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Medico-ethnobotany of Magar Community in Salija VDC of Parbat District, Central Nepal

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Abstract

This paper documents the ethno-medicinal use of plant species among the Magar community of Salija Village Development Committee from Parbat District in the central mid-hills of Nepal. The study recorded the use of 75 species of medicinal plants belonging to 46 families and 72 genera for the treatment of 39 different ailments. The most frequently treated illness were gastrointestinal ailments followed by dermatological infection and skeleto-muscular problem. Local healers and the knowledgeable groups were the one who mostly make use of medicinal plant species. The traditional home remedy is less practiced compared to the past years, and also lacks the sharing of knowledge among the practitioners. Documenting such herbal folklore knowledge is useful for further pharmaceutical research.

***Key words*:** Medicinal plants, Ethnomedicine, Magars, Traditional healers

Introduction

Nepal has been regarded as the natural showroom of biodiversity, and such biodiversity has supported the livelihood of people, particularly for those who live in remote areas (Magar, 2008). Their myths and rituals, as well as their traditional environmental practices, portray a close relation between human beings and nature. The local people traditionally acquired diversity of knowledge regarding the utilization of plant resources for various purposes such as food, clothing, construction, ritual performances, energy, and most importantly for medicinal purposes. About 80-90% people living in rural areas of Nepal depends, directly or indirectly, on traditional medicinal practices and about 85% of such practices involves the use of plants extracts (Bhattarai, 1992). These medicinal plant species have been considered as an important source of potentially therapeutic drugs (Cox and Ballick, 1994). Worldwide, more than 21,000 plant species have been recorded that acquires medicinal values (Shrestha *et al.*, 2000). In Nepal, at least 1600 to 1900 species of medicinal plants are used in traditional medicinal practices (Tiwari, 1994; Baral and Kurmi, 2006).

Nepal is a multi-ethnic nation with diverse languages, religions and cultural traditions. There are more than 100 caste/ethnic groups speaking 92 languages and 124 dialects (CBS, 2001). The entire ethnic groups have their own culture, tradition and way of living. Magars are one of the aborigines of Nepal with 1,622,421 population comprising 7.1% of the total population (CBS, 2001) that accounts for the most populated indigenous group and third most populated ethnic/caste group of Nepal. They are the Mongolian people having Mongoloid physical features with well proportioned facial contours and

yellowish colour (Bista, 2004). The Magar people have their own mother tongue, which is originated from Tibeto-Burman family. So, their language is influenced by Tibetan dialect (Gautam and Thapa-Magar, 1994). The original home of the Magars was called Bara Magarath, the 12 region of Magars, which included all the Hill Districts of Lumbini, Rapti and Bheri Zones. However, now, they have spread all along the Hills of west Nepal, and to a few places in eastern Terai (Gautam and Thapa-Magar, 1994).

The Magars are traditionally farmers, and inhabit the area near the forest, forest patches, and forest boundary (Magar, 2008). So, they are closely linked with nature and have rich knowledge, skills and techniques on the traditional utilization of natural resources, especially the locally found plant species for traditional healing purposes. The present paper documents the plant species used by the Magar community for local medicinal purposes.

Materials and methods

Study area

The study was conducted in Salija Village Development Committee (VDC) of Parbat District in central Nepal (Fig. 1). It is located at an altitude ranging from 1600 to 3000 m above sea level, with an area of about 16 sq. km. The climate of the area is sub-temperate where the temperature varies from 0^0 C to 28^0 C, and there is snowfall in some of the hills during the winter. The total population of the village was 2993 and the Magars are the most dominant ethnic group having the population of 1854 that comprises 61.94% of the total population (DDP, 2004).

Figure 1. Geographical location of the study area

Data collection

The study was carried out from September 2007 through March 2008. Regular field visit was conducted during this period of time. By using purposive or judgment (non-probability) sampling method, the sample of 40 resource persons was selected that includes local healers (*Dhami/Jhankri*), knowledgeable elder people, community leaders, VDC chairperson, forest ranger, medicinal plant collectors, school teachers as well as youths and local people from the study area. Focus group discussion and key informant interview were conducted in order to obtain the detailed information about the plants used in herbal medicine. Prior informed consent was obtained before beginning each interview.

Voucher specimens of the collected plant species was prepared following the standard methods (Lawrence, 1967; Martin, 1995), and identified with standard

literatures (Malla *et al*., 1976; Polunin and Stainton, 1984; Mani, 1994), and with the help of botanists from the Central Department of Botany (TU) and the National Herbarium and Plant Laboratories Godawari, Nepal.

Results and discussion

Plant diversity

The Magar community of the study area makes use of 75 species of medicinal plant belonging to 46 families and 72 genera for the treatment of different ailments by using their own indigenous knowledge (Tab. 1). Based on the life form of those species, herbs representing 56% of the plant species were the primary source of medicinal plants followed by trees (21%) and shrubs (12%) (Fig. 2). The dominant use of herbaceous plant for ethno-medicinal purposes was also reported by Giday *et al*. (2009); Simbo (2010).

Plant parts used

Different parts of the plant, both dried and fresh, were used either in the raw form or through processing for local remedies (Fig. 3). Roots of the plant were used for higher number of remedies (22) followed by the leaves (14) and seeds (10). Higher proportion of ethno-medicinal practices from root sources was also reported by Lulekal *et al*. (2008), Bhattarai *et al*. (2010), and Cheikhyoussef *et al*. (2011).

Types of diseases treated

The recorded 75 medicinal plant species were used for the treatment of 39 different ailments/diseases (Tab. 2). The most commonly treated diseases were gastrointestinal ailments (mouth ulcer, gastritis, stomach pain, dysentery, cholera, constipation, intestinal worm) followed by dermatological infection (scabies, skin burn, skin boils, eczema, herpes zoster) and skeleto-muscular problem (swelling, body pain, back pain, dislocated bone/fracture, rheumatism). Most of the plant species were found to have more than a single therapeutic uses, and also the plants were either used singly or in combination, which sometimes includes animal species as well (Tab. 2). For instance, the mixture of honey and the juice of *Amomum zingiber were* used to cure cough and cold.

Forms of medication

The plant species were used in different forms such as juice, decoction, infusion, paste, powder, cooked and smoke. Sometimes, the fresh or dried plant parts were used in their raw or natural form. Juice was the most commonly used form of medication that comprises 34% of plant species followed by decoction (20%), paste (13%), and powder (10%) (Fig. 4).

Routes of administration

Medical administration included oral, nasal and instillation, the internal medication, and topical, the external. However, about 65% of the medication were administrated orally (57 remedies) followed by topical (20 remedies) and nasal (4 remedies) (Fig. 5). Similar results were also reported in other ethno-medicinal studies (Lulekal *et al*., 2008; Bhattarai *et al.*, 2010; Rana *et al*., 2010)

Similar uses

The reported ethno-medicinal practices of plant species in the present study have similar uses in other areas too. For instance,

Table 1. List of medicinal plants used by the Magar community in Salija VDC.

S/N	Family	Scientific name	Local name	Habit	Parts used
1	Acanthaceae	*Justicia adhatoda* L.	Asuro	Shrub	Leaf
2	Amaranthaceae	*Achyranthes bidentata* Bl.	Datiwan	Herb	Root, stem
3	Amaranthaceae	*Amaranthus spinosus* L.	Lunde	Herb	Root
4	Amaryllidaceae	*Allium cepa* L.	Pyaz	Herb	Bulb
5	Amaryllidaceae	*Allium sativum* L.	Lasun	Herb	Bulb
6	Anacardiaceae	*Mangifera indica* L.	Amchura	Tree	Bark
7	Anacardiaceae	*Rhus semialata* Murray	Bhaki amilo	Tree	Seed
8	Araceae	*Acorus calamus* L.	Bojho	Herb	Rhizome
9	Berberidaceae	*Berberis asiatica* Roxb. Ex DC	Chutro	Shrub	Bark
10	Berberidaceae	*Mahonia napaulensis* DC	Jamane mandro	Shrub	Bark
11	Caryophyllaceae	*Drymaria cordata* L.	Abijaalo	Herb	Whole plant
12	Compositae	*Artemesia indica* Willd.	Tite pati	Herb	Leaf
13	Compositae	*Eupatorium adenophorum* Spreng.	Banmaara	Herb	Leaf
14	Compositae	*Inula cappa* (Buch.-Ham. ex D. Don) DC	Bakhrikane jhar	Herb	Root
15	Convolvulaceae	*Cuscuta reflexa* Roxb.	Aakash beli	Herb	Whole plant, root
16	Cruciferae	*Lepidium sativum* L.	Chamsur	Herb	Seed
17	Cucurbitaceae	*Solena amplexicaulis* (Lam.) Gandhi	Gol kaankri	Climber	Root
18	Dryopteridaceae	*Tectaria coadunata* (Wall. ex. J. Sm.) C.Chr.	Kalo niuro	Fern	Rhizome
19	Equisetaceae	*Equisetum debile* Roxb. ex Vaucher	Kurkure	Herb	Root
20	Ericaceae	*Lyonia ovalifolia* (Wall.) Drude	Angeri	Shrub	Shoot
21	Ericaceae	*Rhododendron arboreum* Smith	Laaligurans	Tree	Flower
22	Euphorbiaceae	*Emblica officinalis* Gaertn.	Aamala	Tree	Bark, fruit
23	Euphorbiaceae	*Euphorbia hirta* L.	Dudhe jhar	Herb	Root
24	Gentianaceae	*Swertia nervosa* (G. Don) C.B. Clarke	Tite	Herb	Whole plant
25	Geraniaceae	*Geranium wallichianum* D. Don ex Sweet	Rakalaamul	Herb	Root
26	Hypoxidaceae	*Curculingo orchioides* Gaertn.	Museli	Herb	Root
27	Labiatae	*Mentha spicata* L.	Pudina	Herb	Leaf
28	Labiatae	*Ocimum sanctum* L.	Tulsi maa	Herb	Leaf
29	Lauraceae	*Cinnamomum zeylanicum* BL.	Dalchini	Tree	Seed
30	Lauraceae	*Lindera neesiana* (Wall. ex Ness) Kurz	Siltimur	Tree	Seed
31	Leguminosae	*Bauhinia variegata* L.	Koiralo	Tree	Bark
32	Leguminosae	*Trigonella foenum-graceum* L.	Methi	Herb	Seed

33	Liliaceae	*Asparagus racemosus* Willd.	Kurilo	Climber	Root
34	Liliaceae	*Paris polyphylla* Smith	Satuwaa/Bajuro	Herb	Rhizome, shoot
35	Lycopodiaceae	*Lycopodium clavatum* L.	Naagbeli	Fern	Root
36	Lythraceae	*Woodfordia fruticosa* (L.) Kurz	Dhaero	Shrub	Flower
37	Malvaceae	*Hibiscus lampas* Cav.	Ban kapaas	Shrub	Root
38	Menispermaceae	*Cissampelos pariera* L.	Gujargano	Climber	Root
39	Moraceae	*Ficus semicordata* Buch.-Ham. ex Sm.	Khanyu	Tree	Leaf
40	Moraceae	*Morus alba* L.	Kimkafal	Tree	Root
41	Musaceae	*Musa paradisiaca* L.	Keraa	Herb	Root
42	Myricaceae	*Myrica esculenta* Buch.-Ham. ex D. Don	Kaaphal	Tree	Bark
43	Myrtaceae	*Psidium guajava* L.	Ambaa	Tree	Leaf
44	Myrtaceae	*Syzygium operculatum* (Roxb.) Merril& Perry	Kyaamun	Tree	Bark, leaf
45	Oxalidaceae	*Oxalis corniculata* L.	Chari amilo	Herb	Whole plant
46	Pinaceae	*Pinus roxburghii* Sargent	Khote sallo	Tree	Resin
47	Plantaginaceae	*Plantago major* L.	Ishabgol	Herb	Seed
48	Polygonaceae	*Rheum australe* D. Don	Padamchalnu	Herb	Root
49	Polygonaceae	*Rumex dentatus* L.	Halhale, Banpalungo	Herb	Root
50	Pteridaceae	*Cheilanthes dalhousiae* Hook.	Raani sinkaa	Fern	Leaf (frond)
51	Rosaceae	*Fragaria nubicola* Lindl. ex Lacaita	Bhuin ainselu	Herb	Fruit, leaf
52	Rosaceae	*Potentilla fulgens* Wall. ex Hock	Bajradanti	Herb	Root
53	Rosaceae	*Prunus cerasoides* D. Don	Painyu	Tree	Bark
54	Rosaceae	*Rubus ellipticus* Sm.	Ainselu	Shrub	Root, shoot
55	Rubiaceae	*Rubia manjith* Roxb. Ex Fleming	Majitho	Herb	Whole plant
56	Rutaceae	*Citrus aurantifolia* (Christ.) Swingle	Kaagati	Tree	Fruit
57	Rutaceae	*Zanthoxylum armatum* DC.	Timur	Shrub	Seed, root
58	Saxifragaceae	*Bergenia ciliata* (Haw.) Sternb.	Paakhanved	Herb	Stem, root
59	Solanaceae	*Solanum capsicoides* All.	Kantakaari	Shrub	Fruit
60	Taxaceae	*Taxus wallichiana* Zucc.	Lumit	Tree	Bark, leaf
61	Tropaeolaceae	*Tropaeolum majus* L.	Bharamase phul	Herb	Leaf, flower
62	Umbelliferae	*Anethum sowa* Kurz.	Swoup	Herb	Seed
63	Umbelliferae	*Carum copticum* C.B. Clarke	Jwaano	Herb	Seed
64	Umbelliferae	*Centella asiatica* (L.) Urb.	Ghortaapre	Herb	Whole plant
65	Umbelliferae	*Selinum wallichianum* (DC.) Raizada & Saxena	Bhutkesh	Herb	Rhizome

66	Urticaceae	*Girardinia diversifolia* (Link) Friis	Chalne sisnoo	Herb	Root
67	Urticaceae	*Gonostegia hirta* (Bl.) Miquel	Chiple ghaans	Herb	Whole plant
68	Urticaceae	*Urtica dioca* L.	Sisnu	Herb	Leaf
69	Vitaceae	*Ampelocissus rugosa* (Wall.) Planch.	Airi lahara	Climber	Whole plant
70	Vitaceae	*Tetrastigma serrulatum* (Roxb.) Planch.	Charchare	Climber	Leaf
71	Zingiberaceae	*Amomum subulatum* Roxb.	Alaichi	Herb	Seed
72	Zingiberaceae	*Amomum zingiber* L.	Aduwa	Herb	Rhizome
73	Zingiberaceae	*Curcuma caesia* Roxb.	Kaalo haledo	Herb	Rhizome
74	Zingiberaceae	*Curcuma longa* auct. Non. L.	Besar	Herb	Rhizome
75	Zingiberaceae	*Elettaria cardamomum* (L.) Maton	Sukumel	Herb	Fruit

Table 2. Diseases/Ailments with the mode of treatment

S/N	Diseases/ Ailments	Plant species	Forms of medication	Mode of treatment
1	Agalactia	*Asparagus racemosus* Willd.	Juice	The juice from about 50 gm roots of *A. racemosus* is diluted with 250 ml of water and taken twice a day which increases the lactation.
2	Back pain	*Anethum sowa* Kurz., *Bergenia ciliata* (Haw.) Sternb., *Curcuma caesia* Roxb., *Lepidium sativum* L.	Powder, decoction	The powder from 10 gm seeds of *A. sowa* and *L. sativum*, small amount of young shoots of *B. ciliate* and 5 gm rhizome of *C. caesia* is mixed with rice grain and cooked, and then taken in the form of meal which helps to cure the back pain. The decoction from dried or fresh rhizome of *C. caesia* is taken orally to get relief from the back pain.
3	Blood pressure	*Psidium guajava* L., *Swertia nervosa* (G. Don) C.B. Clarke	Decoction	The decoction of leaves of *P. guajava* is taken orally to control blood pressure. The decoction of *S. nervosa* is useful for the control of blood pressure.
4	Body pain	*Bergenia ciliata* (Haw.) Sternb., *Cissampelos pariera* L., *Rheum australe* D. Don	Decoction, powder	The decoction extracted by boiling about 50 gm roots of *B. ciliata* in 250 ml of water for 10-15 minutes is taken orally to reduce body pain. The decoction extracted by boiling about 100 gm roots of *C. pariera* in 500 ml of water for 15-20 minutes is drunk to get relief from body pain. About 20 gm root powder of *R. australe* is diluted with 250 ml of water, and then taken orally to ease body pain; root decoction can also be used for it.
5	Cholera	*Lindera neesiana* (Wall. ex Ness) Kurz	Powder	Two teaspoons of seed powder of *L. neesiana* are taken with water for the treatment of cholera.

6	Cold	*Amomum subulatum* Roxb., *Amomum zingiber* L., *Acorus calamus* L.	Decoction, juice, raw	Few gm seeds of *A. subulatum* along with its cover is grinded and then boiled in 300 ml of water for 10-15 minutes and taken orally to get relief from cold. One teaspoon of rhizome juice of *A. zingiber* mixed with honey is taken orally to cure cold. Two teaspoons of rhizome juice of *A. calamus* is taken twice a day for the treatment of cold; the raw rhizome can also be chewed for it. In addition, the garland made from the sun dried rhizome of *A. calamus* is worn by the affected person to cure cold.
7	Constipation	*Girardinia diversifolia* (Link) Friis	Juice	The juice from the root of *G. diversifolia* is drunk for the treatment of constipation.
8	Cough	*Ocimum sanctum* L., *Amomum zingiber* L., *Acorus calamus* L.	Decoction, juice, raw	Leaf decoction of *O. sanctum* is taken regularly for cough. One teaspoon of rhizome juice of *A. zingiber* mixed with honey is taken orally to cure cough. Two teaspoons of rhizome juice of *A. calamus* is taken twice a day for the treatment of cough; the raw rhizome can also be chewed for it.
9	Cut and wound	*Artemesia indica* Willd., *Eupatorium adenophorum* Spreng., *Euphorbia hirta* L., *Tetrastigma serrulatum* (Roxb.) Planch., *Prunus cerasoides* D. Don, *Pinus roxburghii* Sargent, *Lycopodium clavatum* L.	Juice, raw, Decoction	The fresh juice of leaves of *A. indica, E. adenophorum, L. clavatum* and *T. serrulatum,* and the fresh latex of roots of *E. hirta* is applied in the cut and wound for its fast recovery. About 100 gm bark of *P. cerasoides* is boiled in one liter of water until it becomes half and then filtered, the filtrate or decoction is again boiled by adding some resin of *P. roxburghi* for 20-25 minutes, thus formed drug is then applied for the treatment of cut and wounds.
10	Diabetes	*Urtica dioca* L.	Cooked	The leaves of *U. dioca* are cooked and taken daily for the treatment of diabetes.
11	Diarrhea	*Rhus semialata* Murray	Decoction	The seed decoction of *R. semialata* is taken regularly to cure diarrhea.
12	Dislocated bone	*Ampelocissus rugosa* (Wall.) Planch.,*Gonostegia hirta* (Bl.) Miquel	Paste	The paste of whole plant made from equal amount of *A. rugosa* and *G. hirta* is applied as a plaster supported by wood to set the dislocated bone.
13	Dysentery	*Woodfordia fruticosa* (L.) Kurz, *Tectaria coadunata* (Wall. ex. J. Sm.) C. Chr.,*Rhododendron arboreum* Smith, *Myrica esculenta* Buch.-Ham. ex D. Don	Powder, juice	A teaspoon powder of dried flower of *W. fruticosa* is taken with water to cure dysentery. Two teaspoons of rhizome juice of *T. coadunata* is taken twice a day to cure dysentery until it is cured. Two teaspoons of dried flower powder of *R. arboreum* is mixed with 120 ml of water or curd and taken orally to cure dysentery. Two teaspoons of fresh bark juice of *M.*

				esculenta is taken orally for the treatment of dysentery.
14	Eczema	*Amomum subulatum* Roxb., *Prunus cerasoides* D. Don, *Pinus roxburghii* Sargent	Paste, decoction	The paste from the seeds of *A. subulatum* is applied on the affected area to cure eczema. About 100 gm bark of *P. cerasoides* is boiled in one liter of water until it becomes half and then filtered, the filtrate or decoction is again boiled by adding some resin of *P. roxburghi* for 20-25 minutes, thus formed drug is then applied for the treatment of eczema.
15	Evil spirit	*Selinum wallichianum* (DC.) Raizada & Saxena, *Paris polyphylla* Smith	Smoke, juice	The smoke from the rhizome of *S. wallichianum* is inhaled as well as the rhizome juice is taken orally for curing the illness due to evil spirit. The young shoots of the *P. polyphylla* that grows once in a year is also used for curing illness due to evil spirit.
16	Eye boils	*Allium cepa* L., *Berberis asiatica* Roxb. Ex DC, *Mahonia napaulensis* DC	Juice, decoction	Few drops of bulb juice of *A. cepa* are instilled for curing the eye boils. The decoction formed by boiling about 20 gm bark of *B. asiatica* in 200 ml of water for 10-15 minutes is used to cure eye boils. The decoction prepared by boiling 20 gm bark of *M. napaulensis* in 200 ml of water for 10-15 minutes is instilled to cure eye boils.
17	Fever	*Swertia nervosa* (G. Don) C.B. Clarke, *Rubus ellipticus* Sm.	Decoction, juice	Two teaspoons of decoction made from the whole plant of *S. nervosa* is taken thrice a day for curing high fever; hot steam of decoction is also inhaled for it. The juice of young shoots of *R. ellipticus* is taken thrice a day for the treatment of high fever.
18	Fish bone prick	*Rhododendron arboreum* Smith	Raw	The raw flower of *R. arboreum* is chewed and swallowed to release fish bone prick.
19	Gastritis	*Allium sativum* L., *Asparagus racemosus* Willd., *Bauhinia variegata* L., *Carum copticum* C.B. Clarke, *Cheilanthes dalhousiae* Hook., *Cissampelos pariera* L., *Curcuma longa* auct. Non. L., *Drymaria cordata* L., *Emblica officinalis* Gaertn., *Geranium wallichianum* D. Don ex Sweet, *Zanthoxylum armatum* DC., T*axus wallichiana* Zucc., S*olena amplexicaulis* (Lam.) Gandhi, *Rubus ellipticus* Sm., P*sidium guajava* L., *Mangifera indica* L.	Roast, juice, powder, decoction	Few pieces of the roasted bulb of *A. sativum* are taken orally to cure gastritis. Two teaspoons of root juice of *A. racemosus* taken orally twice a day helps to cure gastritis. The juice extracted from about each 50 gm fresh bark of *B. variegata* and *M. indica* along with few leaves of *P. guajava* is taken orally two-three times a day for curing gastritis. A teaspoon of powder made from 5 gm seeds of *C. copticum* and few seeds of *Z. armatum* is taken orally with lukewarm water for treating gastritis. Two teaspoons of juice extracted from few leaves of *C. dalhousiae* and each 10 gm roots of *R. ellipticus* and *G. wallichianum* is taken

				with lukewarm water to treat gastritis. The decoction extracted by boiling about 100 gm roots of *C. pariera* in 500 ml of water for 15-20 minutes is drunk to get relief from gastritis. Half teaspoon of rhizome powder of *C. longa* and salt mixed with 250 ml of diluted curd is drunk in empty stomach for curing gastritis. The juice of *D. cordata* is drunk in empty stomach to cure gastritis. 50 gm fresh bark and fruits of *E. officinalis* and 50 gm fresh bark of *M. indica* is boiled in three liters of water till the water volume become half, then filtered and the decoction thus prepared is mixed with 10-15 ml of urine of cow and drunk in empty stomach for the treatment of gastritis. Few seeds of *Z. armatum* are boiled in 250 ml of water for 15-20 minutes and the decoction is taken orally to cure gastritis; the root juice is also useful for it. One kg of bark and leaves of *T. wallichiana* is cooked in 10 liters of water for few hours until the water is reduced to half liter, thus formed two teaspoons of decoction is taken daily in empty stomach for gastritis. The root juice of *S. amplexicaulis* is used for gastritis.
20	Gum swelling	*Rumex dentatus* L.	Raw	The fresh root of *R. dentatus* is chewed for sometimes which helps to cure the tooth gum swelling.
21	Headache	*Lindera neesiana* (Wall. ex Ness) Kurz	Paste	The seed paste of the *L. neesiana* is applied on the forehead to get relieve from headache.
22	Herpes zoster	*Fragaria nubicola* Lindl. ex Lacaita	Paste	The paste of the leaves of *F. nubicola* is applied on the affected area to treat herpes zoster.
23	In appetence due to evil eyes	*Achyranthes bidentata* Bl.	Juice	The juice extracted from the roots is given for the treatment of in appetence due to evil eyes
24	Insomnia	*Mentha spicata* L.	Infusion	Infusion of leaves of *M. spicata* that are kept overnight is drunk early morning in empty stomach along with the leaves for the treatment of insomnia.
25	Intestinal worms	*Taxus wallichiana* Zucc., *Morus alba* L.	Decoction, juice	One kg of bark and leaves of *T. wallichiana* is cooked in 10 liters of water for few hours until the water is reduced to half liter, thus formed two teaspoons of decoction is taken daily in empty stomach to kill intestinal worms. One teaspoon of root juice of *M. alba* is taken twice a day

				that kills harmful intestinal worms.
26	Intoxication	*Paris polyphylla* Smith	Juice	Two teaspoons of rhizome juice of *P. polyphylla* is boiled in 300 ml of cow milk and then drunk to get relief from intoxication.
27	Jaundice	*Cuscuta reflexa* Roxb.	Juice	The root juice of *C. reflexa* is taken thrice a day to cure jaundice; additionaly, the sun dried plant is spread under the bed of a patient until cured.
28	Leucorrhea	*Curculingo orchioides* Gaertn., *Equisetum debile* Roxb. ex Vaucher, *Hibiscus lampas* Cav.	Infusion	The overnight kept infusion from equal amount of crushed roots of *C. orchioides, H. lampas* and *E. debile* is drunk in empty stomach early morning for the treatment of leucorrhea.
29	Menstrual disorder	*Citrus aurantifolia* (Christ.) Swingle	Juice	The mixture, formed by one teaspoon juice of *C. aurantifolia* and a pinch of *C. longa* along with one teaspoon of honey and two-three drops blood of black goat/rooster, is taken orally that also includes incantations by *Dhami/Jhankri* for curing the menstrual disorders.
30	Mouth ulcer	*Cinnamomum zeylanicum* BL.	Juice	The filtrate or juice from crushed raw seeds of the plant is applied on the affected area to get relief from mouth ulcer.
31	Over heat	*Amaranthus spinosus* L., *Elettaria cardamomum* (L.) Maton, *Trigonella foenum-graceum* L., *Plantago major* L., *Musa paradisiaca* L.	Infusion, juice	The roots of *A. spinosus* is crushed and soaked overnight in 500 ml of water along with two-three pieces of fruits of *E. cardamomum* and drunk in empty stomach in early morning for curing over heat. The infusion of dried seeds of *T. foenum-graceum* and *P. major* that are kept overnight is drunk in empty stomach relief from overheat. Juice from the root of *M. paradisiaca* is drunk for the treatment of overheat.
32	Rheumatism	*Urtica dioca* L., *Myrica esculenta* Buch.-Ham. ex D. Don	Cooked, decoction	The leaves of *U. dioca* are cooked and taken daily for the treatment of rheumatism. Powder from about 300 gm of bark of *M. esculenta* is boiled in three liters of water till the water becomes half; the mixture is then filtered and again boiled with half liter of mustard oil for 25-30 minutes. Thus formed decoction is applied on the affected area with gentle massage to get relief from rheumatic pain.
33	Scabies	*Artemesia indica* Willd.,*Ficus semicordata* Buch.-Ham. ex Sm., *Rubia manjith* Roxb. Ex Fleming, *Lyonia ovalifolia* (Wall.) Drude	Paste, juice	The juice of leaves of *F. semicordata* is applied for curing scabies. The paste of *A. indica* (Leaf), the paster of *R. manjith* (whole plant) and the paste of *L. ovalifolia* (young shoots) is applied on the affected area for the treatment of scabies.

34	Sinusitis	*Centella asiatica* (L.) Urb., *Drymaria cordata* L., *Tropaeolum majus* L., *Syzygium operculatum* (Roxb.) Merril& Perry, *Oxalis corniculata* L.,*Justicia adhatoda* L.	Paste, powder, juice, decoction	The paste made from *C. asiatica* and *D. cordata* is enclosed in banana leaf and heated for few minutes in the hot fire ashes, then wrapped in clean cloth by removing the leaf and smell it continuously for few minutes for the treatment of sinusitis. The leaves and flowers of *T. majus* are crushed and smelled that results sneezing which cures sinusitis; additionally, the paste of leaves and flowers are applied around the nose. The powder of dried leaves as well as juice of bark of *S. operculatum* is taken orally for the treatment of sinusitis. The juice of the *O. corniculata* is used for sinusitis. The decoction prepared from slightly burned leaves of *J. adhatoda* is also used for the treatment of sinusitis.
35	Skin boils	*Allium sativum* L.	Paste	The paste of the bulb is applied for curing the skin boils
36	Skin burn	*Euphorbia hirta* L., *Lyonia ovalifolia* (Wall.) Drude, *Lycopodium clavatum* L.	Raw, paste, juice	The fresh latex of roots of *E. hirta* is applied in the skin burn for its fast recovery. The paste of young shoots of *L. ovalifolia* and the root juice of *L. clavatum* is applied on skin burn for the fast healing.
37	Stomach pain	*Cinnamomum zeylanicum* BL., *Inula cappa* (Buch.-Ham. ex D. Don) DC. *Rhus semialata* Murray	Juice, powder	A teaspoon of crushed raw seed juice of *C. zeylanicum* is taken orally twice a day for stomach pain. Two teaspoons of root juice of *I. cappa* is taken orally during stomach pain. Two teaspoons of seed powder of *R. semialata* are taken with lukewarm water during stomach pain.
38	Tonsilitis	*Fragaria nubicola* Lindl. ex Lacaita, *Ocimum sanctum* L.	Raw	Raw fruits of *F. nubicola* are taken for tonsillitis. Three-five fresh leaves of *O. sanctum* are taken early morning without speaking to get relief from tonsillitis.
39	Toothache	*Achyranthes bidentata* Bl., *Solanum capsicoides* All., *Rumex dentatus* L., *Potentilla fulgens* Wall. ex Hock	Raw, smoke	The raw stem of *A. bidentata* is used as tooth brush for toothache. Smoke from dried or fresh fruits of *S. capsicoides* is employed inside mouth to get relieve from toothache, smoke also kills and drops the worms of the teeth. The fresh root of *R. dentatus* is chewed for sometimes which helps to relieve toothache. The root of *P. fulgens* is cut into small pieces and chewed to treat toothache.

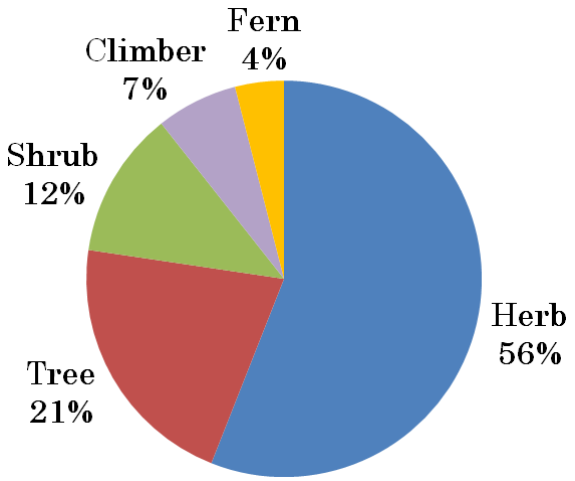

Figure 2. Habit wise distribution of medicinal plants

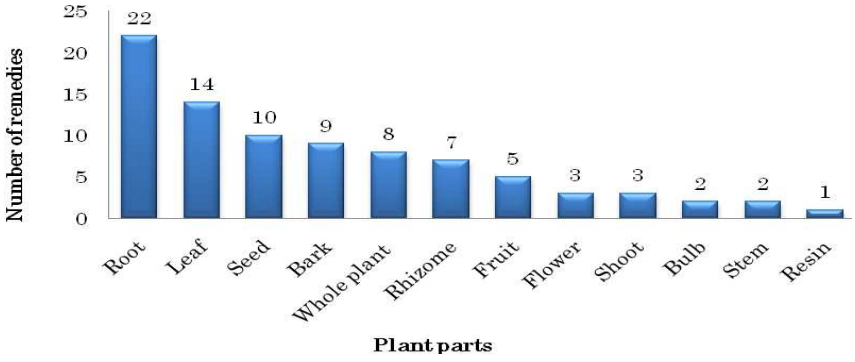

Figure 3. Number of remedies based on plant parts used

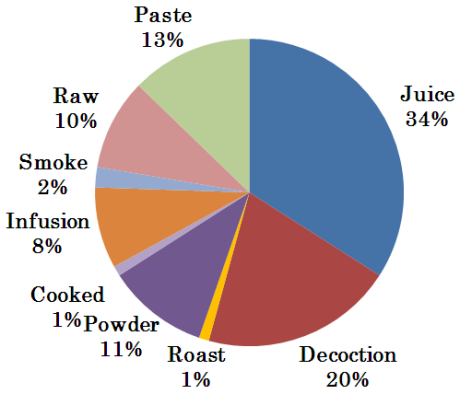

Figure 4. Plant species based on the form of medication

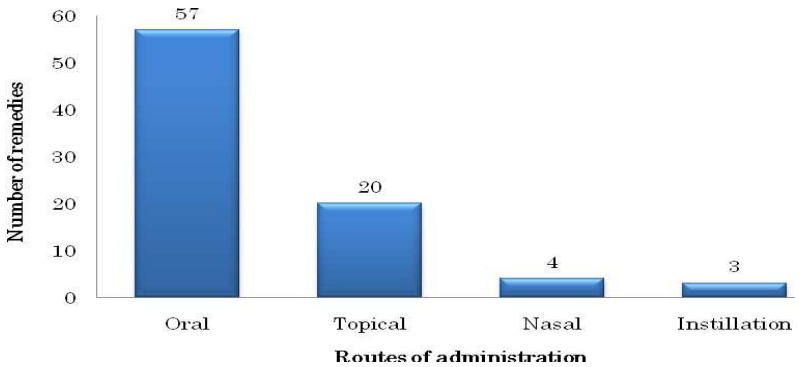

Figure 5. Number of remedies based on routes of administration

Manandhar (1995), Subedi (1998), Joshi and Joshi (2000) and Kunwar *et al.* (2010) reported the use of *Potentilla fulgens* in dental problems similar to the present finding. The flower of *Woodfordia fruticosa* was also reported to be used in curing dysentery by Manandhar (1990), Manandhar (1992), Acharya (1996), and Oli *et al*. (2005). *Berberis asiatica* and *Mahonia napaulensis*, used for opthalmological ailments, was also recorded by Subedi (1998), and Shrestha *et al.* (2004). The use of *Rhododendron arboreum* for fish bone prick and dysentery was also accounted by Subedi (1998) and Shrestha and Dhillion (2003). Similarly, the use of *Ocimum sanctum* for cough and cold, and *Allium sativum* for skin diseases was also documented by Rana *et al*. (2010) and Sen *et al*. (2011), respectively. Mala *et al.* (2012) also reported the use of *Acorus calamus* and *Urtica dioica* for cough and rheumatism, respectively.

Knowledge and Rituals

Local healers (*Dhami/Jhankri*) were the most popular one in the village for practicing folk medicine. Besides, the other knowledgeable groups, such as women and elders, also practice home remedy. According to the some local healers, they acquired the knowledge from their *Guru* (God) who taught them in dreams. Also during *Jhankri basne* (spiritual treatment) period, the healers identify the illness of their patient, and treat them accordingly that includes rituals such as incantations, amulets, magic, sacrifices, charms, and religious verses. Generally, the patients were examined in the morning or evening in particular days like Tuesday and Saturday.

The local healers collect the medicinal plants only when needed in certain days like Sunday, Tuesday and full moon day. Some of the healers believe that the medicinal plants of nearby home will not work since the plants are unpurified by domestic animals and people, which lead the lost of their healing properties. Thus, the forest becomes the main source of medicinal plants for them.

The traditional home remedy is much

less in practice compared to the past few years because of the establishment of health post in the village as well as younger generation being less aware about the traditional medicines. There is also lack of hand over or sharing of knowledge from older to younger generation. Thus, the traditional healers as well as younger generation should be motivated to practice and conserve the traditional medicine, and such practices should be legalized. Furthermore, the plant species used in folk medicine should be subjected to biochemical analysis for their efficacy and verification.

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