Original Research Article

ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS IN KEPILASGADHI RURAL MUNICIPALITY OF KHOTANG DISTRICT, NEPAL

ABSTRACT:

Background: Ethnobotany is a field that study traditional use of plants by local communities. In Nepal, approximately 80% of the population, particularly in rural areas, relies on traditional medicine due to their effectiveness and cultural significance.

Objectives: This study aims to investigate the ethnomedicinal knowledge in Kepilasgadhi Rural Municipality, Khotang, Nepal, documenting medicinal plants used by local communities, identify diseases treated, plant parts used and application method, evaluate the Use Value (UV), Fidelity Level (FL), Informant Consensus Factor (ICF) and Relative Frequency of Citation (RFC) as well as threats, and conservation practices to these medicinal plants.

Methods: Primary data were gathered through reconnaissance surveys, key informant interviews, structured questionnaires, focus group discussions, and field observations. Secondary data included previous research, journals, books, and reports.

Results: A total of 102 medicinal plants across 93 genera and 57 families were documented. Herbs were the most common life form (52.94%), with roots being the most used part (21.31%). Oral administration was predominant (72.54%), with inhalation being least common. Gastrointestinal disorders were most treated (54 plants), followed by skin issues. A total of 10 species showed highest FL of 100% for specific ailments. ICF values ranged from 0.11 to 0.75, with urologic disorders showing the highest consensus. Paris polyphylla had the highest RFC (0.98), while Chilocostusspeciosus had the lowest (0.02). The findings highlight significant UV for plants like *Curcuma domestica L* (1.83), indicating their high importance in treating ailments and frequent use as a traditional medicine. Despite a rich ethnomedicinal heritage unsustainable harvesting, forest fires, deforestation, illegal collection have threatened these resources.

Conservation efforts include cultivating high-demand species, reforestation, and selective harvesting.

Conclusion: Although Kepilasgadhi is rich in medicinal plants and traditional knowledge, declining youth interest threatens their preservation. Urgent initiatives are needed to educate younger generations about these practices.

Keywords: *Medicinal plants. Ethnobotany, Traditional medicine, Informant consensus factor, Use value.*

1. INTRODUCTION:

John W. Harshberger first introduced the term "ethnobotany" in 1896 to refer to the study of plants used by primitive and indigenous people. It explores the relationship between humans and plants, documenting traditional knowledge on how different ethnic groups or communities utilize local plant resources. Since the dawn of human civilization, people have relied on plants for various needs, including food, fodder, medicine, and fiber. Over time, through experience and experimentation, they discovered numerous properties and uses of plants, particularly their medicinal benefits (Ahmad et al., 2014; Bhattarai & Khadka, 2016). Approximately 80% of the global population, especially in the rural areas of developing and under developed countries, relies on traditional medicine as their main source of healthcare (Islam, 2006; Bibi et al., 2014) due to their effectiveness, the lack of modern medical options, and deeply rooted cultural preferences (Svarstad and Dhillion, 2000; Plotkin and Famolare, 1992; Taylor et al., 1995; Tabuti et al., 2003). Recent years have seen a decline in traditional medicinal practices due to decreased interest among the younger generation, urban migration, mass deforestation, changing life style, and traditional healers shifting to other jobs (Kadir et al., 2013). It is estimated that between 35,000 and 70,000 plant species are utilized in traditional medicine around the world (Farnsworth &Soejarto, 1991) and more than 50% of modern pharmaceutical drugs have origins rooted in traditional ethnomedicine (Jan et al., 2015; Sher et al., 2003). According to study conducted by Fabricant and Farnsworth (2001) 122 compounds derived from 94 plant species are used in medicine worldwide.

Nepal is a diverse nation with multiple ethnic groups, languages, and religions, reflecting varieties of culture and tradition (Mallik et al., 2020). With over 142 caste/ethnic groups and 129 spoken languages (CBS, 2021), the ethnic communities possess extensive traditional knowledge about the use of plants and plant parts. This indigenous knowledge has been passed down through generations, highlighting a long-standing tradition of utilizing plant resources (Acharya & Acharya, 2009). Although the use of medicinal plants in Nepal dates back to ancient times, the earliest documented evidence of their medicinal use is found in the Rig-Veda, written between 4500 and 1600 BC, which is considered one of the oldest repositories of human knowledge on plant-based medicine (Rokaya et al., 2010; Singh et al., 2012). Out of approximately 29 million inhabitants in Nepal, over 80% living in rural areas, who have limited access to government

healthcare facilities and face high costs and unavailability of allopathic medicine, rely on traditional remedies as a primary or complementary treatment for illnesses (Sharma et al., 2004; Raut and Khanal, 2011). The traditional use of plants for medicinal purposes in Nepal is gaining popularity because these remedies are often free of side effects, readily accessible, affordable, and sometimes the only healthcare option available for those in need. (Acharya & Acharya, 2009). With varied topography and microclimate within the small geographical area, Nepal harbors a rich diversity of medicinal and aromatic plants (Baral and Kurmi, 2006; Ghimire, 2008; Shrestha et al., 2022).

In Nepal, ethnobotanical research began with Banerji's 1955 publication on medicinal and food plants. Until then, various studies have been conducted across various region of the country (Mahato & Chaudhary, 2003; Shrestha & Pradhan, 1986; Shrestha et al., 1998; Shrestha & Dillion, 2003; Mahato & Chaudhary, 2005; Malla & Chhetri, 2009; Uprety et al., 2010; Singh et al., 2018) but, Kepilasgadhi Rural Municipality in Khotang District remains largely unexplored despite its significance for medicinal plant diversity. No scientific research has yet been conducted in this area. Given these considerations, the present study aims to document ethnomedicinal knowledge among people of Kepilasgadhi Rural Municipality. The main objective of the study are:

1. To investigate the medicinal plants utilized by the people of Kepilasgadhi Rural Municipality.
2. To identify the diseases treated by these medicinal plants.
3.To assess the plant parts/products used and their methods of application.
4. To evaluate the Use Value (UV), Informant Consensus Factor (ICF), Fidelity Level (FL) and Relative Frequency of Citation (RFC) of medicinal plants in Kepilasgadhi Rural Municipality.

2. MATERIALS AND METHODS:

2.1. STUDY AREA:

The study was conducted in Kepilasgadhi Rural Municipality, located in the Khotang district of Nepal, positioned at 27.33° N latitude and 86.83° E longitude. Kepilasgadhi Rural Municipality cover an area of 191.28 km² and is consists of 664 households with the population of 15,288 individuals, comprising 7,323 men and 7,965 women (CBS, 2021). The region experiences a maximum temperature of 21.75°C, a minimum temperature of 10.59°C, and an average annual rainfall of 263.29 mm.

The Rai community is the predominant ethnic group in Kepilasgadhi Rural Municipality, with a population of 9,654, speaking the Sampang language. Other ethnic groups residing in the rural municipality include Chhetri, Tamang, Kami, Damai/Dholi, Sherpa, Gurung, Newar, Koiri/Kushwaha, Hill Brahmin, Nachhiring, Gharti/Bhujel, Sunuwar, Sanyasi/Dashnami, Limbu,

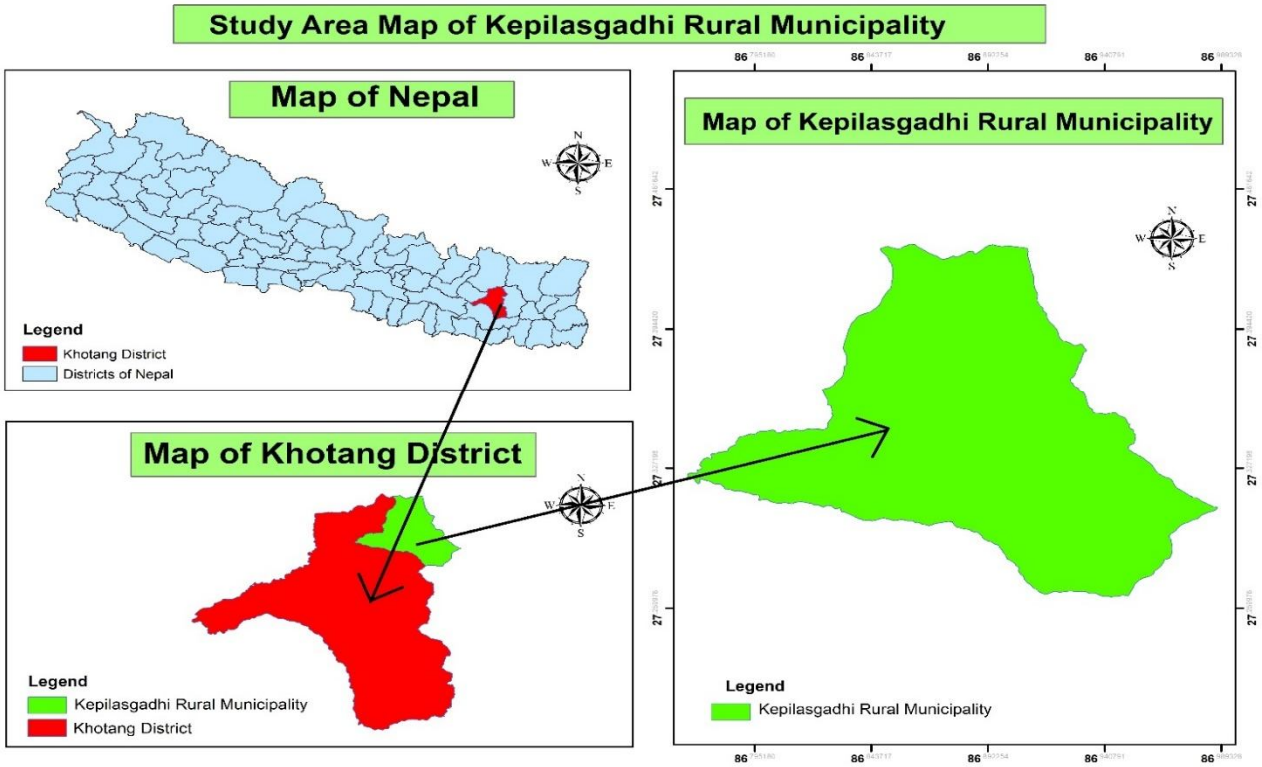

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Figure 1: Map of the study area

2.2. DATA COLLECTION

2.2.1. PRIMARY DATA COLLECTION

Primary data were systematically gathered using various methods, including a reconnaissance survey, key informant interviews, a structured questionnaire survey, Focus group discussions, and field observations.

2.2.1.1. Reconnaissance Survey

A reconnaissance survey was conducted in Kepilasgadhi Rural Municipality, through field visits and discussions with local leaders. This survey aimed to develop an initial understanding of the respondents' socio-economic status and healthcare needs. During this phase, permission to conduct the study was obtained by clearly communicating the study's objectives to the local authorities and community members.

2.2.1.2. Key Informant Interviews (KII)

A total of 20 key informants were purposively selected for in-depth interviews. This group included 10 traditional healers (Lama, Baidhyas, and local practitioners), 2 traders, 2 officials of Division forest office, Khotang, and 6 individuals representing the Community Forest User Groups (CFUG), model farmers, and teachers. The interviews focused on gathering detailed information about the local medicinal flora, including trees, shrubs, and herbs used in traditional medicine.

2.2.1.3. Questionnaire Survey

To ensure a representative and diverse sample, stratified random sampling approach was employed. The Household were first divided into distinct strata based on key characteristics, including ethnicity, caste, and economic class. From these strata, a total of 100 households were

randomly selected, representing 15% of the total households in the study area. One individual from each selected household was interviewed. This method ensured that the sample accurately reflected the population's diversity and provided robust data for analyzing the research objectives.

2.2.1.4. Field Observation

Field observations were conducted in various settings, including forests, fallow lands, and farmyards, with the assistance of local experts identify and authenticate the plant species. Specimens of accessible medicinal plants were collected, and photographed for future reference.

2.2.1.5. Focus Group Discussions (FGDs)

Three Focus group discussions were conducted, involving 9-12 participants each. Two discussions were held with the dominant Chhetri and Rai communities separately, and one with a mixed group comprising individuals from different ethnic backgrounds, traditional healers, and local experts. These discussions provided insights into the ethno-medicinal knowledge of bio-resources, including the effectiveness and trade of medicinal plants, the threats they face, and the conservation practices implemented.

2.2.2. SECONDARY DATA COLLECTION

Secondary data were sourced from previous research studies, academic journals, books, websites, and reports from relevant agencies, both published and unpublished. This comprehensive literature review provided a deeper understanding, interpretation, and analysis of the research context and findings.

2.3 DATA ANALYSIS

To systematically analyze the ethnomedicinal data collected, statistical software such as SPSS and Microsoft Excel were employed. The analysis focused on quantifying the significance of

various medicinal plant species and assessing the consensus among informants regarding their use. The following indices were calculated to evaluate the ethnobotanical knowledge: Use Value (UV), Fidelity Level (FL%), Informant Consensus Factor (ICF) and Relative Frequency of Citation (RFC).

2.3.1. Use Value (UV)

The Use Value (UV) index was calculated to determine the relative importance of each plant species based on the number of use reports provided by indigenous informants. This index reflects the significance of each species within the local medicinal practices. The UV was calculated using the formula (Tabuti et al., 2003).

$$UV = U/n$$

Where ‘U’ represents the total number of use of particular species reported by all respondents, and ‘n’ represents the total number of informants questioned for that particular plant species. The Use Value (UV) of a plant increases with the number of use provided by informants, indicating that the plant is of greater significance within the community. Conversely, a lower UV suggests less frequent use or recognition of the plant (Vitalini et al., 2013).

2.3.2. Fidelity Level (FL%)

The Fidelity Level (FL%) was employed to identify the most preferred plant species for treating specific ailments. Fidelity level quantifies the percentage of informants who endorse the use of a particular plant species for a specific health condition. The FL was calculated using the formula (Friedman et al., 1986).

$$FL\ (\%) = (Np / N) * 100$$

Where 'Np' represents the number of informants reporting the use of the plant for a specific illness, while 'N' denotes the total number of informants reporting the use of the plant for any health condition. A high Fidelity Level (FL) value indicates that the plant species is frequently

used by informants for treating a specific ailment category within the study area (Yaseen et al., 2015).

2.3.3. Informant Consensus Factor (ICF)

The Informant Consensus Factor (ICF) was calculated to assess the degree of agreement among informants regarding the use of plants for specific ailment categories. The ICF was calculated using the formula: (Trotter & Logan, 1986; Teklehaymanot, 2009)

ICF = *N*ur - *N*t / (*N*ur -1)

Where '*N*ur' indicates number of use citations in each category, and '*N*t' indicates the number of species used. The ICF value ranges from 0 to 1, with higher values indicating greater agreement among informants, suggesting a higher potential for the identified species to be effective in treating the ailment (Trotter & Logan, 1986; Heinrich et al., 1998). High ICF values suggest that certain species are widely recognized within the community for their medicinal properties, making them prime species for further cultural and pharmacological research (Mbuni et al., 2020).

2.3.4. Relative Frequency of Citation (RFC)

The Relative Frequency of Citation (RFC) indicates the local significance of each species that was determined using the formula (Vitalini et al., 2013).

RFC= FC/N

where 'FC' represents the number of informants who reported the use of the species, and 'N' is the total number of informants who participated in the survey.

3. RESULTS:

3.1 Availability and diversity of used medicinal plants.

In the Kepilasgadhi Rural Municipality, a total of 102 medicinal plant species, representing 93 genera and 57 families, have been documented. The species composition includes 54 herbaceous

plants, 22 tree species, 16 climbers, and 10 shrubs. Among these, the family Rosaceae is the most prevalent, with 7 species, followed by Poaceae with 6 species. Several families, including Ranunculaceae, Cucurbitaceae, Ericaceae, and Asteraceae, each contribute 5 species to the medicinal flora. Additionally, Lauraceae, Moraceae, and Zingiberaceae are each represented by 3 species. Families such as Saxifragaceae, Polygonaceae, Rutaceae, Orchidaceae, Liliaceae, Vitaceae, Urticaceae, Rubiaceae, Lamiaceae, Apiaceae, Piperaceae, Apocynaceae, and Fabaceae are each represented by 2 species. The remaining 34 families are represented by a single species each, highlighting the diverse botanical resources utilized within this ethnic community.

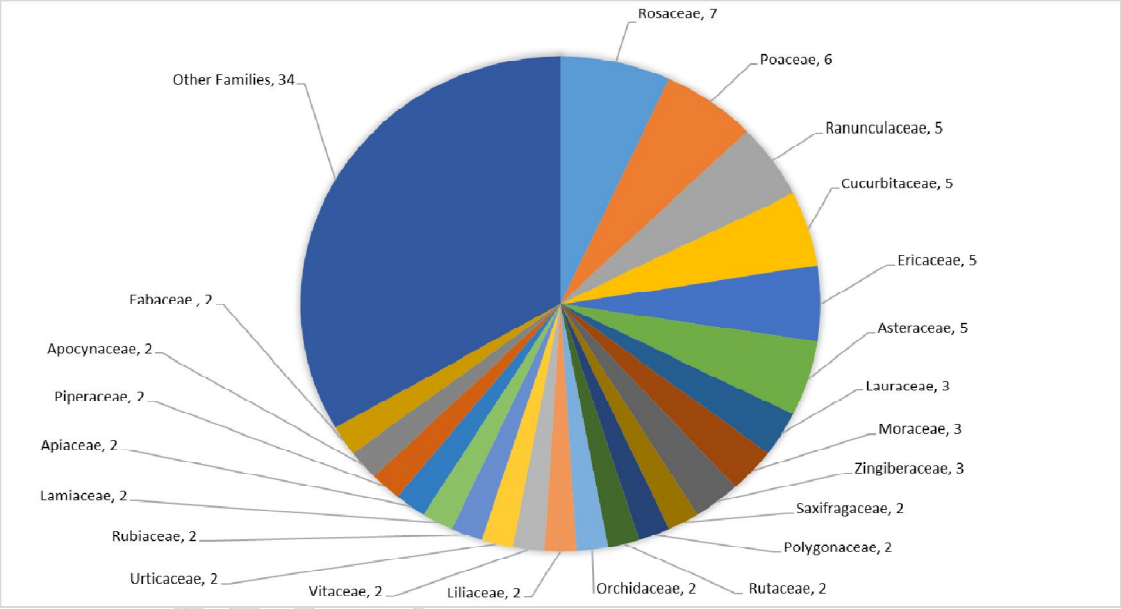


Figure 2: Plant families of medicinal plants

3.2 Ethnomedicinal uses of plants in Kepilasgadhi Rural Municipality and their Use Value

Table given below shows the list of ethnomedicinal plants used by the people Kepilasgadhi Rural Municipality and their their Use Value.

Table 1: Ethnomedicinal uses of plants and their Use Value (UV)

SN	Local name	Scientific name	Family	Parts used	Management	Life form	Distribution	Diseased treated	Form of use	Mode of application	Use value (UV)
1	Pakhanbed	*Bergenia ciiliata (Haw.) Sternb.*	Saxifragaceae	Root	W	H	A	Body pain/bone fracture/ pregnancy problems/ diarrhea/dysentery	Powder/ decoction	O	1.33
2	Padamchal	*Rheum acuminatum Hook. f. & Thomson ex Hook*	*Polygonaceae*	Root	W	H	A	Body pain/gastritis/ Indigestion/bone facture	Decoction	O	1.75
3	Satuwa	*Paris polyphylla*Sm.	*Melanthiaceae*	Whole plants	W/C	H	R	Gastritis/vomit/burn/fever /headache/cut/stomach infection/sore throat/snakebite	Paste	T/O	1.23
4	Bethlauri	*Chilocostus specious* (J. Konig)C. Specht	Costaceae	Stem/ root	W	H	R	Jaundice/burning urination	Juice	O	0.75
5	Sil timur	*Lindera neesiana*	Lauraceae	Fruit	W	T	A	Common cold/cough, snake bite/indigestion/ sore throat	Decoction	O	1.07
6	Boke timur	*Zanthoxylum acanthopodium DC.*	Rutaceae	Fruit	W	T	A	Gastritis/fever/toothache	Decoction/ 1-2 pieces eaten raw	O	0.92
7	Sarpagandha	*Rauvolfia serpentina* (L.) Benth. ex Kurz (RKM78-S17)	Apocynaceae	Root/ leaf	W /C	S	R	Body pain/uric acid/ herpes zoster	Powder	O	1.09
8	Jatamansi	*Nardostachys grandiflora*	Caprifoliaceae	Root	W	H	R	Diarrhea/dysentery/ anti-poison	Juice	O	0.81

9	Bikhuma	*Aconitum bisma*	Ranunculaeae	Root/ leaf	W	H	R	Headache/fever,/common cold/snakebite/low pressure	Chewing/ juice	O	1.05
10	Saktigumba	*Pleione praecox L.*	Orchidaceae	Pseudo bulb	W	H	R	Body pain/ligament sprain/bone fracture/cut wound	Powder mixed with milk/paste	O/ T	0.8
11	Golkakri	*Coccinia grandis* (L.) Voigt	Cucurbitaceae	Root/ fruit	W	CL	R	Cut/wounds/body pain/ dysentery	Paste/ chewing	O/ T	1.21
12	Indreni	*Trichosanthestricuspidata*Lour	Cucurbitaceae	Seed	W	CL	R	Cut/wounds	oil	T	1.33
13	Khiraula	*Polygonatumcirrhifolium*L.	Liliaceae	Root	W	H	A	Cut/wound/diarrhea/ mensuration problem	Powder/ Paste/juice	O	1.08
14	Ban karela	*Herpetospermumpedunculosum (Ser.) C.B. Clarke*	Cucurbitaceae	Seed	W	H	R	Cut/wounds	oil	T	0.86
15	Ban lasun	*Allium carolinianum L.*	Amaryllidaeae	Bulb	W	H	R	Stone/stomach disorder/headache	Powder/ paste	O	1.46
16	Ban mula	*Potentilla fulgens Wall. ex Hook*	Rosaceae	Root/ bulb	W	H	R	Stone/body pain/sore throat/stomach pain/high pressure	Decoction/ dried piece is chewed	O	1.29
17	Bojho	*Acorus calamus* L.	Araceae	Rhizome	W	H	R	Common cold/allergy/sore throat	Dried/fresh raw pieces	O	1.43
18	Nagbeli	*Lycopodium clavatum L.*	Lycopodeceae	Whole plants	W	CL	A	Allergy/fever/headache	Paste/juice	T/ O	1.08
19	Nangre/nasjhar	*Hemiphragmaheterophyllum L.*	Scrophulariaceae	Whole plants	W	H	A	Cut/wounds	Paste	O	1
20	Pinasejhar/ tinpate	*Clematis buchananiana DC.*	Ranunculaceae	Whole plants	W	CL	A	Sinusitis/allergy/nasal bleeding/vitiligo	Juice/paste	O/T	0.64

21	Haadjora	*Cissus quadrangularis L.*	Vitaceae	Whole plants	W	H	R	Bone fracture/bone disease/cuts/wounds	Decoction/ paste	T	0.9
22	Laligurans	*Rhododendron arboretum Sm.*	Ericaceae	Flower/ leaf	W	T	A	Allergy/throat obstruction/gastritis/fertility increase in women	Tea/flowers mixed with honey	O	0.77
23	Chimal	*Rhododendron campanulatum L.*	Ericaceae	Flower	W	T	A	Body ache/throat pain	Chewing	O	0.77
24	Loth salla/ dhyangresalla	*Taxus wallichianaZucc.*	Taxaceae	Whole	W/C	T	A	Diabetes/cancer/urine infection/womb problems/cold/ cough/fever	Paste/juice/ powder	O	1.13
25	Paniamala	*Nephrolepis auriculata (L.) Trimen*	Nephrolepiadaceae	Root/ bulb	W	H	A	Diabetes/stomach problems and infestation worms	Taken raw	O	1.73
26	Bot amala	*Phyllanthus emblica L.*	Euphorbiaceae	Bark/ seed	W/C	T	R	Sore throat/tonsils/blood purify	Powder/ taken raw	O	1.46
27	Sisnu	*Urtica hyperborean L.*	Urticaceae	Leaf/stem	W	H	A	Blood pressure/chest problems/cuts/wounds/ eye disorder	Powder/ paste	O	1.4
28	Allo/bhagresisnu	*Girardiniadiversifolia*	Urticaceae	Root	W	H	A	Swollen body parts	Paste	T	0.02
29	Charpatejhar	*Oldenlandialineata(Roxb.) Kuntze*	Rubiaceae	Leaf	W	H	A	Cut/wounds	Paste	T	1.09
30	Dhade bikh	*Aconitum ferox.*	Ranunculaceae	Root	W	H	A	Cancer	Paste/ powder	T	0.02
31	Lajjawotijhar	*Mimosa pudica L.*	Leguminaceae	Whole plants	W	H	R	Jaundice	Paste	O	0.02
32	Ukhu	*Saccharum officinarum L.*	Poaceae	Stem	C	H	A	Jaundice	Juice	O	0.04

33	Titepati	*Artemisia indica* Willd.	Asteraceae	Leaf	W	S	A	Indigestion/fever/cut/ scabies/body pain	Juice	O	1.5
34	Dhasingre/ maxino	*Gaultheria fragrantissima Wall.*	Ericaceae	leaves/ seed	W	S	A	Bone fracture/body pain/ cold/cough	Oil	T	1.07
35	Kurillo	*Asparagus racemosus Willd*	Asparagaceae	Root/ shoot	W	H	A	Immunity power/skin disease/diarrhea/lactation in women	Powder/ decoction	O	1.25
36	Bantarul	*Dioscorea pentaphylla L.*	Dioscoreaceae	Bulb/ tuber	W	CL	A	Backbone pain	Boiled	O	0.04
37	Sugandhawal	*Valeriana jatamansi Jones.*	Valerianaceae	Root	W/C	H	A	Nerves problems	Powder	O	1
38	Dhupisalla	*Crytomerica japonica*	Cupressaceae	leaves	W	T	R	Unconsciousness/ vomiting	Paste	O	1.5
39	Sikre/kagate lokta	*Daphne bholua*	Thymileoceae	leaves	W/C	S	A	Anti-poison	Paste	T	0.36
40	Pudina	*Mentha spicata L.*	Lamiaceae	Whole plant	W	H	A	Indigestion, diarrhea/stomach pain	Paste	O	0.10
41	Jarelo	*Cissus adnata*	Vitaceae	Whole plants	W	H	A	Eye infection(cataracts)	Paste	T	0.02
42	JharMauro	*Oxalis corniculata*	Oxalidaceae	Whole plants	W	H	A	Snakebite/eye infection	Paste	T	0.16
43	Dubo	*Cynodondactylon (L.) Pers*	Poaceae	Whole plant	W	H	A	Cut/wounds/blood pressure/typhoid/fever	Juice/paste	O	1.5
44	Khaniyu	*Ficus semicordata Buch-Ham. exSm.*	Moraceae	Latex	W	T	R	Boils/ulcers	Liquid	T	0.16

45	Chiraito	*Swertia Chirayita (Roxb. ex Fleming) Karsten*	Gentianaceae	Whole plant	W/C	H	A	Headache/fever/blood pressure/common cold	Juice/tea	O	1.5
46	Pahele	*Cuscutareflexa Roxb.*	Convolvulaceae	Whole plants	W	CL	R	Bone fracture/jaundice	Juice/oil	O / T	1.43
47	Sikari lahara	*Periploca calophylla*	Apocynaceae	Whole plants	W	CL	R	Bone fracture/ligament sprain/body aches	Paste	O	0.76
48	Budo okhati/ thulookhati	*Astilbe rivularis Buch-Ham. exD. Don,*	Saxifragaceae	Root/ stem	W /C	H	A	Tonsils/body aches/ pneumonia/pregnancy problems/fracture	Decoction/ powder	O	1.09
49	Sungurekad a	*Cirsium verutum(D.Don) Spreng.*	Asteraceae	Root/ latex	W	H	A	Eye pain/Measles/ appendix	Raw/juice	O	1.04
50	Hade kaphal	*Myrica esculenta Buch-Ham. ex D.Don.*	Myricaceae	Bark/ fruit	W	T	A	Dysentery/fracture	Decoction/ paste	O/ T	0.95
51	Bhainsikada	*Clematis connate DC.*	Ranunculaceae	Bark	W	CL	A	Sprain/fracture	Powder	O	0.76
52	Mel	*Pyrus pashia Buch-Ham.ex.Don.*	Rosaceae	Fruit	C	T	A	Diarrhea/dysentery	Decoction/ juice	O	0.92
53	Nase jhar	*Plantago lagopus L.*	Plantaginaceae	Leaf	W	H	A	Fever/cough/common cold/stomach problem	Juice	O	1.02
54	Dabukejhar	*Centella asiatica*	Apiaceae	Leaf	W	H	A	Jaundice/pressure	Chewing	O	0.24
55	Ainselu	*Rubus ellipticus*Sm.	Rosaceae	Root/bud	W	S	A	Tonsils/fever, diarrhea/sore throat/cough	Powder/ juice	O	0.47
56	Bhuinainsel u	*Fragaria daltoniana J. Gay*	Rosaceae	Stem	W	H	A	Cut/wounds	Paste	T	0.16
57	Angeri	*Lyonia ovalifolia L.*	Ericaceae	Leaf	W	T	A	Allergy	paste	O	0.02

58	Jhyau	*Permelia nepalensis*	Parmeliaceae	Whole plants	W	H	A	Skin burn/piles	paste	T	0.82
59	Chabo	*Piper mullesua Buch-Ham.exD.Don*	Piperaceae	Leaf	W	CL	A	Painkiller/tonsils	chewing	O	0.84
60	Hande okhar	*Juglans Regia L.*	Juglandaceae	Bark/root	W/C	T	A	Toothache/gum problems	Piece of root	O	0.65
61	Pipla	*Piper longum* L.	Piperaceae	Fruit	W	Cl	A	Immunity power/fever/ sore throat	powder	O	1.5
62	Aduwa	*Zingiber officinale Rosc.*	Zingiberaeae	Rhizome	C	H	A	Common cold/fever Sore throat/tonsils/ asthma	Juice/tea	O	0.36
63	Besar	*Curcuma domestica L.*	Zingiberaceae	Rhizome	C	H	A	Body pain/fever sore throat/common cold/jaundice	Boiled powder	O	1.83
64	Lasun	*Allium sativum L.*	Alliaceae	Leaf/bulb	C	H	A	Cancer/heart disease/ gastritis	Decoction/ fried	O	0.65
65	Balu	*Pieris formosa(Wall.) D.Don*	Ericaceae	Leaf/ root	W	T	A	Allergy/headache	Paste	T	0.64
66	Tejpaat	*Cinnamomum tamala L.*	Lauraceae	Leaf/bark	W/C	T	A	Corona/stomach ache	Decoction/ boiling	O	1.09
67	Thado unneu	*Dryopteris cochleata (Don) C.Chr.*	Dryopteridaceae	Rhizome	W	H	A	Mental disorder	Extract water	I	0.06
68	Dautheniuro	*Diplazium maximum(D.Don)C.Chr.*	Athyriaceae	Bud	W	H	A	Osteopenia,joint pain	Chewing	O	0.1
69	Kukur daine	*Smilax ovalifolia*L.	Smilacaceae	Root/fruit	W	CL	A	Joint pain, dysentery, gastritis	Juice/paste	O	0.33
70	Naspati	*Pyrus communis*	Rosaceae	Fruits	C	T	A	Diarrhea/indigestion/nausea/vomiting	Juice	O	1.5

71	Kagati	*Citrus aurantiifolia (Cristm.) Swingle**	Rutaceae	Fruit	C	S	A	Headache/fever/blood pressure/common cold	Juice	O	0.06
72	Sugandhakokila	*Cinnamomum glaucescens L.*	Lauraceae	Seed	C	S	R	Anti-inflammatory/ toothache	Oil	T	0.01
73	Bamboo	*Bambusa vulgaris*	Poaceae	Shoots	W/C	S	A	Good digestion/boosting immunity	Cooking	O	0.95
74	sunakhari	*Dendrobium amoenum*	Orchidaceae	Flower	W	H	A	Immunity power	Juice	O	0.95
75	Jai phul	*Jasminum* sp.	Oleaceae	Bud/ leaf	C	CL	R	Sore throat/stomach problem	Raw leaves/bud chewing	O	0.92
76	Tite karela	*Momordica charantia(MC)*	Cucurbitaceae	Fruit	C	CL	A	Blood pressure/diabetes	Cooking	O	0.92
77	Mewa	*Carica papaya L.*	Caricaceae	Latex/root /fruit	C	H	A	Indigestion/kidney stone	Juice	O	0.1
78	Majito	*Rubia manjithRoxb. ex Fleming*	Rubiaceae	Root	W	CL	A	Fever/chest pain	Powder/ paste	O	0.16
79	Halhale	*Rumex nepalensis Spreng.*	Polygonaceae	Root	W/C	H	A	Cut/wounds/ring worm	paste	O	0.84
80	Dudhe lahara	*Ficus hederacea* Roxb.	Moraceae	Whole plants	W	CL	R	Body pain/bone fracture/diabetes	Juice	O	0.86
81	Banmara	*Ageratinaadenophora (Spreng.) King & H. Rob*	Asteraceae	Leaf	W	H	A	Cut/wounds	Paste/ powder	T	1.45
82	Haadchur	*Viscum album* L.	Loranthaceae	Whole plants	W	T	R	Bone fracture/body pain/ irregular mensuration	Juice	O	0.33

83	Makai	Zea mays L.* (RKM61-G1)	Poaceae	fruits	C	H	A	diabetes	decoction	O	0.02
84	Bhutkesh	*Selinumwallichianum (DC.) Raizada & Saxena*	Apiaceae	Root	W	H	R	Stomach ache/common cold/blood pressure	powder	O	0.65
85	Bishjara	*Aconitum ferox L.*	Ranunculaceae	Root	W	H	A	Snakebite/diarrhea/ dysentery headache/cough/cold	Powder/ paste	O	1.09
86	Bukki phul	*Anaphalis contorta*	Asteraceae	Whole	W	H	R	Cold/cough/gastritis	decoction	O	0.36
87	Ghiukumari	*Aloe vera (L.) Burm f.*	Liliaceae	Leaf juice	C	H	R	Burn/uric acid/piles/constipation/ gastritis	juice	O /T	1.46
88	Jaringo	*Phytolacca americana Roxb.*	Phytolaccaeae	Root/stem /leaf	W	H	R	Stomach problems	Cooking	O	1.13
89	Gogan	*SaurarianepalensisRoxb.*	Saurariceae	Bark	W	T	A	Fever	Juice	O	0.05
90	Gande jhar	*Ageratum conyzoides L.*	Asteraceae	Leaf	W	H	A	Cut/wound	Paste	O	0.04
91	Alainchi	*Amomum subulatum*Roxb.	Zingiberaceae	Fruit	C	H	A	Nausea/indigestion	Tea/powder	O	0.33
92	Tulsi	*Ocimumtenuiflorum L.*	Lamiaceae	Whole Plants	C	H	R	Vomiting/joint pain/urinary diseases/toothache	Juice/ powder	O	1.55
93	Ratoakhle	*Achyranthes aspera L.*	Amarantheceae	Root/ stem	W	H	A	Bleeding/dog bite/snake bite	Paste	T	0.77
94	Koiralo	*Bauhinia variegata (L.) Benth.*	Fabaceae	Bark/ flower	W	T	A	Dysentery/diabetes/ constipation/diarrhea/ indigestion	Juice	O	0.06
95	Kalo siris	*Albizia lebbek (L.) Benth.*	Fabaceae	Bark	W	T	A	snake bite/scorpion sting/ diarrhea	Juice	O	1 .5

96	Chutro	*Berberis aristata DC.*	Berberidaceae	Bark/leaf	W	S	A	skin disease/jaundice/ piles	paste/juice	O/T	1.4
97	Paiyu	*Prunus cerasoidesD.Don.*	Rosaceae	latex	W	T	A	Jaundice	Juice	O	0.06
98	Kodo	*Eleusine coracana (L.) Gaertn.*	Poaceae	seed	C	S	A	Diarrhea	fermentation	O	0.14
99	Siru	*Imperata cylindrica (L.) P.Beauv.*	Poaceae	root	W	H	A	Worms/fever/diarrhea	juice	O	0.04
100	Farsi	*Cucurbita moschanta Duchesne ex Poir.*	Cucurbitaceae	Leaf	C	CL	A	Wounds cut	Paste	T	0.33
101	Kimbu	*Morus alba L.*	Moraceae	Leaf/fruit	W/C	T	R	Blood clotting/diabetes	Juice	O	0.1
102	Aaru	*Prunus persica Siebold &Zucc. 1845*	Rosaceae	Fruit/ Barks	C	T	A	Wounds/stomach ache	Juice	O	0.22

W= Wild
C= Cultivated
H= Herbs
S= Shrubs

O= Oral
T= Topical
I= Inhalation

T= Tree
CL= Climbers

A= Abundant
R= Rare

3.3. Life Form of Medicinal Plants:

Medicinal plants in the study area predominantly consist of herbs, which account for 52.94% (54 species) of the total documented flora. Trees represent 21.56% (22 species) of the medicinal plants, while climbers and shrubs constitute 15.68% (16 species) and 9.80% (10 species) respectively.

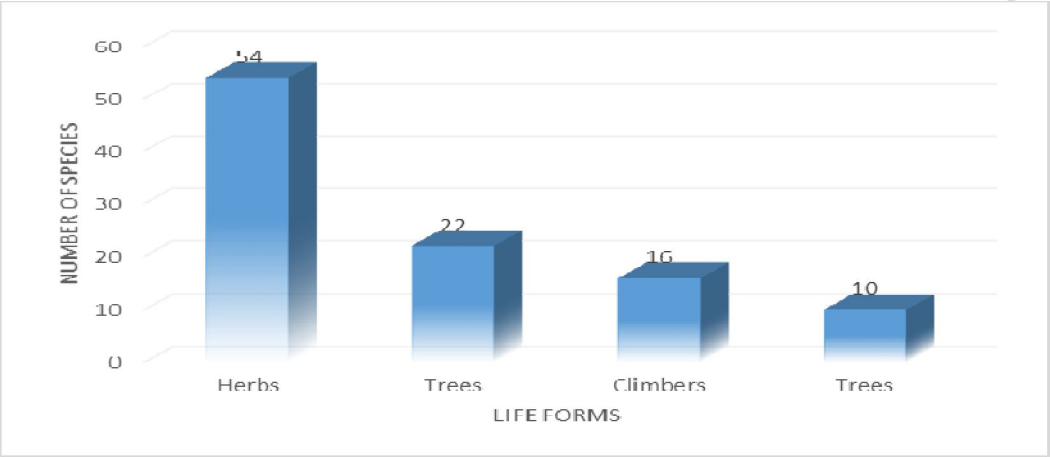
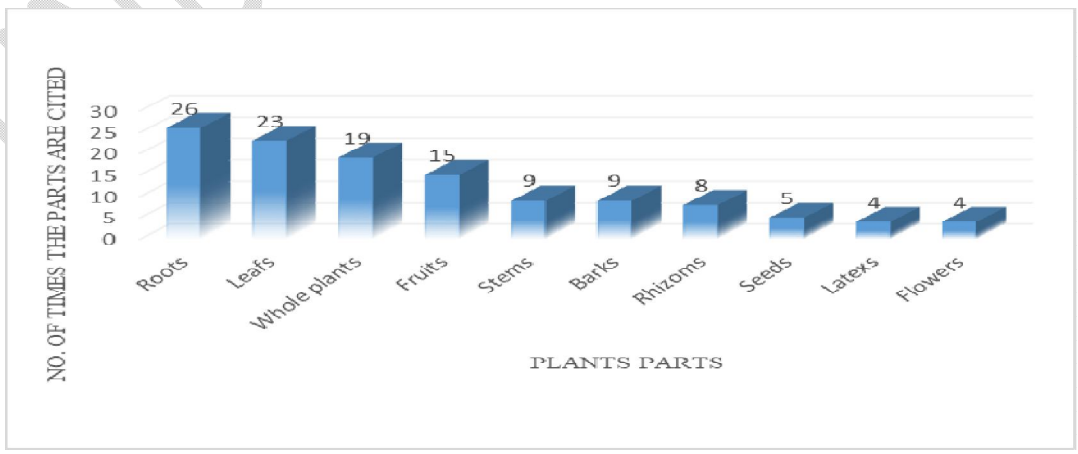


Figure 3: Life Form of Medicinal Plant

3.4. Parts Used:

Various parts of medicinal plants have been utilized to treat different ailments through a range of application methods. The root was the most frequently used part, accounting for 21.31% (26 species), followed by leaves at 18.86% (23 species). Whole plants were employed in 15.57% (19 species) of cases, while fruits were used in 12.30% (15 species). Stems and bark each contributed 7.4% (9 species), with rhizomes and seeds at 6.6% (8 species)and 4.1% (5 species) respectively.



Latex and flowers were the least utilized, at 3.3% (4 species) each.

Figure 4: Parts used in Medicinal Plants

3.5. Mode of Administration

The mode of administration of medicinal plants varied according to the species. Approximately 72.54% (74 species) are administered orally, either in raw form, as juice, or as a decoction. A smaller proportion, 7.84% (8 species), are used both orally and topically. Topical application alone accounts for 18.62% (19 species). Inhalation is the least common method, employed for only 0.98% (1 species). These varied methods highlight the versatility and depth of traditional medicinal application practices in the study area.

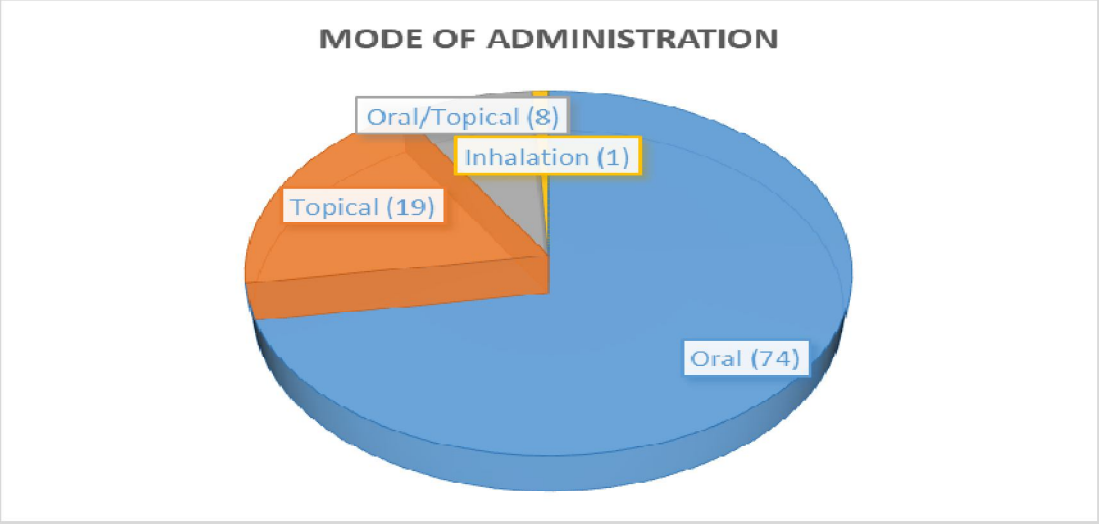


Figure 5: Mode of Administration

3.6 Number of Plants Treating a Disease:

The gastrointestinal disorders are the most treated category with 54 plants cited. Skin-related issues (cuts, wounds, burns) and headaches/fevers also have high citation counts which is 21 and 22 plants respectively. Other conditions like Common cold and Cough (15 plants) and respiratory issues (11 plants) have moderate representation, while categories like urologic disorders and general health with 2 plants each have minimal citations.

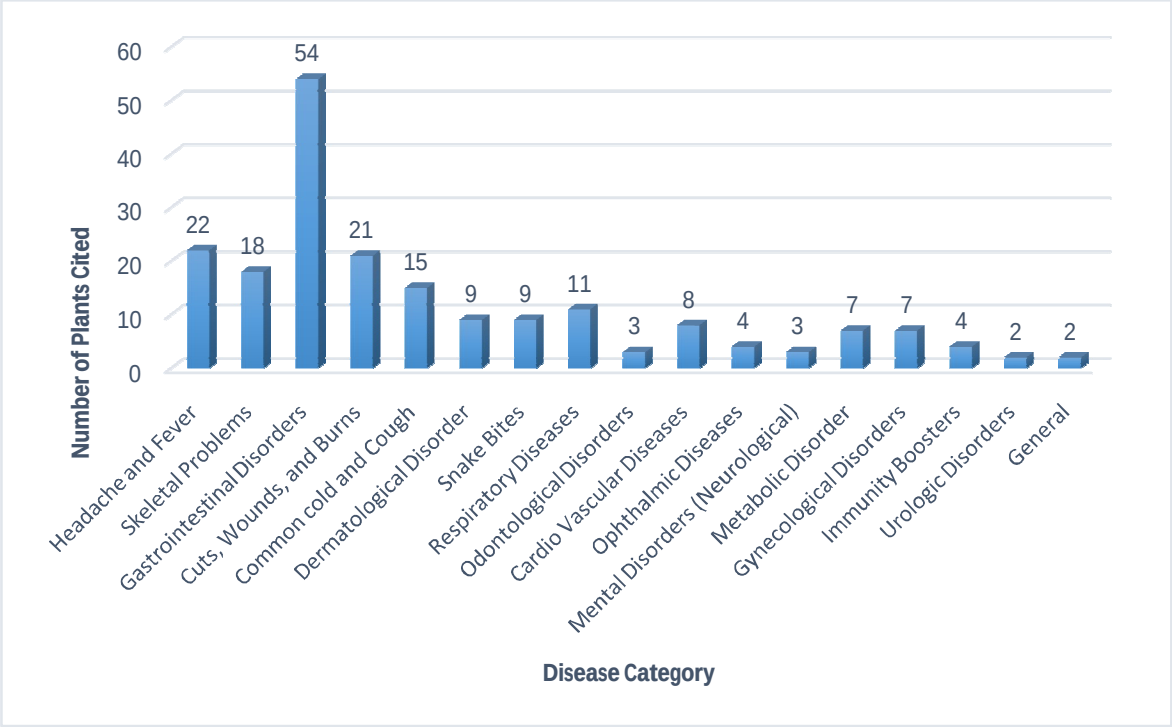


Figure 6: Number of Plants Treating a Disease

3.7. Fidelity Level Calculation

The study identifies several plant species with high Fidelity Levels (FL), indicating a strong preference by the local community for treating specific ailments. Notably, Aconitum bisma and Swertia chirayita achieve an FL of 100% for treating fever and typhoid, while Cissus quadrangularis also reaches 100% for bone fractures. In gastrointestinal disorders, Zanthoxylum

acanthopodium shows a perfect FL for gastric issues, and Ageratinaadenophora reaches 100% for treating cuts. In contrast, Cissus adnata has the lowest FL at 30.8% for treating eye cataracts, indicating less selection among informants regarding its use for this condition.

Table 2: Fidelity level (FL) of medicinal plants of the study area

Disease Category	**Diseases Treated**	**Total Species**	**Diseases for Fidelity Level Calculation**	**Species Fidelity Level Calculation**	**Np**	**N**	**Fidelity Level (FL) (%)**
Headache and Fever	Headache, Fever, Typhoid	20	Fever	*Paris polyphylla*	86	98	87.8
				Aconitum bisma	76	76	100
				Swertia chirayita	82	82	100
Skeletal Problems	Bone fracture, Ligament Sprain, Body pain	18	Bone fracture	*Bergenia ciliate*	56	68	82.4
				Cissus quadrangularis	42	42	100
			Ligament sprain	*Periploca calophylla*	24	46	52.2
				Pleione praecox	38	59	64.4
Gastrointestinal Disorders	Gastric, Constipation, Dysentery, Diarrhea, Jaundice	54	Gastric	*Paris polyphylla*	79	86	91.9
				Zanthoxylum acanthopodium	87	87	100
			Constipation	*Aloe vera*	28	53	52.8
				Bauhinia variegata	7	13	53.8
			Dysentery	*Pyrus pashia*	32	45	71.1
Skin Problems	Cuts, Wounds, and Burns	21	Cuts	*Ageratinaadenophora*	46	46	100
				Rumex nepalensis	4	9	44.4
			Burns	*Permelia nepalensis*	8	11	72.7
Common cold and Cough	Common cold, cough, and tonsillitis	15	Cough & cold	*Lindera neesiana*	19	19	100
				Zingiber officinale	64	64	100
Dermatological Disorders	Scabies, Skin Allergy, Vitiligo	9	Skin allergy	*Acorus calamus*	11	19	57.9
			Vitiligo	*Clematis buchananiana*	3	8	37.5
Snake Bite	Snake Bite	9	Snake bite	*Aconitum bisma*	67	67	100
				Lindera neesiana	36	42	85.7
Respiratory Diseases	Sore throat, Asthma	11	Asthma	*Zingiber officinale*	12	15	80

Odontological Disorders	Toothache, blood in gums	3	Toothache	*Cinnamomum glaucescens*	16	23	69.7
Cardio Vascular Diseases	Heart diseases, High/Low blood pressure	8	Blood pressure	*Momordica charantia*	18	27	66.6
				Swertia chirayita	88	92	95.7
Ophthalmic Diseases	Eye disease, eye cataracts, poor eyesight	4	Eye cataract	*Cissus adnata*	4	13	30.8
Mental Disorders (Neurological)	Epilepsy, nervous problem Unconsciousness	3	Nerves problem	*Valeriana jatamansi*	12	14	85.7
Metabolic Disorder	Diabetes	7	Diabetes	*Taxus wallichiana*	21	32	65.6
Gynecological Disorders	Pregnancy problems, mensuration problem	7	Pregnancy problems	*Rhododendron arboretum*	38	38	100
Immunity Boosters	Overall Immune system	4	Not specific	*Piper longum*	17	19	89.5
Urologic Disorders	Burning urination	2	Burning urination	*Chilocostus specious*	2	2	100
General	Kidney stone, uric acid	3	Uric acid	*Rauvolfia serpentina*	31	34	91.2

3.8 Informants Consensus Factor (ICF)

The Informant Consensus Factor (ICF) is found to range between 0.11 to 0.75. Urologic disorders have the highest ICF value of 0.75, based on 5 use reports for 2 species, followed by Gastrointestinal disorders with an ICF of 0.51, derived from 109 use reports for 54 species. In contrast, the category of snake bites exhibits the lowest ICF value of 0.11, with 10 use reports spread across nine plant species

Table 3: ICF values for medicinal plants used to cure a variety of ailments.

Disease Category	**No. of species (*Nt*)**	**Use reports (*Nur*)**	**Informants Consensus Factor (ICF)**
Headache and Fever	20	26	0.24
Skeletal Problems	18	21	0.15
Gastrointestinal Disorders	54	109	0.51
Skin Problems	21	30	0.31
Common cold and Cough	15	22	0.33
Dermatological Disorders	9	12	0.27
Snake Bite	9	10	0.11
Respiratory Diseases	11	17	0.38

Odontological Disorders	3	5	0.5
Cardio Vascular Diseases	8	10	0.22
Ophthalmic Diseases	4	5	0.25
Mental Disorders	3	4	0.33
Metabolic Disorder	7	9	0.25
Gynecological Disorders	7	11	0.40
Immunity Boosters	4	5	0.25
Urologic Disorders	2	5	0.75
General	3	5	0.5

3.9. Relative Frequency Citation (RFC)

Paris polyphylla has the greatest Relative Frequency of Citation (RFC) with a value of 0.98, indicating that the informants are widely aware of and utilize it. On the other hand, *Chilocostusspeciosus*has the lowest RFC (0.02), indicating that it is not often cited and probably has little importance in the community. This contrast highlights the differences in the relative importance of the various plant species within the study area.

Table 4: Relative Frequency Citation (RFC) of the medicinal plants

Plant Species	FC	N	RFC
Paris polyphylla	98	100	0.98
Aconitum bisma	76	100	0.76
Swertia chirayita	82	100	0.82
Bergenia ciliate	68	100	0.68
Cissus quadrangularis	42	100	0.42
Periploca calophylla	46	100	0.46
Pleione praecox	59	100	0.59
Paris polyphylla	86	100	0.86
Zanthoxylum acanthopodium	87	100	0.87
Aloe vera	53	100	0.53
Bauhinia variegata	13	100	0.13
Pyrus pashia	45	100	0.45
Ageratinaadenophora	46	100	0.46
Rumex nepalensis	9	100	0.09

Permelia nepalensis	11	100	0.11
Lindera neesiana	19	100	0.19
Zingiber officinale	64	100	0.64
Acorus calamus	19	100	0.19
Clematis buchananiana	8	100	0.08
Aconitum bisma	67	100	0.67
Lindera neesiana	42	100	0.42
Zingiber officinale	15	100	0.15
Cinnamomum glaucescens	23	100	0.23
Momordica charantia	27	100	0.27
Swertia chirayita	92	100	0.92
Cissus adnata	13	100	0.13
Valeriana jatamansi	14	100	0.14
Taxus wallichiana	32	100	0.32
Rhododendron arboretum	38	100	0.38
Piper longum	19	100	0.19
Chilocostus specious	2	100	0.02
Rauvolfia serpentina	34	100	0.34

4. DISCUSSION:

4.1. Diversity of Medicinal Plants and their Uses

This study identified a total of 102 plant species across 57 families, similar to the findings of Bhattarai & Khadka (2016) in Ilam, where 102 species from 94 genera and 64 families were reported to treat 56 human ailments. Bhattarai (2018) documented 30 species from 24 families and 29 genera within the Thami community in Ilam. In this study, the Rosaceae faily has the highest representation by 7 species, followed by Poaceae with 6 species, aligning with the study by Karki et al. (2023) in Dolakha District, where Rosaceae had 3 species. Additionally, 5 species each were found in the Ranunculaceae, Cucurbitaceae, Ericaceae, and Asteraceae families, while

the Lauraceae, Moraceae, and Zingiberaceae families each had 3 species. Other families, including Saxifragaceae, Polygonaceae, Rutaceae, Orchidaceae, Liliaceae, Vitaceae, Urticaceae, Rubiaceae, Lamiaceae, Apiaceae, Piperaceae, Apocynaceae, and Fabaceae, were each represented by 2 species. These findings are inconsistent with a study in the Gulmi District (Acharya, 2012), where the Labiatae family had the highest representation with 8 species, followed by Leguminosae and Poaceae with 7 species each, and various other families with fewer species.

The current study revealed 17 different disease categories treated with medicinal plants, including a large number of species (54) used for gastrointestinal disorders, 21 for cuts, wounds, and burns, and approximately 20 for fever and headaches. The emphasis on gastrointestinal treatment is consistent with previous research, however the number of species varies. For instance, a study by Bhattarai & Khadka (2016) found 26 species for gastrointestinal difficulties, 17 for headaches and fever, and a more precise breakdown for other conditions like respiratory problems, dermatological issues, and snake stings. Another study by Acharya & Acharya (2007) diversifies the categories, identifying 36 species for gastrointestinal difficulties, 23 for Ear, Nose, and Throat (ENT) and ophthalmological concerns, and varied numbers for other conditions such as dermatological and genitourinary problems. The number of species employed for specific conditions varies throughout studies, which could be due to geographical variances in plant availability, traditional knowledge, and cultural practices. While gastrointestinal difficulties are always the most addressed, the distribution of plant use for other ailments shows a broader application of ethnomedicinal knowledge that is adapt to local health requirements and circumstances.

4.2. Life form, Plant parts used, and Mode of administration

The people in the study area primarily harvest herbaceous plants (52.94%) for remedy preparation. These could be due to ease of collecting, storing, transporting, and extracting active components from compared to other life forms (Shrestha &Dhillion, 2003). This finding is consistent with studies conducted in various parts of Nepal (Budha Magar et al., 2020; Luitel et al., 2014; Ojha Khatri et al., 2021). The preference for herbaceous plants may also be due to their effectiveness and the relative ease of harvesting, transporting, and preparing remedies (Luitel et

al., 2014; Mallik et al., 2020). Additionally, researches has shown that herbs often contain higher concentrations of secondary metabolites with therapeutic potential (Bhat & Karim, 2010; Mishra et al., 2014).

In the study area, the most frequently utilized plant parts are the root (21.31%), followed by leaves (18.86%). This pattern is consistent with other studies (Bhattarai & Khadka, 2016; Moore, 1994; Basualdo et al., 1995; Pradhan &Badola 2008; Chettri et al., 2014) in where underground parts like roots and rhizomes were heavily harvested. The preference for underground parts, such as roots, rhizomes, tubers, and bulbs, is often due to their higher concentration of bioactive compounds, as suggested by Srithi et al. (2009). However, the study conducted by Bhat et al. (2013), revealed that leaves were the most commonly used part (32%), followed by roots (24%) and the whole plant (13%). Study by Ahmad et al. (2014) in Pakistan also showed that leaves were mostly harvested plants in that study area. The consistent use of various plant parts across different areas demonstrates a common understanding of their therapeutic significance, while variances in utilization reflect each area's unique ecological and cultural environment.

Oral administration was the most common method of treatment, accounting for 72.54%, which suggests a higher prevalence of internal ailments in Kepilasgadhi Rural Municipality. However, careful attention to dosing is crucial for oral administration, as improper dosages can lead to severe internal complications. Similar findings have been reported in studies from Ethiopia (Kefalew et al., 2015; Tefera & Kim, 2019) and Nepal (Uprety et al., 2010; Rokaya et al., 2010), where oral application was the primary method of administration.

4.3. Fidelity Level (FL) and Informant Consensus Factor (ICF)

The study identified a total of 17 disease categories, with Informant Consensus Factor (ICF) values ranging from 0.11 to 0.75, and an average ICF of 0.33. This average is closely aligned with the findings of Yaseen et al. (2014) who reported an average ICF value of 0.38. The highest ICF value in our study was 0.75 for urologic disorders, which contrast to the significantly higher ICFs reported by Ragupathy et al. (2008) who found an ICF of 0.92 for jaundice, indicating strong consensus among informants for that ailment. In comparison, Uprety et al. (2010) reported ICF values as high as 1.00 for ophthalmological problems, toothache, and kidney issues, reflecting very strong agreement among informants for these conditions. Rokaya et al. (2010),

however, reported generally lower ICF values, such as an ICF of 0.40 for gastrointestinal ailments, which is notably lower than the 0.51 found in our study for the same category. The variations in ICF values across these studies may be attributed to the cultural and geographical diversity of the informant groups, and the extent of medicinal plant knowledge within the communities studied.

In this study, a high Fidelity Level (FL) of 100% was observed for ten plant species used to treat specific ailments. These include *Aconitum bisma* and *Swertia chirayita* for fever, *Cissus quadrangularis* for bone fractures, *Zanthoxylum acanthopodium* for gastric disorders, *Ageratinaadenophora* for cuts, *Lindera neesiana* and *Zingiber officinale* for cold and cough, *Aconitum bisma* for snake bites, *Chilocostus specious* for burning urination, and *Rhododendron arboretum* for pregnancy problems. This high FL reflects a strong traditional reliance on these plants within our study area. Similarly, the study by Tumoro&Maryo (2016) also identified seven plant species with 100% FL.The high level of FL indicates that these plants have a long history of use in traditional medicine to treat certain diseases and are therefore expected to be trusted greatly by people in the community (Bibi et al., 2014). In contrast, *Cissus adnata* had the lowest FL of 30.8% for eye cataracts in our study, suggesting either less consensus or a wider variation in its use within the community, whereas Yaseen et al. (2014) reported lowest FL values of 50% for *Moringa oleifera* and *Sonchus asper* for specific ailments. *Moringa oleifera* was noted for a range of conditions, including eye disorders and gastric problems, while *Sonchus asper* was used for male sexual disorders and jaundice.

4.4. Use Value (UV) and Relative Frequency Citation (RFC)

The study reveals that RFC values for the plant species ranged from 0.02 to 0.98, with Paris polyphylla having the highest RFC value of 0.98, followed by Swertia chirayita (0.92) and Zanthoxylum acanthopodium (0.87). The high RFC values for these species can be attributed to their widespread distribution, easy availability, and traditional use in treating numerous diseases (Kayani et al., 2014). These high citation levels indicate that these species are not only well-known but also highly trusted and widely used within the community. Species of plants with high RFC values should be prioritized for pharmacological, phytochemical, and other biological research in order to confirm and validate their medicinal properties (Mukherjee et al., 2012). Conversely, plants like Chilocostus specious (0.02), Clematis buchananiana (0.08), and Rumex

nepalensis (0.09) exhibit much lower RFC values, suggesting that they are either less recognized or less frequently used for medicinal purposes. In a similar study by Faruque et al. (2018), RFC values ranged from 0.02 to 0.25, with the highest RFC recorded for Rauvolfia serpentina (0.25) and the lowest for Scoparia dulcis (0.20) indicating that the ailments treated by these plants may be less common or there is less consensus on their effectiveness in the area.

The range of Use Values (UV) from 0.01 to 1.83 reflects the diversity in the importance and frequency of use of various medicinal plants. Plants with higher Use Values, such as *Curcuma domestica L* with a UV of 1.83, are frequently utilized and highly valued for treating multiple ailments, including body pain, fever, sore throat, common cold, and jaundice. This indicates that they are integral to local medicinal practices and are often employed in traditional remedies. In contrast, plants with lower Use Values, like *Cinnamomum glaucescens* (UV of 0.01), are cited less frequently and may play a less significant role in local medicinal practices.

4.5. Medicinal plant trade, threats, and conservation practices

This area presents significant trade opportunities for medicinal and aromatic plants (MAPs), with several high-value species with good market value available, such as Paris polyphylla, Swertia chiraita, Lindera neesiana, Berberis aristata, Astilbe rivularis, Piper longum, Bergenia ciliata, and Aconitum bisma. Among these, Paris polyphylla and Swertia chiraita are in particularly high demand according to local traders. Many of the traders also cultivate and harvest these medicinal plants themselves. However, the sustainability of these resources is under threat due to unsustainable harvesting practices, animal grazing, forest fires, deforestation, illegal collection, and the impact of the COVID-19 pandemic. During the pandemic, widespread unemployment in the village led many to turn to the irregular collection and sale of MAPs, contributing to the decline of these resources in the forest. Similar threats have been documented in other studies, such as Chaudhary (1998), which identified deforestation, habitat encroachment, shifting cultivation, and forest fires as significant challenges, and Bibi et al. (2014), which highlighted grazing, urbanization, and the uprooting of medicinal plants as serious concerns.

To mitigate the threats to medicinal and aromatic plants (MAPs), villagers have adopted several conservation practices, including the domestic cultivation of high-demand species like Paris polyphylla and Swertia chiraita to reduce pressure on wild populations and maximize economic benefits. They also engage in reforestation efforts, sustainable harvesting techniques, such as selective and seasonal harvesting. Community-based forest management is also practiced, along with strict enforcement of rules against illegal collection.

5. CONCLUSION:

The study reveals that Kepilasgadhi Rural Municipality is exceptionally rich in medicinal plants, with some community members possessing extensive knowledge about their uses; however, these plants remain largely unexplored. This knowledge of medicinal plants, is mainly passed down through generations but, nowadays there is a noticeable decline in interest among younger generations regarding traditional medicinal plants. This shift interest poses a risk to the preservation of this valuable indigenous knowledge, urgent need for initiatives to engage and educate younger community members about the importance and benefits of traditional medicinal practices. Additionally, the medicinal plants in the study area are threatened by unsustainable harvesting practices, animal grazing, forest fires, deforestation, and illegal collection. Addressing these threats is crucial for maintaining the ecological balance, ensuring economic benefits, and conserving these vital resources for continued use.

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