

Medical Ethnobiology and Indigenous Knowledge System of the Lapcha of Fikkal VDC of Ilam, Nepal

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ABSTRACT

The main aim of this paper is to investigate the medico-ethnobiological information along with indigenous knowledge system of Lapchas, one of the endangered indigenous nationalities of Nepal from Fikkal VDC of Ilam district. They were found to have rich and profound indigenous knowledge on the use of plants and animals for various purposes. Analysis of data revealed that local Lapcha people had a rich tradition on the usage of animal species and plant species of medicinal values for medicinal use for their primary health care services. Different medicinal plant and animal species were used for the treatment of different disease/ailments. The respiratory tract infections, gastrointestinal disorders, skeleto-muscular problems and dermatological infections were the most frequent ailments/diseases treated. The findings revealed by the present study have also been supported by the works previously done on other part of the country.

Keywords: Indigenous knowledge, traditional medicine, medicinal animals and plants, Lapcha, ethnic community.

INTRODUCTION

Nepal is a wonderland with limitless beauty embosomed in the world's mightiest mountain chains the Himalayas, stretching from tropical plains to stupendous snow heights. Owing to this diverse geography and wide range of altitudinal and climatic zones, she has magnificent, rich and varied biological resources. Along with the diverse floral and faunal resources, she also endows an array of ethnic groups rich in tradition, culture and indigenous knowledge system. The indigenous knowledge present in people from time immemorial has helped in the sustainable utilization of biological resources for various purposes like food, medicine, clothing, dyes, construction etc. The indigenous knowledge for the utilization of plants and animals' parts as medicine has been the only way to save life of the people in the rural area of Nepal where modern health facilities is still out of reach. Still 87% of people living in rural area of Nepal depend directly or indirectly on the formal and informal system of traditional medicines for healthcare (Bhattarai, 1992, CBS, 2011). So, use of traditional medicine in remote areas of Nepal is a necessity than a luxury.

In Nepal, the use of plants and animals' parts as medicine is widespread. In rural areas of Nepal, medicinal knowledge and practices are passed down entirely through the oral, traditional and personal experiences, keeping alive the rich traditional health care system like Ayurveda, Amchi, Homeopathy associating with Unani, and Naturopathy. "Medicinal Plants of Nepal", a book published by the Department of Medicinal plants in two volumes (HMGN, 1970, 1984) accounted 571 species from Nepal. Malla and Shakya (1984-1985) compiled a

list of 630 species of medicinal plants from Nepal, out of these 510 species are indigenous i.e. they occur in wild and 120 species are either exotic or indigenous that are naturalized or cultivated since long. However, around 1000 species of medicinal and aromatic plants have been estimated to occur in Nepal (Chaudhary, 1998). These plants occur throughout the country from tropical forest to alpine meadows. The work of Malla and Shakya (1984-1985) revealed the presence of maximum number of medicinal plant species, 540 (i.e. 85%) in central Nepal. The numbers from Western and Eastern regions are 424 (67.3%) and 512 (81.27%) respectively. Around 1403 species have been reported which represents about 20% of the total estimated flowering plants of Nepal (Tiwari, 1994). The indigenous people living close to nature have a sound knowledge on the usage of these plants and animals for different medicinal purposes.

Lapcha, one of the ten endangered indigenous nationalities of Nepal comprising around 2 per 10,000 populations of Nepal (CBS, 2003, 2011) that accounts for one of the least populated indigenous group by "National Foundation for Development of Indigenous Nationalities Act, 2058 (2002 AD)". They are found mostly concentrated in Ilam district of eastern Nepal. Most Lapcha in Nepal are peasants: small subsistence farmers trying to get what they can produce on their small plots of land situated near the forest or forest patches. Because of their close association with nature, they have abundant knowledge and skill in utilizing natural forest products found in their vicinity for traditional medicinal practices. In this context, the main objectives of this paper are: (i) to

provide medico-ethnobiological information, and (ii) to explore the pristine indigenous knowledge system found in the Lapcha.

MATERIALS AND METHODS

Study area

Ilam district also known as the 'queen of hills' lies in the Mechi Zone at eastern boundary of Nepal touching the Darjeeling district of India in the east, Morang and Dhankuta districts in the west, Panchthar district in the North and Jhapa district in the south. It lies within 26°40' to 27°8' latitude and 87°40' to 88°10' longitude having the area of 1,703 sq. km. It lies at the altitudinal range of 600-3700 m from the sea level. The district headquarter of Ilam is Ilam bazaar.

Fikkal is one the 48 VDCs of Ilam district which is located at an altitude of 1500m above sea level, with an area of 27 sq.km. The VDC boundary of Fikkal VDC is Shri Antu on the east, Kanyam on south east, Pashupatinagar on north east, Gorkhe on north, Pachakanya on west and Naya bazar on north west. Along with the Lapcha community, different other ethnic/caste groups also inhabit the area like Limbu, Rai, Tamang, Brahmin, Chhetri, Newar etc. However, a fairly large population of Lapcha resides in this VDC, so the study is focused on this village development committee.

To accomplish above mentioned objectives, primary and secondary sources of data were used. Primary data were collected from the field visit by direct observation and questionnaire methods. Key-informants for traditional medicinal practices like the local healers like Dhami, Jhankri, Boonthing/Mun, and Yaba/Yama were asked a number of structured and semi-structured questions about traditional healing practices and the plants and animals used as medicine for different diseases. Unstructured interview with small group comprising youths, women, and local elderly people was also done to generate information. Samples of different animals and plants both known and unknown were collected from the field visit which was done twice in the month of October 2007 and June 2008.

The collected samples were identified with standard literatures and with the help of experts (Botanist and Zoologist) from the Central Department of Zoology and Botany (T.U.) and the National Herbarium, Godawari, Kathmandu. The plants and animal species were taxonomically classified into division, order, family, genera and species. The secondary data were collected from the relevant textbooks, research paper, journals and publications which helped in comparison and justification of primary data.



Fig. 1. Map of Nepal

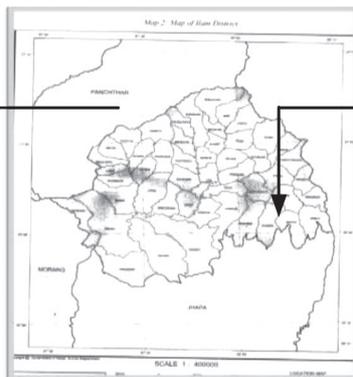


Fig. 2. Map of Ilam district

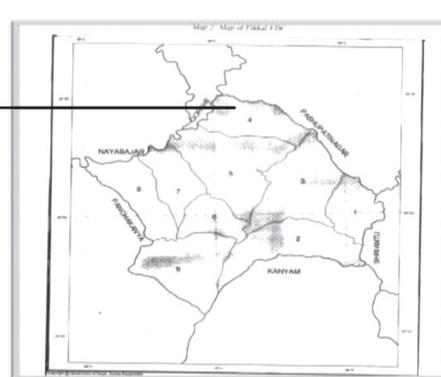


Fig. 3. Map of Fikkal VDC

RESULTS

The result has been presented into two categories of medico-ethnobiological and indigenous knowledge system as below.

Ethnomedical biology

Lapcha community of Fikkal VDC have been using a number of animal species both wild and domesticated in their traditional healing system as medicines to cure several diseases. Findings of this research disclosed that altogether 19 animal species both wild and domesticated,

belonging to 10 order 13 families have been used for the treatment of 21 different diseases/ailments. It was found that the Lapcha people have profound knowledge about different plant species having medicinal value used in their traditional healing practices and they make use of some 61 species of medicinal plants belonging to 39 families and 58 genera for curing 36 different ailments by using their own indigenous knowledge. The list of animals and plants species used in the traditional medicine by the local Lapcha people of the study area is shown in Table 1.

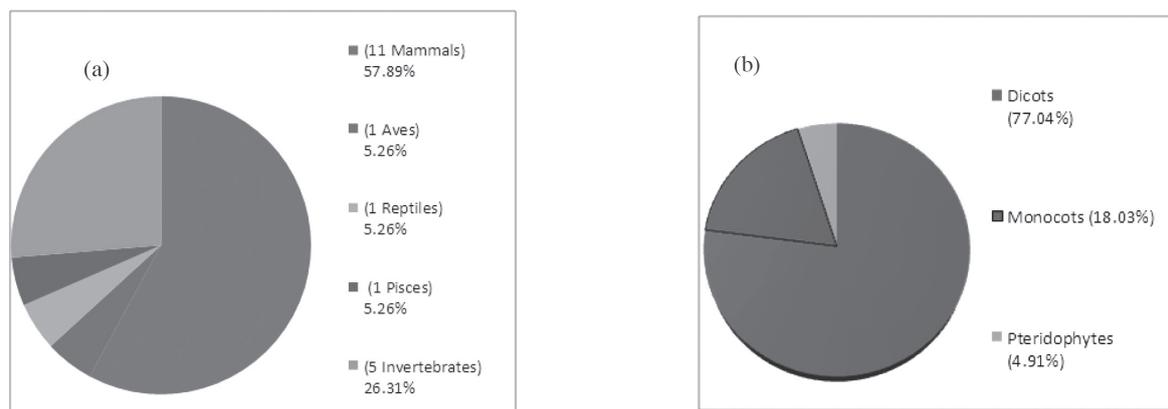


Fig. 4. Medico-ethnobiological use of Lapcha (a) animal category and (b) plant category

Table 1. Categorization of Animal Species Used in Folk Medicines by the local Lapcha of Fikkal VDC, Ilam.

S.N.	Order	Family	Scientific Name	Type	Local Name	English Name	Organ Used	Medicinal Uses
1.	Artiodactyla	Bovidae	<i>Bubalus bubalus</i>	Mammal	Bhaisi	Buffalo	Tooth, Bile	Boils, Asthma
2.	Artiodactyla	Bovidae	<i>Bos indicus</i>	Mammal	Gai	Cow	Tooth, milk	Boils, Back and Body pain
3.	Artiodactyla	Bovidae	<i>Capra hiscus</i>	Mammal	Bakhra	Goat	Bile	Asthma
4.	Artiodactyla	Cervidae	<i>Axis axis</i>	Mammal	Harin	Deer	Hoof and Foetus	Mushroom Poison.
5.	Artiodactyla	Suidae	<i>Sus sp.</i>	Mammal	Sungur	Pig	Bile	Asthma
6.	Anura	Ranidae	<i>Rana tigrina</i>	Amphibia	Manpawa	Indian Bull Frog	Meat and Egg	Dysentery and Pile
7.	Carnivora	Canidae	<i>Canis familiar</i>	Mammal	Kukur	Dog	Brain	Rabies.
8.	Carnivora	Canidae	<i>Canis aureus</i>	Mammal	Syal	Jackal	Meat, Bone and Hide	Rheumatism and T.B.
9.	Carnivora	Felidae	<i>Panthera tigris</i>	Mammal	Bagh	Tiger	Bone	Baaghe.
10.	Decapoda	Palaemonidae	<i>Palaemon malcolmsoni</i>	Crustacean	Jhinge Macha	prawn	Mandible	Throne prick
11.	Galliformes	Phasinidae	<i>Gallus gallus domesticus</i>	Aves	Kukhura	Rooster	Egg, Fat	Burnt wound, Eczema, Body Pain.
12.	Hymenoptera	Apidae	<i>Apis cerana</i>	Insect	Gharmauri	Honey Bee	Honey	Cough, Back and Body pain.
13.	Hymenoptera	Apidae	<i>Apis dorsata</i>	Insect	Putka	Honey Bee	Honey	Snake bite, Vomit, Fatigue and loss of appetite
14.	Perrisodactyla	Equidae	<i>Equus coballus</i>	Mammal	Ghoda	Horse	Milk	Thangne Biram
15.	Robocidca	Elephantidae	<i>Elephus maximus</i>	Mammal	Hatti	Elephant	Bone	Internal Eczema
16.	Rodentia	Hystricidae	<i>Hystric brachyura</i>	Mammal	Dumsi	Porcupine	Stomach	Asthma
17.	Stylomatophora	Helicidae	<i>Anadenus sp.</i>	Mollusca	Chiplekira	Slug	Saliva, whole body	Cut wound Ringworm, Bone fracture
18.				Reptile	Sarpa	Snake	Bile	Cut wound.
19.				Pisces	Macha	Fish	Fat	Burnt wound.

Table 2. Categorization of Plant Species Used in Folk Medicine by the local Lapcha of Fikkal VDC, Ilam.

S.N.	Division	Family	Scientific Name	Local Name	Life form	Parts Used	Form of medication	Medicinal Uses
1.	Dicotyledon	Apiaceae	<i>Heracleum nepalense</i>	Chimfin	Small tree	Flower, fruit	Powder, paste, Raw.	Headache, Stomach
2.	Dicotyledon	Asteraceae	<i>Ageratum conyzoides</i>	Ilame Jhar	Herb	Leaf	Juice	Insect bite
3.	Dicotyledon	Bignoniaceae	<i>Orocyllum indicum</i>	Tatalo	Tree	Bark	Juice	Jaundice
4.	Dicotyledon	Brassicaceae	<i>Raphnus sativus</i> Linn	Banmula	Herb	Root	Paste, Raw	Burnt wound,
5.	Dicotyledon	Caryophyllaeaceae	<i>Drymaria Cordata</i>	Abhijalo	Herb	Leaf	Juice, stem	Common cold, cut wound.
6.	Dicotyledon	Chenopodiaceae	<i>Chenopodium album</i>	Bethu	Herb	whole plant	Cooked	Constipation
7.	Dicotyledon	Compositae	<i>Artemesia indica</i>	Titepati	Herb	Leaf	Power, Juice, Paste	Nose bleeding, Cut wound, scabbies
8.	Dicotyledon	Compositae	<i>Tagetes erecta</i> L.	Sayapatri	Herb	Leaf	Decoction	Fever
9.	Dicotyledon	Cruciferae	<i>Brassica Campestris</i>	Tori	Herb	Seed	Oil (Raw)	Back and Body Pain
10.	Dicotyledon	Cruciferae	<i>Lepidium sativum</i>	Chamsur	Herb	Whole plant, seed	Cooked, Powder	Body and back pain, Bone fracture.
11.	Dicotyledon	Cucurbitaceae	<i>Cucumis stivus</i>	Kankro	Climber	Fruit	Powder	Common cold.
12.	Dicotyledon	Dioscoreaceae	<i>Dioscorea sps.</i>	Vyakur	Climber	Rhizome	Boiled	Constipation.
13.	Dicotyledon	Ericaceae	<i>Rhododendron arboretum</i>	Laligurans	Tree	Flower	Raw	Fish bone prick
14.	Dicotyledon	Euphrobiaceae	<i>Embllica officinalis</i>	Amala	Tree	Bark	Powder	Dysentery
15.	Dicotyledon	Fabiaceae	<i>Piptanthus nepalensis</i>	Bakhre lahara	Climber	Root	Powder	Gastric
16.	Dicotyleadon	Gentianaceae	<i>Swertia Chiraita</i>	Chiraito	Herb	Leaf, stem	Decoction	Fever
17.	Dicotyledon	Labiatae	<i>Mentha aquatica</i> L.	Pudina	Herb	Leaf	Juice	Diarrhoea.
18.	Dicotyledon	Labiatae	<i>Ocimum basilicum</i> Linn.	Babari	Herb	Flower	Paste, Juice	Scabbies, Ear problem
19.	Dicotyledon	Lauraceae	<i>Lindera neesiana</i> Benth	Siltumur	Tree	Fruit	Raw, oil	Gastric, low appetite
20.	Dicotyledon	Leguminosae	<i>Dolichos biflorus</i>	Gahat	Herb	Seed	Cooked	Measles
21.	Dicotyledon	Leguminosae	<i>Trigonella foenumgraceum</i>	Methi	Herb	Seed	Powder	Cough
22.	Dicotyledon	Loranthaceae	<i>Viscum articulatum</i>	Hadchur	Shrub	Leaf	Paste	Bone facture, Back and Body pain
23.	Dicotyledon	Meliaceae	<i>Azadirachta indica</i> (A. Juss)	Neem	Tree	Leaf	Decoction	Fever
24.	Dicotyledon	Moraceae	<i>Ficus religiosa</i> L.	Peel	Tree	Root	Powder	Typhoid
25.	Dicotyledon	Myrtaceae	<i>Psidium guajava</i>	Ambak	Tree	Bark	Syrup	Diarrhoea
26.	Dicotyledon	Ranunculaceae	<i>Aconitum palmatum</i>	Bikhama	Herb	Root	Boiled	Fever
27.	Dicotyledon	Ranunculaceae	<i>Clematis buchannania</i>	Pinashe lahara	Climber	Root	Powder	Sinusities
28.	Dicotyledon	Rosaceae	<i>Rubus ellipticus</i>	Ainselu	Shrub	Young shoot	Paste	Tongue Eczema.
29.	Dicotyledon	Rosaceae	<i>Rosa brunonii</i>	Bhansi singe	Shrub	Root	Paste	Bone fracture.

30.	Dicotyledon	Rosaceae	<i>Pyrus pashia</i>	Mel	Tree	Fruit Bark, Young shoot	Juice, powder, Ra	Dysentery
31.	Dicotyledon	Rubiaceae	<i>Rubia manjith</i>	Majitho	Herb	Whole plant	Paste	Scabbies
32.	Dicotyledon	Rubiaceae	<i>Spermadictyon suaveolens</i>	Bhujchampa	Shrub	Tuber, root	Paste	Bone fracture.
33.	Dicotyledon	Rutaceae	<i>Citrus medica</i> Linn.	Bimra	Shrub	Root	Powder	Intestinal worm.
34.	Dicotyledon	Rutaceae	<i>Citrus reticulate</i>	Suntala	Tree	Root	Powder	Typhoid.
35.	Dicotyledon	Rutaceae	<i>Citrus aurantifolia</i>	Kagati	Small tree	Fruit	Juice	Vomiting
36.	Dicotyledon	Rutaceae	<i>Evodia frakinifolia</i> (Hook. F)	Khanakpa	Small tree	Fruit	Paste	Joint ache.
37.	Dicotyledon	Rutaceae	<i>Zanthoxylum armatum</i>	Timur	Small tree	Fruit, seed	Paste	Joint ache.
38.	Dicotyledon	Saxifragaceae	<i>Bergenia ciliate</i>	Pakhanbed	Herb	Leaf	Paste	Dog bite.
39.	Dicotyledon	Saxifragaceae	<i>Astilbe rivularis</i>	Thulo Okhat	Herb	Root	Powder	back and body pain
40.	Dicotyledon	Solanaceae	<i>Capsicum annum</i> Linn.	Dalle Khuyrsani	Herb	Fruit	Raw	Gastric
41.	Dicotyledon	Solanaceae	<i>Datura metel</i> Linn.	Kalo Dhaturu	Herb	Seed	Raw	Dog bite
42.	Dicotyledon	Solanaceae	<i>Datura</i> sp.	Seto Dhaturu	Herb	Seed	Inhalation	Toothache.
43.	Dicotyledon	Solanaceae	<i>Solanum indicum</i>	Kande bean	herb	Seed	Raw	Tooth ache.
44.	Dicotyledon	Tenstroemiaceae	<i>Schinna wallichii</i> 'chois'	Chilaune	Tree	Stem, Root		Skin disease 'khorna'
45.	Dicotyledon	Umbelliferae	<i>Anethum sowa</i>	Swoup	Herb	Seed	Decoction	Internal Eczema
46.	Dicotyledon	Umbelliferae	<i>Carum copticum</i>	Jwano	Herb	Seed	Powder	Gastric
47.	Dicotyledon	Urticaceae	<i>Urtica dioca</i> L.	Sisnu	Herb	Leaf, Young shoot	Paste	Dog bite.
48.	Monocotyledon	Araceae	<i>Acorus calamus</i>	Bojho	Herb	Root	Paste	Scabbies
49.	Monocotyledon	bromeliaceae	<i>Anana conqosus</i> L.	Bhuikatahar	Herb	Leaf	Decoction	Fever.
50.	Monocotyledon	Gramineae	<i>Eleusinae Coracana</i>	Kodo	Shrub	Seed	Cooked	Measles
51.	Monocotyledon	Gramineae	<i>Imperata cylindrical</i>	Siru	Shrub	Root	Powder	Intestinal worms.
52.	Monocotyledon	Gramineae	<i>Saccharum officinarum</i>	Ukhu	Grass	Stem	Juice	Jaundice
53.	Monocotyledon	G'ramineae	<i>Dendrocalamus hamiltonii</i>	Choya Bans	Tree	Buds	Paste	Pneumonia
54.	Monocotyledon	Liliaceae	<i>Aloe barbadensis</i>	Ghuikumari	Herb	Leaf	Juice	Burnt, Stomach disorder
55.	Monocotyledon	Musaceae	<i>Musa paradisiaca</i>	Kera	Tree	Stem	Juice	Snake bite.
56.	Monocotyledon	Zingiberaceae	<i>Amomum Subulatum</i>	Alainchi	Herb	Seeds	Powder, Raw	Indigestion vomiting
57.	Monocotyledon	Zingiberaceae	<i>Concuma longa</i>	Haledo	Herb	Rhizome	Paste, Raw Juice	Cough
58.	Monocotyledon	Zingiberaceae	<i>Zingiber officinale</i>	Aduwa	Herb	Rhizome	Paste	Vomiting
59.	Pteridophyta	Dryopteridaceae	<i>Tectaria coadunata</i>	Kalo niguro	Fern	Root	Powder	Dysentery
60.	Pteridophyta	Nephrolepidaceae	<i>Nephrolepis auriculata</i>	Paniamala	Tree fern	Tuber	Raw	Fever, Tonsil.
61.	Pteridophyta	Polypodaceae	<i>Dryopteris filixmas</i>	Hade unyu	Tree fern	Leaf	Juice	Cut wound

Indigenous knowledge system

Indigenous knowledge of the Lapcha of Fikkal VDC was very rich and it fully supported the livelihood of people. They used their indigenous knowledge in their daily activities like food processing, agriculture, biodiversity conservation, preparation and use of domestic materials, storage of food grains and use of manure and organic insecticides and pesticides. The use of their indigenous knowledge is outlined as below.

- Indigenous knowledge system in preparation and selection of wild edible food like simal tarul (*Manihot utilissima*), Giththa (*Dioscorea* sp.), Sissnu (*Urtica dioca*) and Mushroom.
- They also have sound knowledge in preparing dyes of different colours.
- The Lapcha people are very closely related with bamboo so they are highly skilled in using it for preparing different things needed in daily life like building houses, bridges, handicrafts, bows, arrows, furniture, baskets, fences, firewood, flutes etc.
- They have good knowledge for preparation and use of insecticides in agriculture and prevent livestock from pests. The dust powder of Neem (*Bhumea lacera*) helps to preserve the seeds of wheat, maize and beans. The fresh and matured tobacco (*Nicotiana tabaca*) leaves is steamed and firstly grinded in the 'Okhali' (a wooden grinder) in order to extract juice make juice and made into a solution with water at a ratio of 1:2 (tobacco: water). This solution is sprayed over infected plants.
- They also have sound knowledge on conserving bio-diversity as they preserve their own forest where medicinal plants, wild edible food and animals are preserved.

DISCUSSION

The local Lapcha people of Fikkal VDC have been using both wild and domesticated plants and animals in their traditional medicinal practices since time immemorial. They have a rich tradition, culture and indigenous knowledge to support the utilization of various plants and animal species for medicinal purposes. The present study unveiled that they used about 19 animal species both wild and domesticated belonging to 10 order and 13 families and 61 species of medicinal plants belonging to 39 families, 58 genera for medicinal purposes for their traditional healing practices where plant species were dominant over animal species.

Analysis of data showed that 19 animal species recorded from the study area was used in the treatment of 21

different diseases/ailments by the local Lapchas using their indigenous knowledge. Among the 19 animal species, 11 species were mammals, 1 species each of Aves, Reptiles, Amphibian and Pisces and 4 species were invertebrates. For different medicinal purpose different parts as well as products of animal species such as honey, teeth, bile, milk, meat, born, hide, brain, hoof, foetus, saliva, stomach, e.g., fat etc as well as the whole organism were used. The most frequently used animal part was bile for 4 medical remedies followed by bone for 3 remedies and meat, egg, fat, milk, honey for 2 remedies each. Among the total animal species used for medicinal purposes, 6 species of them were used to cure disease of respiratory track and for cuts and wounds, 5 species each for gastro-intestinal and skeletal problems and 1 each for dog bite, mushroom's poison, ring worm, snake bite and pungent smell from body (Thangne); respectively. Most of the species were used raw for medicine and some of the animal species were used to treat more than one disease. Medicines were basically administered in two ways, orally for internal medication (15 remedies) and applying for external medication (11 remedies).

The cooked meat and alcohol of meat of *Canis aureus* was also reported by Kaundinya (1998), Acharya (1999), Dhakal (2004) and Thapa (2008) in their study for the treatment of rheumatism. However, Negi and Palyal (2007) reported the use of meat of this species in curing paralysis and arthritis and blood for asthma. Thakur (2008) reported the use of urine of this species in treatment of insanity and epilepsy. The stomach of *Hystrix brachyura* used for curing Asthma was also reported by Kaundinya (1998), Acharya (1999), Tamang (2003), Dhakal (2004), Koirala (2004), Negi and Palyal (2007) and Thapa (2008). Kafle (2000), Koirala (2004) and Thapa (2008) reported the use of *Gallus gallus domesticus* for curing burn and Kaundinya (1998) and Dhakal (2004) reported its use for bone fracture. The honey of *Apis cerana* was reported for curing cough, body and back pain was supported by findings of Koirala (2004), Tamang (2003) and Thapa (2008). Thapa (2008) reported the use of *Anadenus* sp. in treatment of fractured bone.

The documented 61 species of medicinal plants have been used for the treatment of 36 different ailment/diseases. Among these 61 medicinal plants species, 77.04% belongs to dicotyledons, 18.03% monocotyledons and 4.91% pteridophytes. The primary source of medicinal plants in terms of number of species were herbs (50.82%), followed by trees (26.23%), shrubs (8.19%), climber (6.56%), fern (4.91%) and grass (3.27%) of total species. The different plant parts used for medicinal preparations were roots, leaves, seeds, bark, rhizome, flower, young shoots, stem, tuber, buds and sometimes whole plant is also used. The most repeatedly used plant part was the root (14 medical

remedies) followed by leaf (13 medical remedies), seed (11 medical remedies) and fruits (8 medical remedies). The frequently treated disease or ailments in their traditional healing system are respiratory tract infections, gastro-intestinal ailments, skeleto-muscular problems and dermatological infections.

The medicinal plant species documented in the study area to have folk medicines utility are also supported by the findings of other researcher. Ghimire (1999), Rai (2003), Tamang (2003) also reported the use of *Aloe barbadensis* for treating the burnt wound but Ramana (2008) reported the use of this species for curing eye infection. Thapa (2008) reported the use of *Swertia chirata* in controlling fever. Ghimire (1999) reported use of *Swertia chirata* as antihelminthic drug and Rai (2003) reported its use in treating Hypertension and Diabetes. Oli (2003) reported the use of the same species for fever, pneumonia, cough and diarrhoea/dysentery. Also Pandey (2006) reported the use of *Swertia species* for fever, jaundice, indigestion, cough, cold, blood and gall bladder problems. The study of Oli (2003), Thapa (2008) reported the use of *Artemisia indica* in cuts and wounds to stop bleeding and Joshi and Joshi (2007) reported its use in curing itching. However, Ghimire (1999), Rai (2003) reported its use in helminthic cure and nervous fresher respectively and Tamang (2003) for nausea problem and intestinal worms. Pandey (2006) reported the use of same species for cough and cold. Tamang (2003) Oli (2003) reported the use of *Imperata cylindrica* to cure intestinal worms. However, Rai (2003) has reported the use of this species for curing piles, diarrhea. Thapa (2008) reported the use of *Lepidium sativum* in curing back and body pains. However, Rai (2003) has reported the use of this species in curing asthma, cough, poles and diuretic. The use of flower of *Rhododendron arboreum* for fish bone prick was also reported by Subedi (1998), Karki (2001), Gurung (2002), Shrestha and Dhillion (2003), Oli (2003), and Thapa (2008). Also the use of the same plant has been reported by Rai (2003) and Thapa (2008) for curing dysentery. The use of *Viscum articulatum* in curing bone fracture was also reported by Ghimire (1999), Oli (2003) and Rai (2003).

CONCLUSION

The Lapcha community of the study area had a sound knowledge on the usage of locally available animals and plant species for traditional healing system as medicines. The plant species were used mostly in comparison to animal species. The local healers (Yaba/Yama, Boongthing/Mun) were the most popular one in the village for utilizing the medicinal plants and animals in the traditional healing practices. Along with them the Lamas, elderly people, women and others also had

knowledge on traditional medicine gained from their experiences and practices done from generations and used them as home remedy.

With the rise of younger generations and increment of the modern health facilities, the traditional healing practices have been shadowed a bit. The inclination of younger generation towards modern medicines is also due to lack of awareness and reluctance of older generation in sharing their knowledge with them which poses a great threat to its existence. Despite such gloomy facts, still many of villagers depended on traditional medicine for their primary health care and cure simple diseases/ailments such as fever, diarrhoea, dysentery, cold, cough, cut and burnt wound etc at home. Therefore, the following recommendations are made in the hope of popularizing the traditional medicinal systems and uplifting it with proper management and scientific approach helping the Lapcha community to upgrade their health standard in low cost effectively and efficiently.

- Create awareness about the importance of medicinal plants and animals with the feeling of ownership.
- Provide expertise help and training for local people to promote preservation and conservation of medicinal plants and animals for sustainable use.
- Increase frequency of research and investigation of indigenous knowledge system on biodiversity conservation.
- Motivate the traditional healers for dissemination of their knowledge to youngsters for benefit of their community and mankind at large.
- The bio chemical analysis of the plants and animal parts should be done for its efficacy and verification and their patent rights should be taken to stop their abuse.
- Lastly, the government should recognize the indigenous knowledge system present in the indigenous communities and encourage preserving it by bringing comprehensive plans and policies in national level.

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