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Study on Local Uses of Medicinal Plants in Nayabazar, Pyang and Jamuna VDCs of Ilam District

Raghu Ram Parajuli
District Plant Resources Office, Ilam
e-mail: parajrr@yahoo.com

Abstract

This paper had documented the indigenous knowledge of local people on the utilization of medicinal plants in Nayabazar, Pyang and Jamuna VDCs of Ilam Distict in Eastern Nepal. People of different castes, Rai, Brahmin, Chhetri, Gurung, Tamang, Limbu, Sherpa, Sunar, Kami, Magar and Newar live in the study area. The study was carried by collecting the information through interaction with people, questionnaire and field observation. Eighty four plant species were found belonging to 43 families and 76 genera from the study. Four species of Pteridophytes, one species of Gymnosperm and 79 species of Angiosperms were recorded . Botanical names, families, local names, life forms, useful parts, concerned ailments and mode of application of plants used as medicine have been listed in tabular form. Herbaceous plants were found dominant over shrubs and trees as the medicinal sources. Cough, asthma, fever, urinary and gastro-intestinal disorders were most common diseases among the people. Plants belonging to the families Asteraceae, Rutaceae and Rosaceae were found more frequently used. Most of the local people are familiar with medicinal plants and they have started cultivation of some the medicinal plants like *Swertia chirayita, Lilium nepalense, Berginia ciliata, Taxus wallichiana , Asparagus racemosus* and *Valeriana jatamansi*.

Key words: medicinal value, ethnobotany, traditional use, local people

Introduction

Ethnobotany deals about the relationship of plants and human beings. It is the science that focuses on the people-plant relationship in a multidisciplinary manner, incorporating not only collection and documentation of indigenous knowledge but also ecology, economy, pharmacology, public health and other disciplines(Kunwar & Bussmann 2008). Each and every plant has medicinal value and all medicinal plants contain some chemical constituents such as alkaloids, glucosides, flavenoids, resins, tannins, steroids, gums, etc.(Pandey 1995). Regveda and Atharvaveda, which date back to 2000-1000 BC, and several post Vedic treaties viz. Charak Samhita (100 AD), Sushruta Samhita (800-900 AD), Dhanwantari Nighantu (1200 AD), Raj Nighantu (1600 AD) to name a few, are the important ancient sources of information on medicinal plants (Patel 2010) The traditional knowledge of local people has high ethnobotanical importance. The rural people of Nepal continue to depend on the local therapy for their health care as it is cheap, convenient and readily available (Manandhar 2002). Rajbhandari(2001) has compiled the information on ethnobotanical uses of 562 species of plants. Almost 80% of the population in the developing countries rely on traditional medicines. Due to lack of doctors and modern medicine, inaccessibility to health centers, cultural preferences and effectiveness of the medicinal plants people prefer local therapy(Gillam 1989, Bhattarai *et al.* 2006).

There have been various studies on medicinal plants and their traditional use in different parts of Nepal(Manandhar 1980, Rai 2007, Bhatta & Chhetri 2009, Bhattarai *et al.* 2006, Acharya 2009, Srivastav 2009, Parajuli 2011, 2012) Different plant parts possess different components that are effective to control the diseases. Plant essential oils are found to possess the antifungal properties (Parajuli 2003). It is a fact that a large number of medicinal plants and associated indigenous knowledge on their uses still remain without proper documentation. The present study was carried with the objective of documenting the medicinal plants and their use by the tribal people of the study area and to bring into highlight the indigenous knowledge so as to preserve valuable plant genetic resources.

Study area

Nayabazar, Pyang and Jamuna VDCs of Ilam district were chosen for the ethnobotanical study. Nayabazar, Pyang and Jamuna are 2o km, 15 km and 24 Km far respectively from Ilam headquater Ilam. Nayabazar, Pyang and Jamuna VDCs have area of 21.51 sq km, 24.32 sq km and 28.87 sq km respectively. The study area is very rich in natural resources and diverse caste people (Rais, Limbus, Gurungs, Brahmins, Chhetris, Tamangs, Magars, Kamis, Sunuwars, Newars, Sherpas) of different cultures(Hindus, Budhdhists and Kirats). The study in the traditional uses of medicinal plants have not so far been carried in this area. It is the highly resourceful area in terms of *Amomum subulatum*(Alainchi) cultivation. Since last few years Alainchi is threatened due to different diseases and people are involved more in felling down the trees for their income and livelihood. The dominant tree species are *Alnus nepalensis*(Uttis) and *Macaranga pustulata*(Maleto) That is why biodiverisity is in risk due to human activities. Thus, it is felt essential to document the traditional knowledge of local people about the biological resources and make them aware for conservation.

Methodology

The field survey was carried out during 2010 to 2011 covering all seasons to collect information on the plants of medicinal values. The field visits were accompanied with the local healers, traders, farmers, teachers, students, community forest user groups and general public. Plants were collected in their flowering and fruiting stage as far as possible from the natural habitat. While collecting the individual plant species a thorough observations were been made regarding their natural habitat, distribution, vegetative and reproductive characters. The ethnobotanical information on the medicinal uses have been gathered from the old people, local healers and cultivators using semi-structured questionnaires. Some people were interviewed personally. Then, an interaction was held to discuss and verify the ethnobotanical information obtained. Field identification of sampled medicinal plants was done with the help of local name, habit, vegetative and reproductive characters. The plant species were then prepared for herbarium specimens systematically and identified with the help of the knowledge available in the field visit, characters observed and listed and verified with the literatures(Manandhar 2002, Polunin & Stainton 1984, Anonymous 2007, Anonymous 2001, Baral & Kurmi 2006, Shrestha & Shrestha 2061(BS), Parajuli & Thapa 2066 (BS)). Then, the documented ethnobotanical information of the identified plants was arranged in alphabetical order of botanical names alongwith related families, local names, life forms, parts used, concerned ailments and mode of application as given in Table 1.

Table 1. Ethnobotanical information documented from Naya Bazar, Pyang and Jamuna VDCs, of Ilam districts, 2010- 2011

S.N	Botanical Name	Family	Local Name	Life form	Parts Used	Ailments	Mode of application
1	*Achyranthes aspera*	Amaranthaceae	Apamarga	Herb	Whole plant	Cough, dropsy, piles, stomachache	Juice, paste
2	*Achyranthes bidentata* Bl.	Amaranthaceae	Dativan	Herb	Root	Hypertension, rheumatism,	Juice, paste
3	*Allium cepa*	Amaryllidaceae	Pyaz	Herb	Whole plant	Asthma,malarial fever, bronchitis	Vegetable, juice,
4	*Allium sativum*	Amaryllidaceae	Lasun	Herb	Whole plant	Cough, bronchitis, asthma, fever, constipation	Vegetable, paste of bulb, oil.
5	*Rhus chinensis* Miller	Anacardiaceae	Vakimlo	Shrub	Fruits	Paralysis, diarrhea, dysentery	Sseed powder, fruits
6	*Acorus calamus* L.	Araceae	Bojho	Herb	Rhizome	Cough, asthma, tonsil	Juice, chewing

7	*Arisaema intermedium* Bl.	Araceae	Sarpa Makai	Herb	Root, leaves	Ulcer, fever	Paste, juice	
8	*Arisaema jaquemontii* Bl.	Araceae	Banko	Herb	Root	Menstrual disorder, toothache, pain	Juice	
9	*Acmella calva* (DC) Jansen	Asteraceae	Mareti	Herb	Fruits	Headache, stomachache, toothache	Root juice	
10	*Anaphalis adnata* Wall ex. DC.	Asteraceae	Buki phul	Herb	Leaves	Fresh cuts, wounds	Juice	
11	*Artemisia indica* Willd.	Asteraceae	Titepati	Herb	Young shoots	Asthma, gastritis, skin disease	Leaf juice, paste	
12	*Eupatorium adenophorum* Spreng.	Asteraceae	Banmara	Herb	Whole plant	Boils, cuts, fever	Paste, juice	
13	*Senecio cappa* Buch.-Ham.ex D. Don	Asteraceae	Bakhrakane	Herb	Root/ leaf	Fever, boils	Juice, paste	
14	*Impatiens balsamina* L.	Balsaminaceae	Tiuri	Herb	Whole plant	Burns, Dystocia, urinary problems	Decoction, paste	
15	*Begonia pictia* Smith	Begoniaceae	Magar kaanche	Herb	Whole plant	Headache, sore nipples, conjunctivitis	Juice,paste	
16	*Berberis aristata* DC.	Berberidaceae	Chutro	Shrub	Root bark/ fruit	Skin diseases, jaundice, malarial fever	Powder, paste, fruit	
17	*Mahonia napaulensis* DC.	Berberidaceae	Jamane mandro	Shrub	Bark/ fruits	Dysentery, Diarrhoea, Urinary disorders	Bark and fruit decoction	
18	*Oroxylum indicum* (L.) vent.	Bignoniaceae	Tatelo	Tree	Bark/ fruit	Dropsy, sprains, neuralgia, hiccough, asthma, urinary disorders	Powder of bark and seeds	
19	*Brassica juncea* (L.) Czern	Brassicaceae	Rayo	Herb	Whole plant	Fever, indigestion, irritation	Vegetable, oil	
20	*Lepidium sativum* L.	Brassicaceae	Chamsur	Herb	Whole plant	Bleeding, piles, asthma, cough	Vegetable, mixed in rice pudding	
21	*Raphanus sativus* L.	Brassicaceae	Mula	Herb	Whole plant	Indigestion, liver and gall bladder troubles, urinary complaints, ear pain	Vegetable, leaf decoction	

22	*Cannabis sativa* L.	Cannabaceae	Gaanja	Herb	Flower/fruits	Cholera, hydrophobia, gonorrhea, menorrhagia, diarrhea, blood dysentery	Paste, resin, oil, smoke	
23	*Drymaria diandra* Bl.	Caryophyllaceae	Avijalo	Herb	Whole plant	Peptic ulcer, cough, cold, sinusitis	Plant paste, juice	
24	*Cuscuta reflexa* Roxb.	Convovulaceae	Aakasbeli	Herb/Parasite	Whole plant	Bronchitis, asthma, jaundice, diarrhoea,	Infusion	
25	*Cucumis sativus* L.	Cucurbitaceae	Kankro	Herb	fruit/seed	Insomnia, burning jaundice	Whole fruit	
26	*Momordica charantia* L.	Cucurbitaceae	Tite karela	Climber	Leaf/ fruit	Diabetes, ophthalmia, bleeding	Vegetable, fruit powder, leaf juice	
27	*Trichosanthes tricuspidata* Lour.	Cucurbitaceae	Indreni	Climber	Roots/ fruits	Gonorrhea, hemicrania, rhinitis, asthma, earache	Essential oil, extract	
28	*Dioscorea deltoidea* Wall. ex Criseb.	Dioscoreaceae	Vyakur	Climber	Tubers	Lice problems, oral contraceptives	Paste, juice	
29	*Equisetum diffusum* D. Don	Equisetaceae	Ankhle	Herb	whole plant	Bone fracture, sprains, urinary trouble	Root paste, plant juice	
30	*Gaultheria fragrantissima* Wall.	Ericaceae	Dhasingre	Shrub	leaf/fruit	Rheumatism, worms, sprains	Decoction, paste	
31	*Lyonia ovalifolia* (Wall.) Drude	Ericaceae	Angeri	Tree	Leaves	Scabies, dog-bite	Juice, infusion	
32	*Rhododendron arboreum* Smith	Ericaceae	Laligurans	Tree	Flower, leaf, bark	Headache, rheumatic pain, menstrual disorder, diarrhea, dysentery	leaf paste, flower juice	
33	*Phyllanthus emblica* L.	Euphorbiaceae	Amalaa	Tree	Whole plant	Genito-urinary tract infection, jaundice, dyspepsia, cough, asthma	Fresh and dried fruits, Powder, leaf juice.	

34	*Swertia chirayita* (Roxb. ex Flem.) Karsten	Gentianaceae	Chiraito	Herb	Whole plant	Chronic fever, bronchial asthma, liver disorders, gastro disorders	Infusion, tincture, powder
35	*Mentha arvensis* L.	Labiatae	Baabari	Herb	Whole plant	Rheumatism, fever, weakness, ulcer, wounds, jaundice, cough, asthma, cuts	Dried plant, leaf infusion, juice
36	*Mentha piperita* L.	Labiatae	Pudinaa	Herb	Whole plant	Stomach problems, painful urination, indigeston	Powdered leaf, leaf paste,oil
37	*Ocimum sanctum* L.	Labiatae	Tulasi	Herb	Whole plant	Cardiopathy,asthma, bronchitis,snakebite, Urinary disorders	Leaf juice, powder or paste, inflorescence
38	*Orthosiphon incurvus* Benth.	Labiatae	Tite	Herb	Whole plant	Tooth decay, wounds, diarrhea, hysteria,cuts.	Powder, juice, leaf paste
39	*Bauhinia variegata* L.	Leguminosae	Koiraalo	Tree	flowers/bark	Swelling, leprosy, cough, menstrual disorders	Flowers as vegetable and bark as paste
40	*Erythrina stricta* Roxb.	Leguminosae	phaledo	Tree	bark, leaves	Rheumatism, itching, fever, asthma, epilepsy	Paste, juice
41	*Mimosa pudica L.*	Leguminosae	Lazzawathi	Herb	whole plant	Diarrhea, dysentery, hydrocele, rheumatism	Juice, paste
42	*Trigonella foenum-graecum* L.	Leguminosae	Methi	Herb	Whole plant	Spleen and liver enlargement, bronchitis, leprosy.	Leaf juice, Paste,vegetable, boiled seed.
43	*Aloe vera* (L.) Burm.f.	Liliaceae	Ghiu kumari	Herb	Fleshystem	Skin and uterine disorders, jaundice, burns	Chewing fleshy part, juice
44	*Asparagus racemosus*	Liliaceae	Kurilo	Herb	Roots	Low milk secretion in	Powder, juice
45	*Lilium nepalense* D.Don.	Liliaceae	Ban Lasun	Herb	bulbs	Flavouring dishes, tonic	Powder, juice
46	*Smilax ovalifolia* Roxb.ex.D. Don	Liliaceae	Kukurdaino	Climber	Roots/ berries	Veneral diseases, rheumatism, wounds	Juice, paste

47	*Lycopodium clavatum* L.	Lycopodiaceae	Naagbeli	Creeping fern	Strobilus	Lung and Kidney problem,Urinary disorder	Spores paste, juice
48	*Ficus carica* L.	Moraceae	Nevaro	Tree	root/fruits	Constipation, warts	Paste, chewing fruits
49	*Ficus neriifolia* Sm.Var.	Moraceae	Peepal	Tree	latex	Boils on the tongue	Paste
50	*Psidium guajava* L.	Myrtaceae	Ambok	Tree	fruits/leaves	Constipation, diarrhoea, ulcers, toothache	Fruits. Paste, juice
51	*Nephrolepsis auriculata* (L.) Trimen	Nephrolepidaceae	Paniamala	Fern	Tuberous root	Indigestion, fever, cold, cough	Tuber juice
52	*Oxalis corniculata* L.	Oxalidaceae	Chariamilo	Herb	Whole plant	Indigestion, diarrhea, piles, anemia, eye problems	Powder, paste, fresh juice
53	*Phytolacca acinosa* Roxb.	Phytolaccaceae	Jaringo	Herb	Whole plant	Indigestion, Eye disorders	Seed, leaves as vegetable
54	*Cynodon dactylon* (L.)Pers	Poaceae	Dubo	Herb	Whole plant	Epistaxis, scabies, cut,wound,epilepsy,piles	Plant paste, juice
55	*Imperata cylindrica* (L.) Beauvois	Poaceae	Siru	Herb	Roots	Diarrhea, dysentery	Paste, juice
56	*Thysanolaena maxima* (Roxb.) Kuntze	Poaceae	Amriso	Herb	Roots	Boils, worms	Paste,extract
57	*Rumex nepalensis* Spreng.	Polygonaceae	Halhale	Herb	Rhizome/leaves	Sprain, cuts, Ulcer	Paste, infusion, vegetable
58	*Cheilanthes dalhousiae* Hook.	Pteridaceae	Rani sirika	Herb	whole plant	Ulcer, stomachache	Plant juice
59	*Aconitum ferox* Wall. ex	Ranunculaceae	Bish	Herb	Tuberous root	Nervousness, heart problems	Powder, juice
60	*Potentilla fulgens* Wall. ex Hook.	Rosaceae	Bajradanti	Herb	Roots	Throat, tooth infection, peptic ulcer, cough and cold	Raw, paste, juice

61	*Prunus domestica* L.	Rosaceae	Aalubakhada	Tree	fruits, seeds	Stomachache, indigestion, nausea	Ripen fruits
62	*Prunus persica* (L.)Batsh	Rosaceae	Aaru	Tree	fruits	Stomachache, cough, urinary disorder	Ripen fruits
63	*Pyrus pashia* Buch-Ham ex. D.Don	Rosaceae	Mayal	Tree	fruits	Menstrual disorder	Fruits, bark
64	*Rubus ellipticus* Smith	Rosaceae	Aiselu	Shrub	roots/fruits	Dysentery, wounds	Ripen fruits,juice
65	*Rubia manjith* Roxb. ex Fleming	Rubiaceae	Majitho	Climber	Whole plant	Snake bite, dysentery, leprosy, skin diseases, diabetes,arthritis	Decoction, paste
66	*Citrus aurantifolia* (Christ.) Swingle	Rutaceae	Kagati	Tree	Fruits	Vomiting, stomachache, cough, scabies, anaemia	Fresh or concentrated juice.
67	*Euodia fraxinifolia* (D.Don) Hook.f.	Rutaceae	Khanakpa	Tree	Bark/fruits	Dysentery, menstrual disorder	Juice
68	*Zanthoxylum acanthopodium Edgew.*	Rutaceae	Boge timur	Shrub	Whole plant	Toothache, worms	Powder, paste
69	*Zanthoxylum armatum* DC.	Rutaceae	Timur	Shrub	Roots,fruits, seeds, bark	Toothache, fever,rheumatism, cough, asthma	Extract, powder, essential oil
70	*Zanthoxylum oxyphyllum* Edgew.	Rutaceae	Siltimur	Shrub	Flower/ fruit	Pain, tumor, fever, cholera, snake bite	Juice, extract, raw fruits
71	*Astilbe rivularis* Buch.-Ham.ex	Saxifragaceae	Budho okhati	Herb	Roots	Body ache, Bleeding at pre and post pregnancy.	Mixed with honey roots are taken
72	*Berginia ciliata* (Haw.) Sternb	Saxifragaceae	Pakhaanved	Herb	Roots	Painful urination, Stones	Root powder, paste, juice

73	*Datura metel* L.	Solanaceae	Dhaturo	Herb	Leaf/ seed	Skin disease, ulcer, leprosy, dandruff, fever	Leaf juice, paste, powder	
74	*Nicotiana tabacum* L.	Solanaceae	Kancho pat	Herb	leaf	Toothache, wounds	Juice. paste	
75	*Taxus wallichiana* Zucc.	Taxaceae	Louth salla	Tree	Bark/leaves	Asthma, bronchitis, hiccough, indigestion, cancer	Extract	
76	*Centella asiatica* (L.) Urb.	Umbelliferae	Ghortaapre	Herb	Whole plant	Mental tension, urinary problem, stomachache, asthma, fever	Leaf juice, paste	
77	*Coriandrum sativum* L.	Umbelliferae	Dhaniya	Herb	Whole plant	Cough, bronchitis, rheumatism, urinary problem	Spice, paste, seed powder	
78	*Heracleum nepalense* D.Don	Umbelliferae	Chingfing	Herb	Roots/seeds	Cough, diarrhoea	Root juice, roasted seeds	
79	*Urtica dioica* L.	Urticaceae	Sisnoo	Herb	Whole plant	Nephritis, haematuria, jaundice, toothache.	Juice, decoction	
80	*Valeriana jatamansii* Jones	Valerianaceae	Sugandhawal	Herb	Whole plant	Hysteria, epilepsy, cholera, cough, asthma, weakness, hairfall	Root powder, juice, oils	
81	*Amomum subulatum* Roxb.	Zingiberaceae	Alaichi	Herb	Seeds	Indigestion, vomiting	Whole seed, seed oil	
82	*Curcuma caesia* Roxb.	Zingiberaceae	Kalo haledo	Herb	Rhizomes	Leucoderma, piles, bronchitis, asthma, sprains	Paste, powder	
83	*Kaempferia rotunda* L.	Zingiberaceae	Vuinchampa	Herb	Whole plant	Gastric problems, tumors, swelling wound, ulcer.	Paste, juice	
84	*Zingiber officinale* Rosc.	Zingiberaceae	Aduwa	Herb	Rhizome	Limb pain, Joint pain, headache, cough, cold	Paste, juice, powder	

Results and Discussion

From the study 84 species were recorded belonging to 76 genera and 43 families. Four species of Pteridophytes(*Equisetum diffusum, Lycopodium clavatum, Nephrolepsis auriculata* and *Cheilanthes dalhousiae*), one species of Gymnosperms(*Taxus wallichiana*) and 79 species of Angiosperms were recorded . Asteraceae, Rutaceae and Rosaceae were found as ethnobotanically dominant families each consisting five different species. Families namely Liliaceae, Labiatae, Leguminosae and Zingiberaceae were found as ethnobotanically second dominant families each including four species. From the study 23 families were found with single species. The plants were used to treat many diseases namely diarrhoea, dysentery, urinary troubles, rheumatism, nervousness, heart problem, cough, asthma, malarial fever, constipation, jaundice, burns, indigestion, vomiting, low milk secretion, anemia, bodyache, bleeding(pre and post pregnancy), swelling, leprosy, menstrual disorders, headache, conjunctivitis, stones, irrigation, cholera, gonorrhea, stomachache, scabies, bronchitis, sprains, cuts, ulcer, dandruff, lice problems, sinusitis, syphilis, diabetes, toothache, arthritis, veneral diseases, cold, cancer, etc. Different parts (fleshy stems, shoots, seeds, rhizomes, flowers, barks, leaves, fruits, roots, oils, whole plants, etc.) were used in different forms (vegetable, powder, paste, juice, oil, essential oil, smoke, spice, extract, infusion, mixed etc.) to treat the various diseases. Majority of the studied plants were herbs and their whole plant bodies were used as medicines. Cough, fever, diarrhoea, rheumatism, menstrual disorders, asthma and gastric disorders were more common diseses. *Acorus calamus, Asparagus racemosus, Astilbe rivularis, Berginia ciliata, Centella asiatica, Cuscuta reflexa, Euodia fraxifolia, Heracleum nepalense, Ocimum sanctum, Oxalis corniculata, Potentilla fulgens, Rubia manjith, Taxus wallichiana, Valeriana jatamansi, Swertia chirayita, Zingiber officinale* like plants were the most frequently used resources. Although there was wide use of plant resources in local communities, the traditional knowledge about medicinal plants seems decreasing generation to generation. The retardation of traditional knowledge on medicinal plants may be due to lack of successor of faith healers, wider use of modern medicine and inadequacy of plants availability(Manandhar & Chaudhary 1992). It is important to share and document the knowledge on the uses of medicinal plants from older to younger generations. The use of plants as medicine is mainly due to traditional belief and effectiveness of remedies. Elderly people and women in them know more about the medicinal uses of plants. The knowledge can be valuable asset for future generation and economic development of the community. Most of the local people, however are familiar with the value of medicinal plants.They have started cultivation of medicinal plants like *Swertia chirayita, Lilium nepalense, Berginia ciliata, Taxus wallichiana , Asparagus racemosus* and *Valeriana jatamansi*. *Swertia chirayita, Lilium nepalense* and *Valeriana jatamansi* are in commercial cultivation. Some people are based on the herbal farming for their livelihood. The major market for the medicinal products is India. People are trading the plant resources without caring for their sustainability. So, awareness in the ecological importance of the plants is necessary in the studied area to conserve the rare and important plant genetic resources. Processing and value add mechanism is essential to enhance the economy of local people. Biochemical analysis of the documented plant parts can be another study part. This paper can be useful in the documentation of biodiversity from the study area.

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