ISSN: 2469-9062 (print), 2467-9240(e)

*Journal of Institute of Science and Technology, 2015, **20(1):** 127-132, © IOST, Tribhuvan University*

Medico-ethnobiology in Rai Community: A Case Study from Baikunthe Village Development Committee, Bhojpur, Eastern Nepal

Rabina Rai[1] and N.B. Singh[1, 2]

[1]Central Department of Environmental Science, Tribhuvan University, Kathmandu

[2]Central Department of Zoology, Tribhuvan University, Kathmandu

[1]E-mail: env.rabinarai@gmail.com and [2]E-mail: nanda_nepal@yahoo.com

ABSTRACT

This paper tried to explore the uses of medicinal animals and plants for the treatment of different diseases in the Rai community of Baikunthe VDC, Bhojpur, Nepal. About 87 plant species belonging to 55 families were used in treating 65 types of diseases while 27 different animal species belonging to 23 families were used in healing 28 ailments. The community is rich in traditional medicinal knowledge and has been using several plants and animal species for healing ailments in their day to day life. Finally, to protect their knowledge, awareness dissemination and further documentation has become vital.

Keywords: Ethnomedicine, Medicinal plants, Rai, Traditional knowledge, Zootherapeutic

INTRODUCTION

Human beings have strong and intimate linkage with the plants and animals for sustaining life in extreme and critical environment. These connections are seen in every culture across the world, in multiple forms of interaction with local animals as well as plants (Alves 2011). The uses of plants and animals as medicines have passed from generation to generation in the form of traditional and indigenous knowledge. The different ethnic groups have been accumulating such a valuable knowledge generation by generation. The use of animals and plants in traditional medicine is not new but its documentation is limited to some extent. Exploration, evaluation and documentation of indigenous knowledge have become one of the tool to sensitize and aware the ethnic group.

Nepal, being physiographically and climatically diversified country, is rich in biological diversity which in turn has supported the diverse ethnicity rich in customs, traditions, cultures, feast and festivals. The country is considered as repository of traditional medicinal knowledge (Sitaula 2009). The proper documentation of plant resources for medicinal purpose seems to begin with the work of Banerji (1955) in Nepal who was followed by Devkota (1968) who documented various plants, animals and minerals having medicinal values. Coburn (1984), Shrestha (1985), Shrestha (1988), Manandhar (1993), Acharya (1996), Thapa (1998), Dangol and Gurung (1999) have worked out the use of bio-medical resources. Singh (1995) seems to initiate the ethnobiological investigation including plants and animals. The major documentation includedas Basnet *et al.* (2001), Bhattarai (2002), Tamang (2003), Chapagain *et al.* (2004), Siwakoti *et al.* (2005), Pokhrel (2006), Malla and Chhetri (2009), Kunwar and Bussman (2009), Dangol (2010), Lohani (2010), Lohani (2011), Lohani (2012), and Singh *et al.* (2012).

The documentation of indigenous use of plants by Rai community seems to begin with the work of Toba (1975) who documented the names of plants in Khaling (Rai language) in Solukhumbu district. Dahal (2000) have documented the plants used by Aathpahariya Rai of Dhankuta district, Nepal. Fewwork has been undertaken in Rai community regarding the medicinal uses of plant and animal species. The Golmebhir Hill of Baikunthe Village Development Committee (VDC) is considered to be rich source of medicinal plants and animals worth assessed and documented. The objective of this paper is to explore the medico-ethnobiological knowledge in the Rai community of Baikunthe VDC of eastern Nepal.

MATERIALS AND METHODS

Study Area

Bhojpur district, lies in Koshi Zone of Eastern Development Region, occupies an area of 1522 sq. km with altitude range from 153 m to 4153 m from mean sea level. The district lies between geographical coordinates of 26˚53' N to 27˚46' N latitude and 86˚53' to 87˚17' E longitude (Fig. 1). The district is rich in biodiversity with 124 species of tree, 122 species of shrubs, 30 species of climber, 13 species of parasite plant, 101 species of herbal plant, 28 species of mammal, 9 species of amphibian, 9 species of reptile, and 136 species of bird (DFO, 2057/2058 BS).

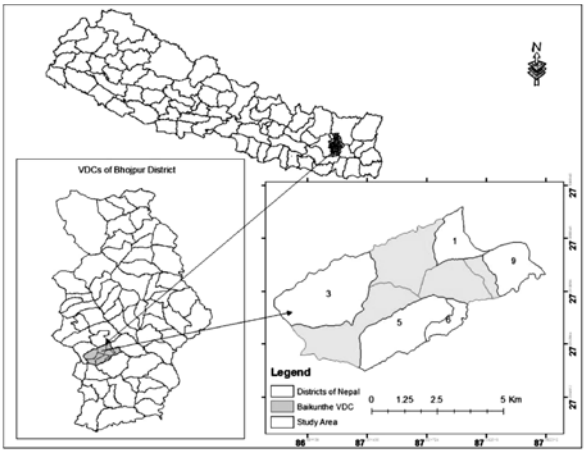

Fig. 1. Location of the Baikunthe VDC in Bhojpur district

The data were collected in Baikunthe VDC of Bhojpur district from March 22 to April 16, 2011 & September 9 -24, 2012. Key informant interview, Group Discussion and interview were carried out where 35 Key informants i.e. Rai local healers and elder persons were interviewed. Besides, school teachers, community leaders, social workers, other local people and young persons from Rai community were consulted. Group Discussion was conducted involving about 4-7 respondents. Informants were asked to list any treatments and remedies for different common health problems.The collected samples in the field were identified using standard literature (DPR 2001, Polunin & Stainton 1984) and also with the help of botanist and expert from National Herbarium, Godawari.

RESULTS

Table 1 showed that 87 plant-species were used for treating 65 types of diseases in Rai community of Baikunthe VDC. Traditionally, they were utilizing plants as labor pain reliever and as lactation enhancer. About 33 percent were found to be trees, 31 percent herbs, 22 percent shrubs, 9 percent climbers, 2 percent grasses, 1 pecent fern, and 1 percent was parasite. The different ailments treated were categorized on the basis of affected parts. The highest treated category was observed to be gastrointestinal (25%) and the lowest treated category was found to be nervous/vascular (1.67%). About 13 percent treated category was integumentory, 12 percent musculo-skeletal, and 10 percent to be respiratory. Likewise, genito-urinary, nervous and otorhino-laryngo each category was observed to be 7 percent and reproductive category to be 5 percent. The ailments categories like cardiovascular, dental and renal/cardiovascular each was observed to be about 3 percent. Out of total ailments, 5 could not be classified in any category.

The study revealed that whole plant, parts like root, leaf, fruit, bark, tuber, seed, flower, young shoot, latex, stem, pith and rhizome were used for medicinal purpose. Among the parts, root was found to be the most (21.69%) used parts followed by leaf (15.09%), fruit (9.43%), whole plant (9.43%), bark (8.49%), tuber (6.60%), seed (6.60%), flower (5.66%), young shoot (5.66%), latex (4.72%), and stem (4.72%). In terms of forms of plant used for treating ailments, the study showed plant or its part in the form of juice was the most utilized form of medication sharing (34.31%) followed by raw (24.51%), paste (10.78%), decoction (8.82%), powder (5.88%) and the medication in the form oil, soup, steam, and tablets each shared (1.96%). Likewise, the use of plants in the forms boil, cooked, dried, fermentation, infusion, dhindo (flour of maize, boiled and cooked), sinki (fermented and dried) and odor (inhalation) each form was observed in treating 0.98% ailment categories. Both external (applying and massaging, poultice and pasting) and internal (oral absorption, inhalation, instillation and interdental) administrations route of plants parts/products were observed. Internal route of administration and external route of administration were about 82 and 18 percent respectively. Majority (73.96%) of medications were observed to be administered orally followed by external application (13.54%), inhalation (4.17%), instillation (3.13%), massaging (2.08%), and poultice, pasting and interdental each was found to be used in treating (1.04%) of ailment category.

Table 2 portrayed that 27 animal species belonging to 17 orders and 23 families were found to be used for healing 28 ailments in the Rai community of BaikuntheVDC. Among them, 22 were wild and 5 were domesticated species. Among the 27 zoo-therapeutic animals, share of Mammalia was 9, Arthropoda 8, Aves 5, Amphibia 2 and Mollusca, Pisces and Reptilian each was 1. The result depicted that 8 animal species were used in integumentory ailment, 5 gastrointestinal, 4 musculoskeletal, 3 in each nervous and respiratory; and 1 in each cardiovascular, reproductive, otorhinolaryngo and nervous/integumentory. Disease 'Runche' (crying habit of baby) could not be classified in medical term.

With respect to forms of medication of parts of animal species, the result revealed that most of the species were found to be used in the form of meat (25.93%) followed by whole organism (14.81%), skin (11.11%) and bile (7.41%). Carapace, head, blood, navel, fluid, spine, stomach, belt, bone-marrow and bone, and animal products like milk, honey, and dungwere observed to be used for medicinal purpose. The use of raw form of medication was found to be more prevalent (50%) followed by paste (18.75%), cooked (12.75%), dried (6.25%), powder (3.13%), burnt (3.13%), odor (3.13%), and as liquid (3.13%). The share of internal and external

medications was found to be about 68 and 32 percent respectively. About 65 percent were of oral types, 18 percent of application, 9 percent massage, 3 percent in each sticking and inhaling, and 3percent was observed to be used as protective amulet.

CONCLUSION

The Rai community of Baikunthe VDC has traditionally been using 87 plant and 27 animal species for healing various ailments. The species used are mostly collected from "Golmebhir" forest lying nearby. The plant species are used in treating 65 types of ailments. Animal species are used in treating 28 types of diseases. This indicates with the increased access to allopathic medicine, changing life style pattern and modern education the age-old traditional ethno-biological practices and knowledge is at the verge of extinction.The study is limited within some wards of Baikunthe VDC, the findings does not reflect the overall picture of Rai community of eastern Nepal. In order to document the ethno-medicinal knowledge of Rai community of eastern Nepal, more extensive study should be carried out covering the Rai communities living in different areas of the eastern Nepal. The local knowledge should also be linked and justified with the scientific investigation. The local awareness should also be increased especially amongst the youngster about the importance and potential of local traditional knowledge for the conservation and better management of the resource.

ACKNOWLEDGMENTS

The authors are grateful to the local community for their cooperation and participation, Dr. S. Shrestha and Mrs. M. Rai for their help in identifying diseases, Central Department of Environmental Science, T.U., for administrative support, to Natural History Museum and National Herbarium and Plant Laboratories, Nepal for their help in identifying animal and plant species, and the National Foundation for Development of Indigenous Nationalities for providing financial support to R. Rai.

Table 1. Plants used for medicines by the Rai community

Scientific Name	Local Name	Life forms	Parts/products used	Forms of medication	Medicinal use
Agave spp.	Hattibar	Herb	Root	Juice	Cholera
Achyranthes aspera	Aapmamarga	Shrub	Root	Juice	Pneumonia, Menstrual disorder
Crinum amoenum	Hade Lasun	Herb	Tuber	Paste	Cholera
Mangifera indica	Aanp	Tree	Bark	Juice	Dysentery
Rhus javanica	Bhakkiamilo	Tree	Fruit	Raw	Diarrhoea
Acorus calamus	Bojho	Herb	Rhizome, Leaf	Raw, Dried	Tonsillitis, Asphyxia, Antilice
Colocasia spp.	RukhPindalu	Herb	Tuber	Tablets	Rabies, cholera
Schefflera venulosa	Kursiulo	Shrub	Bark	Juice	Paralysis
Areca catechu	Supari	Tree	Fruit	Decoction	Piles
Asclepias gigantea	Aak	Shrub	Latex	Raw	Sprain
Asparagus racemosus	Kurilo	Shrub	Root	Juice	Headache, Lactation, Paralysis, Anorexia
Elephantopus scaber	Phurkejhar	Herb	Flower	Raw	Heart disease
Cirsium verutum	Sungurekanda	Herb	Latex, Root	Raw, Juice	Eye pain, Measles
Eclipta alba	Bhangiraj	Herb	Stem	Juice	Burning urination, Stone, Malaria
Helianthus annus	Suryamukhi	Shrub	Seed	Oil	Uterus prolapsed
Artemisia vulgaris	Titepati	Shrub	Leaf, Root	Juice	Nose bleeding, Back pain, Joint pain
Brassica campestris	Tori	Fruit	Seed	Oil	Cough
Raphanus sativus	Radish	Herb	Root	Sinki	Altitude sickness, Dysentery
Lobelia pyramidalis	Eklebir	Shrub	Leaf, Root, Young shoot	Juice, Paste	Swollen body, Epilepsy
Drymeria diandra	Abijalejhar	Herb	Whole plant	Steam	Sinusitis, Headache
Cuscuta reflexa	Pahelelahara	Climber	Whole plant	Juice	Jaundice
Costus specious	Betlauri	Shrub	Stem	Juice	Burning urination, Stone
Cucurbita maxima	Pharsi	Climber	Fruit	Boiled	Dysentery
Coccinia grandis	Golkankri	Climber	Root	Raw	Labour pain
Dioscorea deltoidea	Bhyakur	Climber	Tuber, Fruit	Paste	Mumps, Groin pain, Cough
Rhododendron arboreum	Gurans	Tree	Bark, Flower	Powder, Juice	Dysentery, Cholera, Bone prick
Euphorbia spp.	Siudi	Herb	Latex, Pith	Raw	Stomach disorder
Sapium insigni	Khira	Tree	Root	Juice	Wound germs

Phyllanthus emblica	Amala	Tree	Bark, Fruit	Paste, Juice	Dysentery, Burning urination, Asthma
Glycyrrhiza glabra	Jethimadhu	Herb	Tuber	Raw	Fracture, Sprain
Pterocarpus santalinus	Raktachandan	Tree	Stem	Paste	Uterus prolapsed
	Tito Areli	Shrub	Whole plant	Juice	Stomach crump
Quercus lanata	Banjh	Tree	Bark	Juice	Dysentery
Swertia chirayita	Chiraito	Shrub	Root, Young shoot, Leaf	Decoction, Juice	Malaria, Common cold, Headache
Didymocarpus albicalyx	Kumkumpati	Herb	Whole plant	Juice	Anorexia
Curculigo orchioides	Musali	Herb	Tuber	Raw	Body pain, Malaria, Antihelmenthic, Spleen swelling
Pogostemonam aranthoides	Rudilo	Shrub	Leaf	Juice	Antilice
Mentha spicata	Pudina	Herb	Whole plant	Raw	Jaundice
Colebrookea oppositifolia	Dhursule	Shrub	Leaf	Raw	Nose bleeding
Vitex negundo	Simali	Tree	Leaf	Steam	Swollen body parts
Linderane esiana	Siltimmur	Tree	Seed	Raw, Decoction	Abdominal distension, gastritis, high altitude sickness
Lilium nepalense	Okhiya	Tree	Tuber	Paste	Sprain
Woodfordia fruticosa	Dhangeru	Tree	Flower	Juice	Cholera
Bombax ceiba	Simal	Tree	Root, Flower	Juice	Measles, Micturition
Trichilia connaroides	Ankhataruwa	Tree	Root	Juice	Stone
Artocarpus lakoocha	Badahar	Tree	Latex	Raw	Mumps
Ficus semicordata	Khanyu	Tree	Latex	Raw	Mumps
Ficus religiosa	Pipal	Tree	Root	Decoction	Spleen swelling
Musa paradisiac	Kera	Herb	Flower	Juice	Retained placenta
Syzygium cumini	Jamuna	Tree	Bark	Juice	Dysentery
Cleistocalyx operculatus	Kemuna	Tree	Leaf	Juice	Nose bleeding, Sinusitis
Myricae sculenta	Kafal	Tree	Bark, Fruit	Juice, Raw	Cholera, Piles
Myristica fragrans	Jaifal	Tree	Seed	Decoction, Powder	Piles, Stone
Psidium guajava	Amba	Tree	Bark	Juice	Dysentery
Oxalis corniculata	Chariamilo	Herb	Whole plant	Raw	Tooth corrosion
Piper nigrum	Marich	Shrub	Seed	Decoction	Piles
Eleusine coracana	Kodo	Grass	Seed	Fermentation	Diarrhoea
Saccharum spp.	Ukhu	Grass	Stem	Juice	Jaundice, Wound
Thaysanolaena maxima	Amliso	Shrub	Root	Raw	Labour pain
Zea mays	Makai	Herb	Fruit	Dhindo	Dysentery
Rheum austral	Padamchal	Herb	Flower, Root	Paste, Raw	Burnt skin, Uterus prolapsed, Menstrual disorder
Cheilanthes dalhousidae	Rani sinka	Herb	Leaf	Raw	Snake bite
Clematis buchananiana	Chupchupe	Climber	Root	Raw	Toothache
Thalictrum foliolosum	MirmireJhar	Herb	Whole plant	Juice	Anorexia
Rubus ellipticus	Ainselu	Shrub	Root, Young shoot	Juice, Raw	Tonsillitis, Fever
Rosa indica	Gulab	Shrub	Root	Juice	Cholera
Rubia manjito	Manjito	Climber	Leaf	Juice	Piles
Citrus limon	Kagati	Tree	Fruit	Juice	High altitude sickness
Zanthoxylum nepalensis	Boketimur	Tree	Leaf, Seed	Decoction	Gastritis
Populus jacquamontiana	Pipalpate	Shrub	Leaf	Odour	Dizziness
Osyris wightiana	Noondhiki	Tree	Young shoot	Soup	Menstrual disorder
Santalum album	Shree Khanda	Tree	Stem	Paste	Uterus prolapsed
Bergenia ciliata	Pakhambed	Herb	Whole plant	Powder	Hand/ leg sprain, Body ache, Whooping cough
Picrohiza scrophulariflora	Kutki	Herb	Root	Raw, Powder	Harital
Capsicum annuum	AakabareKhursani	Shrub	Fruit	Decoction	Gastritis
Daturam etel	KaloDhaturo	Herb	Seed, Leaf	Tablet	Rabies, Swelling body

Solanum tuberosum	Aalu	Herb	Tuber	Raw	Burnt skin
Schima wallichi	Chilaune	Tree	Bark	Decoction	Piles
Daphny papyraceae	Baruwa	Tree	Root	Juice	Constipation
Centella asiatica	Ghodtapre	Herb	Leaf, Root	Infusion	Swollen hand/ leg, Common cold, Tonsillitis
Urtica dioica	Sisnu	Shrub	Leaf, Young shoot	Cooked, Powder	Arthritis, Common cold, High blood pressure
Viscum album	Hadjaruwa	Parasite	Whole plant	Powder	Fracture
Vitis capreolata	Charchare	Climber	Leaf	Juice	Skin crack
Curcuma caesia	Haledo	Shrub	Root	Raw, Paste	Anorexia, Gastritis, Burning urination
Curcuma longa	Hardi	Herb	Root	Paste	Cough
Zingiber officinala	Herb	Herb	Whole plant	Paste	Cholera
	Mohankath	Tree	Young shoot	Soup	Menstrual disorder

Table 2. Animals used for medicines by the Rai community

Scientific Name	Local Name	Habit	Organ / Product Used	Medicinal Uses
Paa liebigii	Manpaha	Wild	Meat, Egg, Skin	Pneumonia, Measles, Cut wound, heart diseases, wound
Rana tigrina	Bhyaguto	Wild	Skinless Meat	Leprosy
Rucervus duvauceli	Jarayo	Wild	Bonemarrow	Hand/leg fracture
Bubalus bubalis	Bhainsi	Domestic	Dung	Chicken pox, Measles, Scabies
Bos indicus	Gai	Domestic	Milk	Fracture, Hand/ leg sprain, Menstrual disorder, Body ache
Moschus moschiferus	Kasturi	Wild	Navel	Arthritis
Muntiacus muntjac	ChamkeMriga	Wild	Skin	Runche
Blatella asahinai	Sanglekira	Wild	Whole organism	Asthma
Panthera tigris tigris	Bagh	Wild	Fat	Arthritis
Canis lupus	Buanso	Wild	Meat, Bone	Macula, Leprosy
Vanellus indicus	Huttityaun	Wild	Egg	Pneumonia
Cosmopolites sordidus	Gabaro	Wild	Whole organism	Epilepsy
Epicauta spp.	Thulokage	Wild	Fluid	Mole, Wart
Columba livia	Parewa	Domestic	Meat	Menstrual disorder
Gallus gallusdomesticus	Kukhura	Domestic	Blood, Meat	Typhoid, Menstrual disorder
Lophura leucomelanos	Kalij	Wild	Meat	Piles
Ichhneumonid spp.	Kamalkutti	Wild	Shelter (Mud)	Pneumonia, Macula
Apis cerana	Mauri	Domestic	Honey, Wax	Dysentery, Cholera, Hand/ Leg Sprain, Body Pain
Passer domesticus	Bhangera	Wild	Meat	Epilepsy
Hystrix brachyuran	Dumsi	Wild	Stomach, Spine	Asthma, Dizziness, Vomiting, Tetanus
Palamnaeus swammerdami	Bichi	Wild	Whole organism	TB
Scutigera spp.	Khajuro	Wild	Head	TB
Cancer pagurus	Gangato	Wild	Belt	Herpes Zoster
Clupis omagaura	JalkapurMacha	Wild	Bile	Tetanus
Anadenus spp.	Chiplekira	Wild	Whole organism	Tonsillitis, Fracture, Pneumonia, Tuberculosis, Heart diseases
Testudo spp.	Kachuwa	Wild	Carapace	Pneumonia

REFERENCES

Acharya, S.K. 1996. Folk Uses of Some Medicinal Plants of Pawannagar Dang district. *Journal of Natural History Museum* **15:** 25-36.

Alves, R.RN and Souto W. MS. 2011. Ethnozoology in Brazil: current status and perspectives. *Journal of Ethnomedicine and Ethnobiology* **7:** 22.

Banerji, M.L. 1955. Some Edible and Medicinal Plants from East Nepal. *Journal of Bombay Natural History Society* **53:** 153-155.

Basnet, B.K., Joshi, R. and Lekhak, H.D. 2001. Ethnobotanical Survey of Chepang Tribe of Makawanpur District, Nepal, Environmental and Agriculture: Biodiversity, Agriculture and Pollution in South Asia. PK, Jha, SK Baral, SB Karmacharya, HD Lekhak and CB Baniya (edits), Ecological Society of Nepal, pp. 245-252.

Bhattarai, M. 2002. Documentation Of Medicinal Plants Used by Bhotiya and Sherpa Communitues Around Makalu Barun National Park and Buffer Zone, Eastern Nepal, M.Sc. Thesis. Central Department of Botany, Tribhuvan University, Kathmandu, Nepal.

Chapagain, D.J., Joshi, S.D. and Jnawali, S.R. 2004. Indigenous Use of Medicinal Plants by the Tharus Community in the Southwestern Buffer Zone of Royal Bardia National Park Lowland Nepal, Proceedings of the Fourth National Conference of Science and Technology. **1**: 738-751.

Coburn, B. 1984. Some Medicinal Plants of Western Gurungs. *Kailash* **11**(1-2): 55-87.

Dahal, M. 2000. Ethnobotany of Aathpahariya Rai in and around Dhankuta Bazar. Bio-technology application for reforestation and biodiversity conservation proceedings of the 8th International Workshop of BIO-REFOR, Kathmandu, Nepal Nov. 28- Dec.2, 1999.

Dangol, D.R. and Gurung, S.B., 1999. Ethnobotanical Study of Darai Tribe in Chitwan District, Nepal, Proceedings of the Third National Conference of Science and Technology **2:** 1194-1213.

Dangol, D.R. 2010. Ethnobotany of Weeds of Chitwan District, Nepal. *Journal of Natural History Museum* **25:** 42-53.

DFO, 2057/58 BS. *JaibikBibidhataAdhyanPratibedan*. Bhojpur: District Forest Office.

Devkota, K. 1968. Nepali Nighantu.Royal Nepal Academy, Kathmandu.

DPR. 2001. Flowering Plants of Nepal (Phanerograms). National Herbarium and Plant Laboratories, Godawari, Lalitpur, Nepal.

Kunwar, R.M. and Bussman, R.W. 2009. Medicinal Plants and Quantitative Ethnomedicine: A Case Study from Baitadi and Darchula Districts, Far- West Nepal. *Journal of Natural History Museum* **24:** 72-81.

Lohani, U. 2010. Man Animal Relationship in central Nepal. *Journal of Ethnobiology and Ethnomedicine* **6:** 31.

Lohani, U., 2010. Zootherapeutic Knowledge of the Jirels of Dolakha District, Central Nepal, *Journal of Natural History Museum* **25:** 353-365.

Lohani, U. 2011. Eroding Ethnozoological Knowledge among Magars in Central Nepal, *Indian Journal of Traditional Knowledge* **10** (3): 466-473.

Lohani, U. 2012. Zootherapeutic Knowledge of Two Ethnic Populations from Central Nepal. *Ethno Med* **6** (1): 45-53.

Malla, B. and Chhetri, R.B. 2009. Indigenous Knowledge on Ethnobotanical Plants of Kavrepalanchowk District. *Kathmandu University Journal of Science, Engineering and Technology* **5:** 96-109.

Manandhar, N.P. 1993. Ethnobotanical Note in Folklore Remedies of Baglung District, Nepal. *Contribution to Nepalese Studies* **18**(2): 183-196.

Pokhrel, B.M. 2006. *Ethnobiology of Vanishing Indigenous Group: The Bankariya*, M.Sc. Thesis.Central Department of Environmental Science, Tribhuvan University, Kathmandu, Nepal.

Polunin, O. and Stainton, A. 1984. Flowers of the Himalaya. Oxford University Press, New Delhi.

Shrestha, P. 1985. Contribution to the Ethnobotany of the Palpa Area. *Contribution to Nepalese Studies* **12(2)**: 63-74.

Shrestha, P. 1988. Contribution to the Ethnobotany of the Tamangs of Kathamndu valley. *Contribution to Nepalese Studies* **15** (2): 247-266.

Singh N.B. 1995. *Study on Ethnobiology of Endangered Tribe, the Raute*, M.Sc. Thesis. Central Department of Zoology, Tribhuvan University, Kathmandu, Nepal.

Singh, A.G., Panthi, M.P. and Tewari, D.D. 2012. Wild Plants Used as Vegetable in Rupandehi District of Nepal and their Ethnomedicinal importance. *Journal of Natural History Museum* **26:** 111-125.

Sitaula, P.R. 2009. Conservation and Utilization of Medicinal Plants: Status and Economic Prospect in Community forest of Kavrepalanchowk District, M.Sc. Thesis. Central Department of Environmental Science, Tribhuvan University, Kathmandu, Nepal.

Siwakoti, M.S., Shivakoti, K.P., Karki, B. and Siwakoti S. 2005. Ethnobotanical Uses of Plants among Rajbansi and Dhimal Ethnic Communities of Eastern Nepal. *Journal of Natural History Museum* **22:** 41-56.

Tamang, G. 2003. An Ethnobiological Study of the Tamang People. *Our Nature* **1:** 37-41.

Thapa, C.B. 1998. Traditional Uses of Plants and Their distribution in Shivapuri Watershed and Wildlife Reserve Area, M.Sc. Thesis.Central Department of Botany, Tribhuvan University, Kathmandu, Nepal.

Toba, S. 1975. Plant names in khaling: A study in ethnobotany and Village economy. *Kailash* **3(2)**: 145-169.