



## STUDY OF WILD MEDICINAL PLANTS USED BY TRIBAL MIGRATORY SHEPHERDS IN HILLS OF SHIMLA DISTRICT, HIMACHAL PRADESH

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### Abstract

In Himachal Pradesh migratory shepherds have rich traditional knowledge about ethnomedicinal plants and its uses, in this respect, an ethnobotanical study was carried out in hills of Shimladistrict, Himachal Pradesh from 2017 to 2018. The required information on ethnomedicines used by tribal migratory shepherds was collected through personal field visits, interview method and by using a pretested questionnaire. It was observed that in all 44 medicinal plant species were reported viz. *Bergenia ciliata*, *Cannabis sativa*, *Dioscorea deltoidea*, *Rhododendron arboretum*, *Solanum nigrum*, *Valeriana jatamansi*, *Zanthoxylem armatum* and *Picrorhiza kurroa* was recorded that herb species were markedly high (24) followed by shrub (9), tree (8), climber (1), and fern (1). This study shows that shepherds in tribal areas are highly dependent on ethnobotanical remedies, which evolved over generations of experience and practices, for the healthcare. This survey can help as baseline data on wild medicinal plants used in district Shimla and could be helpful in conservation of wild medicinal plants as well as traditional knowledge.

**Key words:** Ethnomedicinal plants, Shepherds, Himachal Pradesh.

### Introduction

The Indian Himalayan Region (IHR) is characterized by its unique beauty, with a wide range of climatic conditions and habitat types. The diverse culture of India is a good source of traditional medicines. Since time long traditional knowledge of ethnomedicines are used by our ancestors for their well-being and transferred verbally from one generation to next. In community life it carries systematic traditional knowledge about culture and tradition. Western Himalaya is a store house of natural flora. Today around 65% of Indian native societies mainly depend on the traditional ethnomedicines. They treat different diseases through their own traditional knowledge of system (Sharma and Rana, 2016). The country of India is rich in its cultural and traditional assortment of several native beliefs have retained traditional information (Charajan and Dabhadkar, 2014). Moreover, the state of Himachal Pradesh has led to tribal ways of life, adherence to the original customs and signifying on enormous and difficult terrain of scattered human settlement (Chowdhery, 1999).

The rural people possess significant traditional knowledge of natural resources, which they have inherited from their forefather. They closely depend on this traditional knowledge for a number of reasons related to the healthcare, social order, economy, food and shelter etc. Now these days' attention in herbal remedies has increased considerably as they are

believed to be less toxic than the synthetic drugs and people can collect easily from surroundings without any cost. But if the efforts are not made with instant effect, the rich traditional knowledge possessed by migratory shepherds will diminish soon. This calls for an urgent need to document ethnobotanical information. Ethnobotanical survey in different parts of Himachal Pradesh has been done by many workers (Sharma *et al.*, 2005; Dutt *et al.*, 2014). In particular, the state of Himachal Pradesh is a home to sizeable tribal community like the Pangwals, Kinnauras, Gaddis and Gujjar's. In Himachal Pradesh tribal migratory shepherds move with their livestock in search of grazing pastures. Throughout the year, migratory shepherds leaving for low hills or plains with the commencement of winter season and returning to their native villages at high altitude in summer season (Biswas and Rao, 2016). Therefore, the present study is an attempt to document the traditional knowledge of ethnomedicines used by tribal migratory shepherds in district Shimla of Himachal Pradesh. There is no proper record available regarding the ethnomedicines used by migratory shepherds in district Shimla of Himachal Pradesh. The ethnobotanical information on wild medicinal plants of this region is expected to provide new dimension's forever expanding pharmaceutical industry.

## Materials and Methods

### Study Site

In hills of Shimla district medicinal plants were observed in between N 31°07'05.1"-31°07'18.9" latitudes and 77°08'03.6"-77°08'00.0" E longitudes (Fig.1). Surroundings of Shimla district is abounding with beautiful vegetation, offering ample opportunities to biologists and researchers (Thakur and Sarika, 2016).

### Data Collection

The important biodiversity of medicinal plants in Shimla district was surveyed. For this survey, four field trips of the entire area of Shimla district was undertaken between 2016 to 2017. The information on wild medicinal plants used by tribal migratory shepherds in district Shimla was collected by using pretested questionnaire, participatory observation, interviews and through discussion method (Fig.2). Only those medicinal plants were collected, which were most commonly used by tribal migratory shepherds for the treatment of various diseases. The specimens of ethnomedicinal plants being used by tribal migratory shepherds were collected, dried and mounted on herbarium sheets, with label information. Vouchers of plant specimens were placed in the herbarium of the Shoolini University, Solan (Himachal Pradesh). Plants were identified either in the field itself through literature study or with the help of experts from Botanical Survey of India, Dehradun (Uttarakhand) (Jain, 1991).

### Results and Discussion

The present study is carried out in hills of Shimla district (Fig. 1), concerning the wild medicinal plants used by tribal migratory shepherds in their own traditional health care system. A total of 44 commonly used ethnomedicinal plants were documented from study site. It was recorded that herb species were markedly high (25) followed by shrub (9), tree (8), climber (1), and fern (1) (Table 1). Among these plant species, the maximum medicinal plants were used for skin infection, cough, cold, and wound healing etc. Ethnomedicinal plants used by migratory shepherds were tabulated in alphabetical order of botanical name, family, Hindi name, flowering and fruiting months, habit, parts used and ethnomedicinal uses (Table 2). Moreover, the state of Himachal Pradesh has led to tribal ways of life, adherence to the primitivemyths, customs and traditions. The continuation of traditional knowledge is risking as the transmission between the younger and older generations no longer exists. Therefore, proper documentation of the traditional information through ethnobotanical studies is significant for the utilization of biological resources and their conservation (Singh and Batish, 2015; Bagga, 2018). Unfavorable climatic conditions cause seasonal

migration of shepherds from high hills to mid hills and from mid hills to low hills in different area of Himachal Pradesh. In the tribes of Himalayan region seasonal migration is a traditional process. During their seasonal migration the shepherds are much dependent on forest products for their daily requirements of food, fruits, vegetables and ethnomedicines and ethnoveterinary medicines etc. As the migratory shepherds move from their respective place of high reaches towards the mid hills and from mid hills to low hills or plains the plant species varies with changed altitude. There is at all times insufficiency of food, water and fodder for livestock and themselves. For this shepherds discover particularly degraded lands, adjoining areas, village and allow fields. Tribal migratory shepherds during seasonal migration face limitations like fodder, water deficit, food, wild animal's attacks, predators, veterinary services and sometimes few road coincidences of their livestock. Such problems have also been described in many earlier study (Rao *et al.*, 2011; Kalaiselvan and Gopalan, 2014).

The current study shows that Shimla district is rich in wild medicinal plants and shepherds are enriched with folk traditional knowledge about these medicinal plants. It can be concluded that documentation of this traditional knowledge is novel information from the study area of Shimla district in Himachal Pradesh. The traditional knowledge, plant biodiversity, and cultural practices of the tribal people are facing high threat due to uncontrolled browsing and fast urbanization in the study area. Unluckily, over exploitation of medicinal plants and the changing environmental conditions have made accessibility of medicinal plants as a scarce resource to the migratory shepherds during their migration. Forests and forest products play a significant role in the lives of migratory shepherds during their seasonal migration. The present survey suggest that wild medicinal plants are very important for shepherds living in tribal areas of Himachal Pradesh. It is also highlighted that satisfactory attention has not been put in promoting and conserving traditional wild medicinal plants. There is an urgent need is to adopt large scale plantation of these wild medicinal plants within the forests as well as along roadsides so that the tribal migratory shepherds are profited.

**Table 1:** Commonly used ethnomedicinal plant in study area

Sr. No.	Category of Plants	Number of plant species
	Herb	25
1	Shrub	9
2	Tree	8
3	Climber	1
4	Fern	1

**Table 2:** Ethnomedicinal plants used by tribal migratory shepherds in district Shimla of Himachal Pradesh.

Sr. No.	Botanical	Family	Common name	Flowering & Fruiting	Parts used	Habit	Ailments treated	Ethnobotanical Uses
1	<i>Abies spectabilis</i> (D. Don) Spach	Pinaceae	Tosh	April-May, Cones ripen during September-October	Leaves	Tree	Asthma, Fever	Juice of leaves is used.
2	<i>Asparagus filicinus</i> D. Don	Asparagaceae	Chiriyakanda	May-July	Roots	Fern	Dysentery, Diarrhea, Throat complaints	Juice of roots is used.
3	<i>Amaranthus viridis</i> L.	Amaranthaceae	Jungalichaulayi	July-October	Leaves, Roots	Herb	Skin infections	Juice of leaves and roots are applied.
4	<i>Achillea millefolium</i> L.	Asteraceae	Bhutkesi	June-December	Whole part	Herb	Body pain, Respiratory infection	Whole plant is used.
5	<i>Adhatoda vasica</i> Nees	Acanthaceae	Arusa	December-June	Leaves	Herb	Cough, Cold	Juice of leaves is used.
6	<i>Argemone mexicana</i> L.	Papaveraceae	Satyanashi	Throughout the year	Whole part	Herb	Malaria	<i>Argemonemexicana</i> tea is used.
7	<i>Berberis lycium</i> Royle	Berberidaceae	Karmashal	March-July	Fruits, Roots	Shrub	Nutritious for health, Jaundice	Fruits are edible and highly nutritious. Roots decoction is given in jaundice.
8	<i>Bergenia ciliata</i> (Haw.) Sternb	Saxifragaceae	Pashanbhed	June-August	Rhizomes, Leaves, Flowers	Herb	Joint pains, Fever	Decoction of rhizome prescribed to cure cold and joint pains. Leaves and flowers used for fever.
9	<i>Betula utilis</i> D. Don	Betulaceae	Bhojpatra	May-October	Seeds	Tree	Bone fracture	Seeds mixed with <i>Cynodondactylon</i> and paste prepared and used on fractured part then covered with the bark of <i>Betulautilis</i> .
10	<i>Bauhinia variegata</i> (L.) Benth	Fabaceae	Kachnar	April-November	Leaves, Bark	Tree	Skin infection	Juice of dried leaves and Bark is used.
11	<i>Cannabis sativa</i> L.	Cannabaceae	Bhang	June-September	Leaves	Herb	Abdominal pain	Leaves of <i>Cannabis sativa</i> burn over flame and smoke is used for abdominal pain.
12	<i>Celtis tetrandra</i> Roxb.	Ulmaceae	Khirk	February-April	Seeds	Tree	Indigestion	The juice from the seeds is used.
13	<i>Chenopodium album</i> L.	Chenopodiaceae	Bathua	June - September	Seeds, Roots, Stem	Herb	Urinary infections, Sun burn	Seeds are used for the treatment of urinary infections. The juice of the roots is used in the treatment of dysentery. The juice of the stem is applied to sunburn.
14	<i>Dioscorea deltoidea</i> Wall. Ex Griseb	Dioscoreaceae	Singlimingli	July-October	Tubers, Leaves	Climber	Skin allergy, Wound healing, Burns	Juice of tubers and leaves is used.
15	<i>Commelina benghalensis</i> L.	Commelinaceae	Kana	Throughout the year.	Leaves, Roots, Flowers	Herb	Diarrhea, Eye problems	Juice of Leaves, Roots and Flowers are drunk.
16	<i>Euphobia hirta</i> L.	Euphorbiaceae	Duddhi	November-April.	Stem, Leaves	Herb	Jaundice	Juice of stem and leaves is used.
17	<i>Eupatorium adenophora</i> (Spreng.) King & H. Rob	Asteraceae	Pamakani	March-April	Leaves	Shrub	Skin cuts	Juice of leaves is applied.
18	<i>Ficus religiosa</i> L.	Moraceae	Peepal	November-February	Leaves, Bark	Tree	Skin allergy	Powder of dried bark and leaves is used.
19	<i>Juglans regia</i> L.	Juglandaceae	Akhrot	April-October	Bark, Leaves, Fruits	Tree	Diarrhea	Bark, leaves and fruits are used.
20	<i>Hedychium spicatum</i> Sm.	Zingiberaceae	Kapurkachri	July-October	Rhizomes	Herb	Cough, Asthma, Headache, Purify Blood	Grounded rhizomes a used.

21	<i>Hypericum oblongifolium</i> Choisy	Hypericaceae	Basant	May-September	Roots	Herb	Skin allergy	The juice of roots is used.
22	<i>Heracleum lanatum</i> Michx	Apiaceae	Patrala	June-July	Roots	Herb	Cough, Allergy complaints	Juice of roots is taken internally.
23	<i>Hippophae salicifolia</i> D. Don	Elaeagnaceae	Chuk	June-July	Bark, Fruits	Shrub	Sun burn	Juice of bark and fruits is applied.
24	<i>Lyonia ovalifolia</i> (Wall.) Drude	Ericaceae	Ayar	April-September	Leaves, Buds	Herb	Throat infections	Tea of young leaves and buds is used.
25	<i>Lilium polyphyllum</i> D. Don	Liliaceae	Ksirakakoli	June-October	Roots	Herb	Tonic, Energy source	Dried roots are used.
26	<i>Leycesteria formosa</i> Wall.	Caprifoliaceae	Piralu	June-November	Roots	Shrub	Skin infections	The juice of roots is used.
27	<i>Oxalis corniculata</i> L.	Oxalidaceae	Amrul	April-October	Leaves	Herb	Stomach infection	Juice of fresh leaves is used.
28	<i>Picrorhiza kurroa</i> Royle ex Benth	Scrophulariaceae	Karru	June - August	Leaves, Rhizomes	Herb	Asthma, Cough, Jaundice	Juice of dried leaves and rhizomes is used.
29	<i>Phytolacca acinosa</i> Roxb	Phytolaccaceae	Jharka	July - September	Leaves, Twigs	Herb	Nutritious for health	Tender leaves and twigs are cooked as vegetable.
30	<i>Prunus cerasoides</i> D. Don	Rosaceae	Pajja	December-March	Fruits	Tree	Nutritious for health	Fruits is used.
31	<i>Rumex hastatus</i> D. Don	Polygonaceae	Churki	June-August	Roots, Shoots	Herb	Indigestion	Juice of shoots and roots are used.
32	<i>Rhus parviflora</i> Roxb	Anacardiaceae	Samakdana	July-August	Bark	Shrub	Headache	The paste prepared from the dried Bark is used.
33	<i>Rubus ellipticus</i> Sm.	Rosaceae	Anehhu	February and April	Fruits	Shrub	Fever, Cough	Juice of fruits is used.
34	<i>Rhododendron arboretum</i> Sm.	Ericaceae	Burans	March-September	Flowers	Tree	Cough, Fever	Juice of dried flowers is used.
35	<i>Solanum surattense</i> Burm.f.	Solanaceae	Kantkari	April-August	Fruits	Herb	Stone in Bladder	Juice of fruits is used.
36	<i>Selinum vaginatum</i> C.B. Clarke	Apiaceae	Bhutkeshi	July-September	Leaves	Herb	Skin allergy	Juice of leaves is used.
37	<i>Trillium govanianum</i> (D. Don.) Kunth	Trilliaceae	Nagchatri	May-June	Leaves, Roots	Herb	Fever, Headache	Juice of leaves and roots is used.
38	<i>Thymus serpyllum</i> L.	Lamiaceae	Banajwain	April-September	Leaves, Seeds	Shrub	Stomach problems, Fever, Cold	Leaves and seeds are considered a popular remedy
39	<i>Urtica dioica</i> L.	Urticaceae	BichhuBooti	June-October	Leaves, Roots, Shoots	Herb	Wounds, Nutritious for health	Juice of leaves and roots are used. Tender leaves and shoots cooked as vegetable.
40	<i>Urtica parviflora</i> Roxb	Urticaceae	Kandali	June-October	Leaves, shoots	Herb	Sprain of foot	Juice of leaves and shoots are applied.
41	<i>Verbascum thapsus</i> L.	Scrophulariaceae	Tamaku	June-August	Roots	Herb	Vomiting	Juice of roots is taken orally.
42	<i>Vitex negundo</i> L.	Verbenaceae	Nirgandi	March-September	Leaves	Shrub	Joint pains	Leaf paste applied to heal swollen joint pains.
43	<i>Valeriana jatamansi</i> Jones	Caprifoliaceae	Muskbala	March-April	Leaves, Roots	Herb	Headache, Wounds	Juice of dried leaves and roots mashed in water is applied on forehead to relieve the pain. The juice of dried roots is applied on wounds for healing.
44	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Tirmir	April-June	Bark, Seeds, Fruits	Shrub	Tooth pain	Juice of bark and seeds and fruits are used.

### Conclusion

This survey can serve as baseline data on traditional used wild medicinal plants and it could be helpful to further reinforce the conservation of wild medicinal plant resources. Ethnobotanical survey has a

chief role to play in new drug production. The information on therapeutic uses of wild medicinal 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 accuracy and supreme knowledge.

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**Conflict of interest**

Author declare that we have no conflict of interest.



**Fig. 1: Google map of India showing study district in Himachal Pradesh.**



**Fig.2: Interaction with tribal migratory shepherds in district Shimla of Himachal Pradesh**

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