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Assessment of ethnomedicinal knowledge of the Limbu community in Chhathar rural municipality of Terhathum district, Nepal

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Abstract. This study has been carried out to investigate the ethnomedicinal knowledge of the Limbu community in Chhathar Rural Municipality, Tehrathum District, Nepal. The study explored 85 ethnomedicinal plant species belonging to 45 families and 77 genera. Among them, 38 plants were wild and 47 were cultivated. The maximum number of seven plant species used medicinally belongs to the family Fabaceae, and six plant species were noted from Asteraceae and Poaceae. Four plant species were noted from Apiaceae and Solanaceae. Similarly, Zingiberaceae, Brassicaceae, Rutaceae, Lamiaceae, and Cucurbitaceae each comprise three plant species. Two plant species were noted from Amaryllidaceae and Lauraceae. The collected plant species are known to have curative properties against diseases like diarrhea, dysentery, cuts, wounds, skin disease, fever, cough, dyspepsia, jaundice, gastric trouble, toothache, and cholesterol disease. Out of 85 recorded plants, trees and herbs both had the highest (41.17%), followed by shrubs (14.11%), climbers (4%), and climbers (3.52%). According to mode of preparation, mostly juice is used (30.83%), followed by paste (23.33%), powder (15%), decoction (7.5%), raw (6.66%), latex (5%), cooked (5%), oil (4.16%), ghee (0.84%), boiled (0.84%), and crushed (0.84%). Maximum plants were used for diarrhea (10%) followed by cut (7.22%), cough (4.44%), dysentery (3.88%), and constipation (3.33%).

Keywords: *Disease, indigenous knowledge, Limbu community, and medicinal plants*

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1. Introduction

The World Health Organization (WHO) defines traditional medicine as the sum total of knowledge, skills, and practices based on theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement, or treatment of physical and mental illness (WHO, 2013). Ethnobotany is the study of interaction between people and plants at spatial, temporal, historical, and cross-cultural scales, particularly the role of plants in human culture, how humans have used and modified plants, and how they represent them in their system of knowledge (Austin, 2004). Ethnomedicine, a branch of ethnobotany, is a set of local practices embedded in the indigenous knowledge of a social group, often transmitted orally from generation to generation (Bussmann & Sharon, 2006).

Biodiversity is a part of our daily lives and livelihoods. It is not easy to define its value, and it is often difficult to estimate it. Biodiversity is closely related to or linked to livelihoods and is also an important source of revenue in many developing countries. Every country has a responsibility to conserve biodiversity. Nepal is popular all over the world for its natural beauty and great cultural heritage. Nepal is a biodiversity-rich country. Nepal ranks 31st in the world in terms of biodiversity. About 25% of the total country's vascular flora is used under different traditional systems, including Ayureveda, homeopathic herbal, and Amachi (Traditional Tibetan Medicine) (Bhattarai, 2018).

The Limbus, a prominent group of Kirant people, are an indigenous ethnic community in Nepal. The Limbu Kirantis are known for being nomadic and hunters, living in hills and mountains, possessing indigenous knowledge, using medicinal herbs and spices, practicing medicine and architecture, being animists and nature worshippers, and being indigenous landowners with a strong bond to the local agro-pastoral tradition (Limbu, 2013). The Limbus have a strong indigenous medical system that is practiced widely in the community. They also have reliable knowledge of forests, medicinal herbs, and biospheric skills. However, due to the avaricious nature of the state, the modern market economy, globalization, and modernity, "many such pieces of knowledge continue to either disappear or be exploited by greedy outsiders, including pharmaceutical companies and other multinational companies" (Bhattachan, 1995).

According to Manandhar (1998), the western part of Nepal is home to 30% of the country's medicinal plants, while Kunwar et al. (2009) documented the use of about 50% of these plants for ethnomedicine in the Nepal Himalaya. In the Himalayan region, medicinal plants are a source of income for rural people. Most rural people still believed in traditional medicinal plants and depended on traditional healers for their primary health care. Limbu communities have extensive knowledge of ethnomedicine as well as a rich cultural and food heritage (Bista, 1967; Subba, 1999a; Subba, 1999b). The Limbus have an excellent traditional knowledge base (Rai et al., 2004) and extraordinary innovativeness. They have been using hundreds of plants for disease treatment (Siwakoti & Siwakoti, 1998), ranging from diarrhea to constipation to fractures. Researchers have documented the extensive ethnomedicinal knowledge of the Limbu community, documenting a total of 225 species in 191 genera and 92 families from Limbuwan in Eastern Nepal (Limbu & Rai, 2013). Various studies, including Malla et al. (2015), Paudel et al. (2017), Bhattarai (2018), Paudel et al. (2018a), Paudel et al. (2018b), Paudyal et al. (2021), and Das et al. (2021), have explored ethnomedicinally important plants. However, we have yet to explore the ethnomedicinal potential of the Limbu community in Chhathar rural municipality that has not been explored yet. Therefore, we have endeavored to delve into the traditional ethnonomic knowledge of the Limbu community in the Chhathar rural municipality of Tehrathum district of Nepal.

2. Materials and Methods

2.1. Study Area

The study site lies in Chhathar rural municipality in Tehrathum district at latitude 27°04′N and 87°45′E longitude and consists of 6 wards with an area of 133.93 km^2. According to the 2011 Nepal census (CBS), the municipality's total population is 16,715. The district lies in Koshi province of Nepal at latitude 27°08′25.80" North, longitude 87°32′28.68" East. The district takes its name from the 13 hills located within its boundaries. In Nepali, 'Tehra' means 13, and 'Thum' means peak. The district, known as the Kingdom of Rhododendron, lies between Taplejung, Panchthar, Dhankuta, and Sankhuwasabha districts. The total population of Tehrathum district is 88731, out of which 43581 are male and 45150 are female (CBS, 2021). In Tehrathum district, there are six rural municipalities.

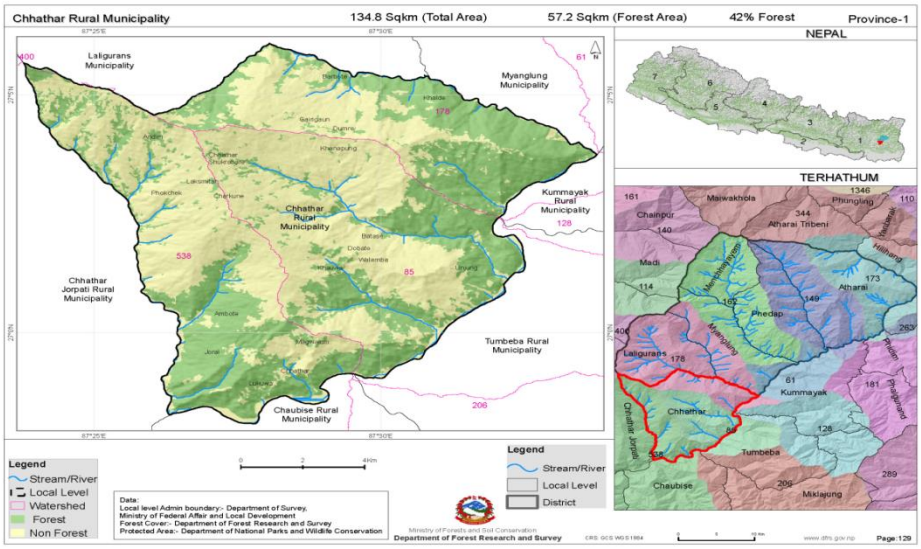

Figure 1. Map of Chhathar Rural Municipality, Tehrathum District, Nepal

2.2. Field methods and data collection

A fieldwork investigation was conducted from January to December 2023 in order to formulate the ethnomedicinal information in the study area using the participatory rural appraisal (PRA) technique (Bazai et al., 2013) to gather ethnomedicinal information from the locals. Overall, 25 men and 25 women from various villages who have a strong connection to and experience with folk medicine practices were interviewed using this technique, which employed a questionnaire about the medicinal use of plants for various purposes.

The specimens that were collected were utilized to prepare herbarium specimens by pressing them between newspapers, drying them using a standard technique (Jain & Rao, 1967), and identifying them using existing literature (Press et al., 2000; Manandhar, 2002). In the field, the names of the medicinal plants were recorded in the local dialect. The voucher specimens were deposited at the Department of Botany, Mahendra Morang Aadarsh Multiple Campus Biratnagar (Tribhuvan University), Nepal.

3. Results and Discussion

3.1. Ethnomedicinal plants used by the people of Limbu community

Altogether, 85 plant species were found to be used as medicine by the people of the Limbu community in Chhathar Rural Municipality, Tehrathum district. These plants have been arranged in alphabetical order of botanical names followed by vernacular name, family, field note, plant description, flowering, and fruiting; medicinal uses along with their cultural and religious values are mentioned for each species. Nepali name is enumerated as' N' and limbu name as 'L' (Table 1).

Table 1. List of ethnomedicinal plants usd by the people of Limbu communiuty

S.N	Scientific name	Vernacular name	Limbu name	Family	Habitat	Life form	Aliment	Parts used	Mode of preparation
1	*Acacia catechuc* (L.f.) willd.	Khayar		Fabaceae	Wild	Tree	Cough, wound healing.	Bark, wood	Decoction, powder
2	*Ageratina adenophora* (Spreng.) king & H. Rob.	Banmara		Asteraceae	Wild	Shrub	Cuts	Leaf, stem	Juice
3	*Ageratum conyzoids* L.	Illame Jhar	Isayak	Asteraceae	Wild	Herb	Cuts	Leaf	Juice
4	*Albizia julibrissim* Durazz.	Siris	Yephekpa	Fabaceae	Wild	Tree	Skin disease, cough, sore throat	Seed, bark, flower	Decoction, paste
5	*Allium cepa* Linn.	Pyaz	Makkho	Amaryllitaceae	Cultivated	Herb	Constipation, cholera	Bulb	Juice, raw
6	*Allium sativum* Linn.	Lasun		Amaryllitaceae	Cultivated	Herb	Skin itching, cough, sore throat	Tuber	Juice, paste
7	*Aloe vera* Linn.Burm.F	Ghiu Kumari	Lupse	Asphodelaceae	Cultivated	Herb	Burn, soft dry skin	Leaves	Juice, latex
8	*Amomum subulatum* Roxb.	Alaichi	Arengi	Zingiberaceae	Cultivated	Herb	Dental problem, bad breathe, cough	Fruit, seed	Powder, raw
9	*Alnus nepalensis* D. Don	Utis		Betulaceae	Wild	Tree	Cut, wound	Leaves	Paste
10	*Anethum sowa* Roxb.	Soup sag		Apiaceae	Cultivated	Herb	Joint pain, backbone pain, common cold	Whole plant	Cooked
11	*Annona squamosa* L.	Sarifa		Annonaceae	Cultivated	Tree	Diarrhea, kill lice, kill insect	Leaf, seed	Decoction
12	*Artemisia vulgaris* L.	Titepati	Namyoba	Asteraceae	Wild	Shrub	Stomach disorder for animal, nose bleeding, cut and wound, blood pressure	Leaf	Juice, raw
13	*Artocarpus heterophyllus* Lam.	katahar		Moraceae	Cultivated	Tree	Fever, diarrhea, skin disease, burn	Leaf, root, fruit	Decoction, latex, paste
14	*Artocarpus lakoocha* Wall EX.	Badahar	Muchhe	Moraceae	Wild	Tree	Lactating, boils, wound,	Leave	Juice

							cut		
15	*Aspargus racemosus* Wild.	Kurilo	Nakkhamma	Aspargaceae	Cultivated	Shrub	Urinary trouble, dressing wound, burning sensation of body, diarrhea, dysentery	Root	Paste, powder
16	*Bauhinia purpurea* Linn.	Tanki	Ajiba	Fabaceae	Cultivated	Tree	Burns, diarrhea	Leaf	Juice, paste
17	*Bauhinia vahlii* Wight & Am	Bhorla	Makka	Caesalpinaceae	Wild	Shrub	Diarrhea	Seed	Powder
18	*Bauhinia variegate* L.	Koiralo		Fabaceae	Cultivated	Tree	Diarrhea, dysentery, asthma, appetite	Tender leaves, bark, flower	Juice, powder
19	*Bombax ceiba* L.	Simal	Tengo sing	Bombaceae	Wild	Tree	Stomachache	Bark	Juice
20	*Brassica juncea* (L.) czern	Rayo sag	Nughi	Brassicaceae	Cultivated	Herb	Ear pain, headache	Seed	Oil
21	*Brassica rapa* L.	Tori		Brassicaceae	Cultivated	Herb	Ear pain, common cold	Seed	Oil
22	*Calotropis gigantean* (L.) Dryand	Aank	Aak	Asclepiadaceae	Wild	Shrub	Skin itching, wound	Leaves	Latex
23	*Cannabis sativa* L.	Ganja	Pijyama	Cannabinaceae	Wild	Shrub	Diarrhea, swelling of stomach for animal	Leave, seed	Decoction
24	*Capsicum annum* L.	Khursani	Machchi	Solanaceae	Cultivated	Herb	Gastric trouble, headache	Fruit	Raw
25	*Centella asiatica* (L.) Urban	Ghodtapre	Sidasakchi	Apiaceae	Wild	Herb	Urinary disorder, dysentery, diarrhea	Leaves, whole plant	Decoction, juice
26	*Cinnamomum tamala* (Butch. - Ham.) T. Nees & C.H. Eberm	Tejpat	Limsap	Lauraceae	Wild	Tree	Whitening teeth, common cold	Leaf	Powder
27	*Citrus aurantium* L.	Suntala		Rutaceae	Cultivated	Tree	Vomiting, skin itching, nourish skin	Fruit, peeled	Powder
28	*Citrus limon* (L.) Osbeck	Lemon	Larimba	Rutaceae	Cultivated	Tree	Constipation, acidity, hair dandruff, dyspepsia	Fruit	Juice
29	*Colebrookea oppositifolia* SM.	Dhursuley	Lajesing	Lamiaceae	Wild	Shrub	Wound, cut, fever	Leave	Juice
30	*Coriandrum sativum* L.	Dhania		Apiaceae	Cultivated	Herb	Headache, muscle and joint pain	Leave, seed	Paste, oil
31	*Cucumis sativus* L.	Kakra	Paait	Cucurbitaceae	Cultivated	Climber	Sun burn	Fruit	Raw
32	*Cucurbita pepo* L.	pharsi	Yakko	Cucurbitaceae	Cultivated	Climber	Swelling	Fruit	Paste
33	*Curcuma longa Linn.*	Besar	Harandi	Zingiberaceae	Cultivated	Herb	Throat infection, swollen, cut	Rhizome	Powder, paste
34	*Cynodon dactylon* (L.) pers	Dhubo	Sambok	Poaceae	Wild	Herb	Infected eye, cut, wound, piles	Whole plant	Juice, decoction
35	*Datura stramonium* L.	Seto dhatura		Solanaceae	Wild	Shrub	Stomach ache	Seed	Powder
36	*Daucus carota* L.	Gajar		Apiaceae	Cultivated	Herb	Night blindness, diarrhea, cholesterol level, sugar level in blood	Fruit	Juice
37	*Desmostachya bipinita* (L.) Stapf	Kush		Poaceae	Cultivated	Herb	Burning sensation of body, urine problem, diarrhea	Root	Decoction, juice
38	*Diploknema butyracea* (Roxb.) H.J.Lam.	Chiuri		Sapotaceae	Cultivated	Tree	Antibacterial	Fruit	Ghee

39	*Dolichos biflorus* Linn.	Gahat	Phekluse	Fabaceae	Cultivated	Herb	Muscle pain, back bone pain	Seed	Cooked
40	*Dryopteris fillix-mas* L.	Hande unyu		Dryptridaceae	Wild	Herb	Cut, wound	Leaf	Juice
41	*Elaecarpus sphaericus* Roxb	Rudraksha		Elaeocarpaceae	Cultivated	Tree	Blood pressure, headache	Fruit	Juice
42	*Eleusinae coracana* Gaertn.	kodo		Poaceae	Cultivated	Herb	Dysentery, constipation	Seed	Decoction
43	*Euphorbia pulcherrima* Wild. Ex Klotzsch	Lalupate		Euphorbiaceae	Cultivated	Shrub	Burn, skin diseases	Leaf	Paste, latex
44	*Ficus benghalensis* L.	Bar	Labhaksing	Moraceae	Wild	Tree	Respiratory disease, skin disease, swollen, constipation	Fruit	Paste, latex
45	*Ficus religiosa* L.	Peepal	Namsusing	Moraceae	Wild	Tree	Diarrhea, cut, wound	Leaf, bark	Powder, paste
46	*Galinsoga parviflora* Cav.	Udhasey jhar		Asteraceae	Wild	Herb	Cuts	Leave	Juice, paste
47	*Glycine max* (L.) Merr.	Bhatamas	Chembi	Fabaceae	Cultivated	Herb	Cholesterol level	Seed	Oil
48	*Guizotia abyssinica* (L.f.) Cass.	Filungey		Asteraceae	Cultivated	Herb	Wound, rheumatism	Leaf, seed	Paste, oil
49	*Ipomea batatas* (L.) Lam.	Suthuni	Laghii	Convolvulaceae	Cultivated	Herb	Manage body weight	Tuber	Boiled
50	*Jugalnus regia* L.	Okhar	Khesekwa	Juglandaceae	Wild	Tree	Heal crack, blood sugar level, heart disease, improve brain capacity	Bark, fruit	Crushed
51	*Lepidium sativum* L.	Chamsur	Sipha	Cruciferae	Cultivated	Herb	Asthma, cough, hurt, pain	Whole plant	Juice
52	*Lindera* neesiana (Wall. ex Nees) Kurz	Siltimur	Warekpa	Lauraceae	Wild	Tree	Headache, gastric trouble	Fruit	Paste, powder
53	*Lycopodium clavatum*	Nagbeli		Lycopodiaceae	Wild	Herb	Wound, scabies	Seed	Paste
54	*Lyonia ovalifolia* (Wall.) Drude	Angeri	Tabea	Ericaceae	Wild	Tree	Scabies, skin disease	Leaf	Paste
55	*Maesa macrophylla* (Wall.) A. DC.	Bhogate	Ammrakakma	Myrsinaceae	Wild	Shrub	Jaundice, diarrhea	Fruit	Juice
56	*Magnifera indica* L.	Aap	Aabe	Arnacardiaceae	Cultivated	Tree	Jaundice, heal crack, stomachache	Bark, fruit	Latex, raw
57	*Mentha arvensis* L.	Pudina	Padena	Lamiaceae	Wild	Herb	Soft skin, mouth fresher, cough	Leaf	Paste
58	*Momordica charantia* L.	Titekarela		Cucurbitaceae	Cultivated	Climber	Skin itching, low blood pressure, jaundice, fever, diabetes, piles	Fruit, leaf	Cooked, juice
59	*Morus alba* L.	Kimbu		Moraceae	Wild	Tree	Fever, blood purify, cut, wound	Fruit, bark	Decoction, juice
60	*Musa paradisiacal* L.	Kola	Telasae	Musaceae	Cultivated	Herb	Burn, diarrhea	Leaf, fruit	Juice
61	*Nicotiona tobacum* L.	Shurti		Solanaceae	Wild	Herb	Bleeding, toothache, skin disease (pilo)	Leaf	Powder
62	*Nyctanthes arbor-tritis* L.	Parijat		Oleaceae	Wild	Tree	Fever, high blood pressure	Leaf	Juice
63	*Ocimum tenuliflorum* L.	Tulsi		Laminaceae	Cultivated	Herb	Cough, common cold, sore throat	Leaf, shoot	Juice
64	*Oryza sativa* L.	Chamal		Poaceae	Cultivated	Herb	Blood pressure, eye pain, heart disease	Seed	Cooked
65	*Oxalis corniculata* L.	Chariamilo	Sukroti	Oxalidaceae	Wild	Herb	Wound, cuts, eye redness	Leaf	Juice

66	*Phyllanthus emblica* L.	Amala	Angwara	Phyllanthaceae	Wild	Tree	Blood purifier, gastric trouble, urinary disorder, hair dandruff, diarrhea, jaundice	Fruit, bark	Juice, powder
67	*Pinus roxburghii* Sarg.	Salla		Pinaceae	Wild	Tree	Snake bite	Resin	Paste
68	*Prunus persica* (L.) Batsch	Aaru	Khamrek	Rosaceae	Cultivated	Tree	Inflammation, anemia	Fruit, leave	Paste, juice
69	*Psidium guajava* L.	Ambak	Lupse	Myrtaceae	Cultivated	Tree	Dysentery, constipation, headache	Fruit, leaf	Paste
70	*Punica granatum* L.	Daarim	Lalimse	Lythraceae	Cultivated	Tree	Headache, dysentery	Leaf	Paste
71	*Raphanus raphanistrum* subsp. *sativus* (L.) Domin	Mula	Labhak	Brassicaceae	Cultivated	Herb	Hiccups, eye disorder, weight loss	Tuber	Raw
72	*Rhododendron arboretum* Sm.	Laligurans	Thokpetiksewa	Eriaceae	Wild	Tree	Menstrual disorder, dysentery	Flower, leaf	Cough, cold, fever, indigestion, headache
73	*Rosa indica* L.	Gulab	Lojiphung	Rosaceae	Cultivated	Shrub	Skin problem, nourish skin	Flower	Paste, juice
74	*Rubia manjith* Roxb.	Majitho	Pangdure	Rubiaceae	Wild	Climber	Skin disease, diarrhea, scorpion bite, fever	Stem	Decoction, powder
75	*Rubus ellipticus* Sm.	Ainselu	Tingrek	Rosaceae	Cultivated	Shrub	Fever, gastric trouble	Fruit	Juice
76	*Saccharum officinarum* L.	Ukhu	Solang	Poaceae	Cultivated	Shrub	Jaundice, stomachache	Stem	Juice
77	*Schima wallichii* (DC.) Korth.	Chilaune	Yangsingba	Theaceae	Wild	Tree	Wound, intestinal worm	Leave	Paste
78	*Solanum tuberosum* L.	Aalu		Solanaceae	Cultivated	Herb	Dark circle, burn	Tuber	Paste, juice
79	*Tagetes erecta* L.	Sayapatri		Asteraceae	Cultivated	Herb	Allergies, cough, sore throat	Leave, flower	Paste, decoction
80	*Tamarindus indica* L.	Titri		Fabaceae	Wild	Tree	Diarrhea, dysentery	Seed, fruit	Powder
81	*Terminalia chebula* Retz.	Harro	Hangam	Combretaceae	Wild	Tree	Common cold, sore throat, gum disease, mouth inflammation	Fruit	Powder, crushed
82	*Urtica dioica* L.	Sisnu	Sikwa/ Chokkhe	Urticaceae	Wild	Herb	Reduce blood pressure	Leaf	Juice
83	*Zanthoxylum armatum* DC.	Timmur	Meadhing	Rutaceae	Wild	Tree	Toothache, cut, wound, stomach disorder, diarrhea, constipation	Fruit, seed	Paste, powder
84	*Zea mays* L.	Makkai	Makki	Poaceae	Cultivated	Herb	Blood sugar level	Seed	Powder
85	*Zingiber officinale* Roscoe	Adhuwa	Haambek	Zingiberaceae	Cultivated	Herb	Common cold, fever.	Rhizome	Powder, juice

3.2. Top 14 largest families of ethnomedicinal plants

The study explored about 85 ethnomedicinal plant species belonging to 45 families and 77 genera. Among them, 38 plants were wild and 47 were cultivated. The maximum number of seven plant species (8.2%) used medicinally belongs to the family Fabaceae; six plant species (7.05%) were noted from Asteraceae and Poaceae; and five plant species (5.88%) from the family Moraceae. Four plant species (4.70%) were noted from Apiaceae and Solanaceae. Similarly, Zingiberaceae, Brassicaceae, Rutaceae, Lamiaceae, and Cucurbitaceae each comprise three plant species (3.52%). Two plant species (2.35%) were noted from Amaryllidaceae and Lauraceae. The rest of the families each represent one plant species (Table 2).

Table 2. Top 14 largest families of ethnomedicinal plants

S.N.	14 largest families	No. of sps.	Plants (%)
1	Febaceae	7	8.2
2	Asteraceae	6	7.05
3	Poaceae	6	7.05
4	Moraceae	5	5.88
5	Solanaceae	4	4.70
6	Apiaceae	4	4.70
7	Zingiberaceae	3	3.52
8	Rutaceae	3	3.52
9	Lamiaceae	3	3.52
10	Cucurbitaceae	3	3.52
11	Rosaceae	3	3.52
12	Brassiaceae	3	3.52
13	Amaryllidaceae	2	2.35
14	Lauraceae.	2	2.35

3.3. Ethnomedicinal plants used for treatment of diseases

The collected plant species are known to have curative properties against diseases like diarrhoea, dysentery, cuts, wounds, skin disease, fever, cough, dyspepsia, jaundice, gastric trouble, toothache, and cholesterol disease. Most of the plant species are useful for several health complaints. By observation, a large number of plants were found to be used by people in the Limbu community of Chhathar in the treatment of more than 50 human diseases. Maximum plants were used for diarrhea (10%) followed by cut (7.22%), cough (4.44%), dysentery (3.88%), constipation (3.33%), and so on (Table 3).

Table 3. Ethnomedicinal plants used for treatment of diseases

S.N.	Diseases	Plant %	S.N	Diseases	Plant (%)
1.	Diarrhoea	10	29.	Hair dandruff	1.11
2.	Cut	7.22	30.	Eye disease	1.11
3.	Cough	4.44	31.	Burning sensation of body	1.11
4.	Dysentery	3.88	32.	Piles	1.11
5.	Headache	3.33	33.	Toothache	1.11
6.	Constipation	3.33	34.	Ear pain	1.11
7.	Wound	3.33	35.	Cholera	0.5
8.	Sore throat	2.77	36.	Foul/bad breath	0.5
9.	Skin disease	2.77	37.	Dyspepsia	0.5
10.	Fever	2.77	38.	Scorpion sting	0.5
11.	Stomachache	2.77	39.	Brain capacity	0.5
12.	Boil/Burn	2.77	40.	Indigestion	0.5
13.	Common cold	2.77	41.	Kill lice	0.5
14.	Blood pressure	2.22	42.	Nose bleeding	0.5
15.	Blood sugar level	2.22	43.	Appetite	0.5
16.	Jaundice	2.22	44.	Antibacterial	0.5
17.	Urinary disorder	2.22	45.	Menstural disorder	0.5
18.	Inflammation	1.66	46.	Asthma	0.5
19.	Gastric	1.66	47.	Hiccup	0.5
20.	Heel crack	1.66	48.	Gum disease	0.5
21.	Back bone pain	1.66	49.	Cattle lactating	0.5
22.	Itching	1.66	50.	Nausea	0.5
23.	Whitening teeth	1.66	51.	Night blindness	0.5
24.	Cholesterol	1.66	52.	Anemia	0.5
25.	Nourishment of skin	1.66	53.	Snake bite	0.5
26.	Vomiting	1.11	54.	Rheumatism	0.5
27.	Scabies	1.11	55.	Acidity	0.5
28.	Rough skin	1.11	56.	Cattle kill insect	0.5

Out of the listed plant species, a large number were found to be used in the treatment of cuts and wounds, skin disease, diarrhea, fever, dysentery, constipation, stomach disorders, blood pressure, and other diseases. Out of 85 recorded plants, trees and herbs both had the highest (41%), followed by shrubs (14%), and climbers (4%) (Figure 1).

According to mode of preparation, mostly juice form is used (30.83%), followed by paste (23.33%), powder (15%), decoction (7.5%), raw (6.66%), latex (5%), cooked (5%), oil (4.16%), ghee (0.84%), boiled (0.84%), and crushed (0.84%) (Figure 2).

Among the plant parts, the leaf (32.8%) is used for medicine, followed by fruit (21.9%), seed (15.4%), bark (8.19%), flower (4.5%), whole plant (3.63%), tuber (3.63%), stem (2.72%), root (2.72%), rhizome (1.81%), bulb (0.9%), wood (0.9%), and resin (0.9%) (Figure 3).

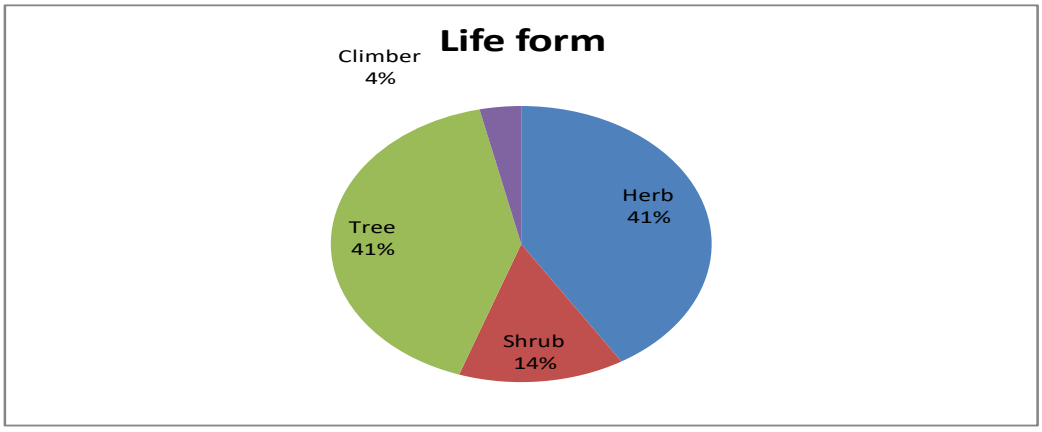

Figure 1. Pie chart showing life form of plants used by people of study area

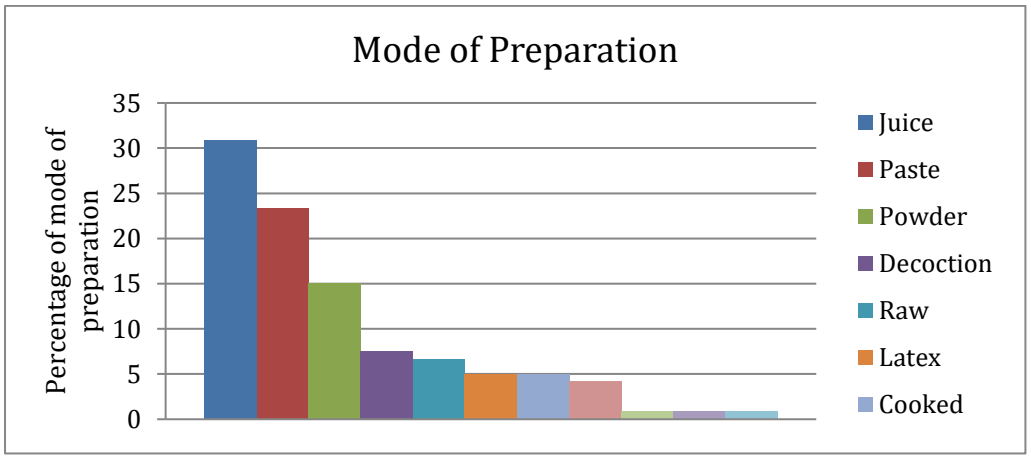

Figure 2. Mode of preparation of medicinal plants

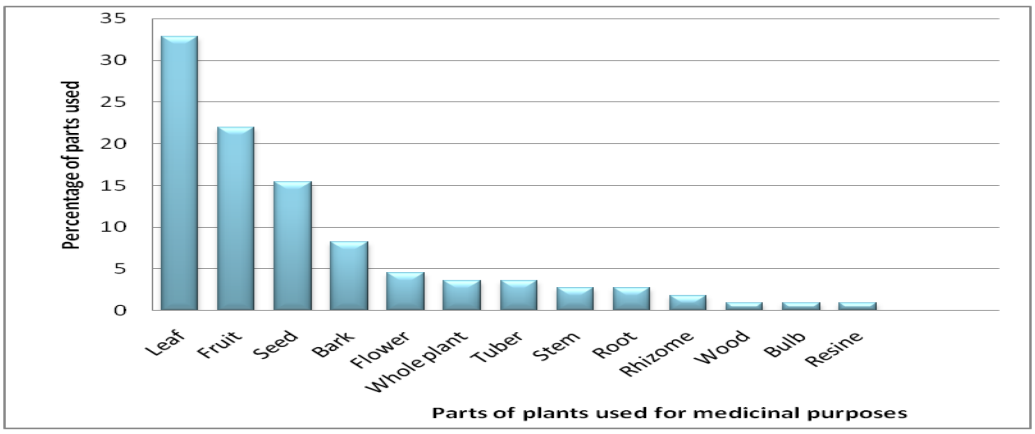

Figure 3. Parts used for medicinal purpose

4. Conclusions

This study aims to identify species with potential for herbal medicine, contributing to the preservation of traditional ethnomedical knowledge. The Limbu community has a strong knowledge of traditional medicine for specific diseases, based on their beliefs that local preparations have no side effects, boost immunity, and improve health. This knowledge is gaining worldwide recognition for its role in biodiversity conservation and the discovery of new medicines. However, deforestation has led to the loss of many sacred plants, and the young generation lacks knowledge of traditional herbal remedies. To preserve this knowledge, it is crucial to document the traditional uses of indigenous plants, develop strategies for preserving genetic resources, and conduct awareness programs.

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