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Ethnopharmacological studies on the medicinal plants used by semipastoral gujjar tribe in hills of Shikari Devi of Tehsil Thunag, District Mandi Himachal Pradesh

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Abstract

Indigenous traditional knowledge is an important part of the culture and history of a local community. Plants are integral source of medicines in the rural areas particularly in the tribal communities. The present study is aimed to document the ethno medicinal plants used for various ailments by the Gujjar tribe and rural people living in hills. In Himachal Pradesh tribal migratory semipastoral Gujjar tribe are rich repository of traditional knowledge of wild medicinal plants and its uses, in this respect, an ethnopharmacological Studies was carried out in Shikari Devi and its surrounding area of Thunag Subdivision district Mandi Himachal Pradesh from 2018 to 2020. The required information on ethnomedicines used by tribal migratory gujjar was collected through personal field visit, interview and questionnaire. Total of 71 species were documented herb species were dominant (54) followed by shrub (9), tree (8). This study shows that Gujjar in tribal areas are highly dependent on ethnobotanical medicines, which evolved over generations of experience, for the healthcare. The potential ethno medicinal plants could be conserved and further validation need for better utilization and provisions of the documented knowledge.

Keywords: Ethnomedicinal, Shikari Devi, Thunag, semipastoral gujjar, Mandi, North Western Himalaya.

Introduction

Among all the tribal groups, Gujjars are described as the largest pastoral community in India Tambs-Lyche and H. Power (1997) In India, about 54 million tribal people inhabit about 5000 forest-dominated villages that constitute about 15% of the total geographic area Nath V, Khatri PK (2010) [23] Traditionally, these tribal groups are known to use a large number of wild plants for various purposes like medicine, food, fodder, fuel, essence, culture, and other miscellaneous purposes. Mishra S, Mishra MK (2014) [21] 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. Himachal Pradesh, a North Indian state, is located in the western part of the Himalaya. The state has a wide geographical area (55, 673 km²) 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 main source of income of the Gujjars is selling of milk and milk products in the local market (Janjehli). There is no doubt that the various tribal sects like the Gujjars while living in the remote mountain regions depend largely on wild plant resources for sustenance. Their nomadic employment from the ancestry makes them a good knowledge holder as a way of obtaining food and finding pasture for livestock that makes them more dependent on the environment. Therefore documentation of ethnobotanical knowledge is essential for the conservation and utilization of biological resources in the study area.

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Material and method

1. Study area: Present study was carried out in the Shikari Devi and its surrounding are in 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. Shikari Devi 3359 mamsl (about 125 km from the Mandi town on the S. E. direction on Mandi-Janjehli road; is located between latitude 31°28'43. 13"N&77°09'55.86"E-31°28'25. 34"N&77°02'58. 85"E of Subdivision Thunag (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 Gujjar settlement. 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 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 1450mm.

2. Method

The important biodiversity of medicinal plants of Shikari

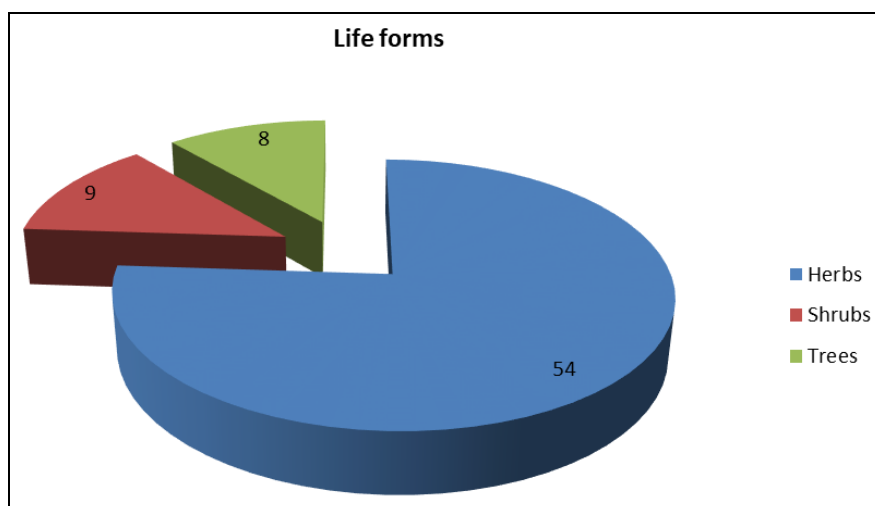
Devi of Thunag sub division was surveyed. For this survey, field trips of the entire area was undertaken between 2018 to 2019. The information on wild medicinal plants used by semipastoral gujjar tribe in this area was collected by using pretested questionnaire, participatory observation, interviews and through discussion method from gujjar and local people. Due to fast acceleration of market pressure for medicinal plants and recent disputes related to benefit sharing, proper documentation of the traditional knowledge is of vital priority (Singh and Batish, 2015) [28].

The continuation of traditional knowledge is risking as the transmission between the younger and older generation no longer exist. (Kapoor, 2017) [17]. Therefore proper documentation of the traditional information through ethnobotanical studies is significant for the utilization of the biological resources and their conservation (Bagga *et al.*, 2018) [5, 8]. Difficult environmental conditions causes seasonal migration of gujjar from hills to plains in different regions of H. P. In the tribes of Himalayan region seasonal migration is a traditional process. It was notable that migration patterns of gujjar closely mirror the seasonal availability of natural fodder (Rao *et al.*, 2011). These semipastoral gujjar carry along with them rich knowledge of traditional medicinal plants. But unfortunately there is scarcity of written documentation of ethnomedicinal plants used by Gujjar in the Shikari Devi area inspite of frequent migration of Gujjar.

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

S. No.	Groups/Family/Plant species	Vernacular name	Habit	Ethnomedicinal properties
1.	Fungi/Morchellaceae <i>Morchella esculenta</i>	Dunglu/Guchhi	Herb	Antioxidant, liver protection, edible, exhibit carcinogenic properties.
2.	Discinaceae <i>Gyromitra esculenta</i>	Ban dunglu	Herb	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>Ainsliaea aptera</i>		Herb	Stomachache.
20.	<i>Bidens pilosa</i>	Bhatkumbal	Herb	Cough cut ear and eye complaints, headache, leprosy, skin disease.
21.	<i>Cirsium wallichii</i>	Bhrsha	Herb	Swelling, headache and pneumonia.
22.	<i>Senecio graciflorus</i>		Herb	Insect bite, ringworm disease and ear ache.
23.	<i>Sonchus asper</i>		Herb	Cuts and injuries
24.	<i>Taraxacum officinalis</i>	Gahri phul	Herb	Blister, antioxidants, kidney diseases liver complaints, wounds.
25.	Begoniaceae/ <i>Begonia picta</i>		Herb	Mouth ulcer, tongue bristle.
26.	Berberidaceae/ <i>Berberis aristata</i>	Kashmal	Shrub	Malaria, piles, antidote to snake bite.
27.	<i>Berberis lyceum</i>	Kashmal	Shrub	Eye disease, jaundice.
28.	Betulaceae/ <i>Alnus nitida</i>	Kosh	Tree	Cuts, wounds and stomachache

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



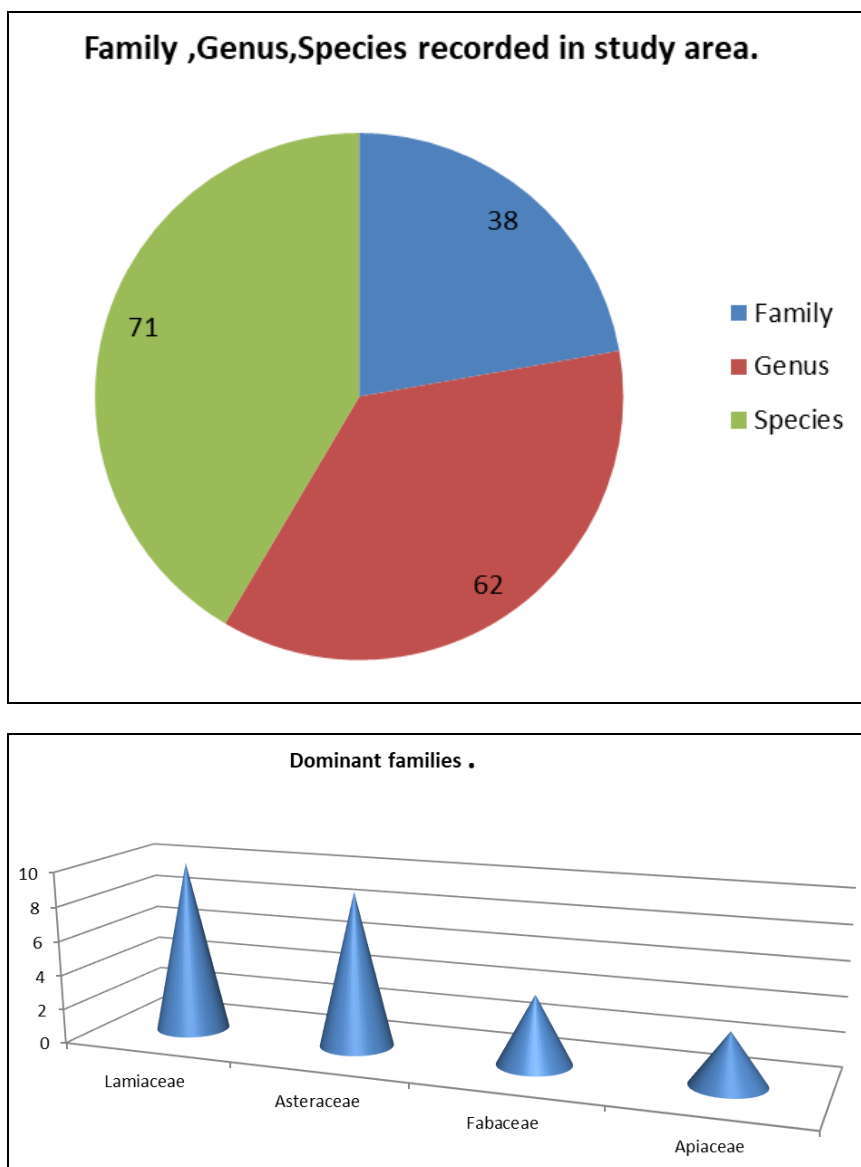


Fig 1: Histogram showing dominant families

Results

The present study was carried out in the Shikari Devi area of Thunag subdivision of district Mandi Himachal Pradesh. Documentation of the ethnomedicinal plants used by the semipastoral shepherds community was done. Total of 71 ethnomedicinal plants were documented in the study area. It was recorded that herb species were markedly high (54) followed by shrub (9), tree (8). Among these medicinal plant species, maximum were used for cough, cold, skin, stomachache, cuts and wound healing etc.

Gujjar are much dependant on forest produce for their requirement of fruits, vegetables and medicines. Fast acceleration of market pressure for medicinal plants, proper documentation of the traditional knowledge is very important (Singh and Batish, 2015; Yadav *et al.*, 2014) [28]. The continuation of traditional knowledge is at greater risk as transmission between younger and older generation no longer exist. (Kapoor, 2017) [17]. Therefore documentation of traditional knowledge through ethnobotanical studies is very important for utilization of biological resources and their conservation. (Bagga *et al.*, 2018) [5, 8]. Unluckily, over exploitation of medicinal plants and changing environmental conditions have made accessibility of medicinal plants as a scarce resource to gujjar. It is also stressed 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 plants species within the forests and roadsides so that the gujjar are profited. It can be concluded that documentation of this traditional knowledge is novel information from the area of Shikari Devi of Thunag subdivision district Mandi, Himachal Pradesh.

Conclusion

Gujjar of Shikari Devi have in depth knowledge of diverse plant uses that can be linked back to their hereditary profession. Emmanence ethnobotanical knowledge of this tribe can also be related to their greater dependency on the wild plant resources for their sustenance. Present study reveals in depth ethnobotanical knowledge of the gujjar. Use of medicinal plants to cure various ailments is part of their life and require preservation of this indigenous knowledge. This knowledge through the words of mouth is eroding which find the urgent need to document this knowledge. Dominant families recorded in the study areas were Lamiaceae, Asteraceae, Fabaceae, Apiaceae, Pinaceae. 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 gujjar 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.

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Settlement of Gujjar in the Shikari Devi area.



Viola pilosa



Cardiocrinum giganteum



plant and seed cases



Aesculus indica



Morchella esculenta

*Trillium govanianum**Chenopodium sp.**Phytolaca acinosa**Allium humile*

Gujjar settlement and few plants in the study area

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