

ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS USED BY THARU COMMUNITY OF PARROHA VDC, RUPANDEHI DISTRICT, NEPAL

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Abstract: The indigenous knowledge on medicinal plants is gaining recognition worldwide because of its support in discovery of new medicines and its importance for proper conservation of biodiversity. Present study aims to explore the ethnobotanical information on medicinal plants used by Tharu community of Pahhoha VDC of Rupandehi district. The study was conducted during different periods of the year 2007. Informations on plant and plant parts uses were collected interviewing key informants using semi-structured open-ended questionnaire. Altogether 45 different plant species of plants belonging to 31 families and 42 genera were documented and majority of them are trees. In terms of plant and plant parts use, seed or fruits and leaf are in top priorities. These plants are used to treat different ailments ranging from gastro-intestinal to headache and fever, respiratory tract related problems to dermatological problems, snake bite to ophthalmic and cuts and wounds. Easy access to modern medicines and less recognition of traditional healers are the main causes leading to decrease in interest of young generation in the use of traditional medicinal practices.

Keywords: Ethnobotany; Medicinal plants; Parroha VDC; Tharu.

INTRODUCTION

Traditional use of plant and plant resources for medicinal purpose has a long history in Nepal and its use is rapidly spreading due to having no side-effects, easily available at affordable prices and sometime the only source of health care available to the poor. The ethnic communities have significant customary knowledge on utilization of plant and plant parts and there is a long tradition of transferring this indigenous knowledge from generation to generation. The indigenous knowledge on medicinal plants is gaining recognition worldwide. In Nepal, Nepal Biodiversity Strategy has also highlighted its importance for proper conservation of Himalayan biodiversity (NBS, 2002).

The plant and plant resources for medicinal use are collected from various habitats. At present, most of these habitats with useful species are under threat due to habitat destruction, unsustainable harvesting and over-exploitation (Chaudhary, 1998) and many species are already threatened from collection pressure (Ghimire *et al.*, 2005). If this trend of utilization of plant and plant resources remain same, we are in a danger of losing them forever (Manandhar, 2002). So, the priority should be given to the documentation of indigenous knowledge and conservation of the existing species and habitats before some of these are eliminated from the area (Joshi *et al* 2003).

The Tharus are a culturally and linguistically diverse ethnic

group of Terai region and are also believed to be the first people to occupy the Terai region (Meyer & Deuel, 1998). Among all ethnic groups, the Tharu is one of the largest tribe representing 6.8% of National population and 13.47% of Terai (CBS, 2001). They are found in close proximities in certain districts namely Kailali, Kanchanpur, Dang, Banke, Rupandehi, Kapilvastu, Chitwan, Nawalparasi, Parsa, Bara, Rautahat, Udayapur, Morang, Jhapa of Terai region and inner Terai region (Krauskopff, 1995). Over the time, the Tharus have developed a remarkable resistance to malaria which prevented other peoples' residence in this region. They have inhabited these plains for over 600 years which enabled the Tharus to develop a unique culture and tradition (Bista, 2004). After the malaria eradication in 1960s, the Terai region became the densely populated with the immigrants from higher elevations. But, the Tharus have been maintaining their ethnic and socio-cultural practices.

The traditional healing practice of the Tharus is limited to certain key member of the society, they communicate these knowledge orally from generation to generation. In this context, some sporadic works have been already done to collect ethnobotanical data and traditional knowledge systems of Tharu community (Manandhar 1985, Dangol & Gurung 1991, Thapa 2001, Chapagain *et al* 2004, Ghimire & Bastakoti 2009). However, the ethnobotanical information of Tharu community of Parroha VDC is still undocumented. In

this background, present study was devised to document the traditional knowledge on medicinal plants with their indigenous uses and practices.

MATERIALS AND METHODS

Study Area

Parroha VDC is located in Rupandehi district which lies between 27°20' to 27°45'N latitude and 83°10' to 83°30'E longitude. It is a part of the Terai region of Nepal and covers a total area of 73196.1 ha² of which about 73% is agricultural land, urban areas, and roads, 23% forest, and the remaining 4% water resources (Anonymous, 2007). Present research was conducted in Parroha Community Forest of Parroha VDC with an area of 633 ha and lies in *churia* range of Nepal. The total population of VDC is about 20,000, of which about one fourth are Tharu (CBS 2002). The altitude of the district ranges from 220 m to 500 m a.s.l. The forest is mainly dominated by Sal (*Shorea robusta*) with its associated species like Saj (*Terminalia alata*), Banjhi (*Anogeissus latifolia*) etc. The climate of the area is typically tropical dominated by the south-east monsoon. A hot climate generally prevails throughout the year except in the short winter. The temperature ranges from an average of 7°C in winter to an average of 45°C during summer.

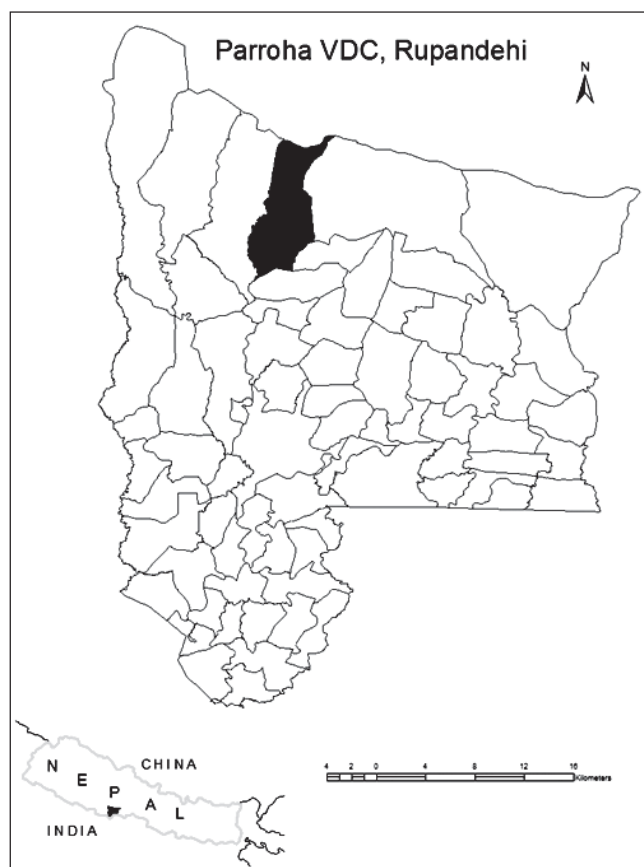


Figure 1. Map of the study area.

Field study

The study area was surveyed during different periods of the year 2007. Information on plant and plant parts uses was

collected by interviewing key informants using a semi-structured open-ended questionnaire. To collect plant species for herbarium preparation, key informants were employed. Some of the collected specimens were identified in the field, whereas others were identified with the help of standard literature (Polunin & Stainton 1984, Stainton 1997) and with cross checking the specimens deposited at Tribhuvan University Central Herbarium (TUCH), Kirtipur. The nomenclature of the species follows Press *et al.* (2000). The collected specimens are deposited at TUCH.

RESULTS AND DISCUSSION

We collected informations on 45 medicinal plants species which fall under 42 genera and 31 families. List of medicinal plants with their scientific name, family, collection number, local name, life form, parts used and uses are presented in table 1. The species are arranged alphabetically. Out of total species used for medicinal value, majority are trees (42%) followed by herb (27%), shrub (18%) and climber (13%) (Figure 2). The family Leguminosae is represented by the highest number of species (six species) followed by Combretaceae (three species), Rutaceae, Meliaceae, Asclepiadaceae, Poaceae, Moraceae, Apocynaceae, and Euphorbiaceae (two species each).

This study shows similar results with those reported in an earlier studies in Dang-Deokhuri district (Manandhar 1985), Chitwan district (Dangol & Gurung 1991), and Nawalparasi district (Ghimire & Bastakoti 2009). Out of 45 species documented for medicinal use in present study area, 23 species are reported by Ghimire & Bastakoti (2009), 19 species by Chapagain *et al.* (2004), 18 species by Thapa (2001). However, nine species namely *Asparagus racemosus*, *Bombax ceiba*, *Centella asiatica*, *Cynodon dactylon*, *Holarrhena pubescens*, *Mallotus philippensis*, *Phyllanthus emblica*, *Terminalia bellirica*, and *T. chebula* are reported by all. But, 14 species reported in this study have not been reported in above mentioned references.

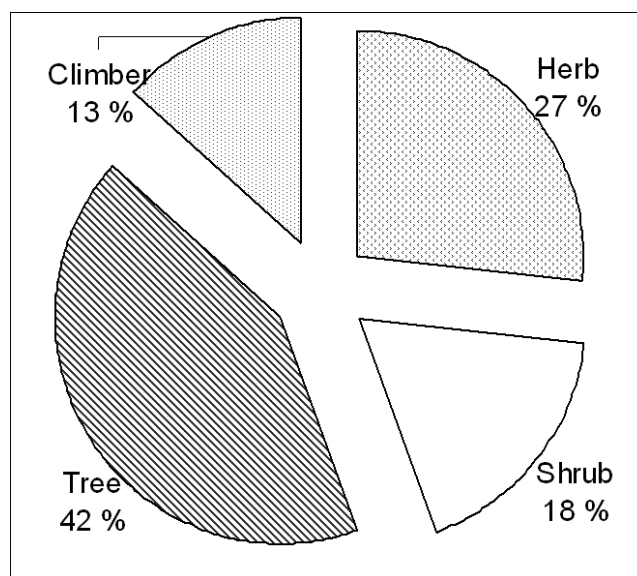


Figure 2: Different life forms of medicinal plants collected

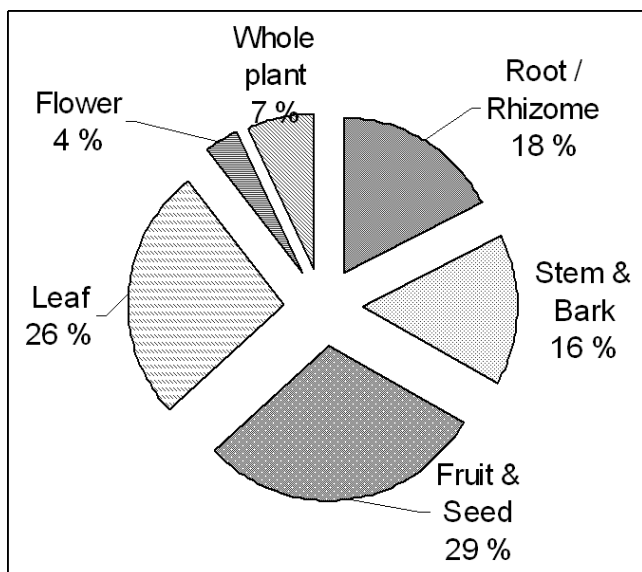


Figure 3: Graph showing plant and plant parts used

The plant parts widely used for medicinal purposes include the fruit or seed and leaf are used (each being 29% and 26% respectively) followed by root / rhizome (18%), Stem/bark (16%), whole plant 7% and least the flower (4%) (Figure 3).

Regarding different disease categories, we found that 26 medicinal plant species used to treat gastro-intestinal problems (dysentery, diarrhea, gastric, abdominal pain, ulcer etc.), 17 species are used to treat headache and fever, eight species are used to treat for respiratory tract related problems (cough/cold and bronchial problem, asthma etc.), four species are used to cure dermatological problems (scabies, burns, swellings, and other skin related problems), two species for snake bite, and very less for ophthalmic and cuts and wounds (Table 1).

According to the key informants we interviewed during our study, many medicinal plants have been disappearing from the nearby forests. Because of which sometimes they have to walk far to collect medicinal plants that had earlier been easily available close to their villages. According to them, rapid deforestation and expansion of agricultural lands as well as destructive harvesting for commercial purposes are the main reasons for disappearance of medicinal plants.

The informations presented in this research are collected from the senior members of the community who are still practicing the traditional healing methods. This study showed that the elderly persons/traditional healers have greater knowledge upon the utilization of medicinal plants in comparison to younger generation. During our study period, we found some cases that the people are seeking help from the traditional healers when their illness was not cured by modern medicines. Low socio-economic status of the people has also compelled them to rely on traditional medicinal practices. When we interacted with younger generation of the society, they showed less interest in traditional practices mostly because of poor recognition of traditional healers and availability of modern health facilities. But, they are in positive that this type of knowledge which their forefathers followed should be documented before they are lost or disappeared. The trend of disinterest of young generation shows that the traditional knowledge on medicinal plants is deteriorating in present study area. To preserve these valuable natural resources, first these existing valuable informations are needed to be documented before they are lost or disappeared. Therefore, strong emphasis should be given for the documentation of indigenous uses, traditional knowledge and practices.

Table 1: List of medicinal plants with their scientific name, family and collection number with their local name, life form, parts used and uses:

SN	Plant Species	Local Name	Life form	Parts Used	Uses
1	<i>Abrus precatorius</i> L. LEGUMINOSAE RA 314	Titihar (Th)	C	Seed	Used to treat fever, stomach disease, eye disease, asthma and uteral problem.
2	<i>Acorus calamus</i> L. ARACEAE RA 319	Katara (Th)	H	Rhizome	Used to treat cough, cold and bronchial Problem.
3	<i>Aegle marmelos</i> (L.) Correa RUTACEAE RA 315	Bel (N)	T	Ripe Fruit	Used to treat diarrhea and dysentery.
4	<i>Asparagus racemosus</i> var <i>subacerosus</i> Baker LILIACEAE RA 323	Santawar (Th)	S	Root	The powder or decoction of root is used to relieve the burning sensation. (<i>Garmi ko lagi</i>)
5	<i>Azadirachta indica</i> A. Juss. MELIACEAE RA 317	Neem (N)	T	Leaf	Decoction of leaves is used to reduce sugar level, bark used as antirelmintic and relieves cough.
6	<i>Bassia butyracea</i> Roxb. SAPOTACEAE RA 333	Chiuri (N)	T	Fruit and seed	Oil from seed is used for massage to relieve muscles pain. Also used as astringent.
7	<i>Bauhinia variegata</i> L. LEGUMINOSAE RA 347	Koilara (Th)	T	Bark and stem	Used as antidote in snake bite. Juice of bark is used to treat dysentery.
8	<i>Begonia picta</i> Sm. BEGONIACEAE RA 316	Makarkanchi (N)	H	Leaf/Whole plant	Juice of plant is used as slight venom. Also used to relieve pains.
9	<i>Bombax ceiba</i> L. LEGUMINOSAE RA 328	Semal (Th)	T	Fruit, bark	Juice of bark is used to treat urinary disord, excessive vaginal bleeding and intestine bleeding.
10	<i>Calotropis gigantea</i> (L.) Dryand. ASCLEPIADACEAE RA 307	Madar (Th)	S	Fruit, leaves	Used to treat body pains, boils and pimples.

SN	Plant Species	Local Name	Life form	Parts Used	Uses
11	<i>Careya arborea</i> Roxb. LECYTHIDACEAE RA 324	Kumbhi (Th)	T	Bark, fruit	Acts as medicine in wound, diarrhea, fever and snake bite.
12	<i>Centella asiatica</i> (L.) Urb. UMBELLIFERAE RA 321	Bhatbhathe (Th)	H	Whole plant/leaf	Leaves are used as tonic, enhances memory, used to cure skin disease, to treat nerve troubles.
13	<i>Cuscuta reflexa</i> var <i>brachystigma</i> Engelm CONVOLVULACEAE RA 327	Baora (Th)	C	All parts	Paste of plant is used to treat stomachache, headache and body pain. Also used to treat jaundice.
14	<i>Cynodon dactylon</i> (L.) Pers. POACEAE RA 318	Dub (Th)	H	Leaf	Plant paste is used in cuts and wounds, to cure haematuria and scabies.
15	<i>Cyperus rotundus</i> L. CYPERACEAE RA 322	Motha/Bhada (Th)	H	Leaf/Root	Used to treat indigestion, diarrhea, vomiting, cough, bronchitis, fever
16	<i>Dalbergia latifolia</i> Roxb. LEGUMINOSAE RA 331	Satisal (N)	T	Root/Bark	The decoction of the roots or wood is used to treat bodyache.
17	<i>Dioscorea deltoidea</i> Wall. ex Griseb. DIOSCOREACEAE RA 308	Gittha (N)	C	Fruit/Comb	Boiled fruit are used to cure stomach pain and boiled comb are used as vegetables.
18	<i>Dryopteris</i> sp. ASPIDACEAE RA 325	Damsinki (N)	H	Leaf	Extract of leaves is used to cure gastric, ulcer and worms.
19	<i>Ficus benghalensis</i> L. MORACEAE RA 330	Bargat (Th)	T	Bark	An infusion of bark is used in diarrhea, dysentery and diabetes.
20	<i>Ficus semicordata</i> Buch.-Ham. ex Sm. MORACEAE RA 351	Khurhur (Th)	T	Root/Young leaf	Juice of root is applied to treat headache and fever.
21	<i>Gaultheria fragrantissima</i> Wall. ERICACEAE RA 332	Pakbherni (Th)	S	Leaf	Its leaf oil is used in massage to get relief from par of head, legs and hands.
22	<i>Holarrhena pubescens</i> (Buch.-Ham.) Wall. ex G. Don APOCYNACEAE RA 320	Kacheri (Th)	T	Bark/Fruit	Juice of bark is used to treat dysentery, seed-astringent, febrifuge, also used to treat diarrhea and worms
23	<i>Inula cappa</i> (Buch.-Ham. ex D. Don) DC COMPOSITAE RA 332	Pataya (Th)	S	Root	Used to treat fever and headache, useful to reduce disorders arose due to in take of meat.
24	<i>Justicia adhatoda</i> L. ACANTHACEAE RA 303	Asuro/rus (N)	S	Leaf	Leaves are used to treat cough, Fever and bronchitis.
25	<i>Mallotus philippensis</i> (Lam.) Müller.-Arg. EUPHORBIACEAE RA 334	Rohini (Th)	T	Bark	Juice of bark is used to treat diarrhea, dysentery and bronchitis.
26	<i>Marsdenia tinctoria</i> R.Br. ASCLEPIADACEAE RA 329	Dudhelaharo (N)	C	Flower	It is energetic and used in gout, disorder of thymus and also and supposed to purify blood.
27	<i>Melia azedarach</i> L. MELIACEAE RA 309	Bakaino (N)	T	Fruit	Fruit is anthelmintic, also used for treat vomiting, blood impurities and urinary discharge.
28	<i>Mentha spicata</i> L. LABIATAE RA 310	Bawari (Th)	H	Leaves	Leaves decoction is used to treat cure throat infection and indigestion
29	<i>Milletia extensa</i> (Benth.) Baker LEGUMINOSAE RA 313	Pakverni (Th)	C	Leaves/Roots	Leaves are used to treat goat's and other animal's lice, and worms.
30	<i>Murraya koenigii</i> (L.) Spreng. RUTACEAE RA 350	Ban neem (Th)	T	Fruit/Leaf	Used to control fleas, repellent for other insects, leaves used to treat diarrhea and dysentery.
31	<i>Orchid</i> sp ORCHIDACEAE RA 326	Sunakhari (N)	H	Pseudobulb	The paste of the pseudobulb is used to clear scars and marks in face.
32	<i>Oxalis corniculata</i> Tayl. OXALIDACEAE RA 311	Chamchama (Th)	H	Whole plant	Juice of plant is used to treat diarrhea, dysentery, fever. Refrigerant.
33	<i>Parmelia nepalensis</i> Tayl. PARMELIACEAE RA 287	Jhyau (N)	H	All parts	Used in disease of gum, throat as well as in scabies, piles and leprosy.
34	<i>Phyllanthus emblica</i> L. EUPHORBIACEAE RA 353	Amala (N)	T	Seed/Fresh fruit	One of the constituents of triphala which is used for gastritis, for cooling, diuretic and laxative source of vitamin C
35	<i>Piper longum</i> L. PIPERACEAE RA 341	Kharihipar (Th)	C	Fruit	Fruit used for cough (<i>khoki, dam</i>) and for digestion
36	<i>Plantago major</i> L. PLANTAGINACEAE RA 306	Bhatbhadwa (Th)	H	Seed & seed husk	Used to treat fever, diarrhea and dysentery, laxative demulcent, expectorant, diuretic.
37	<i>Pterocarpus marsupium</i> Roxb. LEGUMINOSAE RA 352	Bijaya sal (N)	T	Stem	The paste of the stem is used in case of tingling (<i>Jham Jham garne</i>) or neurological problem.

SN	Plant Species	Local Name	Life form	Parts Used	Uses
38	<i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz APOCYNACEAE RA 305	Sarpagandha/ Dhaldhaliya (Th)	S	Fruit	Reduce blood pressure, hypotonic also used to treat dysentery.
39	<i>Scurrula elata</i> (Edgew.) Danser LORANTHACEAE RA 306	Aainjeru (N)	S	Leaf	Used to reduce the joint pain.
40	<i>Semecarpus anacardium</i> L.f. ANACARDIACEAE RA 335	Bhela (Th)	T	Fruit	Fruit used to cure dysentery, asthma and acute rheumatism
41	<i>Terminalia alata</i> Heyne ex Roth COMBRETACEAE RA 349	Asna (Th)	T	Bark	Fresh bark juice is used to cure diarrhea and dysentery.
42	<i>Terminalia bellirica</i> (Gaertn.) Roxb. COMBRETACEAE RA 348	Barro (N)	T	Fruit	Fruit used to remedy in cough and eye disease one of the constituents of triphala.
43	<i>Terminalia chebula</i> Retz. COMBRETACEAE RA 347	Harro (N)	T	Fruit	The fruit is one of the constituents of triphala that is used for gastritis.
44	<i>Thysanolaena maxima</i> (Roxb.) Kuntze POACEAE RA 336	Bankucho (Th)	H	Root	Root juice is antihelminthic.
45	<i>Woodfordia fruticosa</i> (L.) Kurz LYTHRACEAE RA 304	Dhawatha (Th)	S	Flower/Leaf/Root	Used to reduce labour pain, to control bleeding and to maintain healthy condition of newborn child.

Local name-(Th): Tharu name, (N): Nepali name; Life form - H: Herb; S: Shrub; T: Tree; C: Climber;

CONCLUSION

Present study shows that the study area is rich in medicinal plants. Tharu community has developed their own unique system of using plants for medicinal uses. The elderly people of a community have greater knowledge on medicinal plants. But, the youngsters of the study area showed less interest in traditional practices mainly due to less recognition of traditional healers and easy availability of modern medicines. Because of which the practice of using plants and plant parts for medicinal use is decreasing. So, the emphasis should be given for the documentation of this knowledge before they are lost or disappeared.

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