

Ethnomedicinal Uses of Plants in Mityal, Palpa, Nepal

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Abstract

Current research work has been undertaken in Mityal, Nisdi Rural Municipality-4, Palpa district. This study compares traditional knowledge on the use of medicinal plants among three age groups in the study area. Altogether, 94 plants of medicinal values belonging to 83 genera and 45 families have been recorded to heal 51 ailments like diarrhea, skin diseases, stomach problem, gastric, fever, cough and cold, headache, etc. The elderly people were found to have more knowledge on plant use.

Keywords: *Ailment, Elderly people, Medicinal plant, Traditional knowledge*

Introduction

Ethnobotany deals with the study of the interaction between people and plants (Martin, 1995). People are utilizing plant and plant products for their daily needs and also as medicine. However, the indigenous knowledge is declining due to changing perception of the local people, commercialization and socio economic transformation of all over the world (Kunwar & Adhikari, 2005). In Nepal, the concept of ethnomedicine has been developed since the late 19th century. The first book “Chandra-Nighantu regarding medical plants was published by the Royal Nepal Academy in 1969 (2025 B.S.). Later, a number of ethnobotanical studies on different ethnic groups of Nepal have been carried out by different workers (Pandey, 1964; Malla & Shakya, 1968; Adhikari & Shakya, 1977; Malla & Shakya, 1984-1985; Manandhar, 1985, 1990, 1994; Joshi & Joshi, 2000; Shrestha et al., 2003; Joshi, 2007; Shrestha et al., 2014).

Ethno-medicine is a set of empirical local practices on the basis of indigenous knowledge of a social group often transmitted orally from generation to generation. Due to the lack of scientific harvesting, proper management techniques and lack of conservation awareness, the number of ethno-medicinal plants is decreasing (Kunwar & Duwadee, 2003). Allopathic medicine and health centre are not easily available throughout Nepal. Thus, about 80% of the population in Nepal relies on traditional medicine (Manandhar, 2002). Medicinal plants

contribute at least 25% in modern drug industry (Rawat & Karki, 2004). There is no reliable figure for the total number of medicinal plants on earth but an estimate of about 50,000 species (10-18% of the global flora) have medicinal value (Schippmann et al., 2002). Globally, the two countries with the highest numbers of medicinal plants are China with 10,027 species (41% of its angiosperm flora) and India with 7500 species (44% of its vascular flora) (Shiva, 1996, Xiao & Peng, 1998). It is estimated 1700 species of plants in Nepal have medicinal properties (Shrestha et al., 2000, Rawal, 2004, Sharma & Das, 2004, Baral & Kurmi, 2006).

Materials and Method

Present research work was carried out in Mityal, Nisdi Rural Municipality-4, Palpa to assess the traditional ethnomedicinal knowledge based on age group. The study area was visited from January to July 2017. The study area is dominated by Magar people constituting 93.81% and followed by Kami (3.97%), Damai/Dholi (0.86%), Brahmin (0.45%) and others (0.91%) (CBS, 2014). Survey and inventory technique (Martin, 1995; Cunningham, 2001) were applied for collection of ethnomedicinal information. In survey technique, individual and in depth interviews and focus group discussion were conducted among the local plant users, community members and traditional faith healers. In inventory technique, different plant specimens were collected

from the study area and their local names were identified with part(s) used and purpose of use etc. with the participation of knowledgeable key interviewees/people as well as by transect walk (survey) and also participating in different cultural programs and regular meeting of local people.

Plant specimens collected from study area were identified with the help of various literatures (Hooker, 1872-1897, Polunin & Stainton, 1984, DMP, 1986, Stainton, 1988, Shrestha, 1998) and deposited at Department of Botany, Tribhuvan Multiple Campus, Tansen, Palpa.

Results and Discussion

Medicinal Plant Distribution and Species Composition

In Present study, total 94 plant species were found having medicinal value belonging to 45 families and 83 genera which were used to treat 51 different human ailments. Among 45 families, 14 families (families having ≥ 3 plant species) were taken for graphical analysis. Leguminosae were found as most dominant family having highest number of species i.e. including 7 plant species, followed by Euphorbiaceae (6) and Solanaceae (6), Lamiaceae (5), Compositae (4), Zingiberaceae (4), Amaryllidaceae (3), Anacardiaceae (3), Apocynaceae (3), Combretaceae (3), Cucurbitaceae (3), Lauraceae (3), Urticaceae (3) and Verbenaceae (3).

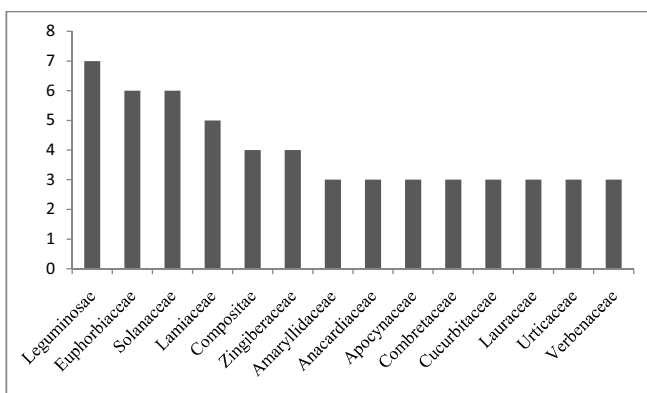


Figure 1: Most dominated plant family

Thapa (2008) reported 170 plants of medicinal values belonging to 138 genera and 64 families from Benimanipur VDC, Nawalparasi District but present

research shows that there are less numbers of medicinal plants. The factors for the less number of medicinal plants in Mityal are temperature, soil fertility, knowledge of people about medicinal plants, use of allopathic medicines in place of homeopathic medicines, etc. Ale et al. (2009) reported 181 plant species of ethnobotanical use by Magar People from Siluwa, Palpa. Acharya (2012) recorded 161 different ethnomedicinal plant species used by Magar community in Badagaun, Gulmi. Similarly Singh et al. (2018) documented 114 plants species of ethnomedicinal use from five different Magar dominating villages of Palpa district. On comparing these with current study, it can be concluded that the people of Mityal had comparatively less knowledge on plant use.

Knowledge of Use of Plants Based on Age Group

This study showed that great variation in knowledge on use pattern of plant among three different age groups (Appendix 1). Out of 94 species, 92.55% plants were used by people above 60 years as they had very rich knowledge about medicinal use of plants, 67.02% were used by people of age group 40-60 years as they have good knowledge of medicinal plants and 50% were used by people of age group 20-40 years as they had least knowledge about medicinal plants.

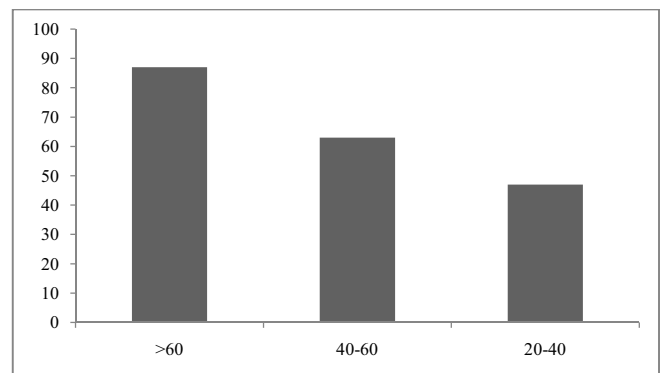


Figure 2: Use of plants based on age group

Form of Medicinal Plants

The total 94 plant species were grouped into herb, shrub, tree and climber based on their life form. Shrub species were found most dominant which comprised 36 (38.0%) and followed by herb 28 (30.0%), tree 22 (23.0%) and climber 8 (9.0%).

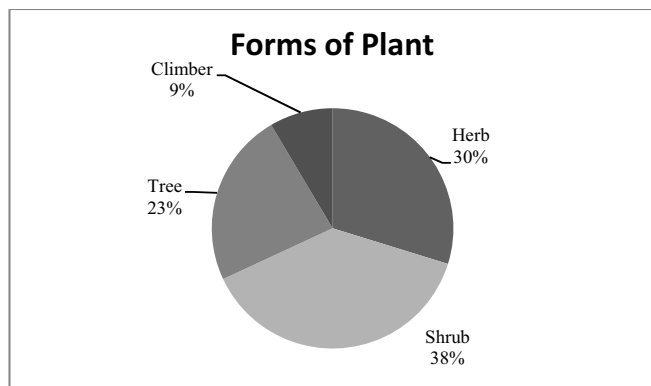


Figure 3: Forms of medicinal plant

Most Frequent Ailment Reported

The medicinal plants in the study area are used to heal up 51 different ailments by traditional technique. The most frequently reported ailments are diarrhea (16 species) followed by cut (13), cough and hotness (10), gastritis (9), fever (8), cholera (7), headache (6), burn (5) and jaundice (5).

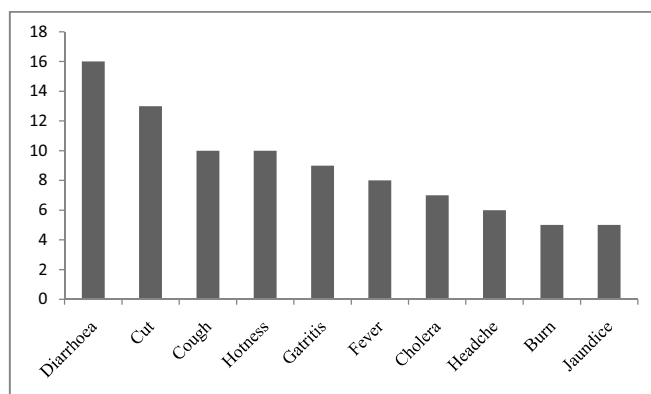


Figure 4: Highly used plants for different ailments

Diarrhea had the highest frequency of ethno-medicinal use (16 species). The highest frequency of diarrhea in research area may be because of unsafe diet, polluted water and unmanaged settlement. Cuts, gastritis, cough, hotness, fever, headache and some other wound were other commonly reported ailments.

Conclusion

Ethno-medicinal work has not been previously carried out in this area. This may be a new work for documenting traditional knowledge among three different age groups from this area. All information and finding presented here are primarily based on

field observation, interview and group discussion with local faith healers (lama), community leaders, social workers and elderly people from the focused age groups living in the research area. Being rich in medicinal knowledge the local people also had knowledge about multiple uses of medicinal plants. Some elderly people and faith healers of study area tried to keep secret about indigenous use of medicinal plants. It is also found that a single plant is used in different diseases. The elderly people were found to have more knowledge about ethnomedicinal use of plants. The reason behind this is that there was no facility of medicines and hospitals in the rural areas so that most of the people were dependent on medicinal plants for the treatment of different kinds of diseases in past. Nowadays, there is facility of medicines and hospitals in rural areas and so the knowledge is declining in young generation.

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Appendix 1: Medicinal use of plants

Scientific Name	Medicinal Use			Age Group		
	Ailment	Part	Mode	20-40	40-60	>60
<i>Acacia catechu</i> (L. f.) Willd.	Cut	Bark	Grind			+
	Dysentery	Tip	Decoction			+
<i>Acorus calamus</i> L.	Cough	Whole part	Grind	+	+	+
<i>Aegle marmelos</i> (L.) Correa	Gastritis	Leaf	Powder	+	+	
	Hotness	Fruit	Ripen Fruit/Grind	+	+	+
	Jaundice	Leaf	Decoction			+
<i>Ageratum conyzoides</i> (L.) L.	Bleeding	Leaf	Juice is extracted			+
	Cut	Leaf	Grind with hand			+
<i>Allium cepa</i> L.	Burn	Tuber	Grind			+
<i>Allium sativum</i> L.	Cholera	Tuber	Fresh		+	+
	Gastritis	Tuber	Fresh			+
	Hens sickness	Tuber	Grind	+	+	+
<i>Allium wallichii</i> Kunth	Cholera	Tuber	Grind	+	+	+
<i>Aloe vera</i> (L.) Burm. f.	Burn	Sticky Juice	Directly applied	+	+	+
<i>Ananas comosus</i> (L.) Merr	Hotness	Fruit	Directly	+	+	+
<i>Artemisia dubia</i> Wall. ex Besser	Cut	Juice	Grind	+	+	+
	Insecticide	Leaf	Fresh leaf			+
<i>Asparagus officinalis</i> L.	Energetic	Tip/Root	Powder	+		+
	Milk production	Root	Powder	+	+	
<i>Bauhinia vahlii</i> Wight & Arn.	Cut	Bark	Grind			+
<i>Bauhinia variegata</i> L.	Cut	Bark	Grind	+		+
	Fracture	Bark	Grind		+	+
<i>Bergenia ciliata</i> (Haw.) Sternb.	Cholera	Leaf	Grind		+	+
<i>Boehmeria nivea</i> (Gaudich)	Cut	Root	Grind		+	+
<i>Boehmeria rugulosa</i> Wedd.	Cut	Bark	Grind			+
	Sprain	Bark	Grind			+
<i>Bombax ceiba</i> L.	Constipation	Bark	Grind			+
	Diarrhoea	Root	Grind		+	
<i>Callicarpa macrophylla</i> Vahl.	Diarrhoea	Fruit/Bark	Decoction			+
	Fever	Bark	Decoction	+		+
<i>Calotropis gigantea</i> (L.) Dryand.	Toothache	Latex		+		+
	Insecticide	Leaf	Fresh leaf			+
	Sprain	Latex	Massage		+	+
<i>Cannabis sativa</i> L.	Insomnia	Flower	Smoke	+		+
	Swelling	Flower	Massage		+	
<i>Capsicum annuum</i> L.	Cholera	Fruit	Grind			+
	Hens sickness	Fruit	Directly		+	+
<i>Carica papaya</i> L.	Jaundice	Fruit	Directly		+	
	Skin disease	Juice	Directly	+	+	+
<i>Cassia fistula</i> L.	Urinary problem	Fruit	Break and extract sticky parts		+	+
<i>Sennatoria</i> (L.) Roxb.	Blood Clotting	Leaf	Juice	+	+	+
	Cough	Seed	Grind	+		+
	Diarrhoea	Fruit	Decoction			+
<i>Centella asiatica</i> (L.) Urb.	Headche	Whole part	Decoction	+	+	+
	Hotness	Whole part	Decoction	+	+	+
<i>Cereus repandus</i> (L.) Mill.	Burn	Fruit	Break	+		+
<i>Cinnamomum tamala</i> (Buch.-Ham.) Nees & Eberm.	Asthma	Bark	Oil			+
	Spices	Leaf/Bark	Grind	+	+	
<i>Cissampelos pareira</i> L.	Diarrhoea	Leaf	Grind	+	+	+
	Gastritis	Leaf	Doction	+		+
<i>Colebrookea oppositifolia</i> Sm.	Abdominal pain	Root	Decoction			+
	Headche	Tip	Massage			+
<i>Cryptolepis dubia</i> .(Burm.l) M.R.Almeida	Diarrhoea	Juice	Directly/Drink	+	+	+
	Wound	Juice	Drink			+

Scientific Name	Medicinal Use			Age Group		
	Ailment	Part	Mode	20-40	40-60	>60
<i>Cucumis sativus</i> L.	Urinary problem	Fruit	Directly/Eat	+	+	+
<i>Cucurbita maxima</i> Duch.	Fever	Fruit	Directly/Eat	+	+	+
<i>Curcuma angustifolia</i> Roxb.	Ear Wound	Tuber	Grind	+	+	
<i>Curcuma longa</i> L.	Cough	Tuber	Powder/Decoction/Boil	+	+	+
<i>Cuscuta reflexa</i> Roxb.	Jaundice	Whole part	Powder			+
<i>Datura metel</i> L.	Antimicrobial	Fruit	Powder			+
<i>Desmodium oojeinense</i> (Roxb.) H. Ohashi.	Cut	Bark	Grind			+
<i>Dioscorea bulbifera</i> L.	Worms	Tuber	Boils			+
<i>Dioscorea deltoidea</i> Wall. ex Griseb.	Diarrhoea	Tuber	Boils			+
<i>Elephantopus scaber</i> L.	Constipation	Leaf	Juice			+
	Fermenter	Whole part	Grind		+	+
	Fever	Root	Powder			+
<i>Ageratina adenophora</i> (Spreng.) R.M.King & H.Rob	Cut	Leaf	Grind	+	+	+
<i>Euphorbia heterophylla</i> L.	Conjunctivities	Juice	Directly		+	+
<i>Euphorbia hirta</i> L.	Cataract	Juice	Directly		+	+
<i>Euphorbia royleana</i> Boiss.	Insecticide	Leaf	Fresh leaf			+
	Jaundice	Root	Decoction		+	+
	Worms	Juice	Massage			+
	Wound	Stem	Juice applied on wound	+	+	+
<i>Eurya acuminata</i> DC.	Cholera	Tip	Fresh leaf			+
	Diarrhoea	Bark	Decoction			+
<i>Ficus carica</i> L.	Antimicrobial	Juice	Decoction			+
<i>Hedychium gardnerianum</i> Sheppard ex Ker Gawl.	Fever	Tuber	Grind		+	+
	Hotness	Tuber	Grind		+	+
<i>Imperata cylindrica</i> (L.)Raeusch.	Hookworm	Root	Grind in small parts			+
	Snake bite	Whole part	Tied	+	+	+
<i>Justicia adhatoda</i> L.	Cough	Leaf	Decoction	+		+
	Fever	Root	Grind	+	+	+
<i>Bryophyllum pinnatum</i> (Lam.) Oken	Burn	Leaf	Grind with hand	+	+	
<i>Lindera neesiana</i> (Wall. Ex Ness) Kurz	Animal sickness	Leaf	Grind	+	+	+
<i>Litsea doshia</i> (Buch.-Ham. ex D. Don) Kosterm.	Animal sickness	Leaf	Directly feed	+	+	+
	Cholera	Leaf	Grind	+	+	+
<i>Lycopersicon esculentum</i> Mill.	Burn	Fruit	Grind	+	+	+
<i>Mangifera indica</i> L.	Diarrhoea	Bark	Boil			+
	Headche	Whole part	Decoction	+	+	+
	Hotness	Whole part	Decoction			+
<i>Mimosa rubicaulis</i> Lam.	Insomnia	Whole part	Grind			+
	Fracture	Root	Grind		+	+
<i>Momordica charantia</i> L.	B.P. high	Fruit	Grind	+	+	
<i>Morus serrata</i> Roxb.	Animal milk production	Leaf	Direct feed	+	+	
<i>Musa paradisiaca</i> L.	Diarrhoea	Juice	Drink			+
<i>Myrica esculenta</i> Buch.-Ham. ex D. Don.	Asthma	Bark	Powder		+	+
	Coryza	Bark	Powder			+
	Diarrhoea	Bark	Grind			+
	Dysentry	Bark	Boil			+
<i>Nicotiana tabacum</i> L.	Toothache	Leaf	Juice	+		
	Worms	Leaf	Juice			+
<i>Ocimum americanum</i> L.	Cough	Seed	Chew			+
<i>Opuntia monacantha</i> (Willd.) Haw.	Hotness	Fruit	Paste applied	+	+	+
<i>Origanum vulgare</i> L.	Diarrhoea	Juice	Directly		+	+
	Mud wound	Juice	Directly		+	+
<i>Oxalis corniculata</i> L.	Abdominal pain	Leaf	Fresh leaf			+
	Headche	Whole part	Grind		+	+

Scientific Name	Medicinal Use			Age Group		
	Ailment	Part	Mode	20-40	40-60	>60
<i>Phyllanthus emblica</i> L.	Energetic	Fruit/bark	Powder		+	
	Gastritis	Bark	Grind		+	+
	Hair long	Fruit	Grind	+	+	
<i>Piper longum</i> L.	Gastritis	Fruit	Eat		+	+
<i>Pogostemon benghalensis</i> (Burm. f.) Kuntze.	Fever	Whole part	Grind and decoction	+	+	+
	Headche	Whole part	Grind and decoction	+	+	+
	Hotness	Whole part	Grind and decoction	+	+	+
<i>Premna barbata</i> Wall. ex Schauer.	Fever	Bark	Grind	+	+	+
	Headche	Bark	Decoction	+	+	+
	Influanza	Bark	Decoction			+
<i>Prunus persica</i> (L.) Batsch.	Diarrhoea	Tip	Directly			+
<i>Raphanus sativus</i> L.	Hotness	Tuber	With Bark			+
<i>Rhododendron arboreum</i> Sm.	Dysentery	Bark	Decoction		+	+
	Lay bone in throat	Flower	Directly			+
<i>Brucea javanica</i> (L.) Merr.	Diarrhoea	Fruit	Eat	+	+	+
	Stomach problem	Fruit	Dry			+
<i>Ricinus communis</i> L.	Constipation	Seed	Grind			+
<i>Rubus ellipticus</i> Sm.	Cough	Tip	Grind			+
	Hotness	Root	Decoction			+
<i>Sapindus mukorossi</i> Gaertn.	Dandruff	Fruit	Grind		+	+
<i>Falconeria insignis</i> Royle.	Fish poison	Bark	Grind			+
	Cut	Bark	Boil	+	+	+
	Diarrhoea	Bark	Boil	+	+	+
<i>Shorea robusta</i> Gaertn.	Dysentery	Bark	Boil	+	+	+
	Cough	Root	Decoction			+
<i>Smilax aspera</i> L.	Fever	Root	Powder			+
<i>Solanum aculeatissimum</i> Jacq.	Dandruff	Fruit	Grind	+	+	
<i>Spondias pinnata</i> (L. f.) Kurz.	Mud wound	Leaf	Grind with hand	+	+	+
<i>Tectaria coadunata</i> (Wall.ex Hook. & Grev.) C.Chr.	Diarrhoea	Tuber	Grind and decoction	+	+	+
<i>Terminalia alata</i> Heyne ex. Roth.	Cut	Bark	Grind			+
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Cough	Bark/Fruit	Decoction		+	+
	Gastritis	Fruit	Chew	+	+	+
	Influanza	Fruit/Bark	Grind			+
	Nighblindness	Fruit	Chew		+	
<i>Terminalia chebula</i> Retz.	Cough	Fruit/Bark	Grind			+
	Gastritis	Fruit	Chew	+	+	+
<i>Thysanolaena latifolia</i> (Roxb.ex Hornem) Kuntze.	Wound	Root	Grind			+
<i>Tinospora sinensis</i> (Lour.) Merr.	Animal Cough	Tuber	Dried and grind		+	
	Antimicrobial	Tuber	Boil			+
<i>Heynea trijuga</i> Roxb.ex.sims	Scabies	Seed	Grind			+
<i>Urtica dioica</i> L.	Cut	Root	Grind	+	+	+
	Jaundice	Root	Grind	+		
	Nighblindness	Tip	Cook/boil	+		+
<i>Viscum articulatum</i> Burm. f.	Cut	Bark	Grind			+
<i>Vitex negundo</i> L.	Insecticide	Leaf	Placed on storage site		+	
	Snake bite	Juice	Grind		+	+
<i>Woodfordia fruticosa</i> (L.) Kurz	Abdominal pain	Bark	Powder			+
	Diarrhoea	Tip	Chew			+
	Gastritis	Root/Bark	Grind		+	+
<i>Zanthoxylum armatum</i> DC.	Cholera	Fruit	Fermentation			+
	Gastritis	Fruit	Decoction		+	+
	Hotness	Root	Decoction			+
<i>Zingiber officinale</i> Rosc.	Conjunctivities	Tuber	Vapour			+
	Cough	Tuber	Grind			+