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## An ethnobotanical survey of medicinal plants used by tribal migratory shepherds in hills of Tungasigarh of Thunag Subdivision of district Mandi Himachal Pradesh

**Manju Lata**DOI: <https://doi.org/10.22271/chemi.2020.v8.i3n.9341>**Abstract**

In Himachal Pradesh tribal migratory shepherds carry rich repository of traditional knowledge of wild medicinal plants and its uses, in this respect, an ethnobotanical survey was carried out in Tungasigarh and its surrounding area of Thunag Subdivision district Mandi Himachal Pradesh from 2018 to 2019. The required information on ethnomedicines used by tribal migratory shepherds was collected through personal field visits, interview method and by using a pretested questionnaire. Total 64 medicinal plant species were reported viz. *Aconitum heterophyllum*, *Allium ursinum*, *Allium humile*, *Trillium govaninum*, *Bergenia ciliata*, *Berberis lyceum*, *Cannabis sativa*, *Dioscorea deltoidea*, *Rhododendron arboratum*, *Pistacia integerrima*, *Zanthoxylum armatum* was recorded. Total of 64 species were documented herb species were dominant (48) followed by shrub (9), tree (7). This study shows that shepherds in tribal areas are highly dependent on ethnobotanical medicines, which evolved over generations of experience, for the healthcare. This survey can help as baseline data on ethnomedicinal plants used in Thunag sub division of Mandi district and could be helpful in conservation of traditional knowledge as well as medicinal plants.

**Keywords:** Tungasigarh, Thunag, migratory shepherd, ethnomedicinal, Mandi, North Western Himalaya

**Introduction**

In India, it has been reported that about 90-95% collection of medicinal plants is collected from the wild area (Adhikari *et al.*, 2010) <sup>[1]</sup>. The Indian Himalayan region is characterized by its unique ecosystem with a wide range of climates and habitat types which supports different flora and fauna. The Himalaya Hotspot is home to the world's highest mountains. The mountains of Himalaya rise abruptly, resulting in a variety of ecosystems. Himachal Pradesh, a North Indian state, is located in the western part of the Himalaya. The state has a wide geographical area (55,673 km<sup>2</sup>) and altitudinal variation (350–7000 m amsl) with a rich assortment of biotic components. Himachal Pradesh has a forest cover of 27.72% and rich in medicinal plant species. The plant medications of inhabitants, handed down by word of mouth from one generation to the next generation, gradually became part of the knowledge of ancient civilization. Majority of the rural societies possess significant traditional knowledge of natural resources, which they have inherited from their forefather. Since long time traditional knowledge of ethnomedicines are used by our ancestors for their well-being and transferred orally to next generation (Sharma and Rana, 2016) <sup>[12]</sup>. Ethnobotanical work in different parts of Himachal Pradesh had been conducted by many workers (Dutt *et al.*, 2014) <sup>[8]</sup>. Moreover, Himachal Pradesh has led to tribal ways of life, adherence to the primitive customs and traditions representing on enormous and difficult terrain of scattered human settlement (Chowdhery, 1999) <sup>[7]</sup>. Majority of the rural societies depend on this traditional knowledge for a variety of reasons related to the healthcare, social order, economy, shelter and food etc. Attention in herbal medicines has increased considerably as they are believed to be comparatively less toxic than the synthetic drugs and easily available from surroundings without any cost. The Migratory shepherds also take along with them few horses for carrying eatables and shelters. Often 4-5 dogs also accompany the migratory shepherds and, these dogs

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are very well trained in protecting their livestock from wild animal attacks. They closely depend on this knowledge for a variety of reasons related to the social order, health care, economy, shelter, food, etc. However, if the efforts are not made with instant effect, the rich traditional knowledge possessed by these semipastoral shepherds communities will vanish soon. This calls for an urgent need to document ethnomedicinal plant species of this area.

### Material and Method

**Study area:** Himachal Pradesh (30° 22' 40" to 30° 12' 40" N latitudes and 75° 47' 55" to 79° 04' 20" E longitudes) is a North western Himalayan state of India which is a rich repository of ethnomedicinal flora. Most of these plant species find their use in traditional medicine, folk uses and also in modern industry (Singh and Thakur, 2014). Present study was carried out in the Tungasigarh area (3500m) of Thunag sub division (31.55°N, 77.17°E) at an altitude of 2052m, of district Mandi (31.5892°N, 76.9182°E) Himachal Pradesh. The area is covered by dense forest of conifers and oak trees. This area is rich in medicinal flora and is having meadows which offer suitable site to perform the routine work for shepherds. Soil is fertile and rich in humus and nitrogenous compounds but lacks phosphate compounds. The major soil groups are brown hill soil and red loamy soil. Most soil in this region are acidic in nature. Being a hilly valley climate is cool and temperate with three distinct seasons; the winter (October to March), the summer (April to June), the monsoon (July to September). Highest temperature is recorded during May and June varying between 30 to 35. Lowest temperature is recorded during December and January month. The annual rainfall is around 1240mm.

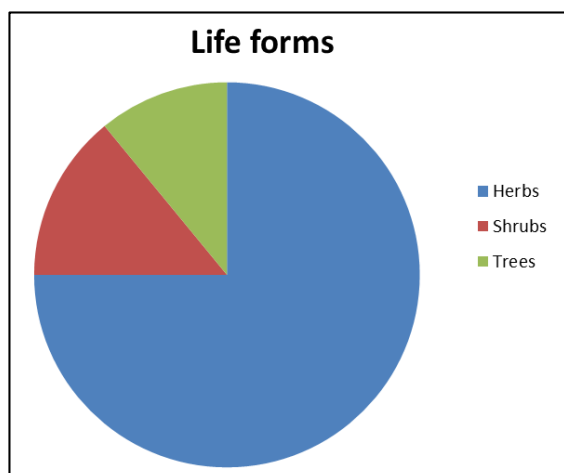
### Method

The important biodiversity of medicinal plants of Tungasigarh area of Thunag sub division was surveyed. For this survey, field trips of the entire area was undertaken between 2018 to 2019. The information on wild medicinal plants used by tribal migratory shepherds in this area was collected by using pretested questionnaire, participatory observation, interviews and through discussion method. The fast acceleration of market pressure for medicinal plants, and recent disputes related to benefit sharing, the proper documentation of traditional knowledge is of vital priority (Singh and Batish, 2015; Yadav et al., 2014) [17, 19]. The continuation of traditional knowledge is at risk as the transmission between the younger and older generations no longer exists (Kapoor, 2017) [11]. Therefore, proper documentation of the traditional information through ethnobotanical studies is significant for the utilization of biological resources and their conservation (Bagga et al., 2018) [4]. Difficult environmental conditions cause seasonal migration of shepherds from high hills to low hills in different parts of Himachal Pradesh. In the tribes of Himalayan region seasonal migration is a traditional process. It was notable that migration patterns of shepherds closely mirror the seasonal availability of natural fodder (Rao et al., 2011). These semipastoral shepherds carry along with them rich knowledge of traditional medicinal plants. But unfortunately there is no written documentation of ethnomedicinal plants used by shepherds in the Tungasigarh area in spite of frequent migration of shepherds. The traditional knowledge, plant biodiversity, and cultural practices of the tribal people are facing high threat due to fast urbanization.

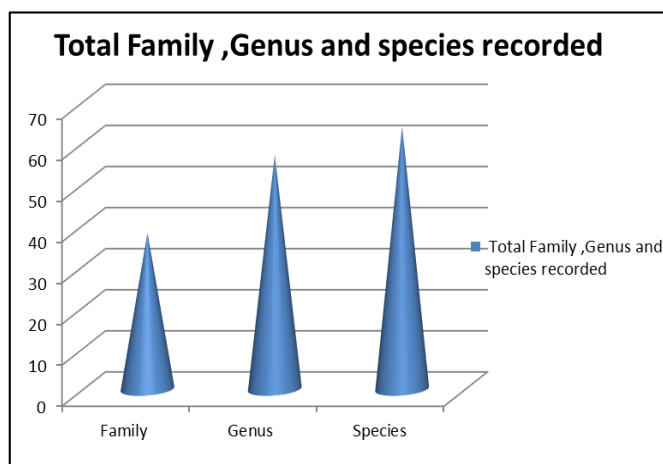
**Table 1:** List of Ethnomedicinal plants used by semipastoral shepherd community.

S. No.	Groups/Family/Plant species	Vernacular name	Habit	Ethnomedicinal properties
1.	Fungi/Morchellaceae <i>Morchella esculenta</i>	Dunglu/ Guchhi	Herbs	Antioxidant, liver protection, edible, exhibit carcinogenic properties.
2.	Discinaceae <i>Gyromitra esculenta</i>	Ban dunglu	Herbs	Edible, antioxidant, exhibit carcinogenic properties.
3.	Pteridophytes/Adiantaceae <i>Adiantum capillus</i>	Barin	Herb	Cough, fever, menstrual problems, bronchitis.
4.	Equisetaceae/ <i>Equisetum arvense</i>	-	Herb	Diuretic, dyspepsia
5.	Gymnosperm/Pinaceae/ <i>Cedrus deodara</i>	Dair	Tree	Ulcer, rheumatism, fuel and timber.
6.	<i>Pinus wallichiana</i>	Kail, Bluepine	Tree	Treat wounds, sores, burns, boils, ulcer.
7.	<i>Pinus roxburghii</i>	Chir	Tree	Medicinal (Bone fracture, sprain, swelling, skin diseases, snake bite)
8.	Taxaceae/ <i>Taxus baccata</i>	Rakhal	Tree	Beverages, treat asthma, bronchitis and bone fracture.
9.	Angiosperm/Alliaceae/ <i>Allium humile</i>	Lahne	Herb	Stomachache, asthma, cold and cough. Edible.
10.	<i>Allium ursanum</i>	Jangli lahasun	Herb	Stomachic, infusion used against worms. Edible used as spice.
11.	Angiosperms/ Amaranthaceae <i>Achyranthes aspera</i>	Putkanda	Herb	Bronchitis, asthma, dysentery, cold, cough, stomachache.
12.	Anacardiaceae/ <i>Pistacia integerrima</i>	Kakar singhi	Tree	Cough, asthma, fever, appetite, pulmonary infection.
13.	Apiaceae/ <i>Angelica glauca</i>	Chora	Herb	Dyspepsia, dysentery, ulcer, gastric pain.
14.	<i>Heracleum candicans</i>	Badiyacha	Herb	Leucoderma and menstrual complaints
15.	<i>Selinium tenuifolium</i>	Bhutkeshi	Herb	Nervine tonic, sedative
16.	Asteraceae/ <i>Achillea millefolium</i>	Fye	Herb	Cold, fever, epilepsy, gastric complaints, piles, stimulant.
17.	<i>Ainsliaea aptera</i>	Satjalari	Herb	Stomach
18.	<i>Artemisia nilagirica</i>	Kubsh	Herb	Analgesic, antiseptic, asthma, headache, nervous disorder, skin disease, sores wounds.
19.	<i>Bidens pilosa</i>	Bhatkumbal	Herb	Cough cut ear and eye complaints, headache, leprosy, skin disease.
20.	<i>Cirsium wallichii</i>	Bhrsha	Herb	Swelling, headache and pneumonia.
21.	<i>Senecio graciflorus</i>		Herb	Insect bite, ringworm disease and ear ache.
22.	<i>Sonchus asper</i>		Herb	Cuts and injuries
23.	<i>Taraxacum officinalies</i>	Gahri phul	Herb	Blister, antioxidants, kidney diseases liver complaints, wounds.
24.	Begoniaceae/ <i>Begonia picta</i>		Herb	Mouth ulcer, tongue bristle.

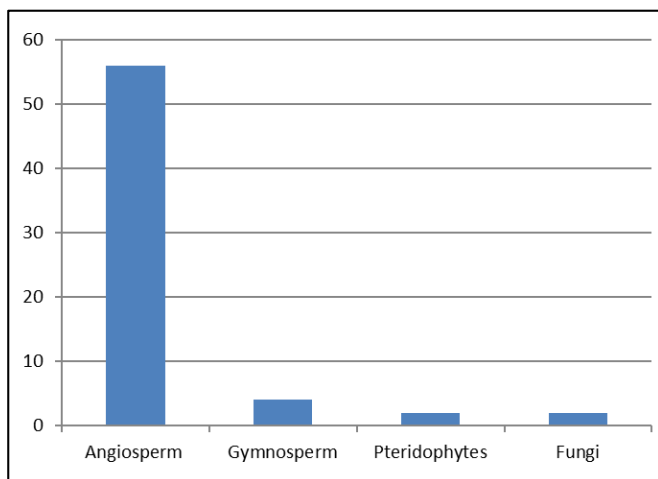
25.	Berberidaceae/ <i>Berberis aristata</i>	Kashmal	shrub	Malaria, piles, antitode to snake bite.
26.	<i>Berberis lyceum</i>	Kashmal	shrub	Eye disease, jaundice.
27.	Betulaceae/ <i>Alnus nitida</i>	Kosh	Tree	Cuts, wounds and stomachache
28.	Brassicaceae/ <i>Nasturtium officinale</i>	Chuch	Herb	Kidney complaints, inflammation of skin, hypoglycaemic.
29.	Cannabaceae/ <i>Cannabis sativa</i>	Bhang/bijay	Herb	Nervine stimulant, piles, skin diseases, cuts, dyspepsia, cramps. appetizer, sleep pills.
30.	Caryophyllaceae/ <i>Silene media</i>	Bariyala	Herb	Bone fracture
31.	Celastraceae/ <i>Euonymus pendulus</i>	Chopru	Tree	Dysentery, eye disease and headache.
32.	Chenopodiaceae/ <i>Chenopodium album</i>	Bithu	Herb	Skin disease, uterine complaint.
33.	Cucurbitaceae/ <i>Trichosanthes tricuspidata</i>		Herb	Burns, diarrhoea, rheumatism, snake bite and vomiting.
34.	Dioscoreaceae/ <i>Dioscorea deltoidea</i>		Herb	Dysentery and pile.
35.	Morinaceae/ <i>Morina longifolia</i>		Herb	Boils
36.	Fabeceae/ <i>Desmodium elegans</i>	Kathi	shrub	Carminative, epilepsy
37.	<i>Indigofera heterantha</i>	Kali kathi	shrub	Veterinary disease urinary problems.
38.	<i>Trifolium repens</i>	Tin pati	Herb	Astringent
39.	<i>Vigna vaxillata</i>		Herb	Cholera and ulcer
40.	Hypericaceae/ <i>Hypericum japonicum</i>		Herb	Skin diseases
41.	<i>H. oblongifolium</i>	Kharau	Shrub	Wounds and boils
42.	<i>H. uralum</i>	Bani wakra	shrub	Food poisoning.
43.	Lamiaceae/ <i>Ajuga bracteosa</i>	Neel kanth	Herb	Root for diarrhoea and dysentery, ascariasis, fever
44.	<i>Clinopodium umbrosum</i>		Herb	Astrigent, Carminative and Heart Tonic
45.	<i>Origanatum vulgare</i>	Bantulsi	Herb	Cold, fever, hysteria, influenza, stimulant, tonic.
46.	<i>Plectranthus coesta</i>	Chichri	Herb	Gastric complaint.
47.	<i>Thymus linearis</i>	Madroshda	Herb	Stomach ache, vermicial, liver complaint, eye disorder.
48.	Liliaceae/ <i>Polygonatum cirrhifolium</i>	Salam Mishri	Herb	Appetite, nervine tonic, Edible.
49.	<i>Cardiocrinum gigantum</i>		Herb	Leaves for wounds, bruises. Paste of roots applied for bone fracture.
50.	Loranthaceae/ <i>Viscaceae album</i>	Rhini	shrub	Abortifacient, antifertility, bodyache.
51.	Malvaceae/ <i>Malva verticillata</i>	Sochali	Herb	Cough, piles, ulcer and urine complaint.
52.	Melanthiaceae/ <i>Trillium govianianum</i>	Nagchatri	Herb	Used to treat boils, dysentery, menstrual and sexual disorders, antiseptic and wound healing.
53.	Oleaceae/ <i>Jasminum</i>	Banmalti	Shrub	Skin disease, blood disease, and heart problem.
54.	Podophyllaceae/ <i>Podophyllum hexandrum</i>	Ban kakri	Herb	Cancer, cough, cuts wounds, fever, gastric ulcers, liver diseases.
55.	Polygonaceae/ <i>Fagopyrum dibotrys</i>	Fafra	Herb	Insect bite
56.	<i>Fagopyrum esculentum</i>	Kathu	Herb	Typhoid, Lung disorder, urine complaint.
57.	Ranunculaceae/ <i>Aconitum heterophyllum</i>	Patish	Herb	Dyspepsia, diarrhoea, cough
58.	Rosaceae/ <i>Agrimonia pilosa</i>	Kanaula	Herb	Cough and urinary problem.
59.	<i>Principia utilis</i>	Bekhal	shrub	Burns, cuts, wounds.
60.	Urticaceae/ <i>Urtica dioica</i>	Kugas	Herb	Antiseptic, dandruff and swelling
61.	Valerianaceae/ <i>Valeriana jatamansi</i>	Nihani	Herb	Antidote to sting of insect, hysteria, neurosis and skin diseases.
62.	Violaceae <i>Viola pilosa</i>	Banaksha	Herb	Cough, cold, fever and lung disease.
63.	<i>Viola biflora</i>	Banaksha	Herb	Bronchitis, cold and cough.
64.	Zingiberaceae/ <i>Hedychium spicatum</i>	Ban haldi	Herb	Asthma, bronchitis vomiting, dyspepsia.



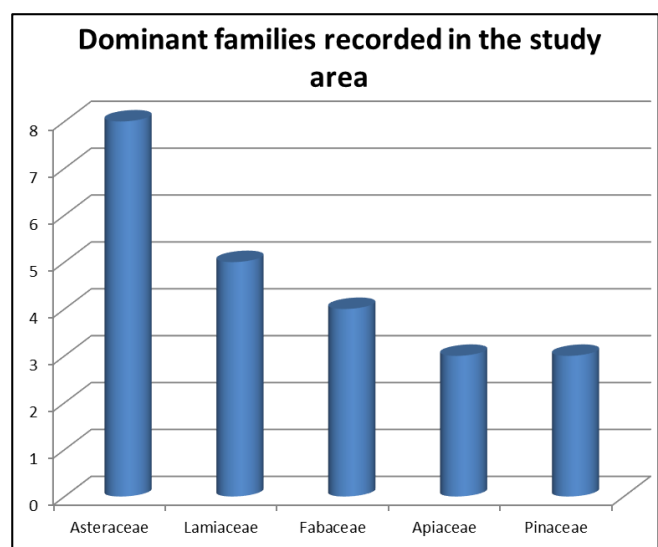
**Pie chart 1:** depicting the life forms of study area: Herbs; 75%, Shrubs ;14 %,Trees ;11%



**Pie chart 2:** Family 38, Genus: 57, Species: 64.



**Pie chart 3:** Histogram showing the documentation of different categories of flora from study area



**Pie chart 4:** Histogram showing dominant families

## Results

The present study was carried out in the Tungasigarh area of Thunag subdivision of district Mandi Himachal Pradesh. Documentation of the ethnomedicinal plants used by the semipastoral shepherds community was done. Concerning the ethnomedicines used by migratory shepherds in their own traditional health care system. A total of 64 ethnomedicinal plants were documented in study area. It was recorded that herb species were markedly high (48) followed by shrub (9), tree (7). Among these medicinal plant species, the maximum medicinal plants were used for cough, cold, skin, stomachache, cuts and wound healing etc.

Shepherds are much dependant on forest produce for their requirement of fruits, vegetables and medicines. The fast acceleration of market pressure for medicinal plants, and

recent disputes related to benefit sharing, the proper documentation of traditional knowledge is of vital priority (Singh and Batish, 2015; Yadav *et al.*, 2014) <sup>[17, 19]</sup>. The continuation of traditional knowledge is risking as the transmission between the younger and older generations no longer exists (Kapoor, 2017) <sup>[11]</sup>. Therefore, proper documentation of the traditional information through ethnobotanical studies is significant for the utilization of biological resources and their conservation (Bagga *et al.*, 2018) <sup>[4]</sup>. 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 seasonal migration. It is also highlighted that satisfactory attention has not been put in promoting and conserving traditional used medicinal plants. There is an urgent need to adopt large scale plantation of these medicinal plant species within the forests and roadsides so that the tribal shepherds are profited. It can be concluded that documentation of this traditional knowledge is novel information from the area of Thunag subdivision district Mandi, Himachal Pradesh.

## Conclusion

Present study is the first attempt of survey in Tungasigarh area of Thunag subdivision of Mandi district, Himachal Pradesh, India. Dominant families recorded in the study areas were Asteraceae, Lamiaceae, Fabaceae, Apiaceae, Pinaceae. *Angelica glauca*, *Allium ursanum*, *Hedychium spicatum*, *Viola* specie, *Trillium govanianum* are well known medicinal plant species, used by shepherds and by local inhabitants contributing important role in the local health care system. Documentation of local medicinal knowledge is also essential due to outmigration of the younger. Study of ethnomedicinal knowledge helps identify the important species of the region for pharmacological importance and ecological sustainability and it also aids conservation of traditional knowledge. Migratory shepherds a tribal community of Western Himalaya were identified. They are using the plants for cough, cold, fever, stomachache, asthma, skin allergy, bone fracture, abdominal pain, jaundice, body pain, bone fracture, malaria, wound healing, tonic, etc., in various forms such as decoction, powder, paste, and juice. The foremost important thing is to give awareness and training to tribal migratory shepherds on a multidimensional basis about sustainable utilization of wild medicinal plant wealth in the hillside management for plant resources. This valuable survey may be useful to improve the pharmaceutical and application in the future.

## Acknowledgement

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Shepherd about to reach in the valley



Goat flocks being directed by shepherds



Horses and dogs parts of their herds



Shepherds on the way towards their destination from plains to hilly region along with stud of horses.



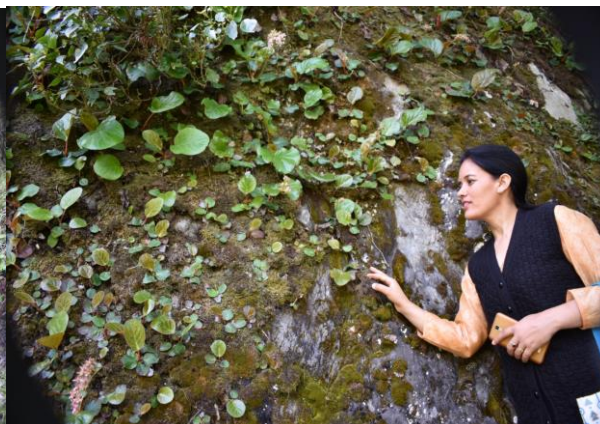




*Cardiocrinum giganteum* plant and seedcases



*Aesculus indica*



*Bergenia ciliata*



*Morchella esculenta*



Harvested *Morchella esculenta*.



*Gyrometra esculenta*



*Naustriatum officinale*



*Rhododendron arboratum**Trillium govanianum**Thymus linearis**Phytolaca acinosa**Allium humile**Pinus rouxburghii***Fig 1:** Migratory shepherd and few medicinal plants used by them**References**

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