



SURVEY OF ETHNOMEDICINAL PLANTS USED BY MIGRATORY SHEPHERDS IN SHIMLA DISTRICT OF HIMACHAL PRADESH

Radha* and Sunil Puri

School of Biological and Environmental Sciences,
Shoolini University of Biotechnology and Management Sciences, Solan (H.P.) – 173229
Email: radhuchauhan7002@gmail.com

Abstract

In Himachal Pradesh tribal migratory shepherds have rich traditional knowledge about ethnomedicinal plants and its uses, in this respect, an ethnobotanical survey was carried out in district Shimla of 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 32 medicinal plant species were reported viz. *Bergenia ciliata*, *Berberis lyceum*, *Cannabis sativa*, *Dioscorea deltoidea*, *Rhododendron arboretum*, *Solanum nigrum*, *Zanthoxylum armatum* and *Picrorhiza kurroa* was recorded that herb species were markedly high (13) followed by shrub (9), tree (8), climber (1), and fern (1). 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 Shimla district and could be helpful in conservation of traditional knowledge as well as medicinal plants.

Key words: Ethnomedicines, Shepherds, Shimla district.

Introduction

India is rich in its cultural assortment of different native beliefs. In India, it has been reported that about 90-95% collection of medicinal plants is collected from the wild area (Adhikari *et al.*, 2010). The Indian Himalayan region (IHR) is described by its unique natural beauty, with a wide range of habitat and climatic conditions. The varied culture of India is a rich source of traditional knowledge. 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). Moreover, Himachal Pradesh has led to tribal ways of life, adherence to the primitive customs and traditions representing an enormous and difficult terrain of scattered human settlement (Chowdhery, 1999). 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. Due to over exploitation of medicinal plants if efforts are not made with instant effect, the huge traditional knowledge possessed by tribal peoples will diminish almost immediately. This calls for an urgent need to document ethnobotanical information. Ethnobotanical work in different parts of Himachal Pradesh had been conducted by many workers (Dutt *et al.*, 2014). In particular, the

state of Himachal Pradesh is a home to sizeable tribal communities like the Bhotias, Kinnauras, Gaddis, Pangwals and Gujjar's. Migratory shepherds of Himachal Pradesh move with their livestock in search of grazing pastures throughout the year, leaving for low hills with the commencement of winter season and returning to their villages at high altitude in summer season. The tribal migratory shepherds move in a group of their own family members. The migratory shepherds include both sheep and goats and size of the flock is mixed. 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 are very well trained in protecting their livestock from wild animal attacks. There is at all times insufficiency of food, water, fodder for livestock and themselves. Such problems have also been reported in many earlier surveys (Biswas and Rao, 2016). Therefore, the present study is an attempt to document the ethnomedicines used by tribal migratory shepherds in district Shimla of Himachal Pradesh. There is no correct record available regarding the ethnomedicines used by tribal migratory shepherds in Shimla district of Himachal Pradesh. The ethnobotanical information on medicinal plants of this area is expected to provide new dimension's forever expanding pharmaceutical industry and this study will also be helpful to the common man, teachers, scholars, industry and finally science.

Materials and Methods

Study Area

The present study is carried out in Shimla district of Himachal Pradesh (Fig. 1), located in the lap of the Himalayas, has different climatic conditions due to variations in altitudes ranging from 450 meters to 6500 meters amsl from west to east and from south to north. The wide differences in topography, altitude, latitude and climatic conditions have made Himachal Pradesh a home for wide variety of flora and fauna. The Shimla district, situated at 31.61°N 77.10°E, lie in the south-western ranges of the Himalayas; have a rich storehouse of different plant species. Most of these plant species find their use in traditional medicine, folk uses and also in modern industry (Singh and Thakur, 2014). In Shimla district medicinal plants used by migratory shepherds were observed. Surroundings of Shimla district is abounding with beautiful vegetation, offering ample opportunities to biologists, scholars, common man, and researchers.

Ethanobotanical Data

The important biodiversity of medicinal plants of Shimla district was surveyed. For this survey, extensive field trips of the entire area of Shimla district was undertaken between 2017 to 2018. The information on wild medicinal plants used by migratory shepherds in Shimla district was collected by interviews, pretested questionnaire, participatory observation and through discussion method (Fig.2). Only those medicinal plants were collected, which were most frequently used by the migratory shepherds for the treatment of various ailments. The specimens of medicinal plants being used by migratory shepherds were collected, dried and mounted on herbarium sheets, with label information describing when and where they were collected. 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 Shimla district of Himachal Pradesh concerning the ethnomedicines used by migratory shepherds in their own traditional health care system. A total of 32 ethnomedicinal plants were documented in Shimla hills. It was recorded that herb species were markedly high (13) followed by shrub (9), tree (8), climber (1), and fern (1) (Table 1). Among these medicinal plant species, the maximum medicinal plants were used for cough, cold, skin infection, and wound healing etc. Plants used by shepherds were

tabulated in alphabetical order of botanical name, family, Hindi name, flowering and fruiting months, habit, voucher no, parts used and ethnomedicinal uses. 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). The continuation of traditional knowledge is risking as the transmission between the younger and older generations no longer exists (Kapoor, 2017). 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). 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).

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 wild medicinal plants. There is an urgent need is to adopt large scale plantation of these medicinal plant species within the forests as well as along roadsides so that the tribal shepherds are profited. The current study shows that Shimla district is rich in 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 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 fast urbanization in these study areas.

Conclusion

This study can serve as baseline information on traditional used medicinal plants and it could be helpful to further reinforce the conservation of medicinal plant resources. Ethnobotanical studies have a main role to play in new drug development. 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.



Figure.1: Map of study site.
LOCATION OF SHIMLA DISTRICT



Figure. 2: Interaction with migratory shepherds in Shimla district of Himachal Pradesh.

Table 1: Ethnomedicinal plants used by migratory shepherds in district Shimla of Himachal Pradesh.

Sr. No.	Botanical	Family	Common name	Flowering & Fruiting	Parts used	Habit	Voucher specimen number	Ailments treated	Ethnobotanical Uses
1	<i>Abies spectabilis</i> (D. Don) Spach	Pinaceae	Kolroi	April-May, Cones ripen during September-October	Leaves	Tree	SUBMS/BOT-1201	Asthma, Fever	Juice of leaves is used.
2	<i>Asparagus filcinus</i> D. Don	Asparagaceae	Chiriya-kanda	May-July	Roots	Fern	SUBMS/BOT-1202	Dysentery, Diarrhea, Throat complaints	Juice of roots is used .
3	<i>Adhatoda vasica</i> Nees	Acanthaceae	Arusa	December-June	Leaves	Herb	SUBMS/BOT-1203	Cough, Cold	Juice of leaves is used.
4	<i>Achillea millefolium</i> L.	Asteraceae	Bhutkesi	June-December	Whole part	Herb	SUBMS/BOT-1204	High Body pain, Respiratory infection	Whole plant is used.
5	<i>Berberis lycium</i> Royle	Berberidaceae	Karmashal	March-July	Fruits, Roots	Shrub	SUBMS/BOT-1205	Nutritious for health, Jaundice	Fruits are edible and highly nutritious. Roots decoction is given in jaundice.
6	<i>Bauhinia variegata</i> (L.) Benth	Fabaceae	Kachnar	April-November	Leaves, Bark	Tree	SUBMS/BOT-1206	Skin infection	Juice of dried leaves and Bark is used.
7	<i>Bergenia ciliata</i> (Haw.) Sternb	Saxifragaceae	Pashanbhed	June-August	Rhizomes, Leaves, Flowers	Herb	SUBMSBOT-1207	Joint pains, Fever	Decoction of rhizome prescribed to cure cold and joint pains. Leaves and flowers used for fever.
8	<i>Betula utilis</i> D. Don	Betulaceae	Bhojpatra	May-October	Seeds	Tree	SUBMS/BOT-1208	Bone fracture	Seeds mixed with <i>Cynodon dactylon</i> and paste prepared and used on fractured part then covered with the bark of <i>Betula utilis</i>
9	<i>Celtis tetrandra</i> Roxb.	Ulmaceae	Khirk	February-April	Seeds	Tree	SUBMS/BOT-1209	Indigestion	The juice from the seeds is used.
10	<i>Cannabis sativa</i> L.	Cannabaceae	Bhang	June-September	Leaves	Herb	SUBMS/BOT-1210	Abdominapain	Leaves of <i>Cannabis sativa</i> burn over flame and smoke is used for abdominal pain.
11	<i>Dioscorea deltoidea</i> Wall. Ex Griseb	Dioscoreaceae	Singli mingli	July-October	Tubers, Leaves	Climber	SUBMS/BOT-1211	Skin allergy, Burns, Wound healing	Juice of tubers and leaves is used.
12	<i>Eupatorium adenophora</i> (Spreng.) King & H. Rob	Asteraceae	Pamakani	March-April	Leaves	Shrub	SUBMS/BOT-1212	Skin cuts	Juice of leaves is applied.
13	<i>Ficus religiosa</i> L.	Moraceae	Peepal	November-February	Leaves, Bark	Tree	SUBMS/BOT-1213	Skin infection	Powder of dried bark and leaves is used.
14	<i>Juglans regia</i> L.	Juglandaceae	Akhrot	April-October	Bark, Leaves, Fruits	Tree	SUBMS/BOT-1214	Diarrhea	Bark, leaves and fruits are used.
15	<i>Hippophae salicifolia</i> D. Don	Elaeagnaceae	Chuk	June-July	Bark, Fruits	Shrub	SUBMS/BOT-1215	Sun burn	Juice of bark and fruits is applied.
16	<i>Lycyestera formosa</i> Wall.	Caprifoliaceae	Piralu	June-November	Roots	Shrub	SUBMS/BOT-1216	Skin infections	The juice of roots is used.
17	<i>Picrorhiza kurroa</i> Royle ex Benth	Scrophulariaceae	Karru	June - August	Leaves, Rhizomes	Herb	SUBMS/BOT-1217	Asthma, Jaundice, Cough	Juice of dried leaves and rhizomes is used.
18	<i>Prunus cerasoides</i> D. Don	Rosaceae	Pajja	December-March	Fruits	Tree	SUBMS/BOT-1218	Nutritious for health	Fruits is used.
19	<i>Phytolacca acinosa</i> Roxb	Phytolaccaceae	Jharka	July - September	Leaves, Twigs	Herb	SUBMS/BOT-1219	Nutritious for health	Tender leaves and twigs are cooked as vegetable.
20	<i>Rumex hastatus</i> D. Don	Polygonaceae	Churki	June-August	Roots, Shoots	Herb	SUBMS/BOT-1220	Indigestion	Juice of shoots and roots are used.

21	<i>Rhododendron arboretum</i> Sm.	Ericaceae	Burans	March-September	Flowers	Tree	SUBMS/BOT-1221	Fever, Cough	Juice of dried flowers is used.
22	<i>Rhus parviflora</i> Roxb	Anacardiaceae	Samakdana	July-August	Bark	Shrub	SUMS/ BOT-1222	Headache	The paste prepared from the dried Bark is used.
23	<i>Rubus ellipticus</i> Sm.	Rosaceae	Anehhu, Hinsalu, Aakhe	February and April	Fruits	Shrub	SUBMS/BOT-1223	Cough, Fever,	Juice of fruits is used.
24	<i>Selinum vaginatum</i> C.B. Clarke	Apiaceae	Bhutkeshi	July-September	Leaves	Herb	SUBMS/BOT-1224	Skin infection	Juice of leaves is used.
25	<i>Trillium govanianum</i> (D.Don.) Kunth	Trilliaceae	Nagchatri	May-June	Leaves, Roots	Herb	SUBMS/BOT-1225	Headache, Fever	Juice of leaves and roots is used.
26	<i>Thymus serpyllum</i> L.	Lamiaceae	Banajwain	April-September	Leaves, Seeds	Shrub	SUBMS/BOT-1226	Fever, Stomach problems, Cold	Leaves and seeds are considered a popular remedy
27	<i>Urtica dioica</i> L.	Urticaceae	Bichhu Booti	June-October	Leaves, Roots, Shoots	Herb	SUBMS/BOT-1227	Nutritious for health, Wounds	Juice of leaves and roots are used. Tender leaves and shoots cooked as vegetable.
28	<i>Urtica parviflora</i> Roxb	Urticaceae	Kandali	June-October	Leaves, shoots	Herb	SUBMS/BOT-1228	Sprain of foot	Juice of leaves and shoots are applied.
29	<i>Verbascum thapsus</i> L.	Scrophulariaceae	Tamaku	June-August	Roots	Herb	SUBMS/BOT-1229	Vomiting	Juice of roots is taken orally.
30	<i>Valeriana jatamansi</i> Jones	Caprifoliaceae	Muskbala	March-April	Leaves, Roots	Herb	SUBMS/BOT-1230	Wounds, Headache	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.
31	<i>Vitex negundo</i> L.	Verbenaceae	Nirgandi	March-September	Leaves	Shrub	SUBMS/BOT-1231	Joint pains	Leaf paste applied to heal swollen joint pains.
32	<i>Zanthoxylem armatum</i> DC.	Rutaceae	Tirmir	April-June	Bark, Seeds, Fruits	Shrub	SUBMS/BOT-1232	Tooth pain	Juice of bark and seeds and fruits are used.

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References

- Adhikari, B.S.; Babu, M.M.; Saklaniand, P.L. and Rawat, G.S. (2010). Medicinal Plants Diversity and their Conservation Status in Wildlife Institute of India (WII) Campus, Dehradun, Ethnobotanical Leaflets, 14: 46-83.
- Biswas, M.P. and Rao, M.R.M. (2016). Socioeconomic status of Gaddi tribes in Himachal Pradesh: A Study. International Journal of Advance Research, 4(8): 159-167.
- Bagga, J.; Umakant, B. and Deshmukh (2018). *Acmella radicans* (Jacquin) R.K. Jansen (Asteraceae)—A new distributional plant record for Jharkhand State (India). Journal on New Biological Reports, 7(1): 24-27.
- Chowdhery, H.J. (1999). Himachal Pradesh, in Mudgal, V. and Hajra, P.K. (eds) Floristic diversity and conservation strategies in India Vol. II: in the context of state and union territories (BSI, Calcutta) 845-94.
- Dutt, B.D.; Nath, N.S.; Chauhan, K.R. and Sharma, S.S. (2014). Ethnomedicinal plant resources of Tribal Pangri Valley in District Chamba, Himachal Pradesh, India, International Journal of Bioresource and Stress Management, 5(3):416-421.
- Jain, S.K. (1991). Dictionary of Indian Folk Medicine and Ethnobotany. Deep Publication, New Delhi.
- Sharma, S. and Rana, M. (2016). Commonly used Medicinal Plants in Tehsil Pachhad District Sirmour, Himachal Pradesh; Pharma Tutor, 4(3): 34-38.
- Kapoor, G. (2017). Conservation and Development in Great Himalayan National Park-Western Himalaya. Journal on Biological Report, 6(3):142-147.
- Rao, K.A.; Rao, K.S. Rao, S.J. Ravi, A. and Anitha, A. (2011). Studies on migration of sheep flocks in north coastal zone of Andhra Pradesh:

- identification of traditional migration tracts. *Indian J Small Ruminants*, 17(2): 260-263.
- Singh, K.J. and Thakur, A.K. (2014). Medicinal Plants of the Shimla hills, Himachal Pradesh: A Survey. *International Journal of Herbal Medicine*, 2(2):118-127.
- Singh, K.N.H.P. and Batish, D.R. (2015). Most prominent ethno-medicinal plants used by the tribals of Chhitkul, Sangla valley, *Ann of Plant Sci.*, 4(01): 943-946.
- Yadav, V.K.; Deoli, J.; Rawat, L. and Adhikari, B.S. (2014). Traditional Uses of Medicinal Tree Species in Renuka Forest Division, Western Himalaya. *Asian Pac J Health Sci.*, 1(2):72-77.