Research Article
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Accessing the himalayan herbs traded in the streets of itahari by sherpa community of Taplejung, Nepal

Abstract

Sherpa community are the oldest ethnic groups of Himalayas and chiefly known for their ability to climb mountains and their knowledge on medicinal plants found in the high Himalayas. The main objective of this study was to document the medicinal plants available for trade-in Itahari. The study reported 40 species of medicinal plants belonging to 34 families from an interview with twelve herbal traders. The habit of the medicinal plant recorded were herbs (53%), trees (20%), shrubs (13%), vines (8%), fungus (5%), and lichen (3%). Herbal medicines were mostly found for curing minor diseases like cuts, wounds to major diseases like jaundice, typhoid, and also cancer. The knowledge of ethnomedicinal plants has been preserved from ancestors to ancestors, is still in existence and are also spreading towards their younger generations. Furthermore, More researches should be done to access the medicinal plants traded across the country and also their conservation strategy followed by the ethnic community during the collection of medicinal plants.

Keywords: cross-cultural traditions, ethnomedicinal plants, lichen, sherpa, zimbu

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Introduction

Nepal is one of the richest countries in terms of biodiversity and species richness and its relation to culture and traditions. The main reason for the higher diversity of flora, fauna, ecosystems, and cultural heritage is due to its higher variations in physiographic structures.[1] There's a close relation observed between humans and nature which is sharpened and highlighted by ethnobotanical and ethnomedicinal studies. Traditional use of plants in the healing system plays an important role in maintaining the physical and psychological wellbeing of the vast majority of tribal people in India and Nepal.[2,3] Traditional medicine includes all kinds of folk medicine, unconventional medicine, and indeed any kind of therapeutic method that had been approved by ethnic groups.

The knowledge regarding the use of medicinal plants has been passed from generation to generations and only a specific group knows about the details of it.[4,5] Since all of the communities of Nepal do not have access to modern medicines, knowledge of ethnomedicine plays a vital role in saving lives and is also not harmful to health.[6] Also in areas where people have access to modern medicinal facilities but trading of the medicinal plant has been observed for use in minor diseases like cough, cold, cuts, and burns.[7]

For the first time in Nepal, an effort for a handwritten book to compile traditional knowledge towards medicinal plants was done by Pandit Ghana Nath Devkota in 1969 in herbal Encyclopedia Bir Nighantu or Bir pharmacopeia which included 750 medicinal plants with their possible uses.[8] Eastern Nepal and its medicinal plants were firstly explored by.[9] Different researchers from Nepal have reported diversity of species used for the medicinal purpose with ethnomedicinal knowledge. Kunwar et al.[10] reported 107 species from Dolpa, 59 from Humla, 44 from Jumla, and 166 from Mustang. Similarly, 35 genera of the medicinal plant were reported from streets of Kathmandu for trading,[7] from Kaski 99 genera of ethnomedicinal plants were recorded by,[11] from Illam 102 species were reported,[12] from baitadi 33 species were reported,[6] from Chitwan 44 medicinal plants were reported.[13] Similarly, the species reported were used for curing of various ailments from minor to major diseases and 80% of the Nepalese population are dependent on it.[10]

The record of medicinal plants brought for sale in different parts of countries from the Hindu Kush Himalayan regions is not recorded. An effort has been made to record the medicinal plant brought for sale in eastern Nepal. Itahari municipality is selected for data collection as the intensity of herbal traders was high and more aged and experienced traders were spotted in the study area. Thus, this paper is designed to get access to medicinal plants traded in the streets of Itahari and their uses for medicinal purposes by the ethnic community of sherpas.

Methodology

Study area

Itahari sub-metropolitan municipality is taken as a study area where many herbal traders are found on streets selling medicinal plants and products. Itahari is the junction area of province no.1 which might be the cause why there is a high density of herbal traders and almost all the traders are ethnic Sherpa community from Taplejung. Taplejung is the core area for the collection of medicinal and aromatic plants in province 1.[14]

Research design and data collection

A simple interview was scheduled with twelve herbal traders who were native to Taplejung and were from the Sherpa community, as they have old ancestry to the collection of medicinal plants. The survey period lasted from 21st January – 5th of February (2020) completed in two stages. Data collection was done using semi-structured questionnaires prepared as per the requirement for the survey to record the information related to medicinal plants and their uses. The collected data was entered in Microsoft excel and tables were prepared in Microsoft Word. The cross-sectional study was done to support the medicinal uses and secondary information about uses of medicinal plants was obtained from different works of

literature including national and international open access journals, websites, conference proceedings, and newspaper bulletins. For the identification of plants from local name literature cited were.[7,10,14-16]

Data analysis

Data analysis includes a descriptive analysis of medicinal plants with their growth habit, plant parts used, and family. To present error-free data SPSS v.20 was used for analysis as suggested by[17] in social science researches. Charts were prepared using Microsoft Excel and SPSS.

Results and discussion

The diversity of medicinal plants recorded were found to be used for curing more than one disease. As per the species plant parts used and application procedure were also different. Some of the medicinal plants were used as a paste applied externally, some were fine powdered and inhaled with lukewarm water or milk, chewing as of areca nut was also observed and extracts were prepared and infiltered by muslin cloth. Acharya et al.,[17] also reported that the medicinal plant traded in Kathmandu valley was applied and consumed in a variety of ways. Also, the recommended dosage and application procedures were found to be different among the traders. The main reason for differences in dosage is due to the practices of medicinal plants by different ethnic communities and their knowledge of it.

The diversity of medicinal plant recorded are mainly collected from taplejung district and also the traders are from the Sherpa community of taplejung whose family are involved in the collection of medicinal plants from ancestors to ancestors. Of those recorded 40 species belonging to 34 families, most of them are herbaceous plants (53%) followed by a tree (20%), shrub (13%), vines (8%), fungus (5%) and lichen (3%) (Figure 1). Also, differences in edible parts for the medicinal purpose was recorded roots and fruits were used in medicinal purpose in most of the plants, flowers, vegetative parts, and tender shoots were also used for medicinal formulations, details of the plant part used for medicinal plant parts used (Figure 2) and their procedure is shown in Table 1.

Table 1 Diversity of medicinal plants reported from herbal traders in Itahari

s.no.	Local name	Scientific name	Family	Habit	Plant part used	Preparation and use	Ailments cured	References
1.	Pakhanbed	*Bergenia ciliata* (Haw.) Sternb.	Saxifragaceae	Herb	Root	Root powder is cooked with ghee and flour. Chewed for toothache	Constipation, nutritive for pregnant, toothache	7,12,18
2.	Harchur	*Viscum articulatum Brum. F.*	Santalaceae	Herb	Stem, leaves	Half a spoon of powder is served with boiled water or milk.	Aids in joining of bone, used in sprains also	15,21
3.	Yarshagumba	*Ophiocordyceps sinensis* (Berk.) G.H.Sung, J.M.Sung, Hywel-Jones & Spatafora	Ophiocordycipitaceae	Fungus	Whole part	Small piece of fungus or a little of powder is preferred with lukewarm milk, also served as chewing	Used as tonic	15,19
4.	Simping	*Heracleum nepalense* D.Don	Apiaceae	Shrub	Fruit	Slightly roasted and ground along with tomato pickle and consumed, boiled water+ pinch of salt+ simping during gastritis and constipation.	Constipation, gastritis, aid in digestion.	12,15
5.	Majhi fal	*Quercus infectoria* Oliv.	Fagaceae	Herb	Fruit	Chewing like areca nut.	Throat pain, tonsil	15
6.	Panch aunle	*Dactylorhiza hatagirea* (D.Don) Soó	Orchidaceae	Herb	Rhizome	Lukewarm water/ milk+ little part of the rhizome	Bone injury,	15,19

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Table Continued...

s.no.	Local name	Scientific name	Family	Habit	Plant part used	Preparation and use	Ailments cured	References
7.	Thulo okhat	*Astilbe rivula-ris* Buch.-Ham. ex D. Don	Saxifragaceae	Herb	Root	Preferred with milk+ ghee+ flour with added little of root powder(though dried root but freshly powdered)	Teeth pain, bone pain, aid in pregnancy	7,12
8.	Amala	*Phyllanthus emblica* L.	Euphorbiaceae	Tree	Fruit	Chewing	Blood purification,	16
9.	Harro	*Terminalia chebula* Retz.	Combertaceae	Tree	Fruit	Chewing, powder is also swallowed with lukewarm water	Cough and aid in digestion	20
10.	Barro	*Terminalia bellirica* (Gaertn.) Roxb.	Combertaceae	Tree	Fruit	Chewing, powder is also swallowed with lukewarm water	Piles astringent, laxative	6,20
11.	Gurjo	*Tinospora sinensis* (Lour.) Merr.	Menispermeceae	Vines	Stem	Fresh stems are eaten raw or dried stem are swallowed with water when prepared in powder form.	High blood pressure, brain tonics	7
12.	Haldeo	*Curcuma caesia* Roxb.	Zingiberaceae	Herb	Rhizome	Added a little of rhizome in pulse or vegetable during cooking and eaten; also served in combination with milk	Aid in digestion, bacillary dysentery	7,15
13.	Boke timur	*Zanthoxylum acanthopodium* DC.	Rutaceae	Shrub	Fruits, seeds	Little seeds are added for the preparation of pickles.	High blood pressure, gastritis, stomach ache, headache, diarrhea	20,15
14.	Sil timur	*Lindera neesiana* (Wall. ex Nees) Kurz,	Lauraceae	Shrub	Fruit, seeds	1-3 fruits/seed added during preparing tomato pickle	Gastritis, headache	12,15
15.	Yangban	*Usnea orientalis* Motyka	Parmeliaceae	Lichen	Whole plant	Paste is prepared and applied over infected/ injured parts	Cuts and wounds	15

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s.no.	Local name	Scientific name	Family	Habit	Plant part used	Preparation and use	Ailments cured	References
16.	Kacho simrik	*Bixa Orellana* L.	Bixaceae	Tree	Fruit	Powder of dried fruit is prepared and served with milk	Joining of bones and bone-related injury	14
17.	Harjora	*Cissus quadrangula-ris* L	Vitaceae	Herb	Stem root	Chewing and can also be served with boiled water	Sprain, fractures, cuts, and wounds	12,21
18.	Ban ghiraula	*Luffa cylindrical* (L.) M.Roem.	Cucurbitaceae	Vines	Dried fruit fibers	Fibers are soaked in water and orally swallowed; in case of long term headache powder of fiber is enclosed in uslin cloth and inhaled hardly to deep for 2-3 times early in the morning	Headache, jaundice, stomach disorder, high blood pressure	2
19.	Dhupi sallo	*Juniperus recurva* Buch.-Ham. ex D.Don	Cupressaceae	Tree	Leaves and barks	Small cuts of leaves and barks are prepared and wrapped in paper and made to smoke in a room	In witch treatment used for smoking	8
20.	Chiraito	*Swertia chirayita* (Roxb. ex Fleming) Karsten	Gentianaceae	Herb	Stem	Dried stem are powdered and swallowed with lukewarm water	Common cold, cough, fever, high blood pressure, pneumonia	7
21.	Chutro	*Berberis aristata* DC	Berberidaceae	Shrub	Roots	Root extract is consumed orally.	Jaundice, typhoid	12,15
22.	Seto bikhamma	*Aconitum ferox wall.* Ex. Ser.	Ranunculaceae	Herb	Roots	Paste is prepared and eaten with lukewarm water early in the morning before tea	Diarrhea, fever, jaundice, stomach disorders	15,16
23.	Kalo bikhamma	*Aconitum laciniatum* (Bruhl) stapf	Ranunculaceae	Herb	Roots	Paste is prepared and eaten with lukewarm water early in the morning before tea	Food poisoning and diarrhea	15,16

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Table Continued...

s.no.	Local name	Scientific name	Family	Habit	Plant part used	Preparation and use	Ailments cured	References
24.	Jimbu	*Allium hypsistum* Stearn	Amaryllideaceae	Herb	Leaves	Fermented and fresh leaves are used as spices in different vegetables	Used as a spices	Not availiable
25.	Jaringo	*Phytolacca acinosa* Roxb	Phytolaccaceae	Herb	Roots	Root extract is consumed	Gastritis, stomach disorder	12,15
26.	Lali gurans	*Rhododendron arboreum* Sm.	Ericaceae	Tree	Flower	Dried flowers are consumed during fish bone entangled in throat, and dried flower are also chewed	Easy swallowing, headache, diarrohea	18
27.	Ban lasun	*Allium sativum* L.	Alliaceae	Herb	Bulb	Juice of bulb	Used as tonic and blood circulation	6,12
28.	Bojho	*Acorus calamus* L.	Araceae	Herb	Rhizome	Chewing	Cough/cold,	6,12,20,21
29.	Aalainchi	*Amomum subulatum* Roxb.	Zingiberaceae	Herb	Rhizome	Chewing or prepared with tea	Heart diseases, high blood pressure	6,12
30.	Satuwa	*Paris polyphylla* Sm	Trilliaceae	Herb	Root	Root powder boiled with water, filtered and consumed	Piles, gastritis, high blood pressure, heart diseases, pain killer	7,15,20
31.	Rittha	*Sapindus mukorossi* Gaertn.	Spindaceae	Tree	Fruits, seed	Seeds/ fruits are beaten, ground used as shampoo while bathing	Removes dandruff, reduces hair fall	20
32.	Lalgedi	*Abrus precatorius* L.	Fabaceae	Shrub	Fruit, seed	Seeds are applied over the eye	Improves vision of eye	20
33.	Peepla	*Piper longum* L	Piperaceae	Vines	Fruit	Chewing of fruits	Cough and cold	12,15
34.	Avijalo	*Drymaria cordata* (L.) Wild.ex Roemer and Schultes	Caryophyllaceae	Herb	Vegetative part	Plant part is ground, powdered and swallowed in little with boiled water	Headache, typhoid, diarrhea	12
35.	Ainselu	*Rubus ellipticus Sm.*	Rosaceae	Herb	Root	Paste is applied externally in piles and root extract is consumed for gastritis and diarrhea	Gastritis, piles, diarrhea	7

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Table Continued...

s.no.	Local name	Scientific name	Family	Habit	Plant part used	Preparation and use	Ailments cured	References
36.	Khanakpa	*Euodia fraxinifolia* (D. Don) Hook. f.	Rutaceae	Tree	Seeds	Seed paste is prepared and consumed.	Vomiting, dizziness, allergy	12,15
37.	Halhale	*Rumex nepalensis* Spreng.	Polygonaceae	Herb	Root	Juice and paste are externally applied in infected regions	Dermal infections, ringworm	12
38.	Padamchal	*Rheum australe D.* Don Rheum	Polygonaceae	Herb	Rhizome	Extract of the rhizome is consumed and also paste is applied externally during factures and muscle pains	Pneumonia, fever, fractures and muscle pains	12,15
39.	Jethi madhu	*Glycyrrhiza glabra* L.	Leguminosae	Herb	Stem	Chewing; fine powder is orally taken with water	Cough/cold, tonsillitis, tonics,	7
40.	Rato chyau/ Reishi	*Ganoderma lucidum*	Amanitaceae	Fungus	Whole part	Boiled in water and filtrate is collected and applied 2-3 drops in ear; Powder of basidiocarp is swallowed orally	Infections and wounds in ear, even said to cure cancer of ear; treatment of cancer	22

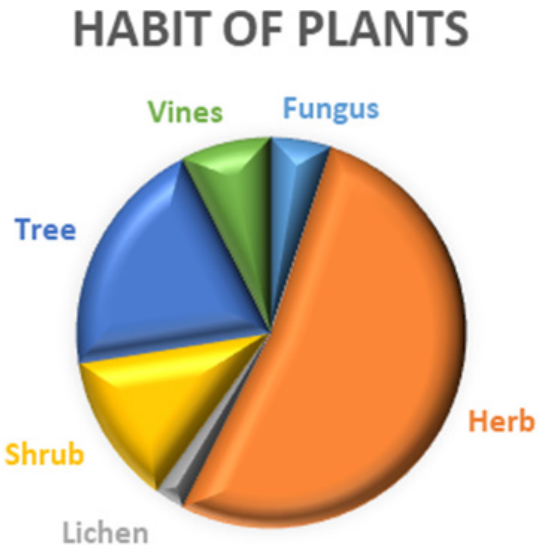

Figure 1 Habit of medicinal plants.

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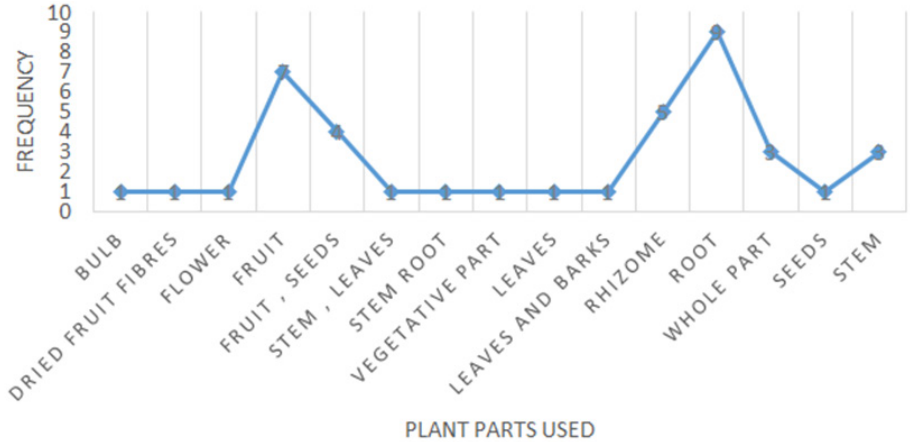

Figure 2 Plants parts used for medicinal purposes.

A similar type of findings was recorded by Shrestha et al.[15] in the Taplejung district. Though the sampling technique and data collection method were different, the reason for the similarity in uses may be due to being a similar collection area. The higher diversity of herbs in alpine and sub-alpine regions has been reported by Chaudhary [1]. Shrestha et al.,[15] reported that the reason for exploring the medicinal plants by the peoples is due to their less access to transportation and other facilities by then they started exploring plants for the medicinal plants. Their contributions to ethnomedicinal uses is an outcome of many years. Shrestha's findings were further also supported by Kunwar et al.,[10], Rokaya et al. (2010) in the alpine and sub-alpine vegetation of Nepal.[18-22]

The majority of medicinal plants found in the streets of itahari for trade are used to cure minor diseases like cuts, wounds, cough, fever, and the common cold. Very few of them were reported to cure major diseases like typhoid, jaundice, tonsillitis, bone injury, cancer, high blood pressure, heart problems, pneumonia, and stomach disorders. However, few of them also reported to have nutritive value for pregnant women, tonics and also as spices, though, being used as a medicinal plant. Thapa et al.,[6] also reported that most of the plant species collected from home gardens of baitadi were collected to cure minor diseases. Different authors and ethnobotanists have observed the use of medicinal plants for several diseases; the attitude of practice is more or less similar between different ethnic communities. This may be due to cross-cultural tradition in the use of medicinal plants.[3] The knowledge on the use of plants for a medicinal purpose has been flowing form north.[3] Though ethnomedicinal knowledge practices from ancestors to ancestors have been carried out modern studies on plants used for medicinal purposes were found to contain phytochemicals which helped in curing of diseases. Ban ghiraula is the newly reported medicinal plant and literature regarding its use in an ethnomedicinal plant is lacking. However, phytochemical screening revealed that its use for medicinal use is appropriate as it contains various phytochemicals such as Phenolics, lavonoids, oleanolic acid, ascorbic acid, a-tocopherol, carotenoids, chlorophylls, triterpenoids, and ribosome-inactivating proteins. These phytochemicals have significant relation with medicinal uses.[2] Thus more researches should be done to access the phytochemicals present in medicinal plants and promoting their uses as they are less or no harmful for human health.

Conclusion

Ethnomedicinal plants are highly important from both economic and health perspective. Different communities of people were found to use different plants for medicinal uses. Among them, sherpas are one of the important herbal traders from eastern Nepal and are involved in the collection and trade of various medicinal plants. Streets of itahari are rarely covered by herbal traders from taplejung who are the ethnic community trading medicinal plants along with their dosage. 40 species of medicinal plants belonging to 34 families were reported and found to use for cuts, wounds, fever, jaundice, cancer, aid in digestion, as tonics, laxative, teeth pain, joining of bones, ringworms, fungal infections, for pregnants and so on. Their response regarding the collection of medicinal plants is done on a seasonal basis and also the trading too. Zimbu is the newly reported plant with ethnomedicinal uses and hence more researches should be conducted regarding its medicinal uses.

About the author

Sandesh Thapa is an undergraduate of agriculture and studying in Tribhuvan University. His research interest lies in ethnomedicinal plants and their economic analysis, urban ecosystem, life cycle assessment and rooftop garden. Currently, he is serving as a local director of IAAS LC GAASC, Baitadi, a student association works in the field of agriculture and other applied sciences. Susmita Thapa is an undergraduate of agriculture and studying in Tribhuvan University. Her research interest lies in ethnobotany, urban ecosystem, and agri-economics.

Public interest statement

Medicinal plants has along history for its use in the field of traditional medicine and sherpas are the oldest tribe in Nepal engaged in collection, processing and sales of medicinal plants. The commonly used medicinal plants availiable for sale in market can be consumed raw. However, some of them has special formulations like in Yarshagumba which can be known from the traders. Also, its uses do not have any effect on human health, Thus its demand is increasing more and more. Thus consumers can use it without nay risk but in low formulations and high doses may cause toxicity.

Conflicts of interest

Authors do not have any type of competing interests.

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