



Documenting Traditional Knowledge before they are Forgotten: A Study on the Ethnomedicinal uses of Wild Plants by Rural People of Jubbarhatti in District Shimla, Himachal Pradesh, India

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ABSTRACT: The present study was carried out in 2019 to 2020 to obtain the information on ethnomedicines used in Jubbarhatti of district Shimla in Himachal Pradesh, India. Shimla district have a rich repository of medicinal plants. Most of these plants are used in traditional medicines, folk uses and also in modern industry. Most of the population in rural areas of Himachal Pradesh lives near to forest area and they use various wild plant species for their basic needs such as food, fodder, fuel, wood and medicines to treat different types of diseases. The present study is focused on the traditional uses of wild medicinal plants. Information on wild medicinal plants of the present survey has been gathered through personal field visits, interviews, discussion and through pretested questionnaire. A total of 65 medicinal plant species were reported viz., *Acer caesium*, *Adiantum incisum*, *Aegle marmelos*, *Alnus nitida*, *Aloe vera*, *Bambusa vulgaris*, *Bauhinia variegata*, *Berberis asiatica*, *Bergenia ciliata*, *Betula utilis*, *Cannabis sativa*, *Carpinus viminea*, *Cedrus deodara*, *Cichorium intybus*, *Curcuma longa*, *Cuscuta reflexa*, *Digitalis purpurea*, *Echinacea purpurea*, *Eclipta prostrata*, *Eucalyptus citriodora*, *Ficus palmata*, *F. religiosa*, *Fragaria nilgerrensis*, *Gentiana kurroo*, *Grewia optiva*, *Heracleum lanatum*, *Jasminum humile*, *Lavandula stoechas*, *Mentha spicata* and *Murraya koenigii* etc. are the commonly used species. It was recorded that trees species were marked high (29) followed by shrubs (17), herbs (14), climbers (3), fern (1) and grass (1). This study can help as baseline data on wild medicinal plant species and could be helpful in conservation of this significant resource as well as traditional knowledge of the study area.

Keywords: Medicinal Plants, Native People, Traditional Knowledge.

I. INTRODUCTION

The Indian Himalayan Region (IHR) is characterized by its unique beauty, with a wide range of climatic conditions. The various culture of India is a good source of traditional medicines. Today around 65% of Indian societies mainly depend on the traditional medicines [50]. The country of India is rich in its cultural and traditional assortment of several native beliefs has retained traditional information [7, 41, 61]. The state of Himachal Pradesh has led to tribal ways of life, adherence to the original customs and signifying on huge and difficult terrain of scattered human settlement [10]. Western Himalaya is a store house of

many natural flora and fauna [49, 50]. In India forests have been reported the good source of traditional medicines for times about 17,000 species of higher plants described and 7500 species are recognized for their medicinal uses [13]. The fast acceleration of market response for herbal medications, and recent disputes related to benefit sharing, access and biopiracy, the proper documentation of native knowledge is of vital priority. In low hills the knowledge about medicinal species is declining relative to higher elevations [62]. The rural people mainly depend on the endemic vegetation for their daily needs such as fuel, fodder, food and medicines for the different ailments [19, 20, 37, 42].

Therefore, proper documentation of the traditional information through ethnobotanical studies is significant for the utilization of biological resources and their conservation. Medicinal plants possess important phytochemicals like alkaloid, flavonoid, saponin and tannin [6, 24, 31, 33, 43, 51]. Worldwide attention in herbal remedies has increased considerably as they are believed to be comparatively less toxic than the synthetic drugs [57]. In several studies it was reported that Shimla district is rich in medicinal plants [11, 58]. Medicinal plants are foundations of pharmaceutical companies because plant parts are good generator of medicine [16, 18, 35]. Medicinal herbs are considered to be a chemical factory, which contain different kinds of chemical compounds like steroids, alkaloids, saponins, lactones, glycosides, sesquiterpene and oils. Medicinal plants play important role of the world's economy. In India indigenous systems of medicine practiced are chiefly based on the use of plants [54]. The Indian Himalayan Region (IHR) is a mega hot spot biological diversity of the world [3, 32]. The flora includes about 8,000 species of angiosperm, 1,159 species of lichen, 44 species of gymnosperm, 600 species of pteridophyte, 1737 species of bryophyte, and 6,900 species of fungi [47], 675 species of wild edible plants [48], 118 species of medicinal plants yielding essential oils, 279 species of fodder, 155 sacred plants [45] and 121 rare-endangered plants [34]. A large number of studies on wild medicinal plants have been carried out in Indian Himalayan Region [17, 39, 47]. However, in Himachal Pradesh, such studies are fragmentary and mostly focused on inventory [4, 21, 45, 47] and 69% of medicinal plants are collected through destructive harvesting, which suggests that medicinal plants are threatened [12]. In various earlier studies it was reported that Himachal Pradesh is well known for variety of plants [11, 40, 47, 58]. The rural and tribal people depend on local herbal resources for curing different types of disease [14]. Tribal societies learnt unique knowledge about the use of wild flora and fauna, most of which are not known by the people who live away from forests areas [23, 24, 27]. It is estimated that 64-84% of world's population depends on traditional medicine [5, 60]. Wild medicinal plants have been initially selected on the basis of local traditional knowledge [30]. Especially in rural areas, traditional system of medicine along with folklore tradition continues to benefit a large section of the society, despite the arrival of the modern medicine [38, 59]. The rural inhabitants have immense faith for magical and

traditional herbs. Traditional knowledge comprises practices based on observations [44]. Documentation of such indigenous knowledge is essential for conservation of biological resources [29]. In Himachal Pradesh ethnobotanical work was done by a number of researchers [2, 8, 22, 28, 56]. Moreover, herbal medicines are prone to contamination. There is urgent need for evaluation and analysis of herbal drugs using sophisticated techniques [9]. In rural area of India, 70% of the population is dependent on the traditional system of medicine [1]. The active compounds with similar structure and activity are manufactured chemically to produce the man-made medicines used in allopathic or modern system of drug [15]. There was no proper documentation of ethnomedicinal plants used by native people of Jubbarhatti in district Shimla of Himachal Pradesh, India. The ethnobotanical information on wild medicinal plants of this region is expected to provide new dimensions forever expanding pharmaceutical industry. The climatic conditions prevailing in the region maintains an ideal habitat for the natural growth of variety of medicinal plants and herbs. These are the sources which provide raw materials for pharmaceutical, food, phytochemical, flavoring and cosmetic industries. Therefore, the present study aims at exploring and documenting the wild medicinal plants used in interior areas of Jubbarhatti district Shimla.

II. MATERIALS AND METHODS

A. Study Site

The Shimla district in Himachal Pradesh consists of different type of vegetation, offering ample opportunities to biologists and researchers. Shimla district is located at 31.61°N 77.10°E in the southwestern ranges of the Himalayas at an altitude of 2454 meters amsl. The degree of temperature varies from -4°C to 31°C in a year. The average total rainfall recorded from Shimla is 1575 mm. Temperature drops in the months of January and February due to snowfall at high altitudinal ranges, but low-lying area experience only rain at that time. The climate of the study site is subtropical to warm temperate. A survey conducted between year 2011 and 2013 at various places like Shimla Catchment Area Reserve Forest and Wildlife Sanctuary, Summer Hill, Glen, Neri, Chhota Shimla Forest, Jakhu, Shogi, Malyana, Tara Devi and nearby villages during various seasons, reported various important medicinal and other useful plant species from the Shimla Hills [55].

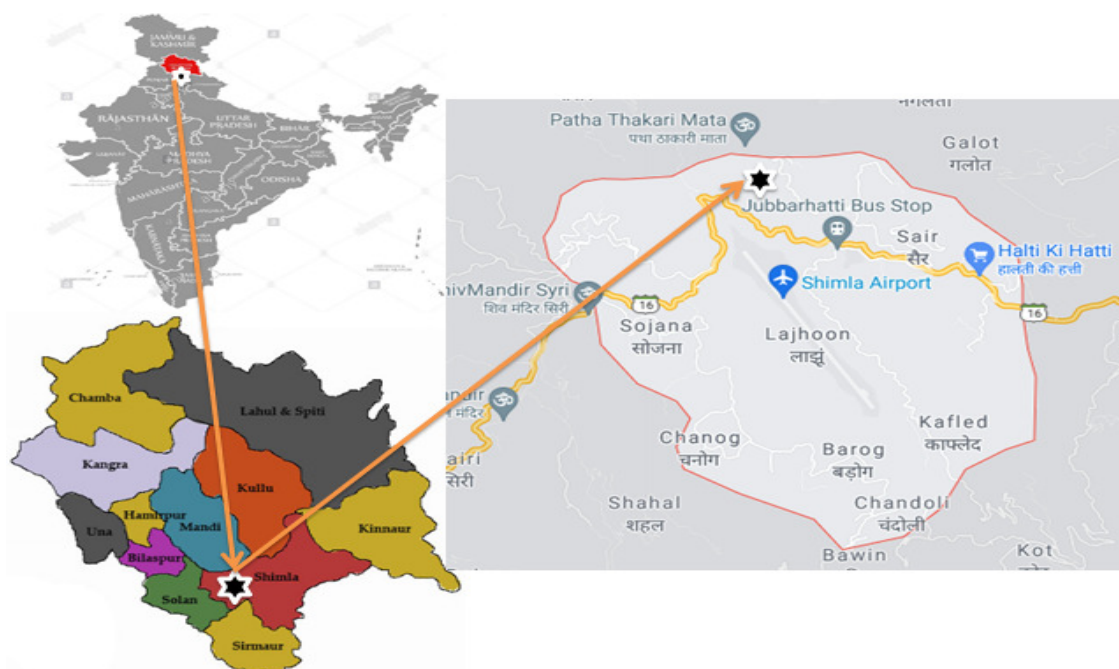


Fig. 1. Google map of India showing study cite.

B. Data Collection

The present study was carried out in 2019 to 2020 of Jubbarhatti in Shimla district. A total of 102 informants (57 males and 45 females) randomly selected, were interviewed to determine their traditional knowledge on medicinal plants. The information on wild medicinal plants used in study area was collected by using pretested questionnaire, participatory observation and interviews and through discussion method. Only those medicinal plants were collected, which were most commonly used by rural people of Jubbarhatti in Shimla district for the treatment of various human diseases. The specimens of ethnomedicinal plants being used by native people of study area were collected, dried and mounted on herbarium sheets with label information describing when and where they were collected. Vouchers of plant specimens were places in the herbarium of the Shoolini University, Solan, Himachal Pradesh, India. Plants were identified with the help of experts from Botanical Survey of India, Dehradun Uttarakhand.

III. RESULTS AND DISCUSSION

The present study is carried out in interior area of Jubbarhatti in district Shimla of Himachal Pradesh, India. The informants reported 65 ethnomedicinal plants from study site (Fig. 2, 3, 4). Plants used by

native people were tabulated in alphabetical order of botanical name, family, hindi name, habit, voucher number, parts used and ailment treated (Table 1). It was found that trees species were marked high (29) followed by shrubs (17), herbs (14), climbers (3), fern (1) and grass (1) (Fig. 2 to Fig. 3). It was observed that the most commonly used medicinal plants were; *Acer caesium*, *Adiantum incisum*, *Aegle marmelos*, *Alnus nitida*, *Aloe vera*, *Bambusa vulgaris*, *Bauhinia variegata*, *Berberis asiatica*, *Bergenia ciliata*, *Betula utilis*, *Cannabis sativa*, *Carpinus viminea*, *Cedrus deodara*, *Cichorium intybus*, *Curcuma longa*, *Cuscuta reflexa*, *Digitalis purpurea*, *Echinacea purpurea*, *Eclipta prostrata*, *Eucalyptus citriodora*, *Ficus palmata*, *F. religiosa*, *Fragaria nilgerrensis*, *Gentiana kurroo*, *Grewia optiva*, *Heracleum lanatum*, *Jasminum humile*, *Lavandula stoechas*, *Mentha spicata*, *Murraya koenigii*, *Myrica esculenta*, *Rubia cordifolia* and *Tylophora indica* etc. (Fig. 4). Among these medicinal plant species, the maximum medicinal plants were used for cough, cold, skin infection and wound healing etc. The fast acceleration of market pressure on medicinal plants, and recent disputes related to benefit sharing, the proper documentation of traditional knowledge is of vital priority [57].

Table 1: Ethnomedicinal plants used in interior area of Jubbarhatti in district Shimla, Himachal Pradesh, India.

Sr. No.	Botanical Name	Family	Common Name	Habit	Voucher No.	Parts Used	Routes	Ailments Treated
1.	<i>Acer caesium</i> Wall. ex Brandis	Sapindaceae	Pharjanj	Tree	SUBMS/BOT-4284	Bark	Topical	The juice of the bark is applied externally to treat muscular swellings and pimples.
2.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Phutkanda	Herb	SUBMS/BOT-4285	Leaves and Roots	Oral, Topical	Leaves are used in the treatment of diarrhea and dysentery. Roots are used for stomach problem and skin diseases. Externally paste of leaves is applied over insect bites.
3.	<i>Adiantum incisum</i> Forssk.	Adiantaceae	Mayurshikha	Fern	SUBMS/BOT-4286	Leaves	Oral, Topical	The leaves are used in the treatment of diabetes, cough, fever and skin diseases. Paste made from leaves is applied externally to treat headaches and chest pains.
4.	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Baelpatri	Tree	SUBMS/BOT-4287	Leaves and Fruits	Oral, Topical	It is used in the treatment of diabetes, dysentery, earache, fever and tuberculosis.
5.	<i>Alnus nitida</i> (Spach) Endl.	Betulaceae	Kosh	Tree	SUBMS/BOT-4287	Bark	Topical	A decoction of the bark is applied externally to treat swelling and body pain.
6.	<i>Aloe vera</i> (L.) Burm.f.	Asparagaceae	Ghretkumari	Shrub	SUBMS/BOT-4288	Leaves	Oral, Topical	Leaves are used to cure jaundice and stomach problems and it also reduces dental plaque. Leaf extract is applied externally to cure skin diseases, burns and wounds.
7.	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Shatavari	Climber	SUBMS/BOT-4289	Roots	Oral, Topical	Roots are internally used in the treatment of infertility, stomach ulcers and bronchial infection and externally it is used to treat stiffness in the joints. Root is used in the treatment of dysentery.
8.	<i>Bambusa vulgaris</i> Schrader.	Poaceae	Bans	Tree	SUBMS/BOT-4290	Leaves and Stem	Oral, Topical	Leaves are used to treat heart problems, fever and malaria. Stem is used to treat joint pain.
9.	<i>Bauhinia variegata</i> Linn.	Fabaceae	Kachnar	Tree	SUBMS/BOT-4291	Bark and Roots	Oral, Topical	The juice of the bark and flower is used to treat diarrhoea, dysentery and stomach disorders. Paste of bark is used to treat cuts, wounds and skin diseases. Root is used as an antidote to snake poison.
10.	<i>Berberis asiatica</i> Roxb. ex DC.	Berberidaceae	Kashmal	Shrub	SUBMS/BOT-4292	Leaves and Roots	Oral, Topical	The roots are used in treating ulcers, jaundice and fever. Leaves are chewed to treat tooth pain. It is also used externally to treat other inflammation of the eyes.

Sr. No.	Botanical Name	Family	Common Name	Habit	Voucher No.	Parts Used	Routes	Ailments Treated
11.	<i>Bergenia ciliata</i> (Haw.) Sternb.	Saxifragaceae	Patharchatta	Herb	SUBMS/BOT-4293	Leaves and Roots	Oral, Topical	The fresh juice of leaves is used as drops to relieve earaches. The root is used to cure fever, diarrhea, cough, colds and asthma.
12.	<i>Betula utilis</i> D. Don	Betulaceae	Bhojpatra	Tree	SUBMS/BOT-4294	Leaves and Bark	Oral, Topical	The leaves are used in the treatment of kidney and bladder stones. The paste of the bark is used to cure burn and wounds.
13.	<i>Buxus wallichiana</i> Baill.	Buxaceae	Shamshad	Tree	SUBMS/BOT-4295	Leaves and Bark	Oral, Topical	Leaves are used to cure joint pains, intestinal worms and reduce fever. Fresh leaf juice is applied on skin infections.
14.	<i>Cannabis sativa</i> L.	Cannabaceae	Bhang	Shrub	SUBMS/BOT-4296	Leaves, Seeds, Roots	Oral, Topical	Seeds and roots are used to treat diarrhea, dysentery, cough, asthma, fever and malaria. The juice of leaves is used externally in the treatment of snake bites.
15.	<i>Carpinus viminea</i> Wall. ex Lindl.	Betulaceae	Khadik	Tree	SUBMS/BOT-4297	Leaves	Topical	Leaves are used to heal wounds.
16.	<i>Cedrus deodara</i> (Roxb. ex Lamb.) G. Don	Pinaceae	Devdar	Tree	SUBMS/BOT-4298	Leaves and Bark	Oral, Topical	Decoction of wood is used in the treatment of fever, piles, kidney stones and diabetes, etc. Leaves are used in the treatment of tooth pain. Seed is applied externally to treat skin diseases.
17.	<i>Cichorium intybus</i> L.	Asteraceae	Kasni	Herb	SUBMS/BOT-4299	Leaves and Roots	Oral, Topical	Leaves are used to cure fever. Roots are used to reduce inflammation.
18.	<i>Curcuma longa</i> L.	Zingiberaceae	Haldi	Shrub	SUBMS/BOT-42300	Leaves, Stem, Roots	Oral, Topical	Leaves, stem and roots are used in skin diseases, wound healing, smallpox and liver ailments.
19.	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Akashbel	Climber	SUBMS/BOT-42301	Stem	Oral, Topical	Stem is used in the treatment of vomiting, cough, fever and jaundice. Externally it is used in the treatment of itchy skin and body pain.
20.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Doob	Grass	SUBMS/BOT-42302	Whole Plant	Oral, Topical	The plant is used in the treatment of cough, asthma, dysentery, diarrhea, headaches, snakebites, stomach disorders and toothache. The crushed leaves are applied on cuts to stop bleeding.
21.	<i>Digitalis purpurea</i> L.	Plantaginaceae	Tilpushpi	Shrub	SUBMS/BOT-42303	Leaves	Oral, Topical	Fresh leaf extract is used for the chest pain. It is also applied on burns and wounds.

Sr. No.	Botanical Name	Family	Common Name	Habit	Voucher No.	Parts Used	Routes	Ailments Treated
22.	<i>Echinacea purpurea</i> (L.) Moench	Compositae	Kariyat	Herb	SUBMS/BOT-42304	Leaves and Roots	Oral, Topical	Used to cure gum infections, migraine and mouth blisters. Externally it is applied on wounds and skin infection.
23.	<i>Eclipta prostrata</i> L.	Asteraceae	Bhringraj	Herb	SUBMS/BOT-42305	Leaves and Flowers	Oral, Topical	It is used for skin diseases, cough and asthma and also useful for hair growth.
24.	<i>Eucalyptus citriodora</i> Hook.	Myrtaceae	Safeda	Tree	SUBMS/BOT-42306	Leaves	Oral, Topical	Leaf extract is used for cough, cold and sore throats. Fresh leaf extract applied on cuts and skin infection.
25.	<i>Ficus palmata</i> Linn.	Moraceae	Anjeer	Tree	SUBMS/BOT-42307	Fruits	Oral	Fruits are edible and used in the treatment of indigestion and constipation.
26.	<i>Ficus religiosa</i> L.	Moraceae	Peepal	Tree	SUBMS/BOT-42308	Leaves, Bark, Roots	Oral, Topical	Leaves are used in the treatment of insect bites, wound healing and diarrhea. The decoction of bark is used to treat scabies and skin diseases. Roots are chewed by women to promote fertility.
27.	<i>Fragaria nilgerrensis</i> Var. <i>nilgerrensis</i>	Rosaceae	Kiphaliya	Herb	SUBMS/BOT-42309	Leaves and Fruit	Oral, Topical	Leaves juice is used in the treatment of diarrhea, urinary infections and dysentery. Fruit juice is applied on skin infections.
28.	<i>Gentiana kurroo</i> Royle	Gentianaceae	Kadu	Herb	SUBMS/BOT-42310	Roots	Oral, Topical	Root powder is used to treat case of poisoning.
29.	<i>Grewia optiva</i> J.R.Drumm. ex Burret	Malvaceae	Biyul	Tree	SUBMS/BOT-42311	Leaves and Bark	Oral, Topical	Bark extract used for indigestion and gastric problems. Leaves applied on eruptions.
30.	<i>Heracleum lanatum</i> Michx.	Apiaceae	Gandhrayan	Herb	SUBMS/BOT-42312	Leaves, Stem, Roots	Oral, Topical	Fresh leaves are used for cold and sore throats. Stem is used in the treatment of diarrhea. Root is used in indigestion and externally it is used in swellings and joint pain.
31.	<i>Jasminum humile</i> Linn.	Oleaceae	Chameli	Shrub	SUBMS/BOT-42313	Leaves, Roots, Flowers	Oral, Topical	Flowers juice is good tonic for the heart and intestinal problems. Root is used in the treatment of ringworm. Leaves are used to cure mouth blisters.
32.	<i>Lavandula stoechas</i> L.	Lamiaceae	Dharu	Shrub	SUBMS/BOT-42314	Flowers and Leaves	Oral, Topical	Leaves are used to treat headache and cough. Flower juice is applied externally on wounds.
33.	<i>Mentha spicata</i> L.	Lamiaceae	Pudina	Herb	SUBMS/BOT-42315	Leaves	Oral, Topical	Plant is used in the treatment of stomach disorders, and cold etc. Paste of leaves is applied over the joints to relieve pain and inflammation.
34.	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	KurryPatta	Tree	SUBMS/BOT-42316	Leaves, Roots, Branches	Oral, Topical	Leaves are eaten to treat diarrhea and dysentery. Fresh branches are used to strengthen gums. Leaves are applied externally to treat burns and wounds. Roots are used in treatment of digestive problems.

Sr. No.	Botanical Name	Family	Common Name	Habit	Voucher No.	Parts Used	Routes	Ailments Treated
35.	<i>Myrica esculenta</i> Buch.-Ham. ex D. Don	Myricaceae	Kaaphal	Tree	SUBMS/BOT-42317	Fruits and Bark	Oral, Topical	Fruits are good blood purifier. Decoction of bark is useful in toothache, asthma, diarrhea, fever, dysentery, and lung infection.
36.	<i>Nerium oleander</i> L.	Apocynaceae	Kaner	Tree	SUBMS/BOT-42318	Leaves and Roots	Topical	Decoction of leaves is applied externally in the treatment of scabies and reduces swellings. Root is used to cure skin diseases.
37.	<i>Olea europaea</i> L.	Oleaceae	Kahu	Tree	SUBMS/BOT-42319	Leaves, Fruits, Seeds	Oral, Topical	Decoction of leaves and fruits are used orally to treat diarrhea and stomach diseases. Oil from seed is used as balm for inflammation and also prevents hair loss.
38.	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Amla	Tree	SUBMS/BOT-42320	Leaves, Fruits, Roots	Oral, Topical	Fruit is used to treat diarrhea, dysentery and diabetes. Decoction of leaves is used to treat mouth blisters. Roots are used to treat toothache.
39.	<i>Pinus roxburghii</i> Sarg.	Pinaceae	Chir	Tree	SUBMS/BOT-42321	Leaves and Bark	Oral, Topical	Leaves and bark is used internally in the treatment of stomach infections. Externally fresh leaves is used for the treatment of wounds, skin and burns etc.
40.	<i>Pistacia integerrima</i> J.L. Stewart ex Brandis	Anacardiaceae	Kakkar Singi	Tree	SUBMS/BOT-42322	Bark and Fruit	Oral, Topical	Decoction of the bark is used in the treatment of jaundice. A resin obtained from bark is applied topically to help wound healing. Fruit is used against liver disorder.
41.	<i>Pittosporum napaulense</i> (DC.) Rehder & E.H. Wilson	Pittosporaceae	Tumri	Shrub	SUBMS/BOT-42323	Bark, Flower	Oral, Topical	Bark is used to treat snakebites. Oil from flower is used to treat skin diseases and used internally to treat leprosy.
42.	<i>Prunus cerasoides</i> Buch.-Ham. ex D. Don	Rosaceae	Pajja	Tree	SUBMS/BOT-42324	Leaves and Bark	Oral, Topical	Leaves are used for the treatment of skin diseases and mouth infections. Fresh juice of bark applied externally to treat backaches.
43.	<i>Punica granatum</i> L.	Lythraceae	Daru	Tree	SUBMS/BOT-42325	Fruits, Flowers, Bark	Oral	Flowers is used in the treatment of dysentery, stomachache and cough. Fruits are used to cure jaundice and diarrhea. Bark is used for urinary infections.
44.	<i>Pyrus pashia</i> Buch.-Ham. ex D. Don	Rosaceae	Kainth	Tree	SUBMS/BOT-42326	Leaves and Fruits	Oral, Topical	Leaves are used for hair growth. Fruits is used in the treatment of diarrhea.
45.	<i>Quercus glauca</i> Thunb.	Fagaceae	Ban	Tree	SUBMS/BOT-42327	Leaves and Seeds	Oral, Topical	Decoction of leaves and seed are used in treatment of diarrhea and dysentery. Externally leaves are used to treat toothache or gum problems and applied on cuts, burns and skin diseases.
46.	<i>Rhododendron arboretum</i> Sm.	Ericaceae	Buransh	Tree	SUBMS/BOT-42328	Flowers	Oral, Topical	Fresh juice of the flowers is used in the treatment of dysentery, diarrhea, fever, wound healing, nose bleeding and headache.
47.	<i>Ricinus communis</i> L.	Euphorbiaceae	Arandi	Shrub	SUBMS/BOT-42329	Leaves and Seeds	Topical	Seeds extract is used to cure skin diseases, hair problems. Externally leaves are used to treat headaches.
48.	<i>Rosmarinus officinalis</i> L.	Lamiaceae	Gulmehndi	Shrub	SUBMS/BOT-42330	Leaves, Stem, Flowers	Oral, Topical	Fresh flowers are dipped in hot water and used in eye infections. Infusion of flowering stem is effective in headaches. Leaves are used directly to cure muscle soreness and leaves is used in headaches.

Sr. No.	Botanical Name	Family	Common Name	Habit	Voucher No.	Parts Used	Routes	Ailments Treated
49.	<i>Roylea cinerea</i> (D.Don) Baill.	Lamiaceae	Kadve	Shrub	SUBMS/BOT-42331	Leaves	Oral	Leaves are used in the treatment of jaundice, malaria, diabetes and skin diseases.
50.	<i>Rubia cordifolia</i> L.	Rubiaceae	Majith	Herb	SUBMS/BOT-42332	Roots, Stem, Leaves	Oral	Roots are used in the treatment of stones in kidney, gall bladder and dysentery. Stem is used to reduce fever and blood disorder. Leaves are antiseptic and used to cure mouth sore and diarrhea.
51.	<i>Rubus ellipticus</i> Sm.	Rosaceae	Aakhe	Shrub	SUBMS/BOT-42333	Roots, Bark, Fruits	Oral, Topical	The juice of the root can be used in the treatment of fever, diarrhea and dysentery. Inner bark is used in the treatment of weakening of senses. Fruit is used in the treatment of cough and sore throats. Paste of root is applied externally in the treatment of wounds.
52.	<i>Rumex hastatus</i> D. Don	Polygonaceae	Khatti-buti	Shrub	SUBMS/BOT-42334	Leaves and Stem	Oral, Topical	The juice of plant is used in the treatment of dysentery. The fresh tuber is chewed to relieve aches in the throat.
53.	<i>Rumex nepalensis</i> Spreng.	Polygonaceae	Jangli Palak	Herb	SUBMS/BOT-42335	Leaves and Roots	Topical	Decoction of plant is used to alleviate body pain. Leaves are used for the treatment of skin sensation. Juice of leaf is applied externally to relieve headaches. The paste of roots is applied to swollen gums.
54.	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jamun	Tree	SUBMS/BOT-42336	Fruits	Oral	Fruits are used for the treatment of sore throat, bronchitis, asthma and dysentery.
55.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Bahera	Tree	SUBMS/BOT-42337	Fruit	Oral, Topical	Fresh fruit extract is used internally in the treatment of digestion and respiratory problems. Externally the fruit juice is used to make a lotion for eyes.
56.	<i>Thymus vulgaris</i> L.	Lamiaceae	Jangli Ajwain	Shrub	SUBMS/BOT-42338	Leaves	Oral, Topical	Leaf extract is used in the treatment of cough, diabetes and cold. Externally the fresh leaves juice is used to cure joint pain.
57.	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Giloy	Climber	SUBMS/BOT-42339	Stem	Oral	Stem extract is used in the treatment of diabetes, fever, arthritis and high cholesterol. It is also used to boost the immune system.
58.	<i>Tylophora indica</i> (Burm. F.) Merr.	Apocynaceae	Damabuti	Herb	SUBMS/BOT-42340	Leaves and Roots	Oral	Leaves and roots is used to provide relief from asthma, stomach disorders and reduces fever.
59.	<i>Ulmus villosa</i> Brandis ex Gamble	Ulmaceae	Maraal	Tree	SUBMS/BOT-42341	Leaves and Bark	Oral	Leaves are useful in gastric and diarrhea. Bark has anti-inflammatory effects in the gut.
60.	<i>Urtica dioica</i> L.	Urticaceae	Bichhubuti	Shrub	SUBMS/BOT-42342	Leaves and Roots	Oral, Topical	Root extract is used for joint pain. Leaves is used as blood purifier and the plant is used in the treatment of fever, anemia. Externally the plant is used to treat skin complaints and hair problems.
61.	<i>Valeriana jatamansi</i> Jones	Caprifoliaceae	Sugandhbal	Herb	SUBMS/BOT-42343	Roots	Oral, Topical	Roots are used in fever. Paste of roots is applied on forehead to reduce pain.
62.	<i>Viola odorata</i> L.	Violaceae	Banafsha	Herb	SUBMS/BOT-42344	Leaves and Flowers	Oral, Topical	The leaves are used internally in the treatment of cough, asthma, migraine and headaches. Flowers extract is used in skin complaints.
63.	<i>Vitex negundo</i> L.	Lamiaceae	Nirgundi	Shrub	SUBMS/BOT-42345	Leaves, Fruits, Stem, Roots	Oral, Topical	Leaves are used to reduce swelling of the joints and headaches. Decoction of the stem is used in the treatment of burns and cuts. Fruits are used in the treatment of cold and cough. Roots is used for the treatment of fever, cold and joint pain.
64.	<i>Woodfordia fruticosa</i> (L.) Kurz	Lythraceae	Dhatri	Shrub	SUBMS/BOT-42346	Flowers and Roots	Oral, Topical	Root is used to cure diarrhea and dysentery. Flowers are effective in bone fracture and mouth and foot diseases.
65.	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Tirmir	Tree	SUBMS/BOT-42347	Leaves and Bark	Oral, Topical	Leaves and bark are used for stomachic, and fever. Branches are used for toothache. Externally leaves are applied on cuts and wounds.

In several studies it was reported that continuation of traditional knowledge is risking as the transmission between the younger and older generations no longer exists [19]. Therefore, proper documentation of traditional knowledge through ethnobotanical studies is significant for the utilization of biological resources and their conservation [6].

The present observations revealed that the native people of Himachal Pradesh particularly those living in remote and high altitude areas are largely dependent upon the surrounding plant resources to meet their day-to-day requirements. These plants form an integral form

of their lifestyle and hence have always been revered medicinal plants for the welfare of humanity. Unluckily, overexploitation of medicinal plants and the changing environmental conditions have made accessibility of medicinal plants as a scarce resource to the native people. It is also highlighted that satisfactory attention has not been put in promoting and conserving traditional used wild medicinal plants. There is an urgent need to adopt large scale plantation of these medicinal plant species within the forests as well as along roadsides so that the native people are profited.

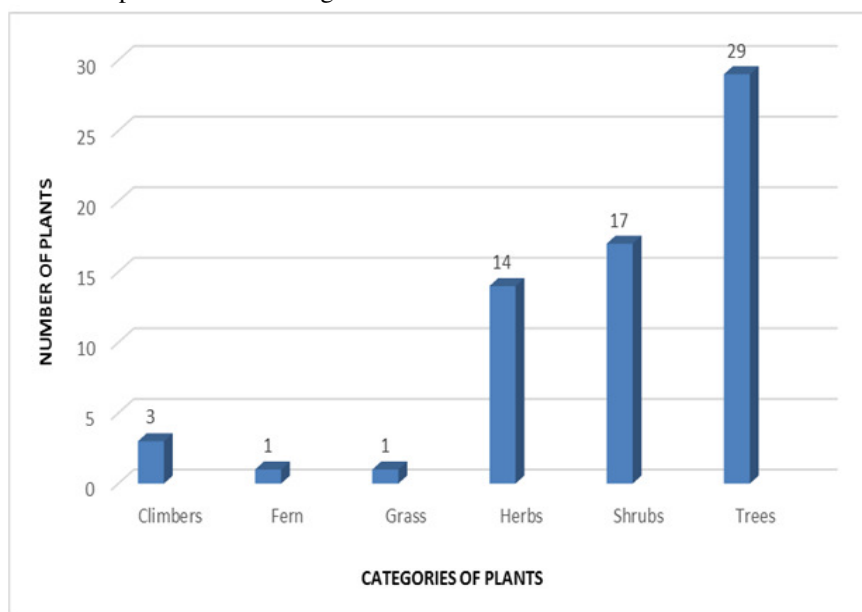


Fig. 2. Ethnomedicinal plants used in study area.

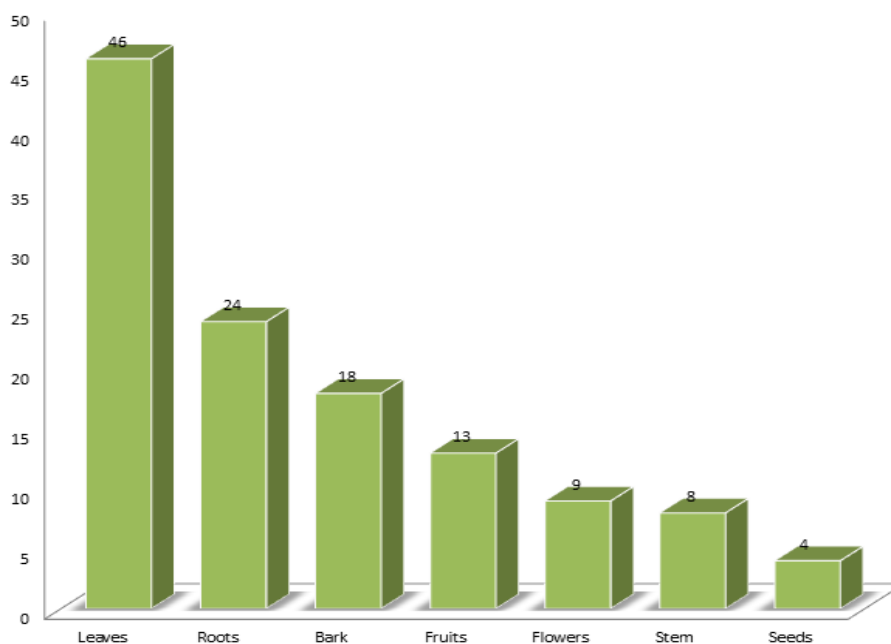


Fig. 3. Ethnomedicinal plant parts used in study area.

				
<i>Acer caesium</i>	<i>Achyranthes aspera</i>	<i>Adiantum incisum</i>	<i>Aegle marmelos</i>	<i>Alnus nitida</i>
				
<i>Aloe vera</i>	<i>Asparagus racemosus</i>	<i>Bambusa vulgaris</i>	<i>Bauhinia variegata</i>	<i>Berberis asiatica</i>
				
<i>Bergenia ciliata</i>	<i>Betula utilis</i>	<i>Buxus wallichiana</i>	<i>Cannabis sativa</i>	<i>Carpinus viminea</i>
				
<i>Cedrus deodara</i>	<i>Cichorium intybus</i>	<i>Curcuma longa</i>	<i>Cuscuta reflexa</i>	<i>Cynodon dactylon</i>
				
<i>Digitalis pupurea</i>	<i>Echinacea pupurea</i>	<i>Eclipta prostrata</i>	<i>Eucalyptus citriodora</i>	<i>Ficus palmata</i>

				
<i>Ficus religiosa</i>	<i>Fragaria nilgerrensis</i>	<i>Gentiana kurroo</i>	<i>Grewia optiva</i>	<i>Heracleum lanatum</i>
				
<i>Jasminum humlie</i>	<i>Lavandula stoechas</i>	<i>Mentha spicata</i>	<i>Murraya koenigii</i>	<i>Myrica esculenta</i>
				
<i>Nerium oleander</i>	<i>Olea europaea</i>	<i>Phyllanthus emblica</i>	<i>Pinus roxburghii</i>	<i>Pistacia integerrima</i>
				
<i>Pittosporum napaulense</i>	<i>Prunus cerasoides</i>	<i>Punica granatum</i>	<i>Pyrus pashia</i>	<i>Quercus glauca</i>
				
<i>Rhododendron arboreum</i>	<i>Ricinus communis</i>	<i>Rosmarinus officinalis</i>	<i>Roylea cinerea</i>	<i>Rubia cordifolia</i>



Fig. 4. Ethnomedicinal plants used in interior area of Jubbarhatti in district Shimla, Himachal Pradesh, India.

IV. CONCLUSION

This study serves as baseline information on traditional use of medicinal plants, and it could further help to reinforce the conservation of medicinal plant resources. Ethnobotanical studies have a main role to play in new drug development. As modern therapies are too costly and show side effects and also, they are beyond the limits of peoples living in villages, so these wild medicinal plants are used as an alternative method to treat various diseases as these are easily available and cheap. The information on therapeutic uses of plants may provide a great potential for discovering new drugs and promoting alertness among the societies to use them as remedy in health care with supreme knowledge and accuracy. The present study shows that study area of Jubbarhatti in Shimla district is rich with valuable medicinal flora and people from interior area are enriched with traditional knowledge. The traditional knowledge is passing orally from one generation to another but it has not been documented yet. So documentation of this knowledge is necessary for safeguarding this valuable information for the well-being of future generation. All these plants need to be

evaluated through phyto and pharmaco investigation to discover their potentiality as drugs. The present study will provide new incentive to the traditional of healthcare and also will be helpful for, students, people, researchers and pharmaceutical industries to find out the other uses of plants which would be helpful to modern health care system. It can be concluded that documentation of this traditional knowledge is novel information from the study area of Jubbarhatti, in Shimla district of Himachal Pradesh, India.

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