Ethnomedicinal plant use among the Tajpuriya community in Shivasatakshi Municipality, Jhapa district, Eastern Nepal

Sapana Tajpuriya, Ila Shrestha, Deepak Kumar Sharma, Ratna Silwal Gautam

Correspondence

Sapana Tajpuriya[1], Ila Shrestha[1], Deepak Kumar Sharma[1], Ratna Silwal Gautam[1*]

[1]Patan Multiple Campus, Tribhuvan University, Kathmandu Nepal

*Corresponding author: silwalratna@gmail.com

Ethnobotany Research and Applications 33:55 (2026) - http://dx.doi.org/10.32859/era.33.55.1-27
Manuscript received: 05/11/2025 – Revised manuscript received: 26/02/2026 - Published: 28/x02/2026

Research

Abstract

Background: Traditional medicine plays a crucial role in the healthcare system of Nepal. Various ethnic groups rely on locally available plants, preserving the ethnomedicinal knowledge. The present study aimed to document the traditional medicinal plant knowledge of the Tajpuriya, an ethnic group of eastern Nepal, through an ethnomedicinal survey conducted in Jhapa District.

Method: An ethnomedicinal study was conducted through interviews employing semi-structured, open-ended questionnaires with 52 informants, including two key informants. Spearman's correlation analysis was applied to examine the relationship between informant's age and ethnomedicinal knowledge, while the Wilcoxon rank-sum test was used to evaluate gender-based differences in ethnomedicinal knowledge. Quantitative indices, including the Informant Consensus Factor (ICF) was computed to evaluate the degree of shared knowledge among informants about traditional treatments, and the Relative Frequency of Citation (RFC) was determined to identify the common medicinal plants in the study area.

Results: This study recorded 61 plant species from 39 families and 57 genera, treating 13 disease categories. The Wilcoxon test showed significant gender variations in plant knowledge (p = 0.005) and Spearman's correlation revealed a strong positive relation between age of informants and species cited (r = 0.687, p < 0.001). Among the documented species, herbs (38 spp.) represented the dominant growth form, while leaves (23 spp.) were the most commonly utilized plant parts. Juice (31 spp.) was the predominant form of preparation, while oral intake (40 spp.) was the most frequently reported route of administration. The highest ICF was recorded for ear and neurological disorders, whereas digestive disorders involved the largest number of species used (21 spp.). *Eclipta prostrata* and *Centella asiatica* showed the highest values of RFC.

Conclusions: This study documented the ethnomedicinal information from the Tajpuriya ethnic group in Shivasatakshi Municipality, Jhapa District, highlighting the need for preservation of biocultural heritage and providing a valuable foundation for future pharmacological studies and drug discovery.

Keywords: Medicinal plants, Traditional knowledge, Age, Gender

Background

Since the ancient period, people have been using plants as the primary source of medicine. The reliance on plant resources for healing reflects long-standing knowledge of human beings and use of plant diversity as a means of survival (Cunningham 2001). The use ethnomedicinal plants to treat human diseases forms an important traditional heritage and has been preserved by ethnic communities in developed (Tomlinson & Akerele 2015) and developing nations (Alves & Rosa 2007, Luitel *et al.* 2014). The various ethnic groups that inhabit Nepal's geographical belts rely on locally grown plants and wild plants to meet their fundamental needs and possess a unique body of knowledge related to ethnomedicine (Mallik *et al.* 2020, Dulal *et al.* 2022). Generally, ethnomedicinal information is typically gathered from rural communities residing in remote regions, where there is often insufficient documentation (Adhikari *et al.* 2019). Indigenous communities in specific localities have developed distinct knowledge and practices of medication through the use of various plant species (Rai & Pokhrel 2006). Traditional medicinal knowledge is heavily influenced by geography, ethnicity, age, occupation, education, and culture (Joshi *et al.* 2020). Based on the age, gender, and knowledge dynamics hypothesis, socio-cultural factors such as age and gender are expected to influence ethnomedicinal plant knowledge (Albuquerque *et al.* 2011). Older individuals and gender-specific groups may possess greater ethnomedicinal knowledge as a result of culturally defined roles, accumulated experience, and prolonged engagement with traditional practices (Vocks & Leony 2004, Souto & Ticktin 2012). Such practices are at high risk due to sociocultural changes (Kunwar *et al.* 2016), migration, and fewer exchanges of knowledge (Bhaila *et al.* 2022). Contemporary perspectives suggest that modernization systematically diminishes the practice of traditional medicine (Quinlan & Quinlan 2007).

In Nepal, traditional medicine is deeply rooted in culture and includes dietary regimens, self-healing methods, rituals, ethnic customs, and spiritual practices (Koirala & Khaniya 2009). The country's remarkable ethnic diversity, with 142 castes/ethnicities, including around 60 indigenous communities (NPHC 2021), along with rich plant diversity, has fostered extensive ethnobotanical knowledge (Shrestha *et al.* 2000). Owing to diverse physiographic and climatic conditions, Nepal hosts 11,971 plant species, including 6,973 angiosperms (MoFSC 2014), of which 1,762 are used for medicinal purposes (Kunwar *et al.* 2022). With only 17% of the urban population having access to modern healthcare, most people rely on traditional practices (Adhikari *et al.* 2019), collecting plant species from forests for generations (Dhillion *et al.* 2002). This sustained interaction between local communities and forest ecosystems has generated a rich body of ethnobotanical knowledge that requires systematic documentation. However, the ethnomedicinal plants and associated traditional knowledge of the Tajpuriya community remain largely undocumented in scientific literature (Chaudhary *et al*. 2025). The absence of prior ethnobotanical documentation poses a risk of erosion and loss of this orally transmitted knowledge, particularly in the context of socio-cultural change. Traditional medicinal plant knowledge among the Tajpuria community has not yet been comprehensively documented. Therefore, the present study aimed to fill this research gap by systematically recording ethnomedicinal plant use, thereby providing baseline information for future phytopharmacological and medical research. In addition, the study examines the relationship between informants age and the number of medicinal plants reported which provides the patterns of intergenerational knowledge transfer. It also evaluated gender based differences in traditional medicinal knowledge. Furthermore, the research aimed to identify the most prevalent disease categories treated with medicinal plants and documented plant species with high frequency of citations in the study area.

Materials and Methods

Study area

This research was carried out in Shivasatakshi Municipality, Jhapa district, eastern Nepal, located between 26°20' to 26°50' N to 87°39' to 85°15' E covering 145.48 km^2 at 125 to 381 m elevation (Fig. 1). The municipality has 11 wards, a population of 74,077, and 18,253 households, with ward no. 5 (Bhelamani) sparsely populated, including about 2,000 Tajpuriya people. The sex ratio is 89.35, literacy is 82.3% (male 88.6%, female 76.8%), and population density is 508 persons/km^2 of the area (NPHC, 2021). According to the 2021 census report, Tajpuriya has a population of 20,989 (NPHC, 2021), which contributes 0.07% of the total population. In Shivasatakshi rural municipality, Tajpuriya represents 5.3% of the total population,

comprising 5.1% males and 5.4% females, ranking among the smaller ethnic groups in the area. The primary sources of income for the residents include agriculture and foreign employment. Based on the Municipality profile, land use is dominated by agriculture (78%), followed by forests (17%), riverbeds (4.40%), and rivers (1.92%), with other land types collectively accounting for less than one percent. The major vegetation of this area is the Sal forests, dominated by *Shorea robusta* and riverine deciduous forests composed of *Mallotus philippensis*, *Mallotus nudiflorus*, Garuga *pinnata*, *Syzygium cumini*, and *Gossypium hirsutum*. The other tree species are *Albizia* spp, *Anthocephalus chinensis*, *Adina cordifolia*, *Anogeissus latifolia*, *Aegle marmelos*, *Dillenia pentagyna*, *Butea monosperma* and *Dillenia indica*. In riverine habitats, common tree species include *Syzygium jambos*, *Acacia catechu*, *Dalbergia latifolia,* and *Dalbergia sissoo.*

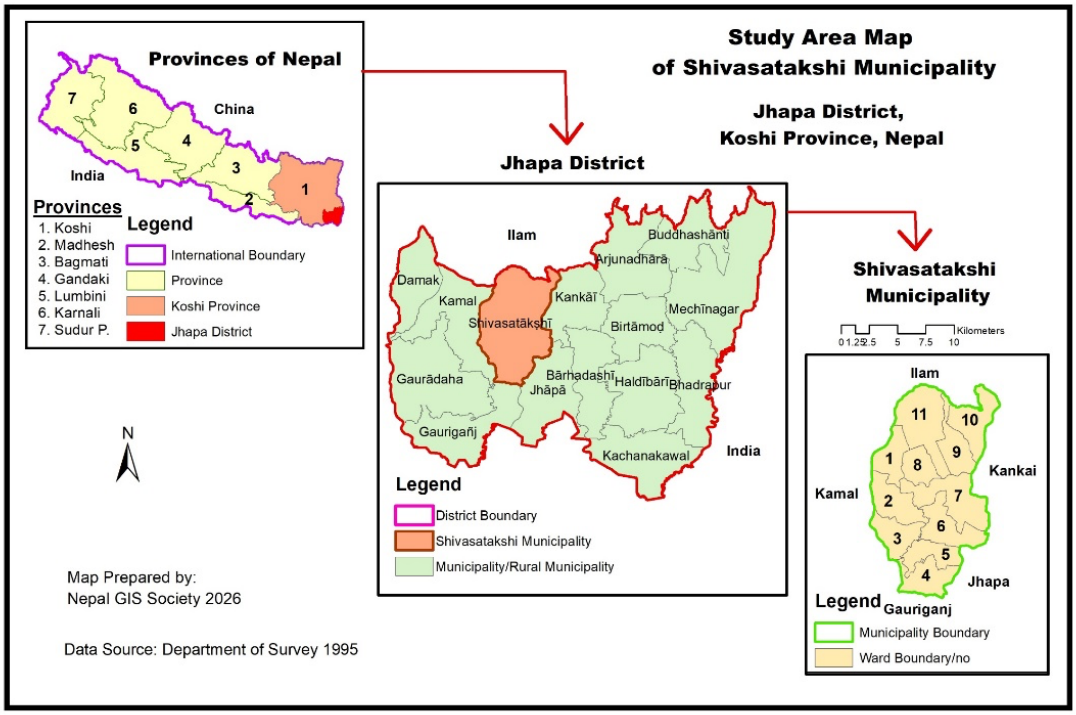

Figure 1. Map of Shivasatakshi Municipality of Jhapa district, Koshi Province

Ethnography

The Tajpuria is an ethnic group of inner Tarai, primarily reside in the Morang and Jhapa districts of the eastern Nepal, where they maintain a cultural and linguistic identity closely related to the Rajbanshi community, sustain their livelihoods mainly through agriculture, possess notable skills in traditional handicraft production, and practice distinctive burial traditions as part of their socio-cultural heritage (Jha 2019). They are marginalized and socially disadvantaged ethnic group facing persistent poverty, limited access to adequate food and healthcare services, and low levels of education and literacy, which together contribute to poor awareness of proper dietary habits and nutrition (Upreti 2017). They trace their origin to the Hindu god Shiva and maintain a distinct language, culture, and traditions. They practice nature worship and revere deities like Shiva (Thakur), the snake god (Bramhani), Hanuman, and also worship Grampuja by participating all the members of the community. The dress worn by the Tajpuriyan women is known as a petani, which is a knee-length dress put around the waist and men wear light clothes like a Dhoti and a Ganji, and also modern clothes in mixed communities. Women adorn themselves with coin garlands, gold/silver ornaments. Their main festival is Siruwa in mid-April, along with others like Dipawali, Holi, Dasain, Krishna Astami, and Shiva Ratri.

Methods

Review

Many studies have conducted ethnomedicinal studies in Nepal, including Thapa *et al.* (2014), Bhattarai & Acharya (2015), Bhatt & Kunwar (2020), Thapa (2020), and Neupane *et al*. (2025) in western Nepal; Luitel *et al.* (2014), Dhital *et al.* (2021), Gautam *et al.* (2023), and Munankarmi *et al.* (2025) in central Nepal, and Bhattarai & Khadka (2016), Rajbanshi & Thapa (2019), Magar *et al.* (2022), and Dewan *et al.* (2023) in eastern Nepal. Relevant ethnomedicinal studies conducted in eastern Nepal were retrieved through Google Scholar using appropriate keywords and were critically reviewed to compile

previously documented medicinal plant uses, identify existing research gaps, and facilitate comparison ethnomedicinal plant species documented among the Tajpuriya community in the present study. The ethnomedicinal knowledge documented among various ethnic groups of eastern Nepal which were used for the review included Dhimal (Baral & Bhagat 2018), Brahmin and Chhetri (Bhattarai & Khadka 2016), Lepcha (Bhattarai 2017), Thami (Bhattarai 2018), Tharu (Chaudhary *et al.* 2020), Kewrat (Das *et al*. 2021), Rai (Paudyal *et al.* 2021), Kisan (Rajbanshi & Thapa 2019), Kewrat (Das *et al*. 2021), Yakkha (Dewan *et al*. 2023), and among various ethnic group (Gachhedar *et al*. 2023).

Data collection

The primary data were collected from February to June 2025. A total of 52 informants, including two key informants, were interviewed using an open-ended, semi-structural questionnaire to record their knowledge regarding the medicinal plants. Besides this, two focus group discussions, each comprising six elderly members of the Tajpuriya, were conducted. The simple random followed by snowball sampling methods (Bhattarai *et al*. 2010) were used to identify the knowledgeable informants. Informants aged 27 to 79 years shared their ethnomedicinal knowledge during field visits. Informants were categorized into three age groups: below 40, 40–60, and above 60, which were considered young, adult, and old age groups respectively (Munanakarmi *et al*. 2025). The key informants were local healers (Dhami and Jhakri) of Tajpuria community, identified through local informants. The interview was conducted in Nepali and sometimes the Tajpuriya language for the convenience of informants, even though it was prepared in English. Participants provided primary data about ethnomedicinal plants, their parts, modes of use, and methods of preparation. The present study strictly followed the code of conduct of the International Society of Ethnobiology (International Society of Ethnobiology 2006). Prior to primary data collection, written permission was obtained from Shivasatakshi Municipality to document local knowledge on ethnomedicinal plant use (Reference No. 2081/82-2620). Additionally, permission for collection of plant specimens was obtained from the Department of Plant Resources, Ministry of Forest and Environment, Government of Nepal (Reference No. 2081/82-352). Local informants provided information about the objectives of the research, and they were provided verbal consent to publish the data with or without publishing their personal information.

Plant collection, identification, herbarium preparation and deposition

The collection of sample specimens was conducted in the study area with the assistance of a field guide, and local people. The limited samples of ethnomedicinal plants were collected carefully for their sustainable conservation. The details of medicinal plants were noted with their naturally occurring habitat, habit, situated elevation, and with their photographs. Specimens were then collected to compile the final list, with each assigned the collection date, and a unique collection number. Further identification was carried out in the National Herbarium and Plant Laboratories (KATH), Godawari, Nepal. The recommended names were cross-matched with World Flora Online database (www.worldfloraonline.org). The collected plants were then processed by pressing, drying, mounting, and preserving them, following the standard procedure outlined by Rajbhandari and Rajbhandary (2015). The herbarium specimens were deposited to the Botany department, Patan Multiple Campus, Tribhuvan University, Kathmandu.

Statistical and quantitative analysis

Data were recorded and organized using MS Excel 2010. The descriptive and inferential study was done in R Studio Version 4.3.2 (R Core Team 2024). However, the normality test of data was performed using the Shapiro-Wilk test. The relationship between informant's age and their knowledge of ethnomedicinal plants, measured as the number of species cited, was assessed using Spearman's rank correlation test. Differences in ethnomedicinal knowledge between male and female informants were statistically examined using the Wilcoxon rank-sum test. The statistical analyses were performed at a 95% confidence interval**,** with statistical significance defined as $p < 0.05$**.** The findings were illustrated through tables, bar charts, pie charts, bubble matrix diagrams, and Sankey diagrams. To assess the prevalence, objective measurement, and standardization of ethnomedicinal studies, the following quantitative analyses were performed:

The Informant Consensus Factor (ICF): The ICF was determined to analyze the degree of agreement among the informants to treat specific diseases categories (Heinrich *et al.* 1998). It assesses the consistency of the informant's knowledge concerning diseases and their treatments.

$$\text{ICF} = \frac{Nur - Nt}{Nur - 1}$$

Here, '*Nur*' is the total use citations for a disease category. '*Nt*' denotes all the taxa utilized in that category.

Relative Frequency of Citation (RFC): The RFC value is determined to find out the common ethnomedicinal plants of the study area, and its value lies between zero to one, where zero indicates no informant mentioned the use, while a value one indicates that all informants reported their value (Tardio & Pardo-de-Santayana 2008).

$$RFC = \frac{FC}{N}$$

Here, *N* is the total informants and *FC* is the informant's number citing the particular medicinal plants.

Results and Discussion

Diversity of ethnomedicinal plants

The study recorded 61 species of ethnomedicinal plant belonging to 39 families and 57 genera (Table 1). Out of the total plant species, 47 (77%) were dicotyledons, and 14 (23%) were monocotyledons. The study recorded fewer ethnomedicinal plants compared to earlier studies in eastern Nepal (Baral & Bhagat, 2018, Dewan *et al*. 2023) but identified a greater number of medicinal plant species than reported in other previous studies from the region (Magar *et al*. 2022, Chaudhary *et al*. 2022). Nepal harbors 1,762 documented medicinal plant species (Kunwar *et al.* 2022), of which 3.46% occur within the present study area. It highlights the notable richness and diversity of plants used as ethnomedicine within this small area of study. Among the families, Fabaceae with the highest species diversity, which contributes seven species, followed by Lamiaceae (4 spp.), Amaranthaceae, Poaceae and Zingiberaceae were recorded with three species for each. Seven families, including Asteraceae, Moraceae, Rutaceae, Apocynaceae, Cyperaceae, Malvaceae and Phyllanthaceae were had two species each. A large number of families (27 families), such as Apiaceae, Musaceae, and Solanaceae, were represented by only a single species (Fig. 2). The previous studies in eastern Nepal had also recorded Fabaceae as the dominant family (Gautam 2013, Baral & Bhagat 2018, Magar *et al.* 2022). Fabaceae is rich in medicinal and ornamental value (Shreya *et al*. 2023) and synthesizes a wide range of vital phytochemicals having medicinal values (MacAlister *et al*. 2018) which may explain the dominance of ethnomedicinal plants from this family in the study area. However, Bhattarai (2017) recorded Zinziberaceae as the dominant family of ethnomedicinal plants among the Lepcha community of Jhapa district.

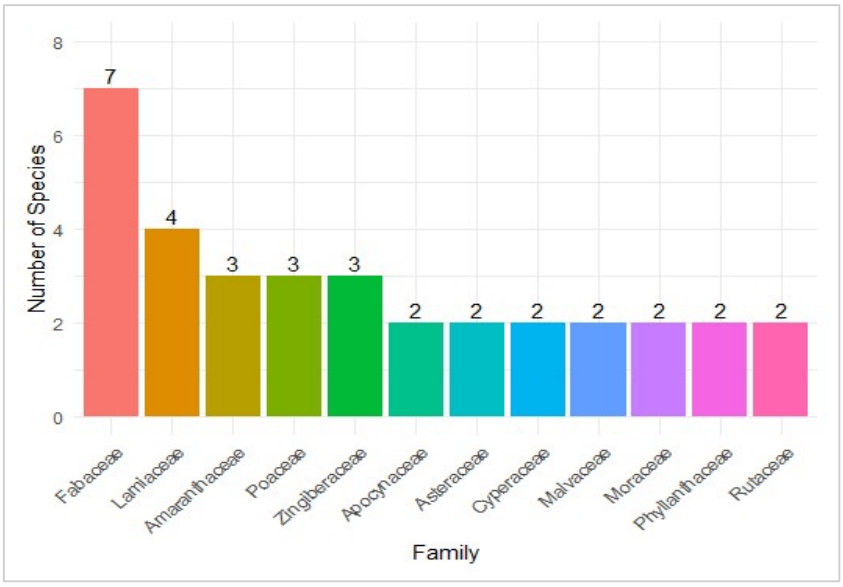

Figure 2. Families of ethnomedicinal plants having more than one species

Habit and source of ethnomedicinal plants

Ethnomedicinal plants were dominated by herbs, which represented 62.3% (38 spp.) of the recorded species. Trees contributed 16.4% (10 spp.), shrubs 13.1% (8 spp.), and climbers comprised the remaining 8.2% (5 spp.) of the total recorded plant species. The prevalence of herbs and shrubs could be attributed to their fast and extensive growth form (Bogale *et al.* 2023) and ease of collection and storage (Ojha Khatri *et al*. 2021). The previous studies had also recorded the herbs as the most dominant life form in their natural habitats (Bhaila *et al.* 2022. Munankarmi *et al.* 2025). Out of the 61 ethnomedicinal plant species, 57.1% (34 spp.) were collected from the wild, 38.1% (24 spp.) were cultivated, primarily in home gardens or farmlands and only 4.8% (3 spp.) were obtained from the market. The results indicated that the local population relies on forest resources for ethnomedicinal remedies (Budhamagar *et al*. 2020).

Parts used for ethnomedicinal purposes

The ethnomedicinal plant parts included leaves, root/rhizome, fruits/seeds, stems, flowers, bark, buds, stem node, and, in some cases whole plant. Leaves were recorded as the dominant parts used from 23 species (33%), followed by underground parts with 18 species (26%). Whole plants and fruits/seeds were used from 7 species each (10%), while stems were used from 6 species (9%). Other parts (bark, buds, and nodes) were reported in 5 species (7%), and flowers were the least used, with 4 species (5%) (Fig. 3). In certain cases, more than one part of a plant was used simultaneously to treat specific diseases. Consistent with the present findings, previous studies have also documented the leaves as predominant parts for medicinal uses (Gautam *et al*. 2023, Karki *et al*. 2023). Their predominance can be explained by the fact that leaves accumulate substantial quantities of bioactive secondary metabolites responsible for therapeutic effects (Thoma *et al*. 2020). Collection of leaves is comparatively simple and less destructive than harvesting other parts (Mallik *et al*. 2020, Magar *et al*. 2022). Their frequent use may also be linked to sustainability, as harvesting leaves or aerial parts is less destructive to the plant compared to removing roots, bark, or whole individuals (Giday *et al.* 2003).

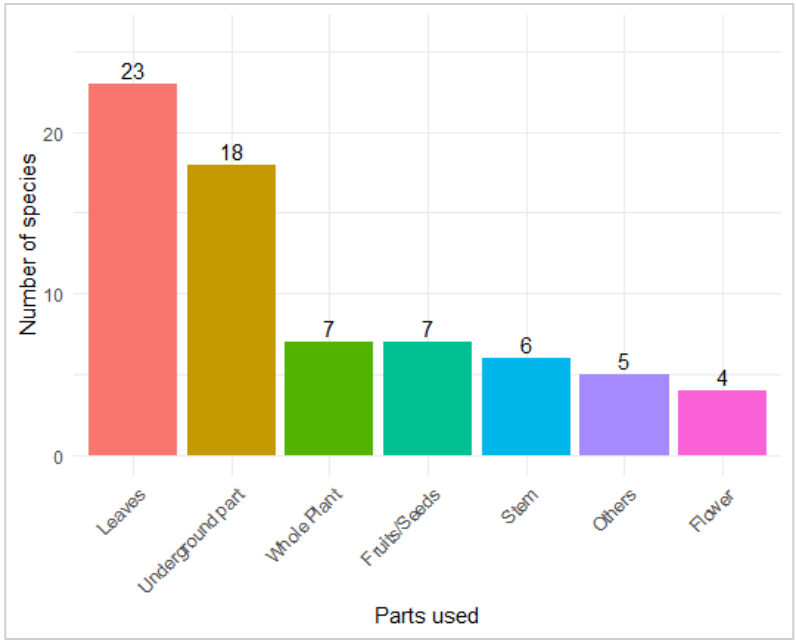

Figure 3. The bar graph showing the parts of ethnomedicinal plants

The Sankey diagram (Fig. 4) shows the linkage between plant parts and growth forms of ethnomedicinal plants. Leaves were dominant parts, predominantly linked with herbs, while underground parts (roots, rhizomes, bulbs etc.) and whole parts of plants also contributed notably. Herbs accounted for the widest range of plant parts, whereas shrubs, trees and climbers were represented by fewer associations.

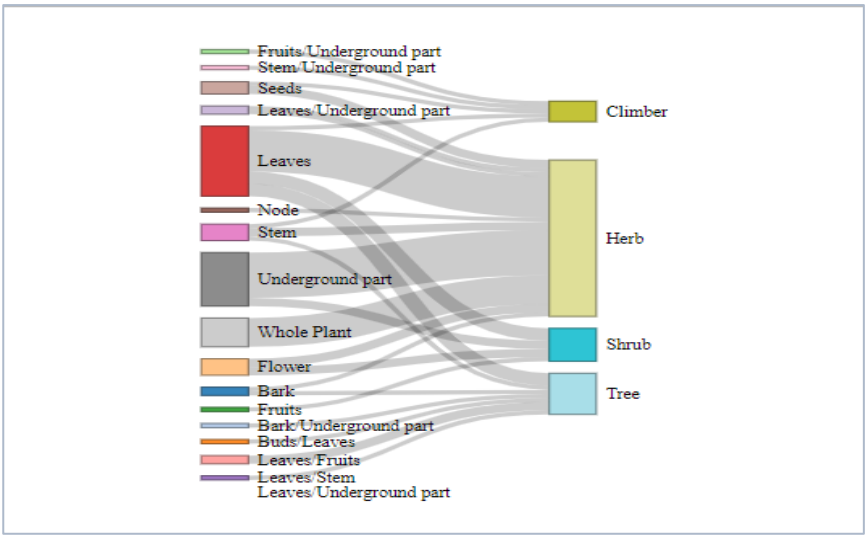

Figure 4. Sankey diagram showing the parts of ethnomedicinal plants and the life forms

Method of preparations and administrations of ethnomedicinal plants

The most dominant ethnomedicinal preparation was found as juice (31 spp.), followed by paste (10 spp.) in the study area while other form of preparations was powder (7 spp.), chewing, infusion and others (oil, gel and ash) (5 spp. each), and decoction was the least with (4 spp. Ethnomedicinal plant parts are commonly squeezed to prepare juice, which is primarily ingested as a form of medication. In most cases, pastes prepared from plant parts are applied topically for the treatment of skin related diseases. Compared to other preparation methods such as decoction, juice preparation is relatively simple and less time consuming. Chaudhary *et al.* (2022) also documented fresh juice as the most popular preparation method among the Meche community of Jhapa District, eastern Nepal, while Bhattarai (2017) in Ilam reported paste as the dominant form, followed by juice and decoction.

The study found only two modes of applications i.e. oral (40 spp.) followed by topical (18 spp.), and both topical/oral were only three species. Oral administration was predominant, reflecting common use of juices, decoctions, powders, and raw plant parts for internal diseases such as digestive issues, fever, and respiratory problems. Topical applications mainly involved pastes and poultices for treating wounds, skin diseases, and inflammation. Chaudhary *et al.* (2022) documented oral administration as the most common mode among the Meche community in Jhapa District.

Disease categories, Informant Consensus Factors (ICF), and Relative Frequency of Citation (RFC)

The ethnomedicinal plants were found to be used in the treatment of 13 disease categories in Shivasatakshi Municipality. The disease categories, and the biomedical terms shown in Table 2. The disorders related to the digestive system were cured and prevented with 21 plant species, followed by skin disorders (17 spp.), respiratory ailments (10 spp.), and general or unspecified conditions (7 spp.). Similarly, Musculoskeletal (6 spp.), urinary (5 spp.), endocrine, metabolic, and nutritional (5 spp.), and circulatory (4 spp.) followed by the female genital (3 spp.), eye (2 spp.) and only a single plant species was reported for ear, neurological and pregnancy, childbearing, and family planning in the study area (Fig. 5).

Table 2. Disease Categories and their biomedical terms

Disease categories	Biomedical terms
Musculoskeletal	Joint pain, body ache, sprains, knee pain Inflammation.
Digestive	Diarrhea, dysentery, gastritis, stomach pain, vomiting, piles, proctitis, hematochezia, jaundice , Toothache.
Eye	Eye problem
Ear	Aural problem
Circulatory	Hypertension, bleeding from nose and mouth
Neurological	Migraines
Respiratory	Cough, throat pain, Tuberculosis, pneumonia, bronchitis, common cold, COVID-19 symptoms.
Urinary	Urinary tract infections (UTI), early-stage kidney stones
Skin	Cuts, wounds, burns, dry skin, scabies, ringworm, pimples, infections, allergies
Endocrine, Metabolic and Nutritional	Diabetes, low appetite, fatigue
Pregnancy, Childbearing, Family Planning	Production of milk to breast feeding mother.
Female Genital (including Breast)	Menstruation disorders, infertility, menstrual Stomach pain
General and Unspecified	Fever, general pain

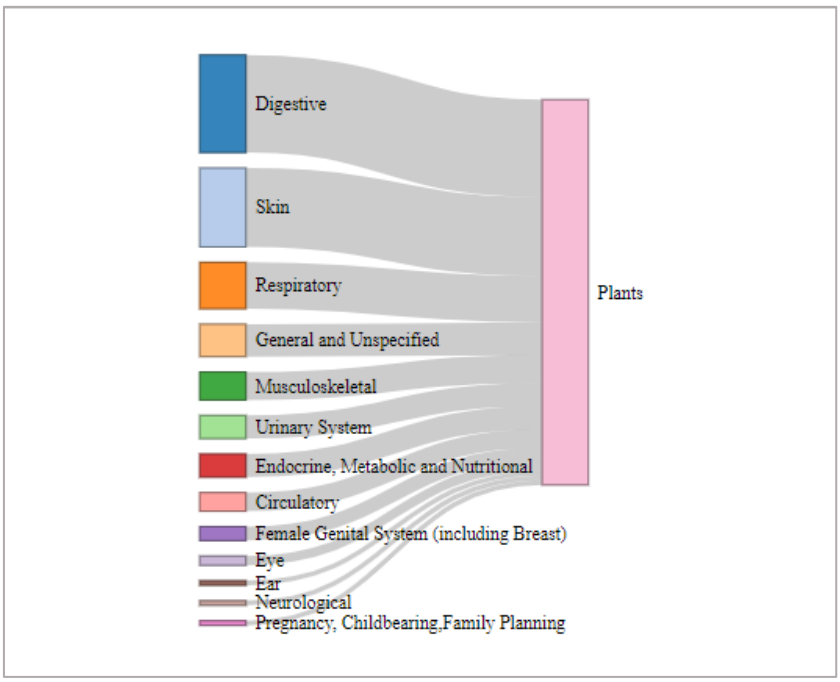

Figure 5. Sankey diagram of ethnomedicinal plants used to treat the disease categories

Informant consensus factor (ICF)

The study recorded ICF ranged from zero to one, reflecting varying levels of agreement among informants across different disease categories. The highest consensus was observed for Neurological and Ear disease categories (1.00), showing complete agreement of ethnomedicinal plants. Very strong agreement was also recorded for Respiratory and Musculoskeletal (0.97), while Digestive, Skin, Endocrine, Metabolic and Nutritional, Female Genital, Circulatory, and Eye-related disease categories showed consistently high agreement with values between 0.95 and 0.96. A comparatively lower consensus was found for the urinary (0.93). The lowest value was reported for Pregnancy, Childbearing, Family Planning, with zero ICF values, indicating no shared knowledge in this category. Overall, the predominance of high ICF values suggested strong community consensus, particularly for common health problems such as Digestive, Skin, Respiratory, and Musculoskeletal disorders (Table 3). The maximum ethnomedicinal plants were recorded to treat digestive system disorders, which is common in rural areas of Nepal (Dhital 2021). The predominance of species in the treatment of digestive system disorders indicates a high frequency of such diseases among the Tajpuriya, which may reflect poor sanitation and malnutrition (Abbas *et al.* 2017), a common problem in rural areas of Nepal (Rokaya *et al.* 2010). The ICF was found to be high across all recorded disease categories except pregnancy, childbearing and family planning disease categories (ICF value 0). The high consensus in most disease categories may be attributed to the study being conducted within a single ethnic community, the Tajpuriya, which likely promotes effective communication and sharing of ethnomedicinal knowledge (Shrestha *et al*. 2016). This may also be attributed to the use of very few taxa in disease treatment, as only a single taxon was recorded for both ear and neurological disorders, resulting in the maximum ICF value of 1. The lowest ICF value was observed for the pregnancy, childbearing, and family planning categories, where only a single taxon was reported by one informant. This low level of consensus may reflect limited knowledge sharing and communication among community members (Rokaya *et al*. 2010).

Relative Frequency of Citation (RFC) of ethnomedicinal plants

The RFC value ranged widely between 0.12 to 1 (Fig. 6). The most commonly mentioned medicinal plants were *Centella asiatica* and *Eclipta prostrata* (52 citations, 1 RFC), which were found primarily for the treatment of diarrhea, dysentery and jaundice well as normal cuts. The least RFC value was recorded in *Crotalaria pallida* and *Musa paradisica* (6 citations, 0.12 RFC). According to the RFC value, *Centella asiatica* and *Eclipta prostrata* were the most cited ethnomedicinal plants, which were found primarily used for treating diarrhoea, dysentery and jaundice well as normal cuts. This finding aligns closely with ethnobotanical studies conducted in Eastern Nepal, where *Centella asiatica* is widely recognized for its efficacy in wound healing and digestive disorders among various indigenous communities (Rai *et al.* 2021). The *Centella asiatica* is recognized as an important medicinal plant due to its broad therapeutic potential. Studies have highlighted its strong antibacterial and antioxidant properties (Drysia *et al*. 2024), along with its traditional use in treatment of various skin diseases, wound healing, gastrointestinal ailments, fever, and female reproductive health problems (Gohil *et al*. 2010). In

addition, its bioactive compounds are effective against neurological disorders, diabetes, ageing-related conditions, and cognitive impairment, underscoring its significance in Ayurvedic medicine (Sameul *et al*. 2022). Similarly, *Eclipta prostrata* has been documented as a key medicinal plant used for liver-related disease and skin infections in Jhapa and Sunsari districts (Shrestha & Shrestha 2018). The widespread use of this plant may be attributed to its strong antioxidant properties (Minh 2019) and the presence of diverse bioactive compounds (Akhter *et al*. 2019).

Table 3. ICF values of various disease categories

Disease categories	Number of use reports (Nur)	Number of taxa (Nt)	Nur-Nt	Nur-1	ICF value
Ear	3	1	2	2	1
Neurological	12	1	11	11	1
Musculoskeletal	161	6	155	160	0.97
Respiratory	285	10	275	284	0.97
Digestive	491	21	470	490	0.96
Skin	387	17	370	386	0.96
Endocrine, Metabolic and Nutritional	93	5	88	92	0.96
Female Genital (including Breast)	50	3	47	49	0.96
General and Unspecified	166	7	159	165	0.96
Eye	22	2	20	21	0.95
Circulatory	58	4	54	57	0.95
Urinary	59	5	54	58	0.93
Pregnancy, Childbearing, Family Planning	1	1	0	0	0

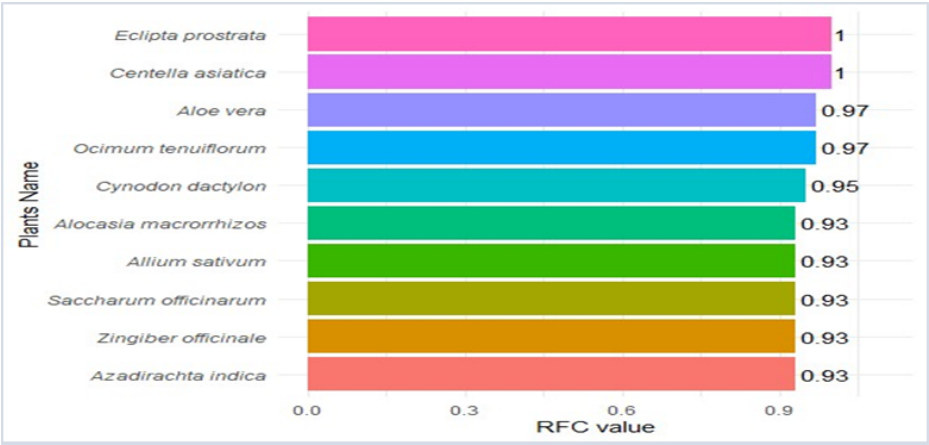

Figure 6. Top ten ethnomedicinal plants having higher RFC value

Ethnomedicinal knowledge across different age groups and gender

The number of ethnomedicinal plant species reported by each informant was used as the response variable for the statistical analyses. A Spearman rank correlation test was applied to examine the relationship between informant age and the number of plant species reported, as the data did not meet the assumption of normal distribution. The test showed a strong positive correlation between age and the plant species reported ($r = 0.687$, $p < 0.001$), indicating that older individuals hold greater knowledge due to prolonged cultural exposure and experience. The bubble diagram (Fig. 7) further showed an overall positive association with age, but the relationship was non-linear. Species knowledge increased from younger ages to approximately 60 years, after which it tended to stabilize or show a slight decline. Consequently, the highest numbers of species were recorded in the middle-aged group (40 to 60 years). Beyond 60 years of age, the number of species reported did not continue to increase and was generally lower than the peak values observed in this middle aged class. This non-linear pattern indicates that knowledge accumulates through early and middle adulthood, reaches a maximum in late middle age, and then decreases modestly in older age. Although individuals older than 60 years still retain substantial knowledge, their average reported species counts are lower than those of the 40 to 60-year group. The lower values beyond 60 years age could reflect factors such as reduced active involvement in resource collection, less frequent field exposure, or age related limitations in memory and recall.

These findings align with Magar *et al.* (2022), and Gautam *et al.* (2023), but contrast with Munankarmi *et al.* (2025), who reported no significant differences. The results indicated that the age influences ethnomedicinal knowledge, although factors such as experience, cultural background, and social learning also contribute, leading to geographical regions, and ethnic groups (Munankarmi *et al.* 2025).

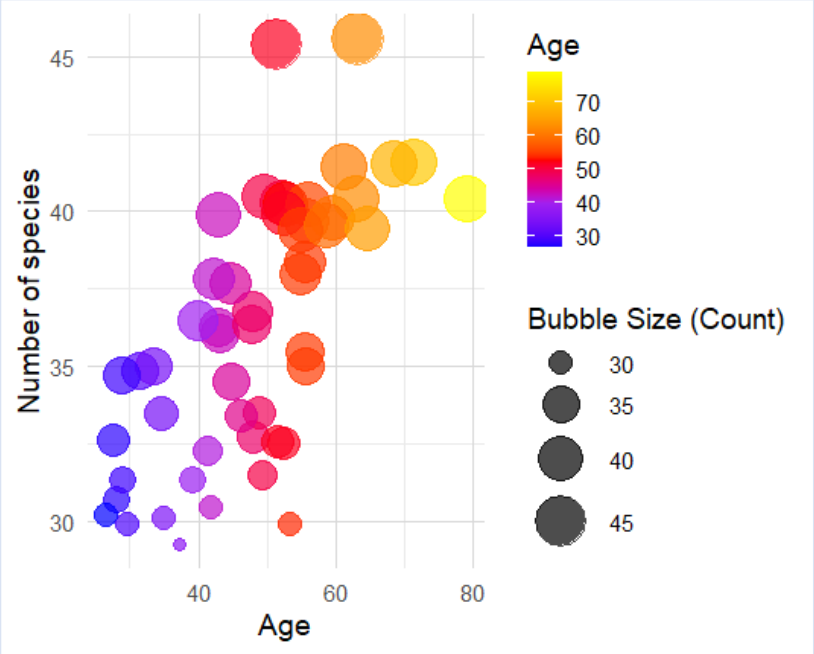

Figure 7. Bubble matrix illustrating the relation between the informant's age and the ethnomedicinal plants they described.

The boxplot illustrates gender-based differences in ethnomedicinal knowledge, with females reporting a median of 32 species and males reporting a higher median of 38 species (Fig. 8). The differences in ethnomedicinal knowledge between genders were analyzed using the Wilcoxon rank-sum test, as the response variable (number of plant species mentioned per informants) did not follow normal distributed. The test confirmed a significant difference (W = 179.5, p = 0.005), indicating that males recognized more species compared to females. This may reflect the patriarchal structure of the Tajpuriya people, where women are primarily engaged in household and agricultural tasks and reducing their exposure to medicinal practices. Social taboos restricting such practices to men may further reinforce this pattern (Cheikhyoussef *et al.* 2011). According to the local informants, all recognized healers in the community were male. They believed that women were not able to provide effective treatment or perform healing practices with the same efficacy as men. This cultural belief was one of the main reasons why traditional healing knowledge and practice were dominated by males in the study area. However, contrasting findings in Luitel *et al.* (2014), and Gautam *et al.* (2023), document women as more knowledgeable, likely due to their greater involvement in resource gathering and household-based ethnomedicinal practices.

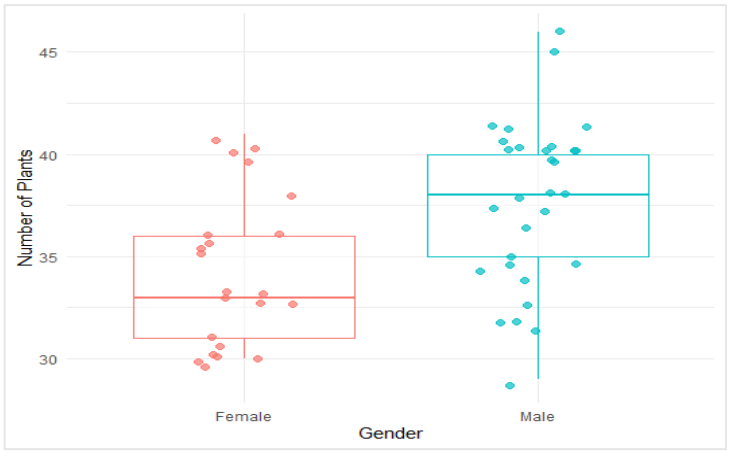

Figure 8. Box plot showing the distribution of ethnomedicinal plant's number described by male and female informants.

Table 1. List of ethnomedicinal plants documented in Shivasatakshi Municipality along with their collection number, habit, parts used, disease categories, method of application and doses.

Plant Name/ Family	Tajpuriya name (TN)/ Nepali name (NN)	Collection Number	Habit/ Source	Parts used	Method of use	Mode of Administration	Disease category	Method of application and doses	References
Abroma augustum (L.) L.f. / **Malvaceae**	Ulat kambal (TN)/ Sanu Kapasi (NN)	S01	Shrub/ Wild	Underground part	Juice	Oral	Urinary /Digestive	The root juice is consumed on an empty stomach twice a day for 2 to 3 days to get relief from urinary tract and rectum inflammation.	***Timungpi 2025
Achyranthes aspera L. / **Amaranthaceae**	Apangi(TN)/Datiwan (NN)	S014	Herb/ Wild	Whole plant	Powder	Topical	Musculoskeletal	The whole dry plant or root is burned, and its ash is mixed with water. This mixture is filtered, and the residue (kharani) is applied to the infected area to reduce inflammation. The filtered water is also consumed for better results.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020; Chaudhary *et al.* 2020; Magar *et al.* 2022; Dewan *et al.* 2023
Acorus calamus L. / **Acoraceae**	Bojho (TN, NN)	S029	Herb/ Cultivated	Underground part	Chewing / Paste / Juice	Oral	Respiratory / Digestive/Skin	Chewing the rhizome is used for treating chronic cough; grinding it into a paste is applied to cuts, and extracting its juice is beneficial for throat pain and jaundice.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2020; Chaudhary *et al.* 2020; Paudyal *et al.* 2021; Dewan *et al.* 2023
Aegle marmelos (L.) Correa / **Rutaceae**	Bael (TN)/Bel (NN)	S020	Tree/ Wild	Leaves / Fruits	Infusion	Oral	Digestive	Soak the pulp of the fruit or dried leaves, then mash them to extract juice, which is consumed early in the morning for a week to treat gastritis and stomach pain.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2020; Chaudhary *et al.* 2020; Dewan *et al.* 2023

Allium sativum L. / **Amaryllidaceae**	Rasun (TN)/Lasun (NN)	NA	Herb/ Cultivated	Underground part	Paste	Topical	General and Unspecified	Garlic flavour is extracted by crushing the garlic bulbs and boiling them with mustard oil. The oil is then applied to the whole body to help reduce fever.	*Baral & Bhagat, 2018; Bhattarai & Khadka 2016; Dewan *et al.* 2023
Aloe vera (L.) Burm.f. / **Aspholdaceae**	Ghyukumari (TN, NN)	NA	Herb/ Cultivated	Leaves	Gel	Topical	Skin	Fresh *Aloe vera* gel is directly applied to burns and also used on pimples.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2020; Paudyal *et al.* 2021; Dewan *et al.* 2023
Amaranthus spinosus L. / **Amaranthaceae**	Gandhari (TP)	S033	Herb/ Wild	Whole plant	Juice	Oral	Digestive	Juice is prepared after cleaning the whole plant, taking daily to treat stomach problems, especially when blood is passed in the stool.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Chaudhary *et al.* 2020
Azadirachta indica A.Juss. / **Meliaceae**	Neem (TN, NN)	S017	Tree/ Wild	Leaves / Stem	Chewing / decoction	Oral	Skin /Digestive	Leaves are chewed to relieve toothache, and leaves boiled in water are used during bathing to treat scabies.	*Baral & Bhagat 2018; Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020; Chaudhary *et al.* 2020;
Brassica campestris L. / **Brassicaceae**	Tori (TN, NN)	S039	Herb/ Cultivated	Seeds	Oil	Topical	Musculoskeletal	Seed oil is applied over the whole body surface during the body aches to get relief.	*Baral & Bhagat 2018; Dewan *et al.* 2023
Bryophyllum pinnatum Kurz. / **Crassulaceae**	Patharchati (TN)/Patttharjatta	S03	Herb/ Cultivated	Leaves	Chewing	Oral	Urinary	Three to four leaves are consumed daily in the early morning to aid in the removal of kidney stones.	*Chaudhary *et al.* 2020; Magar *et al.* 2022

Calotropis procera (Aiton) Dryand / **Apocynaceae**	Aakhi (TN)/Aank (NN)	S05	Shrub/ Wild	Leaves	Paste	Topical	Musculoskeletal	Paste of young leaves mixed with mustard oil is applied to joints to relieve pain or treat sprains.	*Baral & Bhagat 2018; Rajbanshi & Thapa 2019; Chaudhary *et al.* 2020; Dewan *et al.* 2023
Camellia sinensis (L.) Kuntze / **Theaceae**	Cha (TN)/Chiya (NN)	S032	Shrub/ market	Leaves	Chewing	Oral	Digestive	Clean and fresh 5 to 7 young leaves are consumed directly to control diarrhoea.	*Rajbanshi & Thapa 2019
Catharanthus roseus (L.) G. Don / **Apocynaceae**	Baramashi (TN)/Sada bahar (NN)	S037	Herb/ Cultivated	Flower	Juice	Oral	Respiratory /General and Unspecified	Flowers juice mixed with water consumed daily to treat pneumonia at an early stage and also for high fever	*Magar *et al.* 2022
Centella asiatica (L.) Urb. / **Apiaceae**	Lafati (TN)/ Ghodtapre (NN)	S06	Herb/ Wild	Whole plant	Juice	Oral	Digestive	The whole plant is ground together with ginger and banana root, and taken on an empty stomach two to three times to get relief from diarrhoea, dysentery and jaundice.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2018; Rajbanshi & Thapa 2019; Bhattarai 2020; Paudyal *et al.* 2021
Cissus quadrangularis L. / **Vitaceae**	Haddjodda (TN)/ Hadjor (NN)	NA	Climber/Wild	Stem	Paste	Topical	Musculoskeletal	The stem paste is applied during joint pain.	*Bhattarai & Khadka 2016; Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020
Citrus limon (L.) Osbeck / **Rutaceae**	Kagji nemu (TN)/Kagati (NN)	S011	Herb/ Cultivated	Fruits	Juice	Oral / Topical	Skin /Urinary	Fruit juice, when diluted with water, is used topically for dry skin and consumed to assist in kidney stone removal.	*Baral & Bhagat 2018; Rajbanshi & Thapa 2019; Magar *et al.* 2022; Dewan *et al.* 2023

Colocasia esculenta (L.) Schott/ **Araceae**	Maana (TN)/Maana (NN)	S045	Herb/ Wild	Stem	Paste	Topical	Skin	The stem of Maana is ground and mixed with turmeric powder and mustard oil, then topically apply to the wound for fast healing.	*Rajbanshi & Thapa 2019; Chaudhary *et al.* 2020
Crotalaria linifolia L.f.Aiton / **Fabaceae**	Jhunjhuni (TN)/Chinchine (NN)	S022	Shrub/ Wild	Underground part	Juice	Oral	Urinary / Digestive	The root of the plant is ground with an egg and consumed raw to treat prostate and stomach problems.	*Baral & Bhagat 2018
Curcuma longa L. / **Zingiberaceae**	Haldi (TN)/Besar (NN)	NA	Herb/ Cultivated	Underground part	Paste	Topical	Skin /Musculoskeletal	Turmeric powder mixed with salt and lime with some water to make paste and apply for sprain in injured part and also use for cut.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2020; Dewan *et al.* 2023
Cuscuta reflexa Roxb. / **Convolvulaceae**	Alaklati (TN)/ Aakashbeli (NN)	S040	Climber/Wild	Stem / Underground part	juice	Oral	Digestive	Juice extracted by crushing either the stem or root is mixed with water and drunk after meals for seven to ten days to cure jaundice.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Rajbanshi & Thapa 2019; Chaudhary *et al.* 2020; Paudyal *et al.* 2021; Dewan *et al.* 2023
Cynodon dactylon (L.) Pers. / **Poaceae**	Dubra ban (TN)/Dubo (NN)	S08	Herb/ Wild	Whole plant	Paste	Topical	Skin / Circulatory	The young plant is mixed with banana root (Malwa) and consumed on an empty stomach 2 to 3 times which heals the cuts very fast and controls bleeding from nose.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Chaudhary *et al.* 2020; Dewan *et al.* 2023

Cyperus iria L. / **Cyperaceae**	Churaban (TN)	S049	Herb/ Wild	Underground part	Juice	Oral	Respiratory	The roots of *Cyperus iria* L. and *Phyllanthus virgatus* G. Forst. are ground and mixed with one and a half pieces of *Piper nigrum* L., then blended with water to prepare a juice, which is given for the treatment of tuberculosis.	*Baral & Bhagat 2018
Cyperus sp. / **Cyperaceae**	Ban (TN)	S051	Herb/ Wild	Underground part	Oil / Infusion	Topical	Skin	Roots of *Cyperus* sp. are gently heated in oil to extract flavor and applied in cuts and wound area.	**Adhikari *et al*. 2019
Dalbergia sissoo Roxb. ex DC./ **Fabaceae**	Sisa (TN)/Sisso o (NN)	S09	Tree/ Wild	Leaves	Infusion	Oral	Eye/ Ear / Circulatory	young leaf soaked in water in evening and filter. it is used to cure earache, eye troubles and bleeding from nose and mouth.	*Baral & Bhagat 2018; Magar *et al.* 2022
Datura stramonium L. / **Solanaceae**	Dhatura (TN)/Dhat uro (NN)	S052	Herb/ Wild	Leaves	Paste	Topical	Respiratory	Directly young leave is applied with pure mustard oil in the head of a newborn child to cure cough and common cold.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Chaudhary *et al.* 2020
Dendrocalamus strictus (Roxb.) Nees. / **Poaceae**	Bans (TN, NN)	NA	Herb/ Wild	Node	Powder	Topical	Skin	Powdered bamboo node is directly applied to cuts or wounds to stop bleeding.	*Rajbanshi & Thapa 2019; Dewan *et al.* 2023
Drymaria cordata (L.) Willd. ex Schult. / **Caryophyllaceae**	Latiban (TN)/Abijal o (NN)	S036	Herb/ Wild	Whole plant	Juice	Oral	General and Unspecifie d	To relieve high fever, the juice of the plant diluted with water is ingested thrice a day.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2018; Rajbanshi & Thapa 2019; Bhattarai 2020; Dewan *et al.* 2023

Eclipta prostrata (L.) L. / **Asteraceae**	Kalo keshriya (TN)/Bhrigaraj(NN)	S07	Herb/ Wild	Leaves	Paste	Topical	Skin	Leaves paste is applied in cuts to stop bleeding.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Rajbanshi & Thapa 2019; Bhattarai 2020
Ficus benghalensis L. / **Moraceae**	Bar (TN, NN)	S041	Tree/ Wild	Bark / Underground part	Powder / Juice	Topical/Oral	Skin / Digestive	Bark powder is used for cuts, and the root juice mixed with ginger is consumed three times on an empty stomach to treat vomiting.	*Das *et al*. 2021
Ficus religiosa L. / **Moraceae**	Peepal (TN, NN)	S046	Tree/ Wild	Leaves / Buds	Juice	Oral	Female Genital (including Breast) / Digestive	A mixture of organic sugar and young leaves or buds is ground and consumed early in the morning for three days to help cure infertility, menstrual abdominal pain in females, and gastritis.	*Baral & Bhagat 2018; Magar *et al.* 2022
Hedychium coronarium J.Koenig / **Zingiberaceae**	Pakha (TN)/Dudhkewara (NN)	S012	Herb/ Wild	Underground part	Juice	Oral	Respiratory	Rhizomes are ground with water to prepare a juice that is either gargled or consumed for five days to treat bronchitis.	**Pun *et al*. 2024
Heliotropium indicum L. / **Heliotropiaceae**	Bantil (TN)/Hattisude jhar(NN)	S047	Herb/ Wild	Underground part	Oil	Topical	Musculoskeletal	Roots are crush and then boil with natural mustard oil and apply in knee area	***Sarkar *et al*. 2021
Hellenia speciosa (J.Koenig) S.R.Dutta / **Costaceae**	Kakuwa (TN)/Betlauri (NN)	S038	Herb/ Cultivated	Underground part	Juice	Oral	Digestive/General and Unspecified	Roots and rhizomes are crushed to extract the juice and consumed with water to control vomiting, fever, and stomach pain.	*Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2020

Hibiscus rosa-sinensis L. / **Malvaceae**	Ghantiphul (TN, NN)	S016	Herb/ Cultivated	Flower	Decoction	Oral	Circulatory	dried flower boiling with water to extract chemical material and drink to control bleeding from mouth.	*Baral & Bhagat 2018; Chaudhary *et al.* 2020; Dewan *et al.* 2023
Lagenaria siceraria (Molina) Standl. / **Cucurbitaceae**	Kaddu (TN)/Lauka (NN)	S035	Climber/Cultivated	Underground part / Fruits	Juice	Oral	Urinary	Roots and fruits are crushed to extract the juice, diluted with water and consumed early in the morning for a week to cure urinary tract infection or urine inflammation.	*Das *et al*. 2021
Leucas aspera (Willd.) Link / **Lamiaceae**	Dulphi (TN)/Jhunkeghas (NN)	S015	Herb/ Wild	Whole plant	Decoction	Oral	General and Unspecified / Neurological	The whole plant or leaves are boiled to extract their chemical constituents consumed daily to cure migraine and fever.	*Chaudhary *et al.* 2020
Leucomeris spectabilis D.Don / **Astaraceae**	Pressure dabai (TN)	S048	Herb/ Wild	Leaves	Juice	Oral	Circulatory	Some leaves are grind with water to make juice, and a cup is consumed for few days in empty stomach to lowering blood pressure	*Gachhadar *et al*. 2023
Linum usitatissimum L. / **Linaceae**	Aalas (TN,NN)	S053	Herb/ Cultivated	Seeds	Powder	Oral	Endocrine, Metabolic and Nutritional	Seed powder mixed with water and consumed to lower blood sugar levels.	*Baral & Bhagat 2018
Mangifera indica L. / **Anacardaceae**	Aam (TN)/Aap (NN)	S059	Tree/Cultivated	Leaves	Juice	Oral	Digestive	Some leaves are grind with water to make juice, and a cup is consumed for few days to get relief from stomach disorders and gastritis	*Baral & Bhagat 2018; Bhattarai 2020; Chaudhary *et al.* 2020; Dewan *et al.* 2023

Mentha spicata L. / **Lamiaceae**	Pudina (TN, NN)	S034	Herb/ Wild	Leaves	Juice	Oral	Digestive	Leaves juice mixed with water consumed early in the morning for seven days continuously on an empty stomach to get relief from gastritis.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2018; Bhattarai 2020; Magar *et al.* 2022; Dewan *et al.* 2023
Mimosa pudica L. / **Fabaceae**	Chamki/ nilaji (TN)/ Buhari jhar (NN)	S042	Herb/ Wild	Underground part	Chewing	Oral	Digestive	Clean and fresh roots are directly chewed to cure toothache	*Baral & Bhagat 2018; Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020; Magar *et al.* 2022; Dewan *et al.* 2023
Musa paradisiaca L. / **Musaceae**	Athiya kela (TN)/Kera (NN)	NA	Herb/ Cultivated	Bark	Powder	Topical	Skin	Powdered bark is directly applied to infected wounds or cuts for fast recovery from skin infection.	*Bhattarai 2017; Bhattarai 2020; Dewan *et al.* 2023
Nelumbo nucifera Gaertn. /**Nelumbonaceae**	Hella /kamal (TN)/Kamal (NN)	NA	Herb/ Wild	Flower	Infusion	Oral	Digestive	Dried lotus flowers can be used as an infusion to cure dysentery.	*Das *et al*. 2021
Nyctanthes arbor-tristis L. / **Oleaceae**	Parijat (TN,NN)	S043	Shrub/ Cultivated	Flower	Juice	Oral	Endocrine, Metabolic and Nutritional	The flowers juice mixed with water consumed daily to reduce blood sugar levels.	*Baral & Bhagat 2018; Bhattarai 2020
Ocimum gratissimum L. / **Lamiaceae**	Ramtulsi (TN, NN)	S019	Herb/ Cultivated	Leaves	Juice	Oral	General and Unspecified	Leaves juice consumed daily mixed with warm water to get relief from high fever.	*Das *et al*. 2021

Ocimum tenuiflorum L. / **Lamiaceae**	Tulsi (TN, NN)	S018	Herb/ Cultivated	Leaves	Juice	Oral	Respiratory	Leaves are ground with warm water to make juice, which is used to gargle and consumed twice a day to treat cough.	*Baral & Bhagat 2018; Bhattarai 2017; Bhattarai 2020; Chaudhary *et al.* 2020; Dewan *et al.* 2023
Ouret sanguinolenta (L.) Kuntze / **Amaranthaceae**	Iodine Jhar (TN, NN)	S031	Herb/ Cultivated	Leaves	Juice	Topical	Skin	Young juice is extracted to apply on cuts to help clot the blood.	***Sharma *et al*. 2024
Oxalis corniculata L. / **Oxalidaceae**	Aam churchuriya (TN)/Chari amilo (NN)	S028	Herb/ Wild	Leaves	Juice	Oral	Eye	leaf grind to extract juice and consume orally	*Gachhadar *et al*. 2023
Phyllanthus niruri L. / **Phyllanthaceae**	Sirudagani (TN)/Kanike ghas (NN)	S04	Herb/ Wild	Whole Plant	Paste	Topical/ Oral	Skin /Pregnancy, Childbearing, Family Planning /Digestive	The paste of root or whole plant mixed with water is applied to wounds and allergies. The roots of Sirudagani are ground with water to make a juice, which is consumed on an empty stomach for 3 days to enhance milk production in breastfeeding mothers and to help relieve piles.	*Gachhadar *et al*. 2023
Phyllanthus virgatus G. Forst. / **Phyllanthaceae**	Talgugra (TN)/ Bhuiamala (NN)	S050	Herb/ Wild	Underground part	Juice	Oral	Respiratory	Roots of *Cyperus iria* and *Phyllanthus virgatus* are ground and mixed with one and half pieces of *Piper nigrum* mixed water and consumed to treat tuberculosis.	*Gachhadar *et al*. 2023

Piper nigrum L. / **Piperaceae**	Golmarchin (TN)/Marich (NN)	S055	Climber/ Market	Seeds	Powder	Oral	Respiratory	Mix seed powder with boiling water and consume daily to treat cough and throat pain.	*Baral & Bhagat 2018; Bhattarai 2017; Bhattarai 2020
Pisidium guajava L. / **Myrtaceae**	Belati (TN)/Aamba (NN)	S061	Tree/Cultivated	Leaves / Fruits	Juice	Oral	Digestive/Respiratory	Young leaves are consumed directly to relieve cough and coronavirus symptoms. Leaf paste is applied to the tooth to cure toothache. The fruit is used to control diarrhea.	*Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020; Chaudhary *et al.* 2020; Paudyal *et al.* 2021
Plumbago zeylanica L. / **Plumbaginaceae**	Bhomachitta (TN)/Chitu (NN)	S02	Herb/ Wild	Underground part / Leaves	Juice	Oral	Digestive	The root or leaf is ground with water and ginger juice, and consumed on an empty stomach three times a day on Tuesdays and Saturdays to cure jaundice.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Dewan *et al.* 2023
Pterocarpus macrocarpus Kurz / **Fabaceae**	Raktachandan (TN, NN)	NA	Tree/ Market	Stem	Juice	Topical	Female Genital (including Breast)	Young stems are ground with water and taken as a cup of juice daily for 15 days to regulate the menstrual cycle	***Rahman *et al*. 2018
Saccharum officinarum L. / **Poaceae**	Kusiyar (TN)/Ukhu (NN)	NA	Herb/ Cultivated	Stem	Juice	Oral	Skin /Digestive	Crush the stem to extract the juice and drink it early in the morning to cure jaundice. Consuming the extract is also useful for controlling pimples.	*Dewan *et al.* 2023

Saraca asoca (Roxb.) Willd / **Fabaceae**	Ashok (TN, NN)	S067	Tree/Cultivated	Bark	Juice	Oral	Endocrine, Metabolic and Nutritional /General and Unspecified	Dried bark powder with water is consumed to lower body pain, increase appetite, and reduce fatigue.	*Baral & Bhagat 2018
Scoparia dulcis L. / **Plantaginaceae**	Chinimisri (TN)/Patale misri (NN)	S023	Herb/ Wild	Underground part / Leaves	Decoction	Oral	Endocrine, Metabolic and Nutritional / Female Genital (including Breast)	Leaves of *Scoparia dulcis*, *Cynodon dactylon,* and *Eclipta prostrata* are boiled with water in an earthen vessel, strained through a cloth, and consumed early in the morning and evening to control blood sugar levels. It is also useful in controlling menstrual disorders.	*Baral & Bhagat 2018
Senna alata (L.) Roxb.. / **Fabaceae**	Daudder dabai (TN)/Sanotapre (NN)	S021	Shrub/ Wild	Leaves	Juice	Topical	Skin	Extract juice from young leaves and apply it to the infected areas for faster recovery to get relief from ringworm.	*Baral & Bhagat 2018
Tinospora cordifolia (Willd.) Hook. f. & Thoms / **Menispermaceae**	Amor lata (TN)/Gurjo (NN)	S025	Climber/Wild	Leaves	Powder	Oral	Endocrine, Metabolic and Nutritional	Leaves are dried and grind into a powder, which is consumed daily on an empty stomach with water to lower blood sugar levels.	*Bhattarai & Khadka 2016; Bhattarai 2017; Bhattarai 2020
Trifolium repens L. / **Fabaceae**	Tetraj (TN)/Pyauli (NN)	S024	Herb/ Wild	Leaves	Juice	Oral	Digestive	The juice extracted from young leaves is consumed to treat diarrhea and dysentery.	**Munankarmi et al., 2025

Zingiber officinale Roscoe / **Zingiberaceae**	Aadha (TN)/Aduwa (NN)	NA	Herb/ Cultivated	Underground part	Infusion / Ash	Oral	Respiratory	The juice extracted from the rhizomes, or the ash obtained by burning the rhizomes, is taken orally to treat respiratory problems.	*Baral & Bhagat 2018; Bhattarai & Khadka 2016; Bhattarai 2017; Rajbanshi & Thapa 2019; Bhattarai 2020; Dewan *et al.* 2023

Novelty of the work

This study provides the first documentation of plants and associated knowledge used for treating various diseases in the Tajpuriya ethnic group. A comparative assessment with existing studies of different communities (Lepcha, Rai, Kisan, Kewrat, Dhimal, Thami, Tharu, Yakkha, Brahmin and Chhetri), primarily from eastern Nepal, revealed seven species that had not been previously reported from this region. These newly recorded ethnomedicinal plants are *Abroma augustum, Hedychium coronarium, Cyperus* sp*., Heliotropium indicum, Ouret sanguinolenta, Pterocarpus macrocarpus,* and *Trifolium repens*.

Conclusion

The present study documented 61 species of ethnomedicinal plants used by Tajpuriya ethnic community of Shivasatakshi municipality, Jhapa district, with *Eclipta prostrata,* and *Centella asiatica* being the most frequently cited. Medicinal plants were applied in diverse forms, with juice as the most common preparation, herbs as the predominant growth form, and leaves as the frequently used plant parts. Significant differences in knowledge were observed across gender and age of informants, while digestive disorders accounted for the highest number of treated medicinal plants used. Notably, seven species were recorded for the first time as ethnomedicinal uses, adding insights to ethnomedicinal knowledge of eastern Nepal. These findings underscore the importance of documenting and conserving traditional practices, both to preserve biocultural heritage and provide a foundation for future pharmacological study and potential drug discovery. Moreover, it highlights the rich traditional knowledge within the community and underscores the urgent need for its preservation, as it is gradually declining due to ongoing sociocultural changes. Furthermore, the documented medicinal practices demonstrate the significant role of traditional healing in local primary healthcare systems and indicate opportunities for thoughtful integration with modern healthcare approaches. Overall, the findings contribute to safeguarding indigenous knowledge, promoting biodiversity conservation, and encouraging the sustainable use of medicinal plant resources for the wellbeing of present and future generations.

Declarations

Ethics approval and consent to participate: During the study, the full respect for ethical and legal guidelines governing research on traditional knowledge was maintained.

Consent for publication: All informants provided prior oral informed consent before participating in interviews, conducted using an open-ended questionnaire to collect primary data.

Availability of data and materials: All data collected in the study have been presented and visualized in the manuscript.

Competing interests: The authors declare no conflict of interest

Funding: Shivasatakshi municipality, Jhapa District, Nepal

Author's contribution: ST collected the data and prepared first draft of the manuscript. IS and RSG conceptualized, designed the study, revised and finalized the manuscript; DKS managed and analyzed the data.

Acknowledgements

The authors sincerely thank Shivasatakshi Municipality for financial support and express them gratitude to the local informants for generously sharing their knowledge, which was essential for the completion of this study.

Literature cited

Abbas Z, Khan SM, Alam J, Khan SW, Abbasi AM. 2017. Medicinal plants used by inhabitants 44 of the Shigar Valley, Baltistan region of Karakorum range-Pakistan. Journal of Ethnobiology and Ethnomedicine 45:13-53. doi:10.1186/s13002-017-0172-9

Adhikari M, Thapa R, Kunwar RM, Devkota HP, Poudel P. 2019. Ethnomedicinal Uses of Plant Resources in the Machhapuchchhre Rural Municipality of Kaski District, Nepal. Medicines 6:69. doi:10.3390/medicines6020069

Akhter S, Sharika S. 2019. Spectroscopic profiling of *Eclipta prostrata* ethanolic leaf extract by UV and FT-IR.*GSC* Biological and pharmaceutical sciences 8(1):029-034.

Alves RRN, Rosa IML. 2007. Biodiversity, traditional medicine and public health: where do they meet? Journal of Ethnobiology and Ethnomedicine 3:14. doi:10.1186/1746-4269-3-14

Baral BR, Bhagat I. 2018. Ethnomedicinal plants used by Dhimal community of Rajghat, Morang. Nepalese journal of Biosceince 8(1):36-47.

Bhaila A, Shakya S, Kunwar B, Baral B, Chaudhary S, Munankarmi NN. 2022. Ethnomedicinal exploration of plants utilized by the people of Suryabinayak Municipality in Bhaktapur District, Nepal. Vegetos 35:763-774. doi: 10.1007/s42535-021-00339 2

Bhatt MD, Kunwar RM. 2020. Distribution pattern and ethnomedicinal uses of plants in Kanchanpur district, Far-Western Nepal. Ethnobotany Research and Applications 20:1-21.

Bhattarai KR, Acharya SK. 2015. Documentation of ethnobotanical knowledge of Tharu people on the utilization of plant resources in Gadariya and Phulwari VDCs of Kailali District, West Nepal. Bulletin of Department Plant Resources 37:41-50.

Bhattarai KR, Khadka MK. 2016. Ethnobotanical survey of medicinal plants from Ilam district, east Nepal. Our Nature 14(1):78-91. doi: 10.3126/on.v14i1.16444

Bhattarai KR. 2017. Ethnomedicinal practices of the Lepcha community in Ilam, East Nepal. Journal of Plant Resources 15(1):31–44

Bhattarai KR. 2018. Ethnobotanical study of plants used by Thami community in Ilam District, eastern Nepal. Our Nature 16(1):55-67.

Bhattarai S, Chaudhary RP, Quave CL, Taylor RS. 2010. The use of medicinal plants in the trans-Himalayan arid zone of Mustang district, Nepal. Journal of Ethnobiology and Ethnomedicine 6:14. doi: 10.1186/1746-4269-6-14

Bogale M, Sasikumar JM, Egigu MC. 2023. An ethnomedicinal study in tulo district, west hararghe zone, oromia region, Ethiopia. Heliyon 9:e15361. doi: 10.1016/j.heliyon.2023.e15361

Budha Magar S, Bhandari P, Ghimire SK. 2020. Ethno-medicinal survey of plants used by Magar (Kham) community, Rolpa district, Western Nepal. Ethnobotany Research & Applications 19:18. doi: 10.32859/era.19.18.1-29

Chaudhary S, Koirala SB, Dhungana L. *et al.* 2025. Ethnomedicinal plants used for immediate care in Nepal: A cross-cultural review. Journal of Ethnobiology and Ethnomedicine 21:75. doi: 10.1186/s13002-025-00807-y

Chaudhary S, Magar GT, Sah SN, Parajuli S. 2020. Ethnic plants of Tharu community of Eastern Nepal. International Journal of Applied Sciences and Biotechnology 8(2):223-230.

Cheikhyoussef A, Shapi M, Matengu K, Ashekele HM. 2011. Ethnobotanical study of indigenous knowledge on medicinal plant use by traditional healers in Oshikoto region, Namibia. Journal of Ethnobiology and Ethnomedicine 7:10. doi: 10.1186/1746-4269-7-10

Cunningham AB. 2001. Applied Ethnobotany: People, Wild Plant Use and Conservation. Earthscan Publication Ltd, London, UK.

Das BD, Paudel N, Paudel M, Khadka MK, Dhakal S, KC A. 2021. Ethnobotanical knowledge of Kewrat community of Morang district, eastern Nepal. Ethnobotany Research & Applications 21:01. doi: 10.32859/era.2

Dewan K, Shrestha N, Sapkota R, Rai J, Lama S, Shrestha BB. 2023. Medicinal ethnobotany of the Yakkha community in eastern Nepal. Ethnobotany Research and Applications 26:1- 34.

Dhillion SS, Svarstad H, Amundsen C, Bugge HC. 2002. Bioprospecting: Effects on Environment and Development. AMBIO: A Journal of the Human Environment 31(6):491–493. doi:10.1579/0044-7447-31.6.491

Dhital AP, Paudel M, Karki S, Kafle S, Siwakoti M, Lamichhane D. 2021. Traditional knowledge on use of medicinal plants by Tamang community of Dolakha, Nepal. Journal of Plant Resources 19(1):192-203.

Drisya MK, Luies SL, Raphy AC, Anusree V, Rashitha VU, Sali S. 2024. Review on ethnobotany and pharmacological activities of *Centella asiatica* (Apiaceae). Journal of Medicinal Plants Studies 12(3): 67-70.

Dulal K, Chaudhary S, Uprety Y, Shrestha N, Shakya S, Munankarmi NN. 2022. Ethnomedicinal plants used by the local people of Changunarayan Municipality, Bhaktapur, Nepal. Ethnobotany Research and Applications 23:1-27. doi:10.32859/era.23.37.1-27

Gachhadar PK, Mandal T, Chaudhary RP, Baniya CB. 2023. Plants used in medicinal practices by the tribal people of Morang District in Koshi Province of Nepal. Pleione 17(2):163 - 190. doi:10.26679/Pleione.17.2.2023.163-190

Gautam RS, Shrestha SJ, Shrestha I. 2023. Ethnomedicinal Plant Resources of Tamang Community in the Konjyosom Rural Municipility, Central Nepal. Ethnobotany Research and Applications *25*:1–29.

Gautam TP. 2013. Status of medicinal plants in tropical forest of eastern Nepal. Nepalese Journal of Biosciences 3(1):57-63. doi:10.3126/njbs.v3i1.41446

Giday M, Asfaw Z, Elmqvist T, Woldu Z. 2003. An ethnobotanical study of medicinal plants used by the Zay people in Ethiopia. Journal of Ethnopharmacology 85:43–52. doi: 10.1016/s0378-8741(02)00359-8

Gohil KJ, Patel JA, Gajjar AK. 2010. Pharmacological Review on *Centella asiatica*: A Potential Herbal Cure-all. Indian Journal of Pharmaceutical Sciences 72(5):546-56. doi: 10.4103/0250-474X.78519.

Jha HB. 2019. The Janajati of Nepal. Vivekananda International Foundation, New Delhi.

Joshi N, Ghorbani A, Siwakoti M, Kehlenbeck K. 2020. Utilization pattern and indigenous knowledge of wild medicinal plants among three ethnic groups in Makwanpur district, Central Nepal. Journal of Ethnopharmacology 262:113219.

Karki D, Khadka D, Kunwar RM, Aryal PC, Poudel HR, Bhatta S, Shi S. 2023. Ethnomedicinal plants in Champadevi rural municipality, Okhaldhunga district, Nepal. Journal of Ethnobiology and Ethnomedicine 19:58. doi: 10.1186/s13002-023 00627-y

Koirala RR, Khaniya BN. 2009. Present Status of Traditional Medicines and Medicinal & Aromatic Plants Related Resources & Organizations in Nepal. Nepal Health Research Council, Ramsahpath, Kathmandu Nepal.

Kunwar RM, Baral B, Luintel S, Uprety Y, Poudel RC, Adhikari B, Adhikari YP, Subedi SC, Subedi CK. 2022. Ethnomedicinal landscape: distribution of used medicinal plant species in Nepal. Journal of Ethnobiology and Ethnomedicine 18:34. doi:10.1186/s13002022-00531-x

Kunwar RM, Baral K, Paudel P, Acharyam RP, ThapaMagar R, Cameron M, Bussmann RW. 2016. Land-Use and Socioeconomic Change, Medicinal Plant Selection and Biodiversity Resilience in Far Western Nepal. Plos One 11:e0167812. doi: 10.1371/journal.pone.0167812

Kunwar RM, Mahat, L, Acharya RP, Bussmann RW. 2013. Medicinal plants, traditional medicine, markets and management in far western Nepal. Journal of Ethnobiology and Ethnomedicine 9:24. doi: 10.1186/1746-4269-9-24

Luitel DR, Rokaya MB, Timsina B, Munzbergova Z. 2014. Medicinal plants used by the Tamang community in the Makawanpur district of central Nepal. Journal of Ethnobiology and Ethnomedicine 10:5. doi: 10.1186/1746-4269-10-5.

MacAlister D, Muasya AM, Chimphango SB. 2018. Linking root traits to superior phosphorus uptake and utilisation efficiency in three Fabales in the Core Cape Subregion, South Africa. Functional Plant Biology 45(7):760-770.

Magar RA, Mallik AR, Chaudhary S, Parajuli S. 2022. Ethno-medicinal plants used by the people of Dharan, Eastern Nepal. Indian Journal of Traditional Knowledge 21(1):72-80.

Mallik AR, Chaudhary S, Shrestha S. 2020. Useful valuable plants of Maithili community in Eastern Nepal: An ethnobotanical study. Bangladesh Journal of Plant Taxonomy 27:439-446. doi: 10.3329/bjpt. v27i2.50678

Minh NP. 2019. Dried herbal tea production from *Eclipta prostrata*. Journal of Pharmaceutical Sciences and Research 11(3):684-687.

MoFSC 2014. Nepal biodiversity strategy and action plan 2014-2020. Government of Nepal Ministry of Forest and Soil Conservation, Kathmandu, Nepal.

Munankarmi NN, Chaudhary S, Neupane S, Shyaula SL, Zhang W, Gauchan DP. 2025. Ethnomedicinal uses of plant resources in Bethanchowk rural municipality of Kavrepalanchowk district, central Nepal. Ethnobotany Research and Applications 30:1-47. doi: 10.32859/era.30.42.1-47

Neupane S, Magar GT, Chaudhary S, Pant D. 2025. Traditional plant uses and medicinal significance in Western Nepal: A study of Ramaroshan rural municipality, Achham district. Ethnobotany Research and Applications 31:1-28. doi: 10.32859/era.31.75.1-28.

NPHC. 2021. National Population and Housing Census (National Report). Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal.

Ojha Khatri S, Chaudhary S, Shrestha N, Munankarmi NN. 2021. Ethnomedicinal study and phytochemical screening of selected plants in Jhule, Dolakha District, Nepal. Vegetos 34:834-846. doi: 10.1007/s42535-021-00266-2

Paudyal S, Rai A, Das B, Paudel N. 2021. Ethnomedicinal Knowledge on Rai Community of Ramprasadrai Rural Municipality, Bhojpur District, Eastern Nepal. European Journal of Biological Research 11:367-380.

Pun D, Joshi GP, Pant DR. 2024. Pharmacological activities of six species of *Hedychium* J. Koenig from Nepal. Journal of Nepal Biotechnology Association 5(1):23-30.

Quinlan MB, Quinlan RJ. 2007. Modernization and medicinal plant knowledge in a Caribbean Horticultural Village. Medical Anthropology Quarterly 21:169-192.

Rahman MS, Mujahid M, Siddiqui MA, Arif M, Eram S, Khan A, Azeemuddin Md. 2018. Ethnobotanical Uses, Phytochemistry and Pharmacological Activities of *Pterocarpus marsupium*: A Review. Pharmacognosy Journal. 10(6s):s1-s8. doi: 10.5530/pj.2018.6s.1

Rai S, Limbu S, Singh A. 2021. Ethnomedicinal plants used by Rajbanshi community in Morang District, Eastern Nepal. Journal of Plant Resources 14(2):45–56.

Rai SK, Pokhrel M. 2006. Ethnobotanical Survey of Medicinal and Aromatic Plants of Chandannath, Depalgaun and Garjang VDCs of Jumla, Mid-Western Nepal. Journal of Plant Resources 27:16-20.

Rajbanshi N, Thapa LB. 2019. Traditional knowledge and practices on utilizing medicinal plants by endangered Kisan ethnic group of Eastern Nepal. Ethnobotany Research and Applications 18:1-9. doi: 10.32859/era.18.23.1-9

Rajbhandari KR, Rajbhandary S. 2015. Herbarium Preparation and Storage Technique. In: M. Siwakoti & S. Rajbhandary (Eds.), Taxonomic tools and flora writing (pp. 70-80). Kathmandu, Nepal: Department of Plant Resources and TU Central Department of Botany.

Rokaya MB, Munzbergova Z, Timsina B. 2010. Ethnobotanical study of medicinal plants from the Humla district of western Nepal. Journal of Ethnopharmacology 130(3):485-504.

Samuel K, Medikeri A, Pasha T, Ansari MF, Saudagar A. 2022. *Centella asiatica*: A traditional herbal medicine. World Journal of Advanced Research and Reviews 15(01):512–524. doi:10.30574/wjarr.2022.15.1.0726.

Sarkar C, Mondal M, Khanom B, Hossain MM, Hossain MS, Sureda A, Islam MT, Martorell M, Kumar M, Sharifi-Rad J, Al-Harrasi A, Al-Rawahi A. 2021. *Heliotropium indicum* L.: From Farm to a Source of Bioactive Compounds with Therapeutic Activity. Evidence-Based Complementary and Alternative Medicine 2021:9965481. doi: 10.1155/2021/9965481

Sharma R, Saini N, Kumar A, Kumar S, Nautiyal M, Nautiyal D, Ankit, Rawat A. 2024. Ethno-botanical study of medicinal plants in Kalesar, Haryana, India. Plant Science Today. 11(sp1):244-253. doi:10.14719/pst.3540

Shrestha KK, Tiwari NN, Ghimire SK. 2000. Medicinal and aromatic plant database of Nepal, in: Proceedings of Nepal-Japan Joint symposium on conservation and utilization of Himalayan medicinal resources. Department of Plant Resources, Kathmandu, Nepal.

Shrestha N, Shrestha S, Koju L, Shrestha KK, Wang Z. 2016. Medicinal plant diversity and traditional healing practices in Eastern Nepal. Journal of Ethnopharmacology 192:292- 30. doi:10.1016/j.jep.2016.07.067

Shreya R, Sharma B, Alam A, Sharma SK. 2023. Ethnomedicinal importance of Fabaceae family (Angiosperms) among the tribes of Rajasthan, India. Natural Resources for Human Health 3(2):237–247. doi: 10.53365/nrfhh/158809

Singh AG, Kumar A, Tewari DD. 2021. An ethnobotanical survey of medicinal plants used in Terai forest of western Nepal. Journal of Ethnobiology Ethnomedicine 8:19. doi: 10.1186/1746-4269-8-19

Tamang R, Thakur CK, Koirala DR, Chapagain N. 2017. Ethno-medicinal plants used by Chepang Community in Nepal. Journal of Plant Resources 15(1):21–30.

Thapa CB. 2020. Ethnomedicinal Practices by Tharu Ethnic Community in Rupandehi and Nawalparasi Districts, Western Nepal. Journal of Institute of Science and Technology 25(2):93-106. doi: https://doi.org/10.3126/jist.v25i2.33745

Thapa LB, Dhakal TM, Chaudhary R, Thapa H. 2014. Medicinal Plants Used by Raji Ethnic Tribe of Nepal in Treatment of Gastrointestinal Disorders. Our Nature 11(2):177-186. doi:10.3126/on.v11i2.9645

Thoma F, Somborn-Schulz A, Schlehuber D, Keuter V, Deerberg G. 2020. Effects of Light on Secondary Metabolites in Selected Leafy Greens: A Review. Frontier in Plant Science 11:497. doi: 10.3389/fpls.2020.00497

Timungpi M. 2025. Ethnobotanical documentation of medicinal plant resources in Assam, Northeast India. Journal of Agriculture and Ecology 21:80–94. doi: 10.58628/JAE-2521-112

Tomlinson TR, Akerele O. 2015. Medicinal plants: their role in health and biodiversity. University of Pennsylvania Press 3(3):55-66. doi:10.12691/ajps-3-3-2.

Upreti S. 2017. Nutritional status of 6 – 59 month children of Tajpuriya community of Gauradaha Municipality, Jhapa. Department of Nutrition and Dietetics Central Campus of Technology Institute of Science and Technology Tribhuvan University, Nepal.

Uprety Y, Asselin H, Boon EK, Yadav S, Shrestha KK. 2010. Indigenous use and bio-efficacy of medicinal plants in the Rasuwa District, Central Nepal. Journal of Ethnobiology and Ethnomedicine 6:3. doi: 10.1186/1746-4269-6-3