

ETHNOVETERINARY PRACTICES IN PALPA DISTRICT OF WESTERN NEPAL

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ABSTRACT

An ethnobotanical study was conducted in different village development committees of Palpa district of Western Nepal and information's gathered from reliable sources like village heads, knowledgeable person who practices and had experience about animal husbandry and veterinary medicines. During the study it was observed that they utilized 28 plant species belonging to 26 genera and 22 families for treatment of various ailments and diseases of their livestock.

KEYWORDS: Ethnoveterinary, Animal husbandry, Palpa district, Western Nepal.

INTRODUCTION

Plants and plant products are the basis of life on earth and are occupied central position to people livelihood. Indigenous people living in depend on the use of wild plants or plant parts to fulfill their daily needs such as medicine, timber, fuel wood, wild vegetables and many more. In the context of world's plant scenario about two-third of 50,000 medicinal plants in use are still harvested from the natural habitat and about one-fifth of them are now endangered (Edward, 2004). Traditionally plants and plant resources in Nepal has been used since time immemorial for the treatment of different ailments in human beings as well as in live-stocks because of no side effects, easily available at affordable prices, and sometime the only source of health care available to the poor (Acharya et al., 2009). In Nepal, more than 80% of the total population inhabits in the rural areas (CBS, 2002) and many of them rely on traditional medicines. In Nepal, many plants are used to treat livestock diseases and these practices have been transmitted orally from one generation to the next (Manandhar, 2002). Folk veterinary practices are seen as a holistic approach for livestock healthcare and management needs by the local indigenous population in Palpa district of Western Nepal.

The traditional knowledge of plants and plant resources is limited to certain key members of ethnic society. They communicate their knowledge to limited members of their periphery, if they show their interest field. Younger generations of the society show less interest in this field mostly because of poor recognition of traditional healers, less income, and availability of modern health facilities. Because of this, our societies are in danger of losing the traditional knowledge forever (Manandhar, 2002). So, the priority should be given to the documentation of traditional knowledge and conservation of existing species and habitat before some of these are lost or disappeared from the area (Joshi et al., 2003).

MATERIALS AND METHODS

Study area

The hilly district Palpa lies in the Lumbini zone of Western development region of Nepal. It extends from east to west similar to the shape of Nepal. It is situated in an altitude of 152 m to 1936 m. Palpa district lies between 27° 34' to 27° 54' latitude in the North and 83° 15' to 84° 22' longitude in the East. It is bounded by Gulmi and Arghakhanchi districts from West, Gulmi, Syangja and Tanahun districts from North, Nawalparasi, and Tanahun from East and Rupandehi and Nawalparasi districts from South (Figure 1). The total area of Palpa district is 136,595 ha, (1373 km²) of which 41.86 % (57,172 ha) consists of agricultural land and 52.10 % (71,179 ha) forest land. The forest of the district has been divided into two main classes as reachable forest and non-reachable forest. The grassland of the district covers about 5.12 % (6,998 ha) of the total area. Areas under other categories (river and rivulets, urban areas, barren areas etc.) constitute about 0.92 % (1,255 ha) of the total area. (DDC, Palpa, 2009). Geographically district Palpa is divided into mid mountain hill region (82 %) and Chure hill region (18 %). The Palpa district has variation of climate from tropical, subtropical to temperate while, most of the area lies under subtropical region. The average temperature of the district is maximum 32^o C and minimum 4^o C (DDC, Palpa, 2009) with dry winter and wet summer. The district gets monsoon rain with average 1903 mm per annual rainfall (DDC, Palpa 2009). The monsoon starts from June and pronounce rainfall occurs during June to mid September. The southern part of the district gets more rainfall compared to the north.

The major area of district Palpa is inhabited by many ethnic groups of which 51% or majority is comprised by Magars and rest by Brahmins, Newars, Chhetri, Gurung, Kumal, Sarki etc. (Shrestha, 1972). Total population of Palpa district is 2,68,558 among which the population of Magar is 1,36,750 which is 50.92 % of the total population (CBS, 2001). Most of the

population of the district is concentrated in the villages located in the remote areas and depend completely on the forest resources for maintaining their day to day needs like medicine, fuel, and fodder for domesticated live-stocks. The existence of traditional knowledge on the uses of different plant parts is more common to the people living very close to the forest areas. A few assorted publications on folklore and folk life studies have been made in Palpa district by Shrestha (1985); Mahato (1998); Mahato and Chaudhary (2003); Dhakal (2004); Shrestha et al., (2004); and Singh et al., (2011).

There have been very few studies on ethnoveterinary use of plants in different regions of Nepal like Bhattarai (1992); Manandhar (1989, 2001); Alam and Thapaliya (2009); Acharya and Acharya (2010), and Raut and Shrestha (2012) but none have been done on the ethnoveterinary use of plants in Palpa district. So, here an attempt is made to document traditional knowledge on the use of plants to treat livestock diseases in Palpa district.

Use of medicinal plants for the treatment of various ailments in livestock's is believed to have started when the animals were engaged in cultivation and transportation.

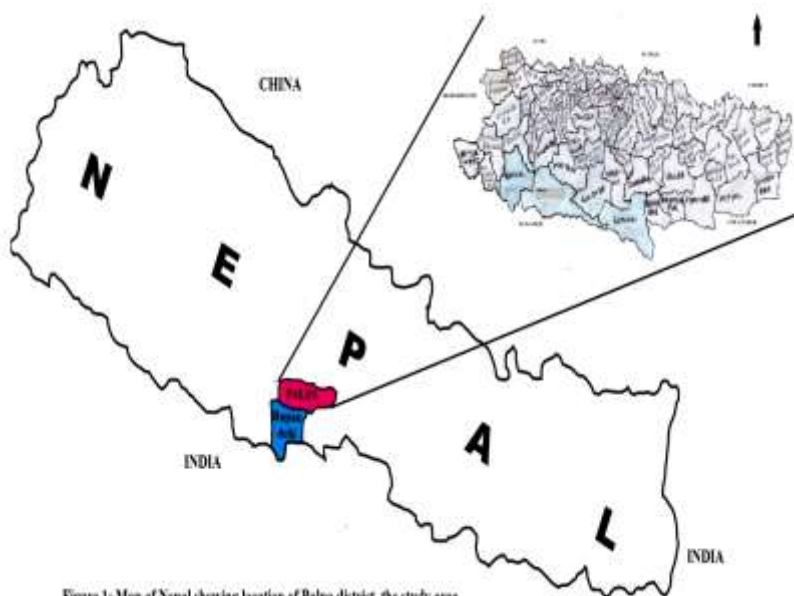


Figure 1: Map of Nepal showing location of Palpa district, the study area

The population of Magar is concentrated in different hilly parts of Nepal besides Palpa. They are also spread out in the region of hot Terai, both east and west, and in the hills and the areas around the central region of Nepal (Gautam and Thapa-Magar, 1994). On the basis of language, customs, and geographical distributions, the Magars are divided into Barha Magarant-Magar, Atha Magarant-Magar, High Mountain-Magar, Chhantyal, and other

Magars (Manandhar, 2002). However, these groups do not differ in their original traditions and their social affairs. Magars are farmers by occupation and cultivate rice, maize, oil seeds, pulse, vegetables etc. Hunting, animal husbandry, wood cutting, preparation of local alcoholic beverages (called rakshi/ jaand, from cereal grains and fruits), collection of fire wood, herbal medicines, fruits from the forest also add to their economy.

Data Collection and analysis

Extensive field surveys were made regularly in different seasons to avail the plant resources in their flowering conditions in the selected areas of Palpa district of Western Nepal in July 2010 to May 2012. In each field visit the study was conducted with close assistance and composition of local healers. Altogether 15 informants from different parts of study area were chosen to collect the information. They were between the ages of 35-70 years. To collect ethnoveterinary data a semi-structured open-ended questionnaire was prepared in local language and interviews were taken from them. The information for particular ailments was cross checked through the repeated queries during the interviews to set accurate and valid information. They were requested to accompany in the collection of plants in the field. Information regarding the local name of plant species, part (s) used, duration of treatment, mode of crude drug preparation, method of collection, storage, cultivation etc., were recorded in the field note book. The collected specimens' air dried and processed to prepare herbarium specimens. The specimens were identified with the help of standard pertinent literatures (anonymous 1997; Polunin and Stainton 1984; and Shakya 2000) and herbarium section of Avadh University, MLK (PG) College, Balrampur, India. For up to date nomenclature recent literature including Noltie (1994), Press et al., (2000), Grierson and Long (2001), and www.theplantlist.org has been used. The specimens are deposited in the herbarium section of MLK (PG) College for further study.

RESULT AND DISCUSSION

A total of 28 plant species belonging to 26 genera and 22 families were documented from the study area used in the treatment of different diseases of livestock. A list of plant species along with their scientific name, family name, local name, voucher number, parts used, and uses are given below in tabulated form (Table 1).

The most widely used remedies are derived leaf (31%), rhizome, tender shoot, stem tuber (19%), bark (19%), bulb & cloves (6%), whole plants (6%), and tuberous root (3%) (Figure 2). The maximum use of leaf and rhizome, tender shoot, stem, tuber indicates that these parts

may have strong medicinal properties. However, this needs scientific validation. In the collected data two plant species belonging to families Amaryllidaceae, Apocynaceae, Caesalpinaceae, Moraceae, Zingiberaceae and Combretaceae and remaining families contain one plant each (Figure 3).

Regarding different disease categories the majority of plants are related to skin diseases like cuts, wounds, bleeding, sores, foot and mouth disease, ectoparasites, hoof disease, and burn followed by stomach disorders, cough, cold, and fever, lactation, muscular swelling, arthritis, and fractured bone, worm infestation, loss of appetite, and eye trouble. According to the village member's skin disease is a very common problem in the study area and they had used 12 plant species as traditional medicines to treat different skin diseases.

Most of the plant species are used in paste form which was prepared from different parts of a plant followed by juice, decoction, powder etc.

The ethnic community of the study area had identified 8 types of healthcare problems in livestock (Table 2) and used traditional phytotherapy to overcome these healthcare problems.

All most all the species are common plants and are found in nearby forest area and grass land. However, in recent years, informants or traditional healers have to walk far to collect these plants that had earlier been easily available close to their village. According to them, rapid deforestation and expansion of urban areas, construction of buildings in agriculture lands are the main reasons for loss of medicinal plants.

During this study I found that the traditional healers and knowledgeable persons have greater knowledge upon utilization of medicinal plants in comparison to younger generation because of poor recognition of traditional healers, less income and availability of modern health facilities. But they are positive in the sense that this type of knowledge which their ancestors followed should be documented before they are lost or disappeared.

Enumeration

Plant species that are known and highly regarded in ethno-veterinary practices are enumerated with botanical name, family, local name, parts used and use value for treatment of various ailments were arranged alphabetically and present in the Table 1.

Table 1: Usage of collected plant materials.

Botanical Name, Family, Local Name, and Voucher number	Part(s) used	Usage of plants.
<i>Acorus calamus</i> L., Acoraceae, Bojho (M). AGS- 71	Rhi	Paste of rhizome is applied externally on sores and wounds of cattle and goats.
<i>Allium cepa</i> L., Amaryllidaceae, Piyaz (M). AGS-104	Bb	Bulb extract is applied externally on skin diseases and administered twice a day to treat diarrhoea, dysentery, loss of appetite, and expelled intestinal worms.
<i>Allium sativum</i> L., Amaryllidaceae, Aryak (M). AGS-7	Bb cl	Bulb cloves paste applied externally on skin infection, arthritis, and expelled intestinal worms.
<i>Alstonia scholaris</i> (L) R. Br. Apocyanaceae, Chhatiwan (M). AGS- 132	Bk	Bark paste is used in skin diseases. Bark decoction is given to livestock at the time of fever.
<i>Argemone mexicana</i> L., Papaveraceae, Bharbhanda. AGS- 11	Lf	Leaf juice is given to livestock in malarial fever.
<i>Artocarpus lakoocha</i> Wall. Ex Roxb., Moraceae, Badahar. AGS- 384	TS & Lf	Tender shoot and leaves feed to the cattle to enhance lactation.
<i>Asparagus racemosus</i> Willd., Asparagaceae, Kurilo (M), AGS- 28.	Tbrt	Tuberous root crushed and mixed with cattle feed and given to the livestock to enhance lactation.
<i>Bauhinia variegata</i> L., Caesalpinaceae, Koiralo (N). AGS- 68	BK	Slightly warm stem bark decoction is used to wash wounds due to foot and mouth disease. Oral administrations of leaves as fodder enhance lactation.
<i>Bombax ceiba</i> L., Bombacaceae, Simal (N), Sebol (M). AGS- 35	Bk	Bark paste is applied externally as plaster for seven days on the fractured bone of the livestock.
<i>Cannabis sativa</i> L., Cannabaceae, Ganja/ Bhang (M). AGS- 192	WP	Entire plant part is cut into small pieces and is fed to the cattle to treat indigestion.
<i>Cassia tora</i> L., Caesalpinaceae, Tapre (N), Chhinchhine jhar (M). AGS- 138	Sd	Seed powder fed to domestic cattle with fodder as general tonic.
<i>Clerodendrum viscosum</i> Vent. Verbenaceae, Bhait. AGS- 148	Lf	Leaf juice fed to the livestock twice a day for two days to expel intestinal worms. Leaf juice applied externally over the body of livestock to kill ectoparasites.
<i>Curcuma longa</i> L., Zingiberaceae, Beswar (M), Besar. AGS- 149	Rhi	Rhizome paste is applied externally on fractured bone of livestock and kept under bandage for one week. Rhizome paste is applied externally on skin diseases.
<i>Cynodon dactylon</i> (L.) Pers. Poaceae, Dubo. AGS- 5	Lf	Fresh leaf paste is applied on cut and wounds of livestock to stop bleeding. Tender shoot and leaf are fed to the livestock to enhance the lactation.
<i>Dalbergia sisso</i> Roxb. ex DC Fabaceae, Sisso (N). AGS- 40	Lf	Leaf juice is mixed with curd and given to the livestock for diarrhoea. Leaf paste is used for foot and mouth disease.
<i>Equisetum debile</i> Roxb. ex Vaucher Equisetaceae, Kurkure Jhar (M). AGS- 163	St	Stem paste is applied externally on fractured bone of livestock and kept under bandage for one week.
<i>Ficus religiosa</i> L., Moraceae, Peepal (N). AGS- 331	Bk	Bark boiled in water and applied externally to wounds of livestock twice a day till cure.
<i>Holarrhena antidysenterica</i> (L.) Wall. ex A. Dc., Apocyanaceae Indrajau, Khirro. AGS- 356.	Bk	Stem bark decoction is given to the livestock 3 times a day to treat constipation, diarrhoea, and dysentery.
<i>Justicia adhatoda</i> Acanthaceae Asuro	WP	Whole plant decoction is given orally twice a day in

(N). AGS- 14		common cold until cure.
<i>Melia azadirach</i> L., Meliaceae Bakaino (N), Rhabenasing (M). AGS- 41	Lf	Leaf decoction with common salt is given once a day to cure loss of appetite.
<i>Ocimum tenuiflorum</i> L., Lamiaceae, Tulsi (N). AGS- 24	Lf	Leaf paste is applied externally on healing of wounds. Leaf extraction is given in constipation.
<i>Oxalis corniculata</i> Oxalidaceae, Chariamilo (N). AGS- 152	WP, Lf	Whole plant juice is applied externally in muscular swelling. Leaf juice is used as eye drops in eye trouble.
<i>Phyllanthus emblica</i> L., Euphorbiaceae, Amla, Gwarmeth (M). AGS- 17	Bk, Fr	Bark paste is used in healing of wounds in livestock. Fruit decoction is given in indigestion.
<i>Piper nigrum</i> L., Piperaceae, Kalo Marich (M).	Sd	Seed paste is applied externally on hoof diseases, wounds, and skin diseases.
<i>Solanum tuberosum</i> L., Solanaceae, Aalu (N).	Tb	Tuber paste is applied externally on burns.
<i>Terminalia bellirica</i> (Gaertn.) Roxb. Combretaceae, Barro (N/M). AGS- 39	Fr	Fruit decoction is given thrice a day in treatment of diarrhoea and dysentery.
<i>Terminalia chebula</i> Retz. Combretaceae, Harro. AGS- 64	Fr, Bk	Fruit and bark decoction is given thrice a day to treat diarrhoea and dysentery.
<i>Zingiber officinale</i> (Willd.) Rosc. Zingiberaceae, Aduwa (N) /Sutho(M). AGS- 94	Rhi	Rhizome of Aduwa and fruit of Kalo marich in the ratio of 4:1 is given with jiggery to livestock for treatment of cold. Rhizome juice is administered to treat constipation, food poisoning, diarrhoea, indigestion, dysentery, and stomach ache.

Abbreviations: M= Magar (an ethnic community), N= Nepali, Rhi= Rhizome, St= Stem Bb= Bulb, cl= Cloves, Bk= Bark, Lf= Leaf, TS= Tender shoot, Tbrt= Tuberous root, WP= Entire plant, Sd= Seed, Tb= Tuber, Fr= Fruit, WP= Whole plant.

(Exact doses and duration of treatment are considered as intellectual property of informants, so as per their request this information is not included in the present paper.)

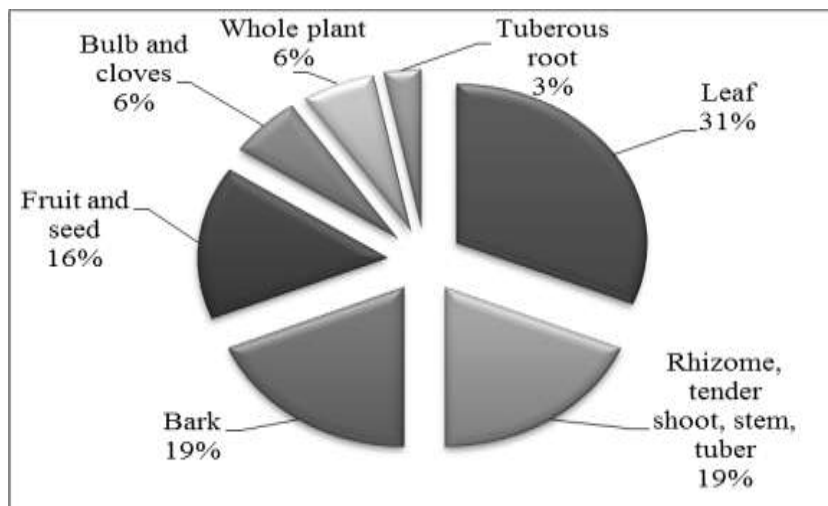


Figure 2: Plant parts used in crude drug preparation

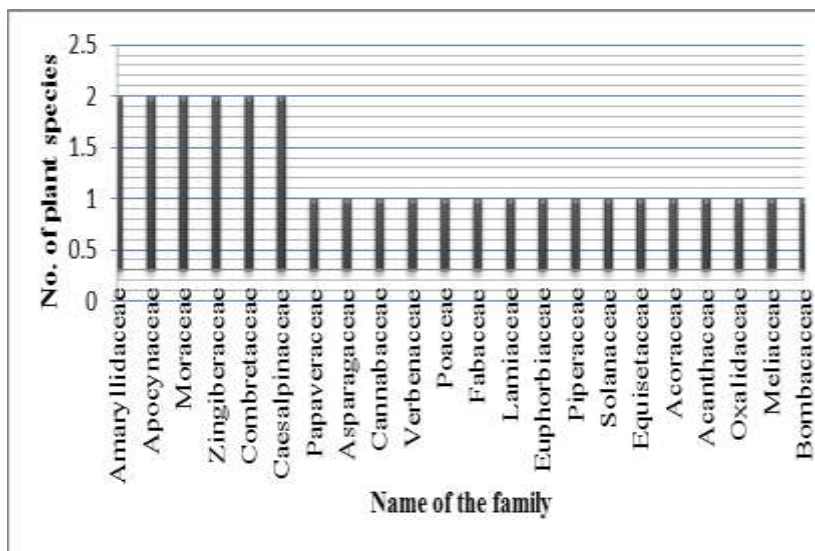


Figure 3: Name of the families with number of plant species

Table 2: Different ailment categories according to report of ethnic community

S. No.	Ailments name
1	Skin diseases including cuts, wounds, bleeding, sores, foot and mouth disease, ectoparasites, hoof disease, burn
2	Stomach disorders including diarrhoea, dysentery, constipation, indigestion, stomach ache, food poisoning
3	Cough, cold, and fevers
4	General weakness and enhance lactation
5	Worm infestation
6	Loss of appetite
7	Muscular swelling, arthritis, and fractured bone
8	Eye trouble

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