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Original Article

Ethnomedicinal Knowledge of Kisan Community - A Case Study

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Abstract

In the context of depleting indigenous knowledge and their values in the Kisan Community, they seem unaware of their culturally rich traditional practices of using animals and plants for medicinal purpose. It has been essential to document those knowledge of practices for future references. The paper tried to explore and document those knowledge and practices by the Kisan community of Mechinagar 9 and 11 of Jhapa, Nepal. For this purpose, the data were collected through interviews with key informants including conjurer (Dhami/Jhakri), elders of the society and also focal group discussions with the local people. Analysis of the data has shown that 29 animal species belonging to 24 families are used to treat 29 ailments and 57 plant species belonging to 37 families are used for treating 39 different ailments. The commonly treated ailments were common cold, cuts, wounds, diarrhoea, dysentery, etc.

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1. Introduction

The medicinal plant species have been considered as an important source of potentially therapeutic drugs (Cox & Ballick, 1994). Worldwide more than 21,000 plant species have been recorded that acquires medicinal values (Shrestha et al., 2000). In context of Nepal, at least 1,600- 1,900 species of medicinal plants are used in traditional medicinal practices (Tiwari 1994; Baral & Kurmi, 2006).

An indigenous knowledge system is vulnerable to rapid change especially when young people acquires different life styles and values than their ancestors. The loss of indigenous knowledge cannot replenish, hence the documentation is important for the conservation of both cultural and biological diversity in Nepal. Hughes (1968) refers ethno-medicine as "those beliefs and practices relating to disease which are the products of indigenous cultural development and are not explicitly derived from the conceptual framework of modern medicines."

CBS (2011) has recognized 125 ethnic groups as indigenous nationalities living in different regions of Nepal, among which Kisan is one of the endangered indigenous tribal group and shows their number to be 1,739. The Eastern Development Region and the Western Development Region is considered as their major homeland with the total population of 1,056 and 656 respectively. In Jhapa, Kisan consider Mechinagar Municipality, as their main homelands. They have clustered settlements. The total population of Kisan in Jhapa is 1,037 of which 530 are male and 507 are female (CBS, 2012). Kisans are originally the inhabitants of Orissa, India who have migrated Nepal in search of good forest and cultivable land. The traditional name of these people is Kuntam. At present, however, they are known by various other names, such as Kuda, Kora, Mirdha, Morbha, Birhor, and Nagesia (http://www.ncard.org.np/categorydetail/Kisan.html). They have their own language called "Sadri" which is very close to Maithili language. They have their own culture, tradition and indigenous knowledge that have been preserved and transformed from ancient time to date. There is no any proof of what religion do Kisans belong to. The religious beliefs of Kisans are similar to that of Hindu to some extent. But, they do not visit the temples instead they believe nature as the incarnation of god and goddess and worship rivers, forests, hills

and also different trees. Recently some family of Kisans also started following Christian religion.

The study aimed to explore ethnomedicinal knowledge of the Kisan community. Two major cluster settlements of Mechinagar 9 and 11 were selected as the study area (Fig. 1). The area lies near to the community forest which consists of *Shorea robusta* (sal), *Schima wallichi* (chilaune), *Bambusa arundinaceaea* (bamboo), *Murrya koenigii* (ashare), *Dalbergia sissoo* (sisau), *Terminalia belerica* (barra), etc. A variety of vegetation is available in the study area from trees to grasses. The wild animals such as peacock, deer, rabbit, bat, porcupine, elephant, wild boar, monkey, parrot, etc. are seen seasonally.

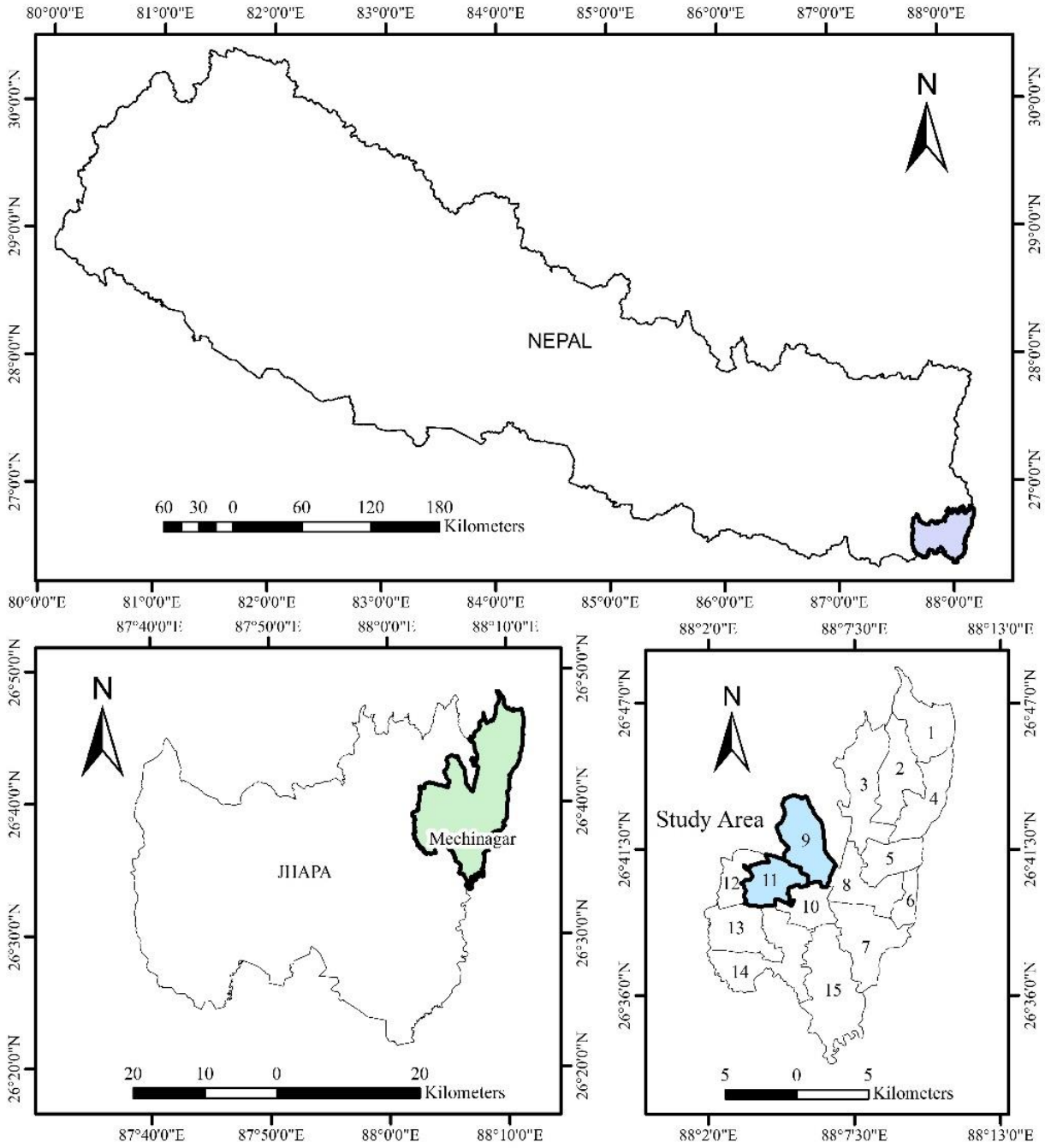

Fig. 1: Location map of study Area

2. Materials and Methods

2.1 Material

To accomplish the study various primary and secondary data were collected. The lists of simple questions were prepared as questionnaire, so that respondents reply during the discussion could meet the objectives of the study.

2.2 Methods

The people of different age group were involved during the discussion. Key- informants for traditional medicinal practices are the local healers like Dhami, Jhakri and also some elderly persons.

A number of questions about animals and plants used as medicine for different diseases, traditional healing practices, indigenous knowledge system, etc. were discussed which were of immense help to complete this research work. Key- informants for traditional medicinal practices are the local healers like Dhami, Jhakri and also some elderly persons. Total informants, comprising 8 males and 4 females were identified between the age of 40 and 62. They were selected on the basis of the knowledge of medicinal animals and plants for the self-medication and also for treating others. The collected samples in the field were identified with the help of experts from National Herbarium, Godawari. The animal species are classified into order, family, genera and species whereas the plant species are taxonomically classified into family, genera and species

3. Results and Discussion

People of Kisan community have been using different parts and products of various animals for treating several diseases as the traditional practice. The finding of the study revealed that, 29 animal species belonging to 24 families were used to treat 29 ailments. Along with the animals, the people also used 57 plant species belonging to 37 families for treating 39 different ailments. The detail list of medicinal animals and plants used is shown in the Table 1 and Table 2 respectively.

Table 1: Animal species used for medicinal purpose

Family	Scientific name	Part /product used	Name of Ailments	ToD	AR
Bovidae	*Bos indicus*	G	Body ache	MS	A
Bovidae	*Bubalus balis*	Fe	Measles and scabies	I	A
Suidae	*Sus scrofa*	M	Measles and diarrhea	I/GI	O
Suidae	*Sus domesticus*	F	Pimples	I	A
Carnidae	*Canis aureus*	M	Tuberculosis and arthritis	R/MS	O
Rhinolophidae	*Rhinolopus sps*	M	Asthma and night blindness	R/O	O
Equidae	*Equus cabalus*	Um	Epilepsy	N	I
Manidae	*Manis crassicaudata*	S	Wound	I	A
Hystricidae	*Hystrix brachyura*	Ac,Fe	Abdomen pain and asthma	GI/R	O/I
Charadridae	*Vanellus indicus*	M,E	Rheumatism and labour pain	MS	O
Columbidae	*Columba livia*	M,Fe	Common cold and blisters	R/I	O/A
Phasinidae	*Gallus Gallus*	M, F	Burns and body ache	I/MS	O/A
Phasinidae	*Pavo cristatus*	M	Diarrhoea and dysentery	GI	O
Corvidae	*Corvus spplendens*	B	Wound of skin, Cracks of sole of foot	I	A
Sturnidae	*Acridotheres tritis*	M	Piles	GI	O
Ploceidae	*Passer domesticus*	M	Headache	N	O
Cheloniidae	*Aspideretes spp*	S	Open wounds, Runche	I	A/Am
Varanidae	*Varanus flavescens*	F	Scabies	I	A
Ranidae	*Haplobatrachus igerinus*	M	Malnutrition	-	O
Claridae	*Carias batrachus*	M	Body ache	MS	O
Amphipnoidae	*Amphipnous cuchia*	B	Gastritis	GI	O

Canceridae	*Cancer pagarus*	W	Common cold	R	O
Apidae	*Apis dorsata*	H	Body ache, Common cold	MS/R	O
Apidae	*Apis indica*	H	Body ache, Common cold	MS/R	O
Vesppidae	*Vespa orientalis*	L	Urine infection	GU	O
Vesppidae	*Vespa sylvestris*	L	Cough and pneumonia	R	O
Megascolecidae	*Pheretima posthuma*	W	Lactating enhancer	-	O
Viviparidae	*Bellamya bengalensis*	W	Weakness and dizziness	N	O
Unionidae	*Lamellidens marginalis*	M	Diarrhoea	GI	O

1) Part used: G Ghee, Fe Fecal, M Meat, F Fat, Um Umbilical Cord, S Shell, Ac Alimentary canal, E Egg, B Blood, W whole body, H Honey, L Larvae
2) ToD (Types of Diseases): MS Musculoskeletal, I Integumentary, GI Gastro intestinal, R Respiratory, O Ophthalmology, N nervous, GU Genital urinary,
3) AR (Administration Route): A Apply, O Oral, I Inhalation, Am Amulet

Table 2: Plant species used in medicinal purpose

Family	Scientific name	L.F	Parts used	Medicinal use	ToD	Form of Medication	AR
Acanthaceae	*Justicia adhatoda*	S	R,L, F	Asthma and urticaria	R/I	Juice, paste	O
Amaranthaceae	*Achyranthes aspera*	H	L	Piles, insect or snake bite	GI/N/V	Juice, paste	O
Anacardiaceae	*Semecarpus anacardium*	T	L	Menstrual disorder	Rp	Juice	O
Araceae	*Acorus calamus*	H	Rh	Sore throat and diarrhoea	R/GI	Dried	O
Asclepioceacae	*Calotropsis gigantum*	S	S	Facture and sprain	MS	Latex	A
Bignoniaceae	*Oroxylum indicum*	T	B, F	Wound and high blood pressure	I/CV	Paste, cooked as vegetable	A/O
Cannabaceae	*Cannabis sativa*	H	L	Diarrhoea and indigestion	GI	Juice	O
Caryophyllaceae	*Drymeria spp.*	H	W	Cuts and sinus	I/OL	Paste	A/I
Combretaceae	*Terminalia bellirica*	T	Fr	Cough	R	Raw	O
Combretaceae	*Terminalia chebula*	T	Fr	Tooth ache and bleeding gums	D	Powder	A
Compositae	*Tegetes erecta*	H	L	Cuts and fever	I	Juice, paste	A/O
Compositae	*Artemisia vulgaris*	H	W	Wound and cuts	I	Juice	A
Convolvulaceae	*Cuscuta reflexa*	C	T	Jaundice	GI	Juice	O
Cucurbitaceae	*Momordica charantia*	C	Fr	High blood pressure	CV	Cooked as vegetable	O
Dipterocarpaceae	*Shorea robusta*	T	B	Wound	I	Paste	A
Euphorbiaceae	*Baliospermum montanum*	S	Sd	Gastritis	GI	Raw	O
Euphorbiaceae	*Phyllanthus emblica*	T	Fr	Dysentery, stomach ache and hair fall	GI	Powder	O/A
Euphorbiaceae	*Phyllanthus amarus*	H	L	Cuts and anemia	I	Paste, raw	A/O
Euphorbiaceae	*Mallotus philippensis*	T	Tw	Jaundice	GI	Paste	O
Euphorbiaceae	*Euphorbia royleana*	S	S	Swelling, irritation (urticaria)	Re/I	Latex	A
Gentianaceae	*Swertia angustifolia*	G	S	Stomach ache and vomiting	GI	Juice	O
Graminae	*Cynodon dactylon*	H	W	Fever and pneumonia	R	Paste	O
Labiatae	*Ocimum tenuiflorum*	H	L	Fever, pneumonia and cough	R	Paste, Raw	O
Labiatae	*Mentha spicata*	H	L	Stomach ache and gastritis	GI	Paste	O
Labiatae	*Leucas cephalotes*	S	R	Diabetes	GI	Juice	O

Leguminosae	*Dolichas biflorus*	H	Sd	Arthritis, rheumatism, stone and obstetrical haemorrhage	MS/Re	Decoction	O
Leguminosae	*Trigonella foenumgraecum*	H	Sd	Cough	R	Powder	O
Leguminosae	*Mimosa pudica*	H	R	Diarrhoea	GI	Juice	O
Liliaceae	*Asparagus racemosus*	S	W, R	Fever, blood pressure and lactation enhancer	CV	Cooked as vegetable, raw	O
Liliaceae	*Aloe vera*	H	L	Burns, pimples and hair fall	I	Latex	A
Liliaceae	*Allium sativum*	G	Bu	Gastritis	GI	Juice	O
Liliaceae	*Allium cepa*	G	Bu	Ear pain	OL	Juice	A
Lycopodiaceae	*Lycopodium clavatum*	H	R	Arthritis, rheumatism and fever	MS	Raw	O
Meliaceae	*Azadirachta indica*	T	L	Labour pain, bleeding (obstetrical haemorrhage) and urticaria	Re/I	Decoction	O/A
Menispermaceae	*Tinospora sinensis*	C	S, L	Diarrhoea and stomach ache	GI	Paste	O
Moraceae	*Ficus benghalensis*	T	S	Rheumatism	MS	Latex	A
Musaceae	*Musa paradisical*	H	Fr, R	Diarrhoea, dysentery and burn wound	GI/I	Raw, Juice	O/A
Mytraceae	*Syzygium cumini*	T	Fr	Diabetes and constipation	GI	Raw	O
Mytraceae	*Psidium guajava*	T	L	Diarrhoea and dysentery	GI	Raw	O
Mytraceae	*Syzygium armaticum*	T	Bu	Toothache	D	Powder	A
Oleaceae	*Nyctanthes arbortristis*	T	L	Ear pain	OL	Juice	A
Oxalidaceae	*Oxalis corniculata*	H	L	Gastritis and diarrhea	GI	Juice	O
Piperaceae	*Piper nigrum*	T	Sd	Cough	R	Powder	O
Poaceae	*Saccharum spp.*	G	S	Jaundice	GI	Juice	O
Punicaceae	*Punica granatum*	T	Fr, L	Low blood pressure and diarrhea	CV/GI	Raw, Paste	O
Rhamnaceae	*Ziziphus mauitiana*	S	R	Fever and menstrual disorder	Rp	Juice	O
Rutaceae	*Aegle marmelos*	T	Fr	Constipation, gastritis and diabetes	GI	Raw, juice	O
Rutaceae	*Citrus aurantifolia*	S	Fr	Gastritic and vomiting	GI	Juice	O
Solanaceae	*Datura metel*	S	L	Burns	I	Paste	A
Solanaceae	*Solanum tuberosum*	H	Tu	Burns and skin darkening	I	Paste	A
Umbelliferae	*Centella asiatica*	H	L	Indigestion, cut and wounds	GI/I	Paste	O/A
Umbelliferae	*Cuminum cyminum*	H	Sd	Stomach ache	GI	Dried	O
Umbelliferae	*Trachyspermum ammi*	H	Sd	Cough and gastritis	R/GI	Dried	O
Urticaceae	*Urtica dioica*	H	L	Menstrual disorder(Menorrhagia)	Rp	Cooked as vegetable	O
Zingiberaceae	*Zingiber officinale*	H	Rh	Vomiting and cough	GI/R	Raw	O
Zingiberaceae	*Amomum subulatum*	H	Rh	Stomach ache and vomiting	GI	Raw	O
Zingiberaceae	*Curcuma angustifolia*	H	Rh	Cough, menstrual disorder and skin darkening	R/Rp/I	Powder	O/A

1) *L.F (Life forms): S Shrub, H Herb, T Tree, C Climber, G Grass,*
2) *Part used: R Root, L Leaves, F Flower, Rh Rhizomes, B Bark, S Stem, W Whole plant, Fr Fruit, T tendrils, Sd seeds, Tw Twig, Bu Bulb,*
3) *ToD (Types of Diseases): MS Musculoskeletal, I Integumentary, GI Gastro intestinal, R Respiratory, Rp Reproductive, Re Renal, V Vasular, CV Cardiovascular, D Dental, OL Otorhinolaryngo, N Nervous*
4) *AR (Administration Route): A Apply, O Oral, I Inhalation,*

The result also shows that among 29 zoo therapeutic animals, the share of mammals was 31%, followed by aves 24%, reptiles 7%, amphibia 3%, pisces 7%, molluscs 7%, arthropods 17% and annelids 3 % (Fig. 2). The different parts and products used were ghee, meat, fat, umbilical cord, shell, alimentary canal, fecal matter, egg, blood, whole body, honey and larvae (Table 1). Similarly, among the 57 plant species, share of herb was 44%, followed by tree 30%, shrub 16%, grass 7% and climber 5% (Fig. 3).The different parts used were root, leaves, stem, rhizomes, etc. There were different forms of medication such as dried, powdered, decoction, raw, etc. (Table 2).

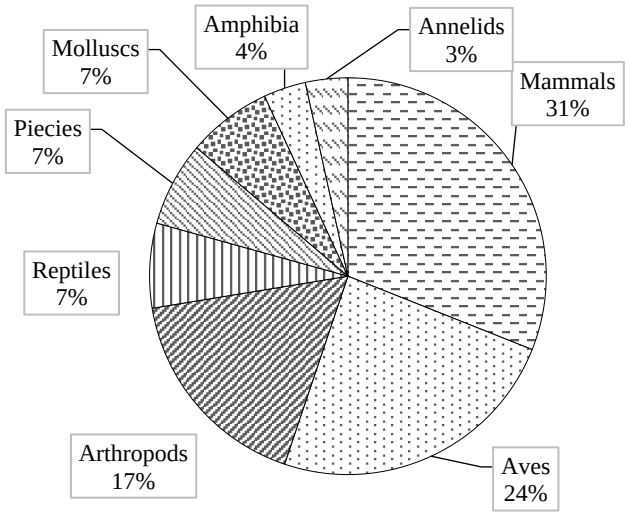

Fig. 2: The shares of animals belonging to different phylum and classes

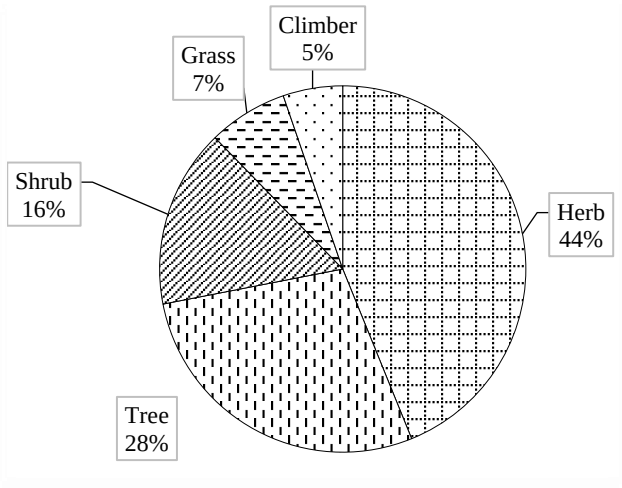

Fig. 3: The share of plants belonging to different life forms

Different sorts of ailments observed were categorized on the basis of affected parts of body. The results depicted that on total 30% were gastrointestinal, followed by 22% integumentary, 17% respiratory, 10% musculoskeleton, 4 % nervous and cardiovascular, 5 % reproductive, 3% otorhinolaryngo, 2 % dental and renal and 1 % ophthalmology, Genital Urinary and Vascular. The ailments like fever, anaemia, malnutrition, labour pain, lactation enhancer and runche were not considered as diseases. The % of disease cured by different animals and plants is shown in Fig. 4.

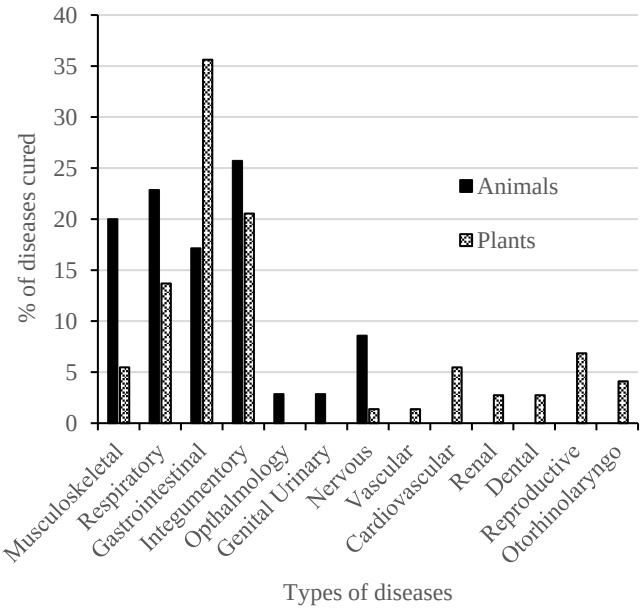

Fig. 4: The different types of ailments treated

In the present study, both external and internal administration routes of the treatment were assessed. The internal medication included inhalation and oral absorption where the external medication included applying and protective amulet. The sharing of internal and external medications were 69% and 31% respectively. Among the total treatments, 66% were of oral types followed by 30% apply, 3% inhalation and 1% as protective amulet. The number of administration routes of the treatments for animals and plants is shown in Fig. 5.

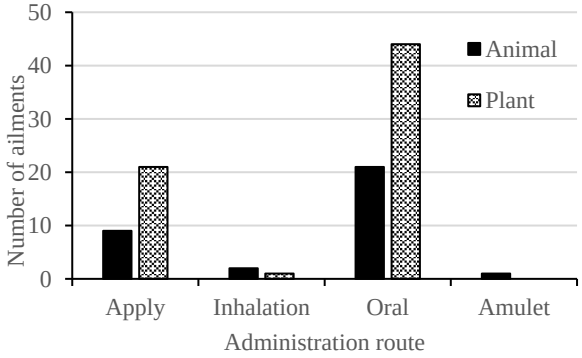

Fig. 5: The different methods of application of parts/products of animals and plants

The findings of this study have been supported by

many other researchers, for example honey of *Apis* sps to treat body ache (Lohoni, 2010), stomach of *Hystrix brachyura* to cure asthma (Thapa, 2008; Lohoni, 2010; Lohoni, 2011 and Lohoni, 2012). Also *Cuscuta reflexa* and *Saccharum* spp. have been used for the treatment of jaundice IUCN (2004) and Thapa (2008). Similarly, Acharya (1996), Dangol (2010), Dangol & Gurung (1999), DPR (2007), Gubhaju & Ghimire (2010), Rai (2004), Shrestha (1988) and Thapa (1998) have observed the use of *Cuscuta reflexa* for treating jaundice while Ale et al. (2009) and Malla & Chhetri (2009) have reported the use of *Saccharum* spp. for the same. Likewise in the present study, *Psidium guajava* and *Phyllanthus emblica* is used for treating dysentery which is supported by the study of Dangol (2010), Dangol & Gurung (1999), Rai (2013) and DPR (2007).

Similarly, *Asparagus racemosus* is used as lactation enhancer and is well supported by Ale et al. (2009), Singh et al. (2011), Thapa (1998), Thapa (2008) and Rai (2013). Also, *Calotropis gigantean* is used for treating sprain, the similar use have been observed by Ale et al. (2009), Dangol (2010), Dangol & Gurung (1999), Gubhaju & Ghimire (2010) and Rai (2013). Similarly, *Curcuma* spp. is reported to be used for curing cough and is supported by Rai (2013).

4. Conclusions

The Kisan community of the area has traditionally been using 29 animals and 57 plants species for treating different ailments. The animal species are used to treat 29 ailments whereas, plants are used to treat 39 ailments. The traditional healer among the elderly people of this community, have better indigenous knowledge about practice of using animals and plants for medicinal purpose. As a modern change in daily practice with advance facilities has changed their livelihood. So, the use of traditional knowledge are gradually replaced by the modern system. The traditional healers who have knowledge of different medicinal practices are very few in number and the transfer of this valuable knowledge to their descendant is hindered. Hence, the use of traditional medico-therapy is losing its attraction and its importance too.

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Conflicts of Interest

The authors state no conflicts of interest. The authors alone are responsible for composing the paper.

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