCIENTIFIC NAME	COMMON NAME
1.	*Acacia Nilotica*	Kiker
2.	*Albizia lebbek*	Siris
3.	*Ficus religiosa*	Peepal
4.	*Leucaena leucocephala*	Subabool Laccee
5.	*Melia azadarach*	Drenk

6.	*Moras alba*	Mulberry/Toot
7.	*Parkinsonia aculeate*	Vilayati kiker
8.	*Zizyphus mauritiana*	Ber

3.4 Plants used as Timber:

S.No.	SCIENTIFIC NAME	COMMON NAME
1.	*Acacia nilotica*	Kikar
2.	*Albizia lebbeks*	Siris
3.	*Alstonia scholaris*	Satpatra
4.	*Azarduracgta indica*	Neem
5.	*Bombox ceiba*	Simbal
6.	*Butea monosperma*	Palas
7.	*Dalbergia sisoo*	Shisham/Tahli
8.	*Eucalyptus citriodora*	Safeda
9.	*Mangifera indica*	Amb/Mango
10.	*Melia azadarach*	Drenk
11.	*Moras alba*	Mulberry/Toot
12.	*Zizyphus mauritiana*	Ber

3.5 Plants used for household purposes:

S.No.	SCIENTIFIC NAME	COMMON NAME	USES
1.	*Aegle marmelos*	Bel	Leaves are used for religious purposes.
2.	*Azardirachtra indica*	Neem	Bark contains tannins which is used in tanning & dyeing. Bark yield fibre that is woven into ropes.
3.	*Bombox ceiba*	Seemal/Simbal	Cotton inside fruit is used as substitute for cotton.
4.	*Eucalyptus citriodora*	Safeda	It is used in manufacturing of paper.
5.	*Mangifera indica*	Amb/Mango	Its wood is used for performing havans & leaves are also used for religious purposes.
6.	*Melia azadarach*	Drenk	Leaves are used for storing wheat.
7.	*Moras alba*	Mulberry/Toot	Fruit milk laxative & edible.
8.	*Zizyphus mauritiana*	Ber	Wood is used for formation of beds & also used for performing havans.

Conclusions

The present study area are rich depository of medicinal plants.About 22 species of trees like Azardirachta indica, Syzygium cumini, Cassia fistula, Emblica officinalis etc.have been widely used for medicinal purposes. Different parts of trees are specifically used for different medicinal purposes.Many plants species like Emblica officinalis, Mangifera indica,Cordia dichhotoma, Moras alba zizyphus muritiana, Phoenix sylvestris etc have been used as food. About 8 species of trees like Melia azadirech, Albizia lebbek , Morus alba has been widely used as fodder. And a number of trees like Acacia nilotica , Dalbergia sisoo, Mangifera indica etc. have been used for timber purpose. Plants species like Ficus racemosa, Mangifera indica, Azadirachta indica have been used as household purpose.

Tree species are the main component of the ecosystem and also play a crucial role in the form of green cover and stabilized the environment by their services like absorption of carbon dioxide, noise pollution etc. Trees are important component of the natural landscape because of their prevention of erosion and provision of a weather sheltered ecosystem in and under their foliage and play an important role in moderating ground temperature. They are also element in landscaping in agriculture, both for their aesthetic appeal and their orchid crops. Wood from trees are building material as well as primary energy sources in many developing countries.

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