

# An Ethno botanical study of some medicinal Trees of Bir Bara Ban (A conservation Reserve) In Jind District of Haryana

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## Abstract:

Ethno botany is study of interrelationship of plants and local people. Medicinal plants serves as resources of traditional medicines and many modern medicines are directly or indirectly produced from plants. Due to enormous population increase, inadequate supply of drugs, side effects of many allopathic drugs there is urgent need of emphasis on the use of plant based medicines for treatment of wide variety of human diseases. Present study aims to identify and to document the ethno botanically important plant species of Bir Bara Ban a conservation reserve in Jind District of Haryana. Haryana is located in northwest India having 4.42 million covered areas. Protected area cover of Haryana is 33138.12 hectare which includes 2 national parks and 8 wildlife sanctuaries and 2 conservation reserves. Bir Bara Ban Jind is one of them. Bir Bara Ban (Latitude 29°19', Longitude 76°23') is located on National Highway 71A, Jind no. 8, in Jind district of Haryana. It covers 1036 acres of land. Ethno botanical information was collected by field survey among villagers of 6 adjoining villages of site, by study with herbaria and museum. Different plant parts are used in different plants for treatment of diseases. In majority of plants leaves and bark is used. Old aged people and rural folk of villages have been using local wild plants for treatment of various human ailments as well as cattle diseases. But these traditional medicinal practices are not documented. There is urgent need of documentation of this information. This paper documented 41 medicinal trees of Bir Bara Ban. Attention is required for conservation of medicinal wealth of study area as study site adversely affected by grazing, cutting of trees and dumping of waste. Conservation of plants of study area will play major role in improving health and alleviation of poverty.

**Key Words:** Medicinal Plants, Human ailment, Ethno botanical information.

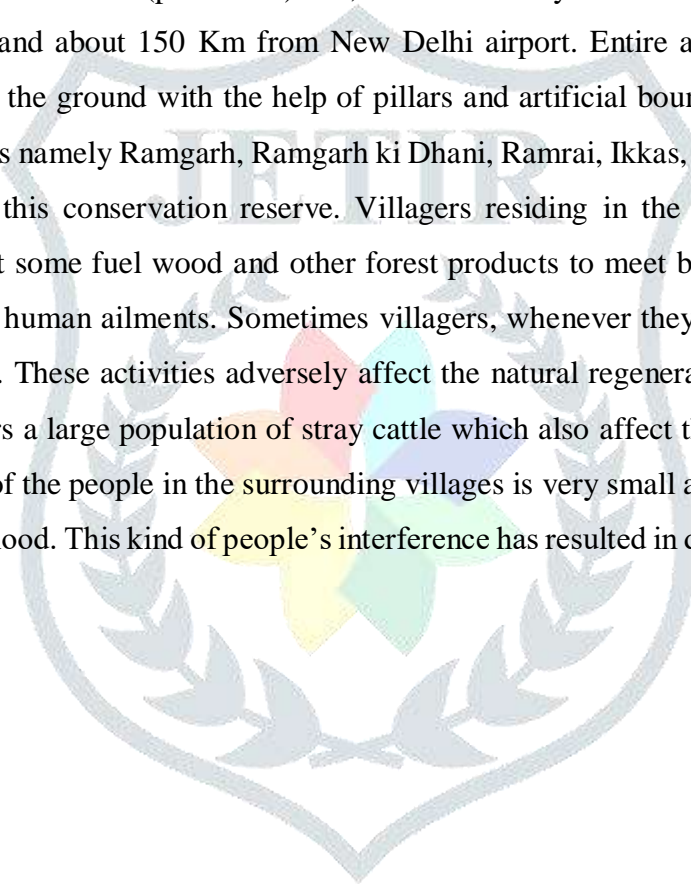
**Introduction:** The term ethno botany was first coined by J.W. Harshberger in 1890. Plants have unique capacity of absorbing sunlight in the process of photosynthesis and with the help of photosynthesis they form the basis of life. Plants play major role in human life and one of them is their medicinal role. Plants have intense medicinal properties and herbal plants have a strong traditional base and potential to be used as drugs for treatment of many diseases. Use of many medicinal herbs is referred by many books like Charka Samhita and Susruta Samhita (Jain,1968). In Shvangani district of Tamil Nadu ethno botanical survey was done and medicinal plants used to cure diabetes and jaundice was listed (Shanmugam, et.al. 2009). In many countries plants serves as a source of many powerful drugs (Srivastva,et.al.,1996). WHO had made an attempt to identify all medicinally

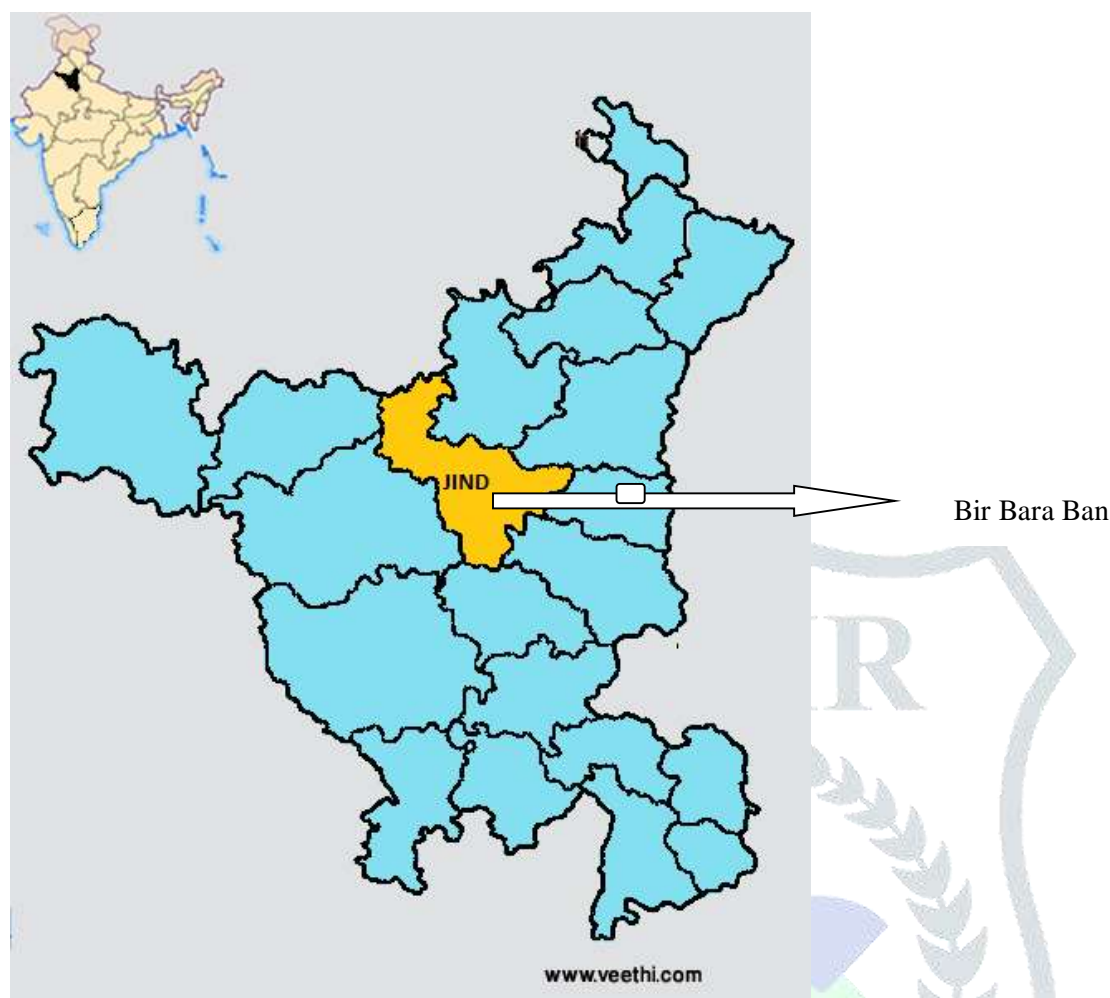
important plants used globally and listed more than 20000 species (Pandey, et al.2011). Numbers of plants are claiming medicinal uses and many researches are going on in this view (Rani, et al. 2011). Due to change in life style of human beings many diseases such as obesity, diabetes, are on rise. And there are many side effects of allopathic drugs so man is switching to herbal medicines for cure of their remedies. Plants have potential to cure different human ailments like diarrhea, asthma, cold, cough and diabetes. Local people use 56 plants belonging to 33 families to cure 66 minor and major diseases. In different plants different plant parts like root, leaf, stem, fruit and seeds are used to cure diseases (Yadav and Bhandoria, 2012). Ethno botanical studies if done systematically, will give fruitful results to plant geographers, botanist and to pharmacologists and phytochemists (Shah,1981). In Himachal Pradesh plant part used and mode of administration of about 50 herbs medicinal plants are listed (Kapahi, 1990).

Ethno botanical studies in subhansiri district of Arunachal Pradesh shows that local people depends on herbal medicines for treatment of human diseases as well as of livestock diseases. Fruits, leaves, stem, roots of 140 medicinal plants in case of human beings and 16 medicinal plants in case of livestock diseases are used for treatment (Murtem and Choudhary, 2016). Ayurveda, siddha and Unani systems of medicines are the basis of Indian traditional systems of medicines. Various remedies mentioned in Charak Samhita, Sushrut Samhita are used by people from generation to generation. The remedies which are not available in documented and recorded form can be made available in document form by Ethno botany (Dhiman and Khanna,2001) Rural people of Yamunanagar district of Haryana uses 46 medicinal plants for treatment of diarrhea, dysentery, skin diseases, asthma, and piles (Parul and Vashistha,2015).From very begning man is using plants to cure various diseases and even after so much development in modern systems of medicines local people of India still uses Village Health Practitioners to cure various ailments (Yadav and Patil, 2001). In 20 sacred groves of Mahendergarh district of Haryana 50 plant species with medicinal properties are reported and all these species are threatened due to human pressure (Yadav *et al.*, 2009). *Tinospora cordifolia* is a multipurpose medicinal plant and due to immense medicinal properties there is overexploitation of this plant by pharmaceutical companies and this lead to acute scarcity of plant (Mittal *et al.*2014). In karnal district of Haryana 345 angiosperm plants are reported that are having medicinal role and this information about floristic composition help in management and conservation of plant wealth of India (Kaur and Vashistha 2014). *Thymus vulgaris* is used for treatment of rheumatism, muscle swelling and insect bites and due to these immense medicinal properties it is used in pharmaceutical companies on large scale (Hosseinzadeh et.al.2015). 26 plants like *Datura metal*, *Achyranthes aspera*, *Calotropis procera* are used in treatment of snake bite in seven villages of Khargone district of Madhya Pradesh ( Jetendra and Kumar 2012).From these studies it is concluded that plants have immense potential to heal human remedies and keeping this in mind present study is conducted to explore medicinal trees of Bir Bara Ban Jind.

**Study Site:** Geographical area of Jind district is 2777sq. km. which is 6.1% of total area of the state. Forest area is 6774 Ha. that comprise 2.4% of total geographical area of district. It shares its boundaries with Karnal and

Kaithal district in the north and north-east, Patiala district of Punjab and Fatehabad district of Haryana on north-west Haryana-Punjab boarder on the north-west, Rohtak on the south, Sonipat on the south-east and Hisar on the west side. The entire forest area of Jind is situated along Government owned roads, canals, distributaries, drains, railway lines etc. However Bir Bara Ban is block forest covering area of 419 Ha. It has been under the management of Haryana Forest Department since independence. Prior to the independence, it was the property of Raja of Jind district and at that time was maintained as game reserve. Hitherto, it was also declared as Wild life Sanctuary vides Haryana Government, Wildlife Preservation Department notification no. S.O.152/C.A.53/72/S. 18/91 dated 20 December 1991 but was subsequently denotified and declared as a Conservation reserve vide Haryana Government Gazette (EXTRA ) dated 11 October 2007. The area is regulated as per provisions of Wildlife (protection) Act, 1972. It is easily accessible by road and rail. It is about 180 Km from Chandigarh and about 150 Km from New Delhi airport. Entire area of Bir Bara Ban is duly notified and demarcated on the ground with the help of pillars and artificial boundaries like canals and roads. There are nearly six villages namely Ramgarh, Ramgarh ki Dhani, Ramrai, Ikkas, Dalalpura and Ghimana near peripheral boundary of of this conservation reserve. Villagers residing in the peripheral boundary of this conservation reserve collect some fuel wood and other forest products to meet bonafide needs and use many plant parts for treatment of human ailments. Sometimes villagers, whenever they get chance, resort to illegal grazing and felling of trees. These activities adversely affect the natural regeneration of species. Besides this conservation reserve harbors a large population of stray cattle which also affect the medicinal potential of the site. Land holding of most of the people in the surrounding villages is very small and they mainly depend upon the livestock for their livelihood. This kind of people's interference has resulted in depletion of medicinal wealth of site.





**Fig. 1 Map of Jind district of Haryana where Bir Bara Ban is located**

**Ecological factors:** The area forms part of Indo-Gangetic alluvial plain. A large part of the area has rich alluvial soil. The pH of the soil varies from 7 to 9. The climate of the area is sub-tropical with distinct winter, summer and monsoon seasons. Normally, it is cold from months of November to February and hot weather is pronounced from May to June followed by monsoon which generally lasts up to mid September. The average rainfall of the area is about 600mm. Rainfall generally increase from south-west to east or north-east. Over 70% of annual rainfall is received during the monsoon months from July to September. The minimum mean Relative Humidity varies from 10 % during April/May to 90 % during August-September. The month of June is generally hottest one. December and January are the coldest months with temperature dipping to 0<sup>0</sup> C. Winds are generally light during the post monsoon and winter months. They strengthen a little during the summer and monsoon months. Incidence of thunderstorm and dust storms are not uncommon especially in the summer months of April-June. While some of the thunderstorms are dry, others are accompanied by thunder showers. The occurrence of medium to heavy density fog is observed in the winter months in the aftermath of western disturbances.

**Material and Methods:** Objective of current study was to study medicinal potential and ethno botany of some trees in Bir Bara Ban a conservation reserve in Jind district of Haryana. Major tool in ethno botanical studies



are field visits. During floristic studies plants were collected especially at the flowering and fruiting stage and if flower and fruits were not found leaves were also collected. During visits field diary was taken and notes were prepared. Photographs of plants were taken. Data was collected by interviewing local people of 6 villages surrounding the study site. Information was collected from Syana, Vaid, Dai, Ojha, and Hakim. Older men and women were preferred as they were more resourceful and provided information about uses and dosage and mode of administration of plant based medicines. Information collected on one plant was cross verified with another resourceful person. The method used for collection of plant specimens was as suggested by Jain and Rao (1978). Plant specimens were identified using pertinent available literature and herbaria (Rao and Hajra, 1995).

**Results:** List of medicinal trees of the study site (Table 1)



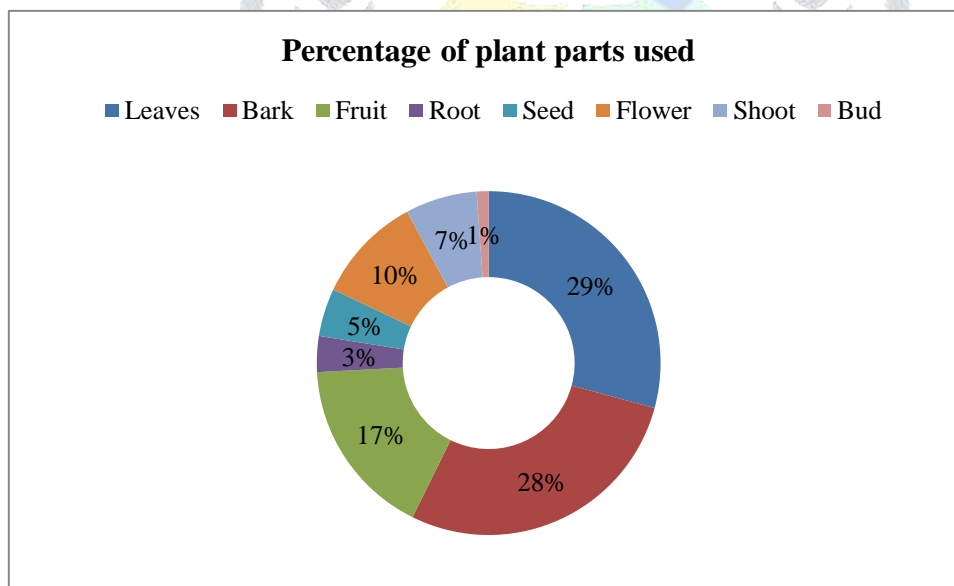
Sr No	Botanical Name	Common Name	Family	Plant part used	Uses
1.	<i>Acacia leucophloea</i> (Roxb.) Willd.	Ronj	Fabaceae	Bark	Cough, vomiting, ulcer, diarrhea, dental cares and skin diseases
2.	<i>Acacia nilotica</i> (L.) Willd.ex Delile	Kikar	Fabaceae	Bark, and leaves	cold, diarrhoea, toothache, leucoderma, backache and piles
3.	<i>Acacia Senegal</i> (L.) Willd	Khairi	Fabaceae	Root	Dysentery, gonorrhoea
4.	<i>Acacia tortilis</i> (Forsk.) Hayne	Israeli kikar	Fabaceae	Bark	Skin ailments
5.	<i>Ailanthus excelsa</i> Roxb.	Uloo neem	Simaroubaceae	Bark and leaves	as tonic after fever and after pains
6.	<i>Albizia procera</i> (Roxb.) Benth.	Safed siris	Fabaceae	Bark and leaves	Rheumatism, haemorrhage and stomach ach
7.	<i>Albizia lebeck</i> (L.) Benth.	Siris	Fabaceae	Bark, leaves, flowers	gastric ulcer, diarrhea, piles and boils
8.	<i>Anogeissus pendula</i> Edgew.	Button tree	Combretaceae	Bark, fruit, twig	Gastric problem, diarrhea, dysentery, cough and skin burns
9.	<i>Bauhinia variegata</i> L.	Kachnar	Fabaceae	Bud, Bark, flower	Piles, dysentery, stomach disorder
10.	<i>Bombax ceiba</i> L.	Semal	Malvaceae	Leaves and shoots	toothache, cough and cold
11.	<i>Butea monosperm</i> (Lam.) Taub.	Dhak	Fabaceae	Leaves, flower	for stimulation of menstrual flow, eye disease, leucorrhoea
12.	<i>Callistemon lanceolatus</i> (Sm.) sweet	Bottle brush	Myrtaceae	Leaves, Bark	Inflammation, diabetes
13.	<i>Cassia fistula</i> L.	Amaltas	Fabaceae	Bark, leaves	Inflammation, constipation, skin diseases, dry cough and fever
14.	<i>Cordia dichotoma</i> G.Forst.	Lasura	Fabaceae	Bark, leaves	Astringent, tonic, headache, stomachache, migraine, sexual disorder
15.	<i>Dalbergia sisso</i> Roxb.	Shisham	Fabaceae	Leaves, twigs	Pimples, as a datum, tongue cleaner and menstrual disorders
16.	<i>Delonix regia</i> (Boj.ex Hook.) Raf.	Gulmohar	Fabaceae	Leaves, flower, bark	ant-inflammatory agent,

					constipation, rheumatoid arthritis
17.	<i>Eucalyptus camaldulensis</i> Dehnh.	Safeda	Myrtaceae	Leaves	Cough, cold, skin infection, diarrhea, bladder infection
18.	<i>Ficus religiosa</i> L.	Pipal	Moraceae	Bark, leaves and fruit	impotency in females, asthma, gastric problem, earache, jaundice
19.	<i>Ficus bengalensis</i> L.	Bargad	Moraceae	Leaves and fruits	Dysentery, diarrhea, tonic, diuretic and diabetes
20.	<i>Ficus golmerata</i> Roxb.	Gullar	Moraceae	Fruits, Bark	Constipation, insectbites ,cattle dysentery
21.	<i>Ficus infectoria</i> Roxb.	Pilkhan	Moraceae	Fruits	Obesity
22.	<i>Ficus palmata</i> Forsskal	Anjir	Moraceae	Fruits	Constipation, treatment of warts
23.	<i>Holoptelea integrifolia</i> Planch.	Papri	Ulmaceae	Bark and leaves	Laxative, carminative, skin diseases, rheumatism ,swelling
24.	<i>Jacaranda mimosefolia</i> D.Don.	Nili gulmohar	Bignoniaceae	Leaves, bark	skin infection, syphilis
25.	<i>Mangifera indica</i> L.	Aam	Anacardiaceae	Leaves, Fruits, seeds, flower	Heatstroke, insomnia, rheumatism ,wounds in mouth, indigestion, antihemintic
26.	<i>Melia azadirachta</i> ,L.	Neem	Meliaceae	Leaves and twigs	acne and skin problems, toothache, hair fall treatment, to balance blood sugar level
27.	<i>Moringa oleifera</i> Lam.	Sohanjana	Moringaceae	Leaves and flower	used for lowering blood pressure, anemia, flatulence, indigestion
28.	<i>Morus alba</i> L.	Toot	Moraceae	Leaves, stem, Fruits, Bark	Treatment of premature grey hair, astringent, constipation ,hypertension

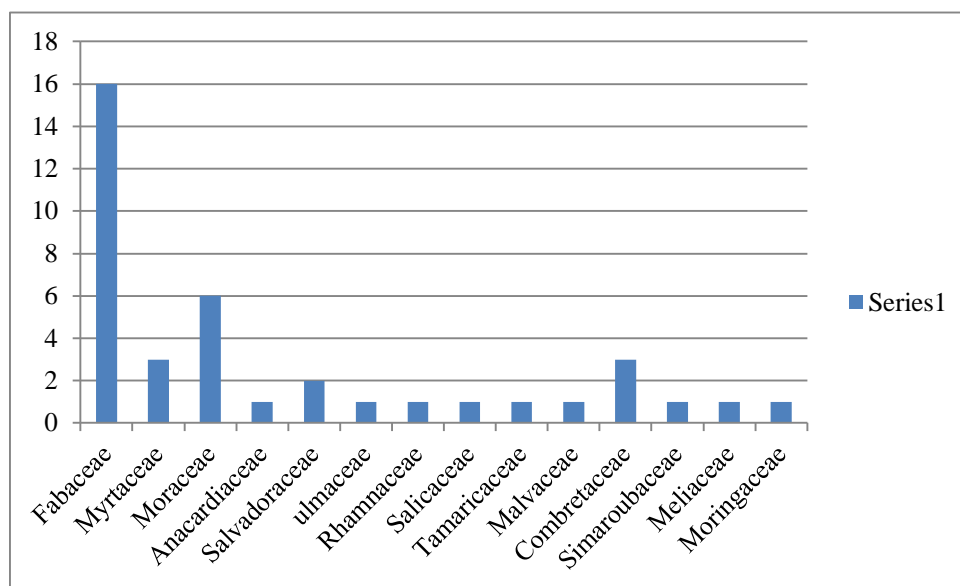
29.	<i>Parkinsonia aculeate</i> L.	Parkinsonia	Fabaceae	Leaves, fruit, stem	Fever, rheumatism
30.	<i>Pongamia pinnata</i> (L.) Pierre	Papri	Fabaceae	Leaves, flowers and fruits	for treatment of skin diseases, cough, diabetes
31.	<i>Populus deltoids</i> W. Bartram ex Marshall	Poplar	Salicaceae	Bark	Heartburn, tonic, scurvy
32.	<i>Prosopis juliflora</i> (Sw.) DC.	Villayati Kikar	Fabaceae	Pods, leaves, seeds	treatment of diabetes, conjunctivitis, skin lesions
33.	<i>Salvadora oleoides</i> Decne.	Jaal	Salvadoraceae	Bark, seeds, leaves, fruit	Cough, rheumatic pains, stones
34.	<i>Salvadora persica</i> L.	Khari Jaal	Salvadoraceae	Root, leaves, Bark	Gonorrhea, stomach ach, regulation of menstrual cycle
35.	<i>Syzygium cumini</i> (L.) Skeels.	Jamun	Myrtaceae	Seeds, Fruit, Bark	Carminative, astringent, diarrhea, diabetes
36.	<i>Tamarindus indica</i> L.	Imli	Fabaceae	Bark, leaf, flower bud, fruit	Astringent, conjunctivitis, rheumatism, dysentery, diarrhea,
37.	<i>Tamarix aphylla</i> (L.) Karst.	Frash	Tamaricaceae	Bark	Eczema and skin diseases
38.	<i>Terminalia arjuna</i> (Roxb.ex DC.) wight & Arn.	Arjun	Combretaceae	Bark	To lower blood pressure and cholesterol, tonic, earache
39.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Bahera	Combretaceae	Fruit	Astringent, laxative, diarrhea, sore throat, cough
40.	<i>Toona ciliata</i> M. Roem.	Toon	Meliaceae	Flower, Bark	Astringent, tonic, dysentery, menstrual disorder
41.	<i>Zizyphus mauritiana</i> Lam	Beri	Rhamnaceae	Fruit, Leaves	Increase muscular strength, sedative, insomnia, night sweats, to treat damaged hair, boils, pimples



**Discussion:** present study covers six villages of Jind district which surrounds the study site. More than 40 medicinal trees were reported which were used by local people in treating more than 20 diseases. Few people called syana or vaidji were found to treat many diseases like cold, cough, constipation, diarrhea, dysentery, skin problems, menstrual disorders, piles, conjunctivitis, insomnia, night sweats, jaundice, heartburn, indigestion, flatulence, stomachache, toothache, gonorrhea etc. Few resourceful people are of age more than 80 years and they feel proud of sharing their knowledge and they are famous and commonly called bhagatji in villages. Plants parts used are mostly bark, leaves, fruits, seeds. In most of the cases plant part used is leaves followed by bark, fruit, flower, stem, root and bud. Percentage of different plant part used is shown in fig.2. For oral administration medicines are given in the form of juice, churn, kadha. For external application paste is applied on affected parts. Most dominant family was fabaceae with 16 species followed by moraceae with 6 species and combretaceae and myrtaceae with 3 species. Salvadoraceae is represented by 2 species and anacardiaceae, ulmaceae, malvaceae, simaroubaceae, meliaceae, moringaceae, rhamnaceae, tamaricaceae, salicaceae represented by 1 species each. (Fig.3) Medicinal value of *Morus alba* L. is found to be same as suggested by Bandana et .al (2013). Similarly medicinal role of many medicinal plants is found to be same as suggested by many ethno botanical studies like antihelmintic property of *Mangefera indica* L.is in accordance with results suggested by Gehad et.al (2013).



**Fig.2**



**Fig. 3 Different families with no. of species**

**Conclusion:** study concludes that local people of study site uses medicinal plants and traditional remedies to cure many diseases. If researches are done on biochemical potential of these local remedies, health care system of humans will definitely get new directions (Goswami et.al, 2009). Documentation of information will preserve the information for further researches. Study site is adversely affected by illegal grazing and cutting of trees and this is depleting the medicinal wealth of site. Road passing through the conservation reserve creates a lot of pollution due to vehicles which affect the diversity of study site. The monkey feeding, polythene and garbage by local people causes lot of pollution and affect the vegetation. Present study will highlight the importance of medicinal trees of the site and will create awareness among local people to conserve and preserve the medicinal plants of site as involvement of local people towards sustainable use of resources is required

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