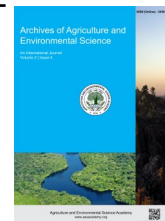




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ORIGINAL RESEARCH ARTICLE



A case study of medicinal plants and their usage by the local community of Dilasaini Gaunpalika, Baitadi district, Nepal

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ABSTRACT

An Ethnomedicinal survey study was conducted to get information about the usage of medicinal plants and the diversity of species found around the village. The main objective of the study was to document the plants for their medicinal and other uses. Ethnomedicinal plants are locally available used by tribal communities and local inhabitants for various medicinal purposes. Random sampling survey was conducted by selecting 50 households to access the medicinal plants and document their usage in Gokuleshwar, Baitadi. A total of 33 species of medicinal plants to treat 40 ailments was reported with their multipurpose use. During the survey, an equal proportion of males and females aged 14 to 78 were selected randomly. The literacy rate of the study area was 80% and 94% of the people were found to be involved in the collection of medicinal plants. The majority of the respondents (92%) used medicinal plants for minor diseases like cuts, wounds whereas few were found to use the medicinal plant for a long time to treat major diseases like cancer, tumor. The use of medicinal plants for skin infections, cuts and wounds, fever was found to be high followed by diarrhea, common cold, ulcer, asthma, jaundice, burns, piles, and eye inflammation. Most of the plants were found to be used for more than one disease. The conservation of Indigenous knowledge on the Ethnomedicinal plant should be promoted as most of the respondents were unaware of the conservation of medicinal plants.

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INTRODUCTION

Nepal is naturally and biologically enriched with diversification. Nepal is ranked 25th and 11th position in biodiversity richness in the world and Asia respectively. Nepal occupies about 0.1% of the global area, but harbor 3.2% and 1.1% of the world's known flora and fauna. A total of 118 different ecosystems have been identified in Nepal (MoAD, 2017). From Nepal over 300 taxa of MAPs are traded with a total amount of 10,770 tonnes value worth of USD 60.09 million (Ghimire *et al.*, 2016). The geographically important areas of Nepal include Nawalparasi, Chitwan, Bardiya, Kaski, Syangja, Illam, Lamjung, Humla, Jumla, Manang, Mustang, Solukhumbhu, Nuwakot (MoAD, 2017).

The use of medicinal plants for the purpose of curing human

diseases and disorders has had a long history. Popular observation on the use and efficiency of medicinal plants significantly contribute to the disclosure of their therapeutic properties, so that they are frequently prescribed, even if their chemical constituents are not always completely known (Maciel *et al.*, 2002). Various national, as well as international research organizations, are involved in order to evaluate and authenticate the medicinal and scientific value of plants (Manandhar, 2002). Over the centuries, the knowledge of their medicinal value and healing properties has been transmitted within and among human communities (Silva *et al.*, 2010). The tribal communities, significantly the women are involved in the continuation, preservation as well as the promotion of the local crop species, collecting and using the forest-based plants in daily dietary and

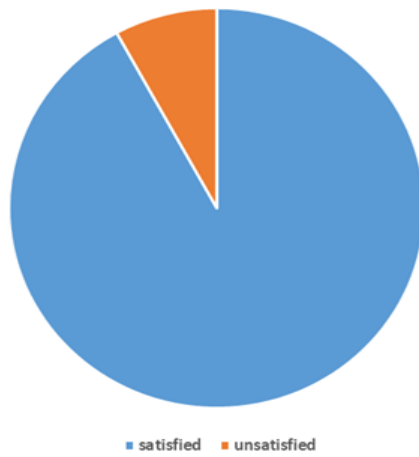


Figure 2. The satisfaction gained from its use.

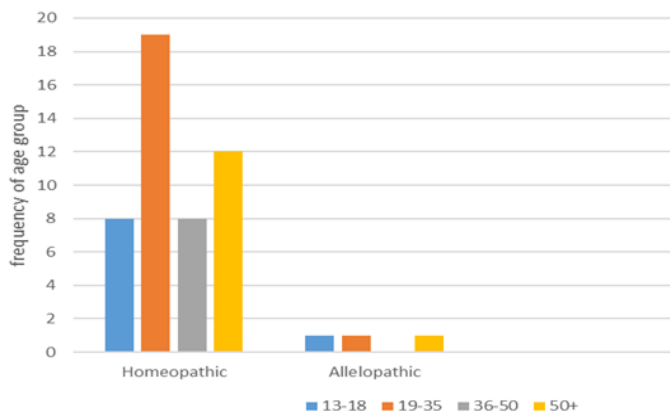


Figure 3. Preference to medicinal plants with age.

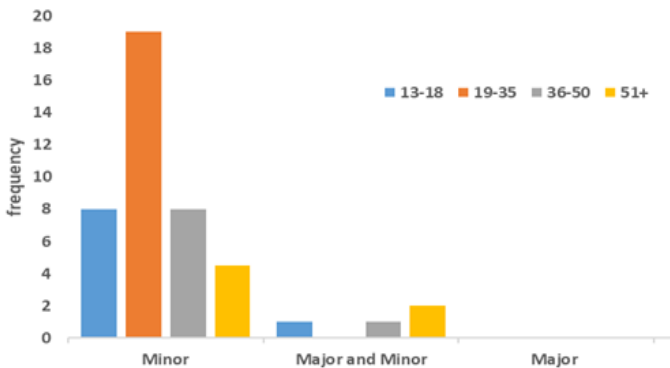


Figure 4. Use of medicinal plants in different situations.

The response regarding the preference to medicinal plants over-processed medicine was found to be 94% and 6% of them are attracted to processed medicine. A cross tab result regarding the preference to medicinal plants towards age showed a result which is presented in the Figure 3.

Condition to prefer

The study was conducted among respondents of different age groups randomly. The majority of them were found to use for minor diseases like cuts, burns, wounds, fever, and common cold. However, those who were found to use for major diseases were also found to use for minor diseases. A study report shows that 92% were found to use the medicinal plant for minor diseases and 8% were found to use for major diseases like typhoid, jaundice, tuberculosis, asthma, heart pain, etc. None of

The respondents were found to use for major diseases only (Figure 4).

Diversity of medicinal plants investigated with their related information

Medicinal plants documented in the study were found to be used for curing of 40 ailments. The majority of the plant species were found to have a multipurpose use for both medicinal and other various culinary uses. The majority of plant species were found to be used for skin infection, diarrhea, fever, common cold, cough, cuts and burns, asthma. However, diseases like heart pain, spleen enlargement, tumor, cancer, ulcer, astringent, fungal infection, weakness, eye inflammation, dandruff, jaundice, piles, gastritis were found to be cured by a few species. The details of the medicinal plant with their medicinal uses documented from the study are as shown in Table 1.

Medicinal plants assessed in the study were found to have multipurpose use including ornamental and food value. About 34 species were reported which was continuously used from generation to generation for the curing of 41 ailments. A similar use of plants for the medicinal purpose was reported by Kunwar *et al.* (2010) in far-west Nepal. The author reported 48 species of medicinal plants used for curing various ailments like asthma, tumor, diabetes, cold and cough, joint pain, gastritis and many more. The multipurpose use of medicinal plants was reported by Rokaya *et al.* (2010) with their culinary and ornamental uses. The author also reported that the medicinal plants were used chiefly for ophthalmic and gastrointestinal ailment. Similarly, Joshi *et al.*, (2019) reported 44 medicinal plants for treating 62 ailments from Gyaneshwor community forest of Chitwan, moreover, Uprety *et al.* (2010) documented 56 species used for 60 medicinal formulations.

Medicinal plants are widely used to cure minor diseases like common cold, cough, fever, cuts and burns, swelling. Peoples attitude towards medicinal plants is high because of the low availability to hospital services and their faith towards medicinal plants. In our study, we found that people used medicinal plants for diseases like common cold, cough, diarrhea, dysentery, cuts& burns, skin infections, fungal infections, gastritis, pneumonia, asthma, bleeding gums, kidney stone, sinusitis, ulcer, earache, bowel pain and uterine contraction, purgatives, tumor, piles, ophthalmic disorder, bronchitis heart pain, and jaundice. Their ancestral preaching towards the use of medicinal plants was limited among family members. The use of medicinal plants towards major diseases is found to be low because of slow healing but also few people are attracted to it because of low or no side effects as compared to allopathic medicine (Jawla *et al.*, 2009). The proportion of the collection of the medicinal plant was high in forests followed by gardens and few are locally available in the market. The low land use in far west Nepal makes more reliable to collect medicinal plant from the field whose use is known (Kunwar *et al.*, 2015). People's high response for the use of the medicinal plant is also due to its easy availability and most of them are found around home gardens making them cost-effective (Joshi *et al.*, 2019).

Table 1. Medicinal plant investigated with their related information.

S.N.	Local name	English name	Family	Plant species	Plant parts used	Medicinal uses
1.	Chiuri	Butter nut tree	Butyraceae	<i>Diploknema butyreaceae (Roxb.)</i>	bark	iarrrhea, ulcer
2.	Bael	Bengal quince	Rutaceae	<i>Aegle marmelos (L.) Corrêa</i>	bark, fruit	dyspepsia, fever, constipation
3.	Bhringraj	False daisy	Compositae	<i>Eclipta prostrata (L.) L.</i>	bark, leaves	fever, liver and urinary problem, wounds, skin diseases
4.	Bojho	Sweet flag	Acoraceae	<i>Acorus calamus L.</i>	root	sore throat, voice disorder, cough, carcinogenic
5.	Barro	Belleric myrobalan	Combretaceae	<i>Terminalia beliricia- (Caertn.) Roxb.</i>	fruit	piles, astringent, laxative
6.	Ban lasun	Indian gooseberry	Liliaceae	<i>Lilium nepalense D.Don</i>	Bulb	relieving pain in cardiac region
7.	Pahade amla	Hill cardamom	Phyllanthaceae	<i>Phyllanthus emblica L.</i>	root, seeds	jaundice, asthma, bronchitis, laxative
8.	Alainchi	Devil's snare	Zingiberaceae	<i>Amonum subulatum Roxb.</i>	oil, rhizomes	lung diseases, reduce eye inflammation.
9.	Dhatura	Devil's snare	Solanaceae	<i>Datura stramonium L.</i>	leaves, flowers, fruits	leaves; used in inflammation of smoke to cure asthma, flower juice; used to treat earache, fruit juice; curing dandruff, falling hairs.
10.	Ghiukumari	Aloe vera	Asphodelaceae	<i>Aloe vera (L.) Burm.f.</i>	leaves	treat enlargement of spleen, wounds, tumor, ear diseases
11.	Harchur	Devil's fuge	Loranthaceae	<i>Viscum album L.</i>	stem	asthma, earache, seeds; emetic, purgative also cures hemicranias, weakness of limbs.
12.	Indrayani		Cucurbitaceae	<i>Trichosanthus tricuspidata Lour.</i>	roots, seeds	Fruits: astringent, laxative fine powered form; used in carious teeth, bleeding gums, ulcer
13.	Harro	Myrobalan	Combretaceae	<i>Terminalia chebula Retz.</i>	fruits	Astringent, antiseptic, fever, cough, sinusitis
14.	Kaphal	Bayberry	Myricaceae	<i>Myrica esculenta Buch.-Ham. ex D. Don</i>	bark	dysentery, diarrhea, chronic fever
15.	Panchaule	Orchid	Orchidaceae	<i>Dactylophiza hatagirea (D.Don) Soó</i>	root	used as sedatives in bowel pain, uterine contractions
16.	Sarpagandha	Serpentine	Apocyanaceae	<i>Rauwolfia serpentina (L.) Benth. ex Kurz</i>	root	rhizome; used as antihelmintic, vermifuse, used as tonics
17.	Satuwa		Melanthiaceae	<i>Paris polyphylla var. alba H.Li & R.J.Mitchell</i>	rhizome	Antipyretic, Cough Cold.
18.	Tulsi	Holy basil	Lamiaceae	<i>Ocimum tenuiflorum L.</i>	Leaves, seeds	Bark used in diarrhea, dysentery, sore throat, bronchitis, blood impurities, ulcer. Seeds: diabetes, Fruit: carminative, diuretic.
19.	Jamun	Black plum	Myrtaceae	<i>Syzygium cumini (L.) Skeels</i>	Bark, seeds, fruits	Kidney stone
20.	Pattharchatta	Bryophyllum	Crassulaceae	<i>Kalanchoe pinnata (Lam.) Pers.</i>	leaves	Cuts, wounds
21.	Gandhe Jhar	Bluemink	Compositae	<i>Ageratum houstonianum Mill.</i>	Leaves, flowers	Fever, common cold, skin infections, wounds, fungal infections, gums disorder
22.	Neem	Neem	Meliaceae	<i>Azadirachta indica A.Juss.</i>	Leaves, barks	Diarrhea, teeth pain
23.	Kolar/ kera	Banana	Musaceae	<i>Musa paradisica L.</i>	Leaves, fruits	Diarrhea
24.	Amba	Guava	Myrtaceae	<i>Psidium guajava L.</i>	Leaves, Fruits	Reduces fat
25.	Kagati	lemon	Rutaceae	<i>Citrus aurantifolia (Christm.) Swingle</i>	fruits	Gastritis, jaundice, blood purifying, indigestion, asthma, skin diseases, leprosy
26.	Ghodtapre	Asiatic pennywort	Apiaceae	<i>Centella asiatica (L.) Urb.</i>	leaves	Skin infections
27.	Amala	Myrobalan	Phyllanthaceae	<i>Zanthoxylum L.</i>	fruits	Cuts, burns
28.	Kurjo	Silverfern	Cyatheaceae	<i>Alsophila dealbata C.Presl</i>	fronds	Cuts, wounds, pneumonia, fever
29.	Sayapatri	Marigold	Compositae	<i>Tagetes erecta L.</i>	leaves	Painkiller, gastritis, improve appetite
30.	Bhang	Marijuana	Canabaceae	<i>Cannabis sativa L.</i>	Seeds, leaves	Skin infections, fungal infections
31.	Peepal	Potato	Moraceae	<i>Ficus religiosa L.</i>	barks	Burns, skin infections
32.	Aalu	Ginger	Solanaceae	<i>Solanum tuberosum L.</i>	tuber	Common cold, Cough
33.	Adhuwa	Ginger	Zingiberaceae	<i>Zingiber officinale Roscoe</i>	Rhizome	Cough, common cold, chest pain

Conclusion

Medicinal plants are the basics for the household treatment of minor and some of the major diseases. The study showed the direct relationship of households with the use of medicinal plants. By the use of medicinal plants, 92% of the respondents were satisfied. 76% of the collected medicinal plants from gardens and 22% from forests and 2% from others like ayurvedalaya. A total of 33 medicinal plants were documented to cure 40 ailments. The majority of the medicinal plants collected were found to be used for diseases like fever, diarrhea, cuts and burns, gastritis, heart pain, chest pain, a painkiller. Also, the uses of medicinal plants were reported against diseases like ulcer, diabetes, laxative, dyspepsia, anxiety, gum bleeding, jaundice, pneumonia, asthma, cancer and so on. The use of a single medicinal plant for multiple diseases increases the value of medicinal plants and an effective strategy should be adopted for exploring the use of it. Also, the lack of training related to medicinal plants in the study area showed less knowledge on the conservation of plants and their effective use and propagation. Thus, the concerned government/ non-government body should take effective action for exploring the use of medicinal plants.

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