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Ethnobotanical knowledge of Bantar community in Shambhunath Rural Municipality of Saptari District, Nepal

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Abstract

The study has been carried out to document the ethnobotanical knowledge of the Bantarommunity in the Shambhunath Rural Municipality of the Saptari district, Nepal. This study explores the traditional utilization of plant resources by the Bantar people for medicinal, nutritional, and ritualistic purposes. A combination of field surveys, semi-structured interviews, and participatory observation was conducted to document the community's practices. A total of 50 plant species belonging to 33 families and 48 genera, comprising 24 herbs, 14 trees, 6 shrubs, and 6 climbers, were identified as integral to their ethnobotanical repertoire. Most of these plants were used for treating ailments such as fever, gastrointestinal disorders, respiratory issues, and skin diseases, while some plants were used for nutrition and also for cultural ritual purposes. The findings reveal a sustainable relationship between the community and their local environment, reflecting a holistic approach to health and well-being. However, modernization and declining intergenerational knowledge transfer pose significant threats to preserving this traditional wisdom. The study underscores the need for immediate documentation and integration of ethnobotanical knowledge into broader conservation and public health strategies. Protecting such cultural heritage is essential for biodiversity conservation and fostering sustainable use of these plants in the region. By highlighting the Bantar community's ethnobotanical practices, this research contributes to understanding Nepal's rich bio-cultural diversity.

Keywords: Intergenerational knowledge, Ethnobotanical practices, Public health, Lamiaceae

1.0 Introduction

Ethnobotany, the study of the relationship between people and plants, plays a vital role in understanding how traditional communities utilize and conserve plant resources. It provides insights into cultural heritage, sustainable practices, and biodiversity conservation (Martin, 1995). The Bantar community, an indigenous group residing in Shambhunath Rural Municipality of Saptari District, Nepal, holds a wealth of traditional knowledge about plants, which remains largely unexplored and undocumented. This knowledge, passed down through generations, contributes to their livelihood, healthcare, and cultural identity. However, rapid modernization and socio-economic changes pose a significant threat to the preservation of their ethnobotanical heritage (Kunwar & Bussmann, 2008).

The Bantar are a Dalit community of Nepal's Terai, historically marginalized through caste hierarchies and migration processes (IDSN, 2009; UNFPA, 2014). Their livelihoods center on agricultural labor, tenant farming, animal husbandry, casual wage work, and subsistence cultivation (Acharya & Pokhrel, 2006; UNFPA, 2014). Ethnobotanical studies highlight their reliance on plants for food, medicine, rituals, and construction, with medicinal plants forming the core of their traditional healthcare practices (Acharya & Pokhrel, 2006; Kafle, 2023). However, limited research exists on the plant species, preparation methods, and cultural practices they

employ, despite its significance for cultural heritage, biodiversity conservation, and pharmacological research (Shrestha & Dhillion, 2003). While ethnobotanical traditions of many Nepalese groups are documented, the Bantar remain underexplored, offering unique insights into subtropical Terai communities such as those in Shambhunath Rural Municipality, where rich biodiversity provides an important context for studying human–plant interactions (Gautam et al., 2022).

The Bantar community is recognized as an indigenous group in Nepal, predating the era of Prithvi Narayan Shah. They are one of the prominent ethnic groups in the eastern Terai region (Dahal, 1978). The Bantars are classified under the 'Shudra Varna' of the caste system (Dahal, 1997) and are referred to as 'Sardar' in written records (Bhattachan et al., 2009)). Due to the prime importance of ethnobotany, different studies have been carried out in the field of ethnobotany (Bhattarai & Khadaka, 2017; Bhatta, 2017; Chaudhary & Rai, 2017; Singh, 2017; Bhattrai, 2018; Subedi & Dani, 2020; Maharjan et al. 2021; Poudyal et al., 2021; Das et al., 2021; Magar et al., 2022; Das et al., 2024a; Das et al., 2024b). As the hidden ethnobotanical knowledge of the Bantar community in Shambhunath Rural Municipality has not been explored till the date, this study has been designed to document the indigenous knowledge systems and highlight their significance in sustainable resource management and biodiversity conservation.

2.0 Methodology

2.1 Study Area

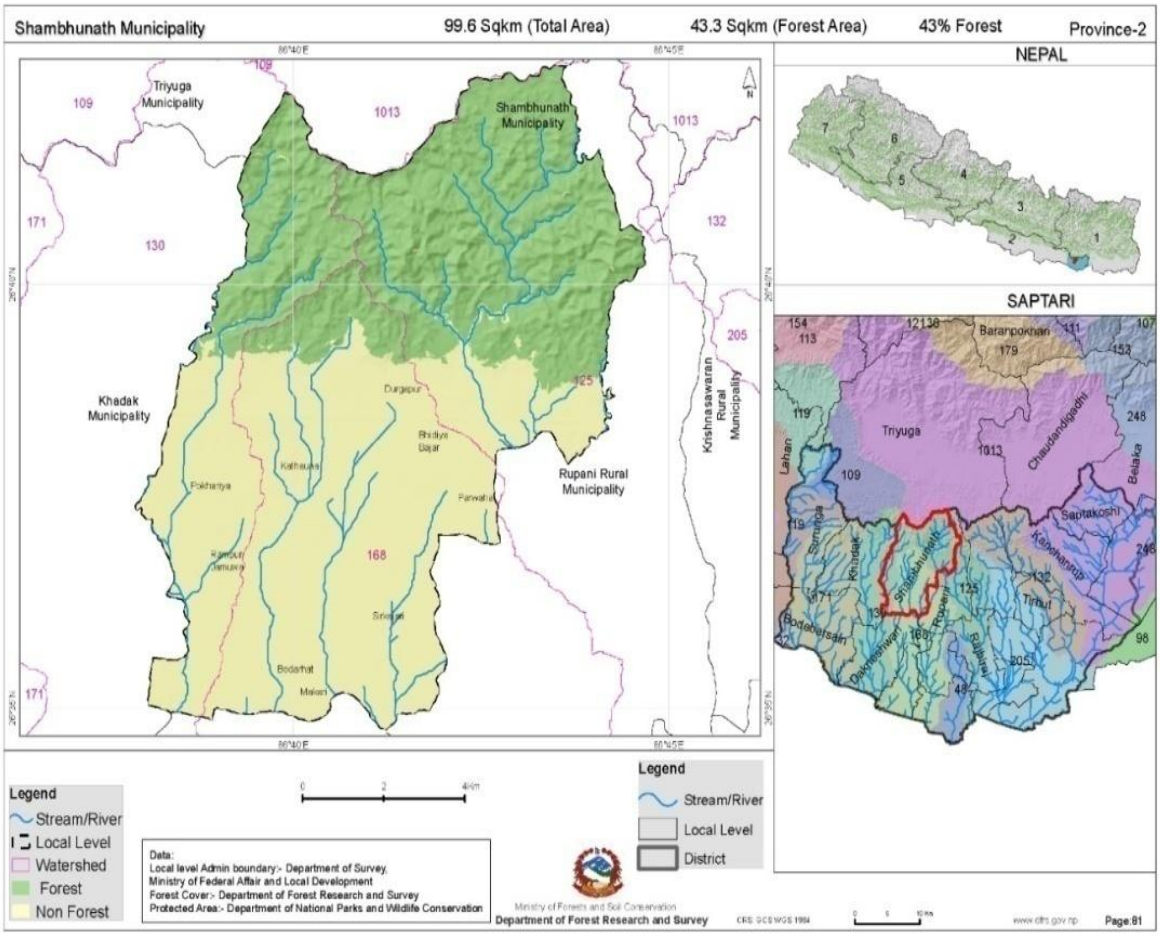

Figure 1: Map of Shamnhunath Muncipilaty, Saptari, Nepal (Nepal in Data, 2025)

The study was carried out in Shambhunath Municipality Ward No.7.The area has co-ordinates: latitude 26.6444 N and longitude 86.6911 E, ranging from 61m to 610m above the sea level. The total area of Shambhunath municipality is 108.71 km^2. The climate condition of this area is hot and humid. The average rainfall in this district is 1474.1 mm (National Statistics Office, 2024). The total population of this municipality is 39,634 (Census, 2021). With 6.6% of the total population (Census, 2011) Bantars are the fifth largest ethnic group in the Municipality.

2.2 Data Collection Method

The study on the "Ethnobotanical Knowledge of the Bantar Community in Shambhunath Rural Municipality of Saptari District, Nepal" employed a combination of qualitative and quantitative research methods to collect comprehensive and reliable data. These methods ensured the accurate documentation of the traditional knowledge of the Bantar community regarding the use of plants for medicinal, cultural, and other purposes. Participants were selected using purposive sampling to target individuals with extensive knowledge of local plant use, such as traditional healers, elderly community members, and other knowledgeable individuals. Semi-structured interviews were conducted with selected participants to gather detailed information on the identification, uses, preparation, and application of plants. The method's flexibility allowed researchers to adapt questions based on participants' responses, exploring additional relevant information (Alexiades, 1996). Key questions included the plant's local name, parts used medicinally, preparation methods, targeted ailments, and collection practices. A total of 15 individual**s** were interviewed for the study, including 10 local practitioners, and 5 Dhamis (traditional healers with chant)**.** The survey was conducted between October 2023 and April 2024 and covered information from 33 different families in the area.

FGDs were conducted to cross-verify data and capture collective knowledge. Groups consisted of 5-10 participants, ensuring diverse perspectives while maintaining a manageable size for effective discussion. These sessions facilitated the identification of plants with high cultural significance and consensus on their uses (Cotton, 1996). Researchers engaged in participant observation by accompanying community members during plant collection and preparation activities. This method provided insights into the practical applications and cultural practices associated with plant use. Observations were recorded in field notebooks and complemented the data collected through interviews (Bernard, 2006). Plant specimens were collected during transects walks to create a herbarium. Each specimen was labeled with the common name, local name, habitat, and uses as described by the informants. Identification of plants was later confirmed through consultation with botanical experts and comparison with standard taxonomic literature (Jain & Mudgal, 1999).

3.0 Results

3.1 Plant Species Identified

A total of 50 ethnobotanically important plant species traditionally used by the Bantar community were documented. The collected data provide comprehensive details on each species, including their scientific name, common name, local Bantar name, plant type, growth habit, specific parts utilized, associated ailments treated, and the traditional modes of preparation (Table 1).

3.2 Plants characteristics

The study has documented a total of 50 plant species belonging to 33 families and 48 genera. Among them, based on plant growth or habit, most frequently they were herbs (24), trees (14), shrubs (6), and climbers (6), as illustrated in Fig.2.

Table 1: List of medicinal plants species of the study area used by Bantar community

S. No.	Scientific Name	Common Name	Bantar Name	Family	Habit	Ailment	Parts Used\	Mode of Preparation and application
1	*Achyranthes aspera (L.)*	Pricklychaff flower	UltaChirchire	Amaranthaceae	Herb	Pneumonia and tooth ache	Leaves and Stem	Ground leaf-paste, applied to chest.The stem is used as a toothbrush.
2	*Ageratum conyzoides* (L.)	Goat weed	Mokra	Asteraceae	Herb	Cut	Leaves	Crushed leaves applied directly to the wounds. It helps to stop bleeding and speeds up healing.
3	*Allium sativum* (L.)	Garlic	Lasun	Amaryllidaceae	Herb	Ache in gum of teeth	Seed	Fresh garlic and cloves are crushed to form a paste which is applied directly to the affected tooth. It is left for a few minutes, followed by rinsing the mouth with water. This can be done 2-3 times a day as needed
4	*Alnus nepalensis* (D.Don)	Nepal alder	Daradmeda	Betulaceae	Tree	Wound healing	Bark	The bark is ground into paste and applied directly to the wound. This can be done once or twice a day, depending on the specific condition and individual needs.
5	Aloe vera(L.)	Aloe	Ghiukumari	Xanthorrhoeaceae	Herb	Overheat problem	Leaves	Leaves powder is applied to the burnt area.
6	*Alstoniascholaries* (L.)	Devil tree / Blackboard tree	Chaitwan	Apocynaceae	Tree	Joint pain	Bark	The fresh bark is ground to form powder. The powder is mixed with a small amount of water to make a paste, which should be applied directly to the affected joint. It is applied once or twice a day, depending on the pain and inflammation.
7	*Alternanthera sessilis*(L.)	Sessile joyweed	Sarhauchi sag	Amaranthaceae	Herb	Loss of appetite	Shoot	The apical shoots of *Alternanthera sessile are* cooked as a vegetable to stimulate appetite due to their high nutritional content and richness in vitamins.

8	*Andrographis paniculata* (Burm.f.) Nees	King of bitters/ Kalmegh	Kalapnath	Acanthaceae	Herb	Fever reduction	Leaves	It is used as green tea.
9	*Asparagus Racemosus* (Wild.)	Shatavari	Shatavari	Asparagaceae	Herb	Immune power	Root	Dried root of Shatavari is powdered and is used 1-2 teaspoons mixed with warm milk twice a day.
10	*Azadirachta indica* (A.juss.)	Neem	Neem	Meliaceae	Tree	Skin disease, tooth ache	Leaves and stem	Leaves are boiled in water for 10-15 minutes and used for a bath after cooling. The stem is used as a toothbrush.
11	*Basella alba* (L.)	Malabar spinach	Porai sag	Basellaceae	Climber	Overheat problem	Leaves	Crushed leaves is applied to the affected part of the body.
12	*Benincasa hispida* (Thunb.)	Ash gourd / Winter melon	Kumhar	Cucurbitaceae	Climber	Jaundice	Fruit	Fruit-juice of Kumhar is used
13	*Cannabis sativa* (L.)	Hemp/ Marijuana	Bhang	Cannabaceae	Herb	Cut wounds	Leaves	Leaves are crushed to form a paste. The paste is applied to the cut or wound. It is applied 1-2 times a day, or as needed, depending on the severity of the wound.
14	*Carea arborea* Roxb.	Patana oak	Kumhi	Myrtaceae	Tree	Dysentery	Bark	The bark of *Carea arborea* is dried and ground into powder. A spoon of the powder is mixed with water to make a decoction which is taken once or twice a day.
15	*Carica papaya* (L.)	Papaya	Meba	Caricaceae	Tree	Wound	Leaves	Leaf-latex from papaya is used for fungal infections.
16	*Catharanthus roseus* (L.)	Madagascar periwinkle	Ghadi Phool	Apocynaceae	Herb	Diabetes	Leaves	Leaves juice is used to manage blood sugar level.
17	*Centella asiatica* (L.)	Gotu kola / Indian pennywort	Bhatpurain	Apiaceae	Herb	Fever and digestion issues	Whole plant	The leaves of *Centella asiatica are boiled* in water. One cup of the solution/is consumed. 2-3 times in a day.

18	*Cinnamomum tamala* (Buch.Ham.)	Indian bay leaf	Patarak	Lauraceae	Tree	Headache	Bark	The dried bark of *Cinnamomum tamala is ground* into a fine powder and then mixed with a small amount of water to form a thick paste. The paste is applied on the forehead and is kept for about 10-15 minutes.
19	*Citrus limon* (L.)	Lemon	Kagati	Rutaceae	Shrub	Diarrhea and Dysentery	Fruit	One half of a lemon juice is squeezed into a glass of lukewarm water. A small amount of salt and sugar is added stirring well. The mixture is taken orally once or twice a day.
20	*Clerodendrum infortunatum*(L.)	Hill glory bower	Bhati	Lamiaceae	Shrub	Fever reducing	Leaves	Fresh leaves crushed to make a paste or to extract juice. Half a cup of this juice is taken once a day, usually in the morning on in empty stomach.
21	*Colocasia esculenta*(L.)	Taro	Kachhu	Araceae	Herb	Cough relief	Leaves	Either cooked corms is taken orally or paste made form leaves is applied around chest and throat.
22	*Coriandrum sativum* (L.)	Coriander / Cilantro	Dhaniya	Apiaceae	Herb	Correcting foul breath, appetite	Leaves and seeds	Leaves and seeds are often used in cooking, either fresh or dried. Coriander seeds can also be soaked in water overnight and consumed to help with digestion.
23	*Curcuma longa* (L.)	Turmeric	Hardi	Zingiberaceae	Herb	Wound healing	Rhizom e	1-2 teaspoons of turmeric powder is mixed with a small amount of water to form a thick paste and applied directly to the wound 1-2 times a day.
24	*Cuscuta reflexa* (Roxb.)	Dodder	Aamarlati	Cuscutaceae	Climber	Jaundice and wound healing	Whole plant	The whole plant of *Cuscuta reflexa* is boiled with water to form a decoction. The decoction is taken orally 1-2 times a day.
25	*Cyperus rotundus* L.	Nut grass	Motha	Cyperaceae	Herb	Cough and Fever	Rhizom es	The dried rhizome of *Cyperus rotundus* is ground into a fine powder. About 1/2 teaspoon of this powder is mixed with honey and boiled with a cup of water for 10-15 minutes. 1 cup of this decoction is taken orally 2-3 times a day.

26	*Dalbergia sissoo* (Roxb.)	Indian rosewood / Shisham	Sisau	Fabaceae	Tree	Dysentery	Leaves	Fresh leaves are boiled with 1-2 cups of water for 10-15 minutes. The mixture is filtered to remove the leaf particles. The decoction is taken once or twice a day.
27	*Ecliptapro strata*(L.)	False daisy / Bhringraj	Bhanga Uraya	Asteraceae	Herb	Scabies	Leaves	Crushed leaves are applied directly to the affected area.
28	*Euphorbia hirta*(L.)	Asthma plant	Dudhi Ghass	Euphorbiaceae	Herb	Asthma and Cough	Leaves	By making a tea from its leaves, which is believed to soothe the throat and reduce symptoms.
29	*Euphorbia royleana*Boiss	Cactus spurge	Pasid	Euphorbiaceae	Shrub	Cough	Leaves	Leaves are boiled with water with a small amount of salt for 10 minutes. The decoction is taken orally 2-3 times a day.
30	*Justicia adhatoda*(L.)	Malabar nut	Baksh	Acanthaceae	Shrub	Fever and constipation	Leaves	About 5-10 leaves of *Justicia adhatoda* are boiled with 1-2 cups of water until the liquid is reduced by half. One cup of the mixture is taken orally 2-3 times a day.
31	*Kalanchoe pinnata* (Lam.)	Air plant / Miracle leaf	Patha Rchatta	Crassulaceae	Herb	Wound healing and stone problem	Leaves	The crushed row leaves is applied to the wound.
32	*Lagenaria Siceraria* (Molina) tandl	Bottle gourd	Kaddu	Cucurbitaceae	Climber	High blood pressure	Fruit	Fresh bottle gourd is peeled and chopped, then blended. A cup of this juice is taken in an empty stomach in the morning.
33	*Lawsonia inermis* (L.)	Henna	Mehendi	Lythraceae	Shrub	Hair conditioning , rashes and burns	Leaves	Paste of leaves is applied to hair, rashes and burn area.
34	*eucas aspera* (Willed.)	Thumbai/ Dronapushpi	Dulphi	Lamiaceae	Herb	Swelling and inflammation	Leaves	Crushed leaves is applied to the affected area.
35	*Mentha spicata* (L.)	Spearmint	Pudina	Lamiaceae	Herb	Gastric	Leaves	Juice extracted from leaves is taken orally twice a day..

36	*Momordica charantia* (L.)	Bitter gourd	Karela	Cucurbitaceae	Climber	High blood pressure	Fruit	A piece of fresh bitter melon is blended and strained to get the juice. Half a cup of this juice is taken once a day, usually in an empty stomach.
37	*Moringa oleifera* (Lam.)	Drumstick tree / Moringa	Munga	Moringaceae	Tree	Malnutrition	Leaves	Tea made foem leaves or powder made fromleaves is taken orally.
38	*Nyctanthes arbor-tristis* (L.)	Night-flowering jasmine	Jasmine	Oleaceae	Shrub or small tree	Fever, respiratory issues	Flowers, leaves, bark	Leaves or flowers are boiled with water, and 1-2 cups of the decoction is taken orally daily.
39	*Ocimum sanctum* (L.)	Holy basil / Tulsi	Tulsi	Lamiaceae	Herb	Cold, fever and cough	Leaves	Tea or decoction made form leaves is taken orally.
40	*Oxalis corniculata* (L.)	Creeping wood sorrel	Mirchaiya	Oxalidaceae	Herb	Stomachache	Leaves	Eitherchewing fresh leaves or drinking juice extracted from leaves.
41	*Phyllanthus emblica*(L.)	Indian gooseberry/ Amla	Rikhaya	Phyllanthaceae	Tree	Immune power, hair and skin care	Fruit	Either eating raw fruit or drinking 1-2 tablespoons of Amla juice once or twice a day.
42	*Psidium guajava* (L.)	Guava	Latam	Myrtaceae	Tree	Lose obesity/fat	Leaves	Tea made from leaves is taken once or twice a day to reduce fat and to increase apetite.
43	*Semecarpus anacardium* (L.f.)	Marking nut tree	Bhela	Anacardiaceae	Tree	Pain killer	Fruit	Oil obtained from fruit or fruit paste is applied to the affected area.
44	*Syzygim Aromaticm* (L.)	Clove	Lung	Myrtaceae	Tree	Cough	Clove	Either taking cloves tea or chewing a few cloves.
45	*Syzygium cumini* (L.)	Java plum / Jamun	Jaum	Myrtaceae	Tree	Blood pressure	Seed	Ripe Jamun fruits are collected, dried, and ground into powder. 1–2 teaspoons of the powder is mixed in a glass of warm water and taken once or twice daily.

46	*Terminalia ellirica* (Gaertn.)	Beleric / Bahera	Behra	Combretaceae	Tree	Dysentery and gastric	Seed	Dried seeds are ground into powder. 1–2 teaspoons of the powder is boiled in 1–2 cups of water for 10–15 minutes. The strained decoction is taken twice daily, preferably morning and evening.
47	*Tinospora sinensis* (Lour.)Merr.	Heart-leaved moonseed	Gurujlati	Menispermaceae	Climber	Immune power or detoxification	Stem	Drinking juice extracted from stem.
48	*Trachyspermum ammi*(L.)	Ajwain / Carom seeds	Jamain	Apocynaceae	Herb	Digestive issues /Tooth ache	Seeds	Tea made from leaves is taken for digestive issues. For toothache, the plant's juice is applied to the affected tooth..
49	*Trigonella foenum-graecum* (L.)	Fenugreek	Methi	Fabaceae	Herb	Diabetes	Seeds	A cup of seed is soaked in water overnight. The strained water is taken orally. Seeds powder is also mixed with food.
50	*Zingiber officinale* (Roscoe.)	Ginger	Aadi	Zingiberaceae	Herb	Cough, cold	Rhizome	Chopped ginger rhizome is boiled in 2–3 cups of water until reduced to half, and about 1 cup of the decoction is taken 1–2 times daily to relieve cough and cold.

The family Lamiaceae has the highest number of species (4), followed by Myrtaceae**,** Apocynaceae, and Cucurbitaceae, each represented by 3 species. The families Amaranthaceae**,** Apiaceae**,** Fabaceae**,** Euphorbiaceae**,** Asteraceae**,** Acanthaceae, and Zingiberaceae each contain 2 species, while all the remaining families are represented by a single species as shown in Fig.3.

3.3 Monocot and dicot

Among the 50 ethnobotanically important plant species collected, 42 were found to be dicot, 8 were found to be monocot. Therefore,84% plants were dicot and 16% were monocot.

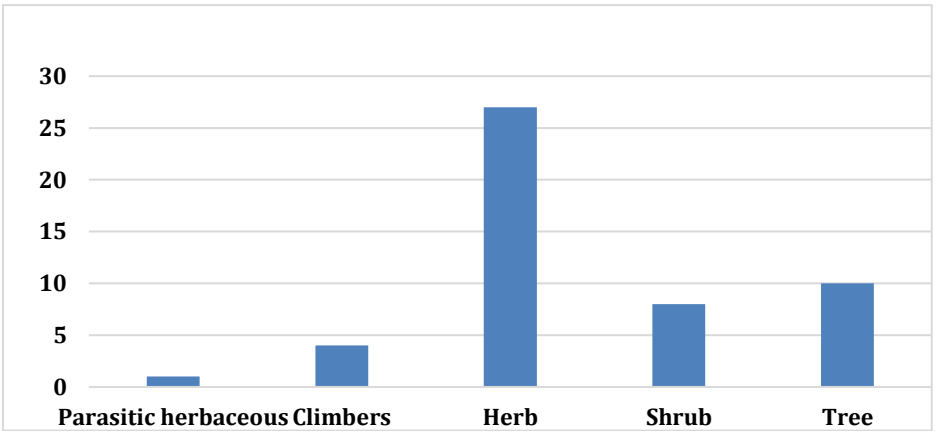

Figure 2: Habitat of plant species

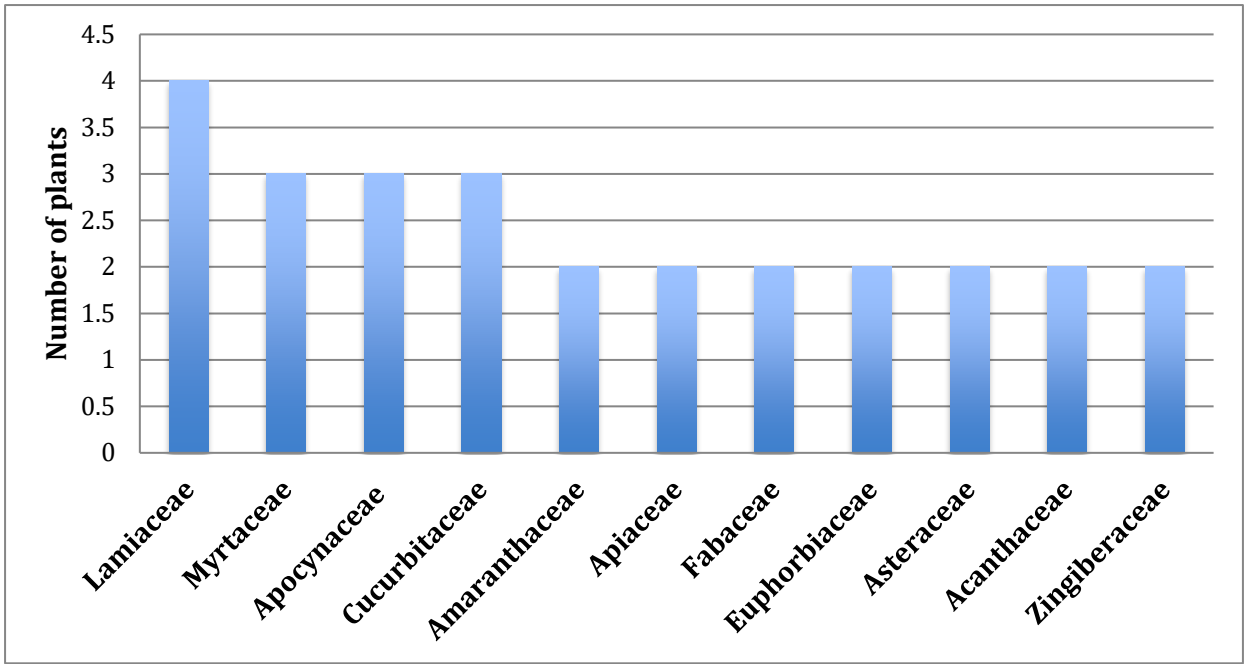

Figure 3: Number of plant species belonging to different family

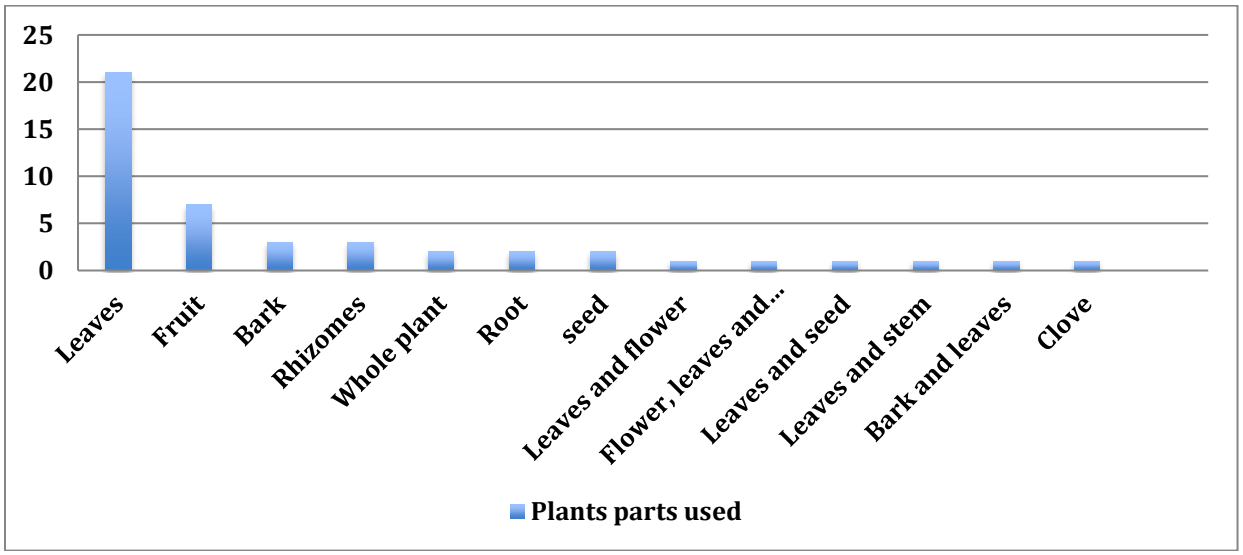

Figure 4: Plant parts used

3.4 Habitat

The plants were categorized on habitat basis: wild or cultivated. It was found that 38% of the collected plant species were wild and 62% were cultivated plants.

3.5 Plant parts used

Leaves are the most commonly used part (21 species), followed by fruits (7), bark (3), and rhizomes (3). The whole plant (2), root (2), and seed (2) are used less frequently. Other combinations such as leaves and flower (1), flower, leaves and fruit (1), leaves and seed (1), leaves and stem (1), bark and leaves (1), and clove (1) are the least used (Fig. 4).

4.0 Discussion

The ethnobotanical knowledge of the Bantar community in Shambhunath Rural Municipality, Saptari District, Nepal, provides a valuable glimpse into the intricate relationship between local people and plant biodiversity. This study documented about 50 plant species belonging to 33 families and 48 genera, underscoring the community's profound understanding of the natural world. Among the recorded families, Lamiaceae emerged as the largest, reflecting its extensive utilization in traditional practices. A detailed analysis of the plant types revealed that dicots dominate the vegetation, with 42 species, while monocots are represented by 8 species. This botanical diversity highlights the adaptive use of plants based on their availability and properties in the local ecosystem. Furthermore, the habit-based classification of plants indicated that the community employs a wide variety of growth forms in their daily lives**:** herbs (24 species**)** were the most frequently used, followed by trees (14 species**)**, and an equal number of shrubs and climbers (6 species each)**.** This variation demonstrates the Bantar community's comprehensive knowledge of both easily accessible plants and those requiring specific collection methods.

The documented plant species play diverse roles in the community's livelihood, encompassing medicinal, nutritional, religious, and economic purposes. Medicinal plants were particularly prominent in the community's traditional healthcare system, addressing common ailments such as colds, fever, wounds, and gastrointestinal issues. The reliance on herbal remedies reflects the community's deep understanding of plant pharmacology, which has been transmitted orally through generations. This knowledge serves as a cost-effective and culturally resonant alternative to modern healthcare, especially in remote areas where access to medical facilities remains limited. The predominance of herbs in the study highlights their accessibility and versatility, as they are often easier to cultivate, harvest, and process than larger plants.

Despite the richness of their traditional knowledge, the Bantar community's ethnobotanical heritage faces challenges from modernization, habitat degradation, and the declining transmission of traditional practices to younger generations. Encroachment on natural habitats and the overexploitation of plant resources pose additional threats to the preservation of plant biodiversity and associated knowledge systems. As such, it becomes imperative to document, conserve, and promote sustainable use of these plant resources. This study underscores the urgent need to integrate local ethnobotanical practices into broader conservation and development frameworks. Efforts should be made to empower the Bantar community through education, awareness, and capacity-building programs that bridge traditional knowledge with scientific approaches. By doing so, the unique cultural and biological heritage of the Bantar community can be preserved for future generations while ensuring sustainable livelihoods for its people.

5.0 Conclusion

This study documents the ethnobotanical knowledge of the Bantar community in Shambhunath Rural Municipality, Saptari, where common health problems such as fever, cough, cold, indigestion, dysentery, wounds, gastric issues, and blood pressure are traditionally treated with medicinal plants. Although residents still rely on ethnomedicine, its use is declining as the related knowledge is largely retained by older generations and many remedies are being replaced by modern medicines which are more accessible. The community holds a rich understanding of local flora, applying them for medicinal, culinary, and cultural purposes, reflecting a deep connection with nature and contributing to biodiversity conservation and sustainable resource use. However, this traditional wisdom is increasingly threatened by urbanization, modern education, and the erosion of cultural practices. Documenting and preserving such knowledge are vital for safeguarding indigenous heritage, while its integration with scientific research can

enhance sustainable agriculture, natural resource management, and healthcare. The findings emphasize the urgency of conserving the Bantar community's ethnobotanical practices to ensure their continuity and to promote a sustainable future rooted in traditional ecological wisdom.

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