



Research Article

Ethnic Plants of *Tharu* Community of Eastern Nepal

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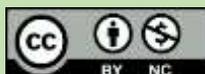
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Keywords: Ethnobotany; Tharu; Dhami; PRA; Eastern Nepal

Abstract

Ethnobotany is the study of ethnic plants of particular people living in particular place. It accommodates list, details and description of all those studied plants regarding with their various uses. *Tharu* people belong to one of the indigenous communities especially in Terai region of Nepal. *Tharu* people have been using these plant resources since 18th century. This study aims to identify ethnic plants of *Tharu* community of eastern Nepal and their uses in their daily lives. Enumeration of useful plants from *Tharu* ethnic community was conducted in four villages of Ramdhuni municipality of Sunsari district. Participatory Rural Appraisal (PRA) and household sampling technique were used for data collection. Plant specimens were collected and information regarding it was obtained from local *Dhamis*, *Jhankris*, farmers and old age people. This study reported thirty-seven useful plant species under 25 families. In total 37 species, 25 were recorded as medicinal plant, used to treat pneumonia, menstrual disorder, stones, piles, skin disease etc. Other plant species were used for food, fodder, timber, fiber and ceremonial/ religious activities. Most plant species (78.3%) were having multiple use value, and kept under more than one use category and few species (21.7%) with single use category. Trees (27.02%) and herbs (27.02%), both were dominant over grass, shrubs, climbers and creepers. This study has revealed that many plants species are being used by *Tharu* community of Eastern Nepal as their ethnic plants for medicine, food, fodder, ornament, material etc which needs to be more explored.

Introduction

Ethnobotany established along with the evolution of human beings. Plants and people are in continuous inter-relationship and interaction according to their need (Harshberger, 1896; Martin, 1995). Nepal is multicultural, multilingual and multireligious country. According to the census 2001, Nepal contains 100 caste/ethnic groups and 92 languages. Among them 59 ethnic groups are identified as indigenous nationalities including *Tharu*. *Tharu* people are rich in indigenous knowledge and it is deeply rooted in their tradition (Shrestha, 1997). *Tharus* are one of the indigenous tribe of Nepal and inhabit in- or around the jungle and rivers

since 18th century; and regarded as the "sons of the forest" (Bhatt, 1977). They are inhabitants of different places in lowland area Chitwan, Dang, Sunsari, Morang, Kapilvastu, Nawalparasi, Rautahat districts (CBS, 2011). Their population was 6.8% of total National population and 13.47% of Terai region (CBS, 2001). *Tharu* people have been using various plant species for medicinal, food, fodder, timber and other purposes.

Since 18th century *Tharu* people have been continuing their traditional plant use practices, and have become one of the

generous sources of indigenous knowledge. Manandhar (1985) has recorded 43 drug plants used by *Tharus* of Dang-Deokhuri district, Western Nepal. Dangol and Gurung (1991) identified 71 medicinal plants used by *Tharu* people of Chitwan district, Nepal. Similarly, Chaudhary (1994) reported 60 plants species used in the treatment of domestic cattle in Narayani zone. Acharya and Acharya (2009) have found 45 plant species used by *Tharu* community of Rupandehi district. Singh (2017) has recorded 46 plants used by *Tharu* community for medicinal and other purposes in Parsa district.

Moreover, various ethnic communities in Nepal are still giving continuation to the use of plants for their living. Uprety et al., (2011) recorded 96 ethnobotanical plants used by Magar ethnic group along the bank of Seti-river, Tanahun. Rijal (2011) reported 435 useful plant species, used by Chepang communities for 485 different purposes in Shaktikhori VDC, Chitwan. Ninety-one plant species found medicinal from Manang (Bhattarai et al., 2006). Similarly, 98 medicinal plant species known from Bantar communities of Bhaudaha, Morang (Acharya and Pokhrel, 2006). Thapa (2012) documented 75 species of medicinal plants used by Magar of Salija VDC, Parbat. Balami (2004) recorded 119 medicinal plants used by Newar community of Pharping village, Kathmandu, Nepal.

The contribution of plant resources to health of rural people is extremely important because more than 80 percent of the population rely on traditional medicinal systems for their health care (WHO 2002; Shrestha and Dhillon, 2003). The

useful plants of *Tharu* community are declined and about to extinct due to continuous habitat destruction, unsustainable harvesting, over exploitation and other haphazard anthropogenic activities (Chaudhary, 1998; Ghimire et al., 2005).

Although, many ethnobotanical studies made in different parts of the country, less concern was made to *Tharu* community of Sunsari district. Thus, this study was conducted to identify and record the uses of medicinal and other plant of *Tharu* people in Sunsari district. However, it does not encompass the way of medicine intake and its doses. It might contribute in modern drug synthesis and other manufacture.

Materials and Methods

Study Area

Study was conducted in four villages of ward no. 2 of Ramdhuni municipality of Sunsari district. It lies on 87°10' E and 26°42' N, where altitude ranges up to 185m above sea level. It occupies 0.0098% (14.42 sq km.) area of total area of Nepal (CBS, 2011). The average annual rainfall is 1100mm and extreme maximum temperature was noticed to be 42.5°C (July 01, 1987); extreme minimum temperature was noticed to be 15°C (CBS, 2011). Brahmin, Chhetri, Rai, Limbu, Newar, Kami are immigrants and *Tharus* are the indigenous people of the area. The major vegetation of this area includes *Mangifera indica*, *Azadirachta indica*, *Artocarpus heterophyllus*, *shorea robusta*, and *Dalbergia sissoo* etc.

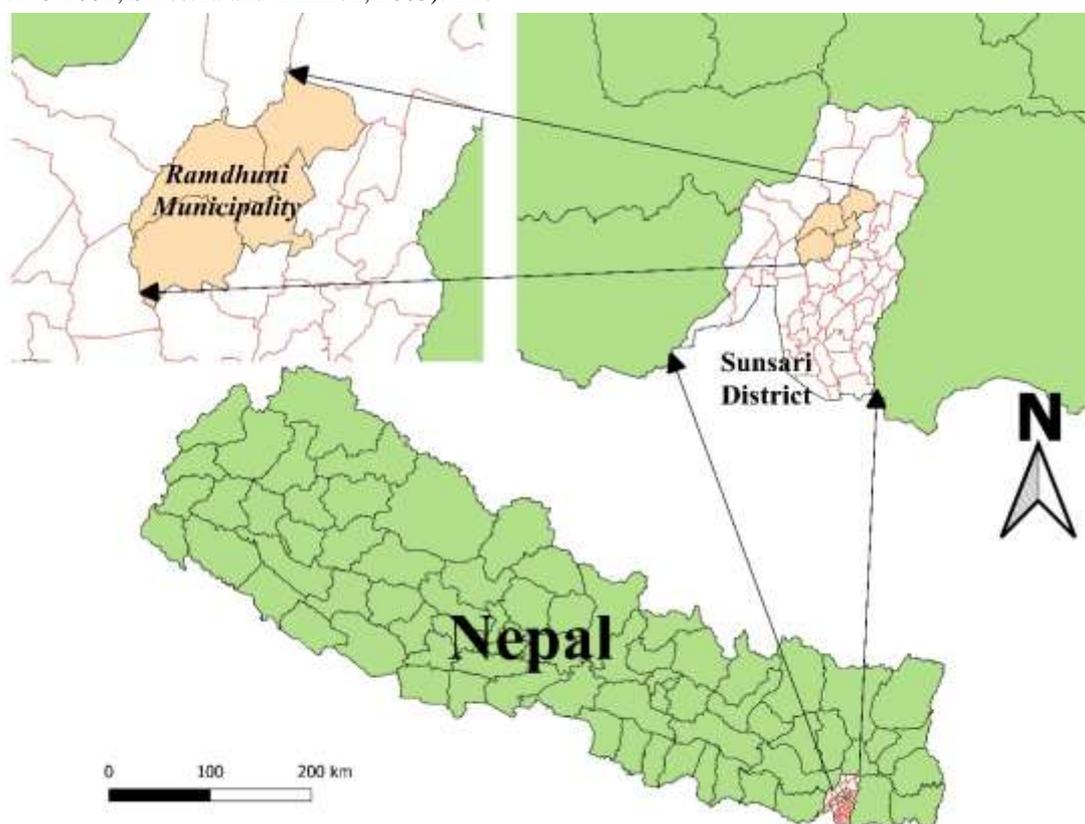


Fig. 1: Map of the study area

Ethnobotanical Data Collection

The socio-cultural data were gathered by applying Participatory Rural Appraisal (PRA) technique, to ensure unbiased participation of respondents. Writing was avoided wherever possible, relying instead on the tools of oral communication and visual communication. PRA comprised the interview of 15 people; Old age seniors (>65yrs): 6 people; Farmers: 5 people and *Dhamis-Jhankris*: 4 people, with at least three respondents from each village.

Herbarium Preparation

Listed plants from interview were collected from the study area with the help of local *Tharu* people. Mud and excess water were removed, excess leaves or branches were trimmed out to show their parts and pattern clearly. They were then pressed carefully between newspapers, followed by blotting sheets and tied between herbarium-press. They were allowed for natural dry with daily change of drying sheets for 6-10 days. The dry and well pressed specimens were mounted on herbarium sheets of standard size (Lawrence, 1951). The prepared specimen was carefully studied, identified with the help of experts and Protologue. Further confirmation was made by using available literatures (Hooker, 1872-1897; Hara *et al.*, 1978; Siwakoti and Verma, 1996). Well identified herbarium specimens were preserved in herbarium of Central Campus of Technology, Dharan.

Results

Total 37 plant species were reported and enlisted with their scientific name, local name along with other information. Among them, 32 were dicotyledons and five monocotyledons (Fig. 2)

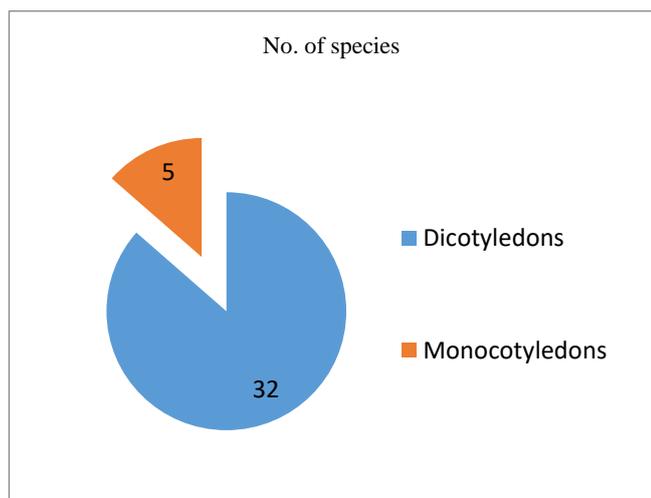


Fig. 2: Number of Dicotyledons and Monocotyledons

The common life forms among the listed plants were trees and herbs (29.72%). However other life forms were also known (Fig. 3).

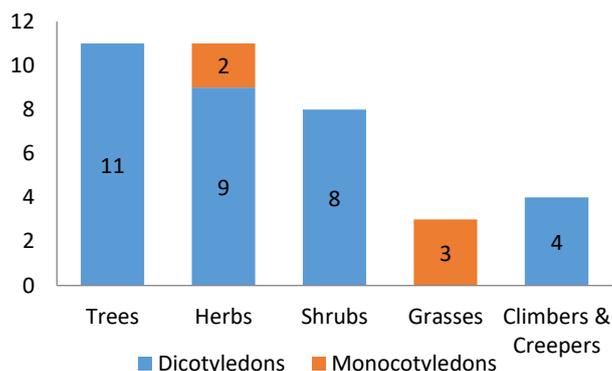


Fig. 3: Life forms of plants

Among 37 plant species, 29 species (78.3%) were used for more than one use category, while only eight species were used for single use category (Fig. 4).

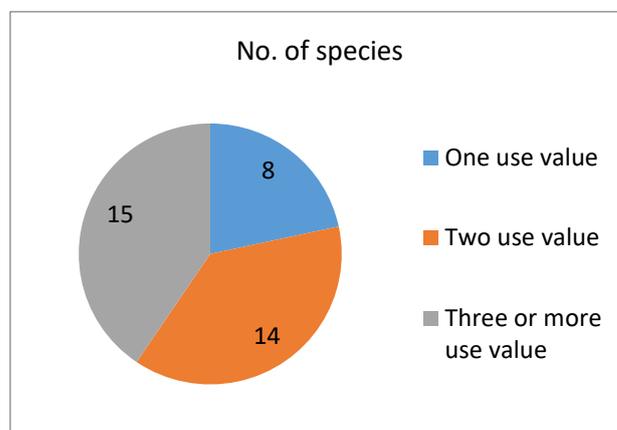


Fig. 4: Number of species by number of use

Most of the plants were known for medicinal use followed by fodder, food, firewood, religious and ornamental use. Only one plant was recorded to be used for fiber extraction (Fig. 5).

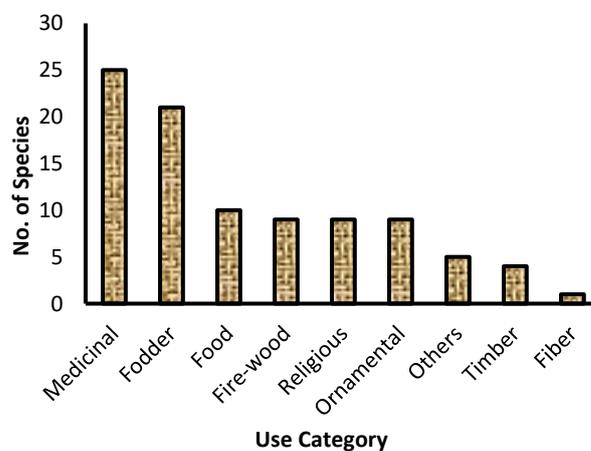


Fig. 5: Use category of plants

Similarly, leaves (n=24) were major harvested part of plants followed by stem and entire plants. Barks and flowers are less commonly used parts (Fig: 6).

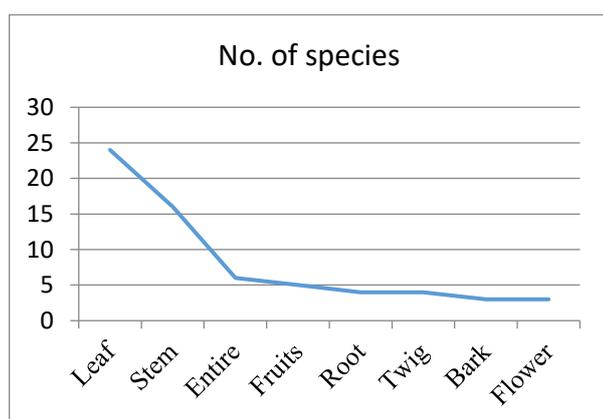


Fig. 6: List of plant parts used

Discussion

This ethnobotanical study revealed high plant use knowledge among *Tharu* people in Ramdhuni-2, Sunsari district. As similar to previous studies, they were known to be using various plant species as medicine, food, fodder, fiber source, and for religious purposes (Singh, 2007).

Trees and herbs were dominating life forms, which might be due to the reason that most of the medicinal plants are naturally found as herbs with short height and trees being more common timber source (Shrestha and Dhillion, 2003; Uprety et al., 2010). Study was conducted in mid-rainy season, which might be another constraint for enlisting of more herbs. Multiple use purposes of trees and their abundant distribution in forest were controlling growth and number of other life forms (Poudyal et al., 2012; Singh, 2014; Acharya and Acharya, 2009; Bhattarai and Vetaas, 2003; Uprety et al., 2011).

Most of the species were known with multiple use purposes, while few species with single use. This might be due to the reason that the ethnic *Tharu* tribe has inhabited since longer time and they prefer to use them for multiple purposes. Uprety et al. (2011), have reported similar result.

Most plants were used as medicine, food and fodder. It might be due to priority for health and food. Also, might due to high abundance of natural medicinal herbs (Shrestha and Dhillion, 2003; Uprety et al., 2010). Finding was supported by previous studies in other areas of Nepal (Shrestha et al., 2003; Uprety et al., 2008) as well as in Brazil (Rossato et al., 1999), China (Weckerle et al., 2006) and other countries. The medicinal use of *Acorus calamus*, *Justicia adhatoda*, *Amaranthus spinosus*, *Calotropis gigantea*, *Aegle marmelos*, *Azadirachta indica*, *Centella asiatica*, *Cuscuta reflexa* and *Dendrocalamus hamiltonii* were previously recorded for various medicinal purposes like fever, for hastening suppuration, jaundice, and stomach pain (Acharya & Acharya, 2009; Dangol & Gurung, 1991).

Similarly, Singh (2017) has mentioned the medicinal use of *Aegle marmelos*, *Hibiscus rosa-sinensis*, *Leucas aspera*, *Ocimum tenuiflorum* and *Oroxylum indicum* for various purposes like fever, stomach pain, cuts and wound uses, and skin disorder. Additionally, reported the various use of those plants for timber, fodder, food and religious purpose. *Leucas aspera* was reported in India, being used for boils and blisters (Kumar & Bharati, 2014). Fodder and food were the next important use of plant resources in the study area. They were more knowledgeable about wild plants, since they spent a lot of time in the forest with livestock.

Similarly, leaves were most commonly used part of plant followed by stem and by roots. Barks and twigs of very few plants were useful. It might be due to the reason that leaves is major part of nutrients synthesis and thus higher biochemical activity, which is reason behind using them as medicine, food, fodder and other uses (Poudyal et al., 2012). Acharya and Acharya (2009) and Singh (2017) reported similar results.

The ethnobotanical information recorded here is supported by previously reported findings of various authors (Acharya and Acharya, 2009; Singh, 2017; Shrestha et al., 2003). Thus, it is of higher significance when an identical use of a plant reported from different people of different areas; its reliable indication of their effective properties (Shrestha and Dhillion, 2003; Uprety et al., 2010a). The key informants mentioned about their worries for declining number of medicinal plants due to deforestation and increasing residential area. Due to modernization and easy availability of modern medicine, younger did not participated in PRA. Hence, conservation of knowledge and their detail ecological study might be another possibility for future.

Conclusion

Tharu community found to be rich for plants use knowledge for various purposes. Those plants are important source for the health care and social life of tribal people. *Dhamis*, *Jhankris*, old people and farmers have sound knowledge about different use of ethnic plants. A wide variety of disease are known to be cured using plants like, diarrhoea, piles, menstrual disorder, pregnancy problem, cough etc. These plants need special attention, which could contribute in modern drug synthesis and other product manufacturer before they are lost or disappear.

Authors' Contribution

Conception, data acquisition, analysis and drafting were done by Sujana Chaudhary and Sanju Parajuli. Analysis and interpretation of data and critical revision of manuscript was done by Gyanu Thapa Magar and Shiv Nandan Sah. Final approval of manuscript was done by all the authors.

Conflict of Interest

The authors declare that there is no conflict of interest with present publication.

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Annex 1: List of studied plants species

S.N.	Scientific Name	Family	Life form	Nepali name/Tharu Name	Parts used	Use category	Uses
1	<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb	Apamarga/ Ultachichri	Root	Medicinal	Fever and pneumonia.
2	<i>Acorus calamus</i> L.	Araceae	Herb	Bojho/ Achhaini	Root, Stem,	Medicinal, ornamental	Fever, bronchitis, diarrhoea, dysentery and snake bite and Ornamental
3	<i>Aegle marmelos</i> L.	Rutaceae	Tree	Bel/Bel	leaves, stem	Religious, medicinal, fodder,	Leaves for worshipping Lord Shiva, stem in religious purpose, leaves to cure diarrhoea, anti-microbial properties
4	<i>Alangium salviifolium</i> Wang.	Alangiaceae	Herb	Saharfoka (Tharu)	Stem	Medicinal	Skin disease
5	<i>Alternanthera brasiliensis</i> Hort.	Amaranthaceae	Shrub	Aitin/Aitin	Leaves	Medicinal, ornamental	Cuts and wounds and as ornamental plant
6	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herb	Lude/Genhari	Leaves, stem	Fodder, medicinal	Leafy vegetables, and juice in menstrual disorder.
7	<i>Artemisia dubia</i> Wall.	Asteraceae	Herb	Titepati/Titapata	Leaves, stem	Medicinal	Avoid bad odour of body, used for scabies, high blood pressures, to check vomiting.
8	<i>Artocarpus lakoocha</i> Roxb.	Moraceae	Tree	Badahar/Barhar	Leaves, fruits, stem	Food, firewood, fodder, timber	Edible fruits. Firewood, leaves for fodder
9	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Tree	Neem/Neem	Leaves, twigs, barks	Medicinal, ornamental, fodder	Skin disease, antiworms, twigs as toothbrush. Fodder.
10	<i>Bauhinia vahlii</i> L.	Fabaceae	Climber	Bhorla/Damma	Leaves	Religious, firewood, fodder	Leaves for making plates and fodder, firewood.
11	<i>Bryophyllum pinnatum</i> Lam.	Crassulaceae	Tree	Patharchatta/ Magarmaus	Leaves	Medicinal, fodder	Stone disease, foddors.
12	<i>Calotropis gigantea</i> L.	Asclepiadaceae	Shrub	Aank /Yak	Flower, stem, root	Medicinal	Wounds, abortion, gastritis., milk juice for hastening suppuration.
13	<i>Centella asiatica</i> L.	Apiaceae	Herb	Ghodtapre/Bhatpurain	Leaves, stem	Medicinal	Extreme hot to chest and stomach, gastritis.
14	<i>Clerodendrum viscosum</i> Vent.	Verbenaceae	Shrub	Bhate/Bhait	Leaves	Medicinal	Diarrhoea of cattles high blood pressures, Toothbrush
15	<i>Colocasia esculenta</i> L.	Araceae	Herb	Mane/Kachu	Leaves, stem	Food, fodder	Food called <i>Airkanchan</i> , fodder.
16	<i>Corchorus capsularis</i> L.	Malvaceae	Shrub	Sanpat/Patwa	Leaves, stem	Fodder, firewood, food, ornamental, fiber	Leafy vegetables, <i>Santhi</i> as firewood, bark product as fibre
17	<i>Conyza bonariensis</i> L.	Asteraceae	Shrub	Son bakas (Tharu)	Leaves	Medicinal, fodder	Cough asthma and common cold, fodder.
18	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Herb	Amarlati/Amarlati	Whole plant	Medicinal	Joints and bone problems, jaundice.
19	<i>Cynodon dactylon</i> L.	Poaceae	Grass	Dubo/Duib	Whole plant	Fodder. Ornamental,	Fodder, garland for bridegroom in marriage ceremony.
20	<i>Datura metel</i> L.	Solanaceae	Herb	Dhathuro/Jhuthur	Leaves, flower	Medicinal, religious, fodder	Dried leaves and dried fruits are anthelmintic for goats. Leaves for curing rheumatism. Leaves and flowers for worshipping Lord Shiva.
21	<i>Delonix regia</i> Raf.	Fabaceae	Tree	Siris/Siris	Root, twig, stem	Ornamental, firewood, timber	Firewood and ornamental tree.
22	<i>Dendrocalamus hamiltonii</i> Nees and Arn.	Poaceae	Grass	Bas/Bas	Stem, leaves	Ornamental, fodder, food, firewood, religious	Young shoot as Food, fodder, household materials

Annex 1: List of studied plants species

S.N.	Scientific Name	Family	Life form	Nepali name/Tharu Name	Parts used	Use category	Uses
23	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Shrub	Raktapuspi/Aurhar	Flower, twig, stem	Medicinal, ornamental, religious	Fever, wounds. Ornamental, and flower for worshipping.
24	<i>Imperata cylindrica</i> L.	Poaceae	Grass	Siru/Fulka	Whole plant	Ornamental, religious	Burning material in earthenware lamp
25	<i>Justicia adhatoda</i> L.	Acanthaceae	Shrub	Asuro/Bakas	Whole plant	Medicinal, fodder	Cough common cold and asthma
26	<i>Lawsonia inermis</i> L.	Lythraceae	Herb	Mehandi/Mehedi	Leaves	Medicinal, ornamental	Leaves for dye purpose. Leaves paste for jaundice
27	<i>Leucas aspera</i> Link.	Lamiaceae	Herb	Dulphi (Tharu)	Whole plant	Medicinal, religious	Flower use in funeral, leaf paste in cuts, wounds, boils. Skin disorder
28	<i>Melia azedarach</i> L.	Meliaceae	Tree	Bakaino/Bakain	Leaves, stem	Medicinal, fodder	Leaf juice for body pain. Antifungal, anthelmintic. Used as fodder.
29	<i>Mangifera indica</i> L.	Anacardiaceae	Tree	Aanp/Aam	Leaves. Fruits. Twigs, stem	Food, firewood, religious, fodder, timber	Fodder, firewood, twigs for religious purpose, edible fruits, furniture.
30	<i>Momordica diodica</i> Roxb.	Cucurbitaceae	Climber	Chatela/Chatel	Fruit	Food, fodder	Fruits are taken as vegetable, fodder.
31	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Shrub	Tulsi/Tulsi	Whole plant	Medicinal, Religious	Leaf Juice in cough and plants as religious purpose.
32	<i>Oroxylum indicum</i> L.	Bignoniaceae	Tree	Totelo/Patsan	Stem, fruits, leaves barks	Food, medicinal, fodder, firewood, timber	Bark in cuts and wounds, diarrhoea and dysentery, decoction of leaf for curing stomach pain, young fruits and leaves as vegetables.
33	<i>Psidium guajava</i> L.	Myrtaceae	Tree	Ambak/Bilauk	Fruit, leaves	Food, fodder	Edible fruit, fodder
34	<i>Rubia manjith</i> Roxb.	Rubiaceae	Climber	Padejhar/Ganpasair	Leaves	Medicinal	Leaves to cattle for excretion and in loss of appetite
35	<i>Syzygium cumini</i> L.	Myrtaceae	Tree	Jamun/Jaum	Leaves, fruits	Food, firewood, fodder	Edible fruits, firewood, fodder.
36	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Climber	Gurguj k Lati (Tharu)	Leaves	Medicinal, food, fodder	Jaundice, diabetes rheumatism. Fodder.
37	<i>Trichilia connaroides</i> Wight and Arn.	Meliaceae	Tree	Badbarood (Tharu)	Bark, leaves	Medicinal, fodder, firewood	Antipiles, fodder