

## Indigenous uses of some medicinal plants in Panchthar district, Nepal

Tilak Prasad Gautam

Department of Botany, M.M.A.M. Campus, Tribhuvan University, Biratnagar, Nepal  
Email: tilakg673@gmail.com

### Abstract

Plants have been used as a source of medicine since ancient times. These medicines are cheaper and safe. According to WHO about 80% of the world's population depends on traditional medicine for their primary health care. These traditional knowledge systems have started to disappear with the passage of time due to scarcity of written documents and relatively low income in these traditions. The present paper reports 87 species of medicinal plants from Panchthar district. Medicinal values of the plants are based on concepts and consideration of the local people. The further scientific studies need to evaluate the medicinal value of these plants.

**Key words:** Indigenous uses, medicinal plants, Panchthar district, Nepal

### Introduction

Plants have been and still are, a rich source of many natural products most of which have been used extensively for human welfare especially in food, clothes, shelter and also to alleviate human pain and suffering in illness or diseases. The variety and diversity of plant products that have medicinal value were recognized several centuries ago in the indigenous systems of medicine. Plants have been used by man since prehistoric days for relieving sufferings and curing illness. The use of plants for curing various human ailments figured in ancient manuscripts such as The Bible, The Rig-Vedas (2000 B.C.), The Atharvaveda (2000-100 B.C.), Ayurveda (1000-600 B.C.) etc. Primitive people when injured in battle or had a fall or cut, instinctively resorted to materials available at hand for stopping the flow of blood or relieving of pain. By trial and error they learned that certain plants were useful for the purpose. Man might have also gained such knowledge from observations of birds and animals which use plants for curing their ailments. Even today we find that the domestic cat and dog, when suffer from indigestion or other problems, run to the field, chew some grasses or herbs and get cured.

Among the Angiospermic plants, 420,000 flowering plants were reported from the world (Govaerts, 2001) and many tropical species are not yet named. More than 50,000 plants have been used for medicinal purposes (Schippmann *et al.*, 2002). In India about 7,500 species have been used as medicinal plants. The Nepal is more than just a country of mountains. Geographically it is one of the most diverse countries in the world, rising from sea level to 8,848 m (the peak of Mount Everest). Nepal has been regarded traditionally as a secret heaven of potent medicinal plants in Vedas, Samhitas and various folk-lores. It may be due to altitudinal variation, complex topography and monsoon climate. Further, Nepal possesses almost all bioclimatic zones of the world, which have been playing a major role to flourish the medicinal plant diversity. From the various studies it has been estimated that about 700 species

of plant are used in the Nepalese traditional system of medical treatment. According to Malla and Shakya (1984-85), the sub-tropical zone of the country is richest home for medicinal plants. Next come the tropical zone followed by temperate, sub-alpine and alpine zones. In Nepal, about 80% of the populations mainly depend on medicinal and aromatic plants for their remedies. Rest populations receive benefit from the Allopathic and Homoeopathic medicine system. The exports of medicinal plants provide developing countries with useful revenue. Nepal for example, earns millions a year from the export of drug plants. Commercial cultivation of medicinal plants in Nepal is in its infancy so most of the several hundred plants still used in Nepal come from wild.

Nepal was and still some parts of it are virgin land for the research workers. The scientific study of medicinal plant started late here. However, with the establishment of the Department of Medicinal Plants in 1960, many research works were started in this field. The literature about the medicinal plants of Nepal is very limited and a lot of things remain here to be done. The significant contribution in the field of medicinal plant was made by Malla and Shakya (1984-85), Manandhar (1990), Jha *et al.* (2008) and many more botanists of Tribhuvan University and Department of Medicinal Plants, Nepal Government.

#### *Study area*

Panchthar district, a part of Mechi Zone, is one of the seventy-five districts of Nepal, a landlocked country of South Asia. The district covers an area of 1,241 km<sup>2</sup> with elevations 609-3675 meters and has a population of 202,056 (2001 Census). Panchthar's majority population is that of Kirantis (Limbu, Rai) and other ethnic groups and hill castes. It is bounded on the north by Taplejung district, on the east by the India, on the south by the Illam district, on the west by a part of Dhankuta and Terhathum districts.

### **Material and Methods**

The present study was based on a field survey in Panchthar district, to find the plants of medicinal values. The work was conducted among local people, rural persons, farmers, Dhaami, Jhankri and Vaidyas to know the local names and medicinal importance of mentioned plants. The plants with medicinal values, as known from local people and rural persons were collected and herbarium specimens were made. The identification of plant specimens was done with the help of taxonomic literatures and also matching with the herbaria, housed in the Post Graduate Campus, Biratnagar and National Herbarium and Plant Laboratories, Godawari, Lalitpur, Nepal.

### **Results and Discussions**

The investigation revealed the medicinal properties of 87 species belonging to 84 genera under 53 families (Table 1). Lamiaceae is the dominant family (7 species.), followed by Asteraceae, Papilionaceae and Liliaceae (4 species each). The other 34 families contributed two or one species each. Among all the species, herbs are found to be more (35) followed by trees (24), shrubs (23) and climbers (5). The valid names of the species concerned are adopted after Press *et al.* (2000).

**Table 1.** List of medicinal plants found in Panchthar district, Nepal

S N	Scientific name	Family	Uses	Parts used
1	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Diarrhoea, cough	Whole plant
2	<i>Acorus calamus</i> Linn.	Araceae	Emetic, scabies	Rhizome
3	<i>Adhatoda vasica</i> Nees	Acanthaceae	Asthma, expectorant	Tender shoot, leaf
4	<i>Aegle marmelos</i> Corr.	Rutaceae	Constipation,diarrhea	Fruit
5	<i>Ageratum conyzoids</i> Linn.	Asteraceae	Cuts, anthelmintic	Leaf
6	<i>Albizia julibrisin var. mollis</i> (Wall.) Benth. ex Baker	Mimosaceae	Poisonous to cattles	Tender shoot
7	<i>Allium cepa</i> Linn.	Alliaceae	Aphrodisiac, constipation	Bulb
8	<i>Allium sativum</i> Linn.	Alliaceae	Decrease cholesterol	Bulb
9	<i>Aloe barbadensis</i> Mill.	Liliaceae	Burns, as emmenagogue	Leaf
10	<i>Amomum subulatum</i> Roxb.	Zingiberaceae	Aphrodisiac, antiemetic,	Seed
11	<i>Annona squamosa</i> Linn.	Annonaceae	Lice kill, abortifacient	Leaf, Seed
12	<i>Antidesma diandrum</i> Roth	Euphorbiaceae	Astringent, cholera	Leaf, Bark
13	<i>Aralia cachemirica</i> Decne.	Araliaceae	Cuts, contraction of muscle	Rhizome
14	<i>Artemisia vulgaris</i>	Asteraceae	Anthelmintic, pains	Tender shoot, Leaf
15	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Laxative, aphrodisiac	Leaf, Ripened fruit
16	<i>Asclepias curassavica</i> L.	Asclepiadaceae	Snake bite, cancer, warts	Fresh root
17	<i>Asparagus racemosus</i> Willd.	Liliaceae	Galactagogue, aphrodisiac	Root
18	<i>Bauhinia vahlli</i> Wight & Arn.	Caesalpiniaceae	Snake bite	Seed
19	<i>Bauhinia variegata</i> Linn.	Caesalpiniaceae	Ringworms, anthelminthic	Bark, dry floral bud
20	<i>Berberis aristata</i> DC.	Berberidaceae	Jaundice, malarial fever	Root bark
21	<i>Berginia ligulata</i> (Wall.) Engl.	Saxifragaceae	Burns, cuts, sores, contraction of uterine muscles	Rhizome
22	<i>Bombax ceiba</i> Linn.	Bombaceae	Emetic, diarrhoea, dysentery	Root, bark of stem
23	<i>Brassica juncea</i> subsp. <i>rugosa</i> (Roxb.) Prain	Brassicaceae	Eye pain	Seed oil
24	<i>Butea minor</i> Buch.-Ham. ex Baker	Papilionaceae	Anthelmintic	Seed
25	<i>Callicarpa macrophylla</i> Vahl	Verbanaceae	Pneumonia	Root
26	<i>Calotropis gigantea</i> (L.) R.Br. ex Alt	Asclepiadaceae	Sprains, swellings	Leaf, milky sap
27	<i>Cannabis sativa</i> Linn.	Cannabinaceae	Narcotic, antispasmodic, sleep	Leaf, seed, shoot
28	<i>Cassia fistula</i> Linn.	Caesalpiniaceae	Diuretic, purgative, laxative	Ripe fruit
29	<i>Hydrocotyle asiatica</i> L.	Apiaceae	Cooling, memory improver,	Whole plant migrant
30	<i>Cissampelos pareira</i> L.	Menispermaceae	Cough, gastric trouble, sores	Root, leaf
31	<i>Citrus aurantium</i> L.	Rutaceae	Ringworms, leucoderma	Rind of ripe fruit
32	<i>Citrus limon</i> (L.) Burm. f.	Rutaceae	Dandruff, refrigerant, vit. C	Fruit
33	<i>Clinopodium umbrosum</i> (M.Bieb.)C.Koch	Lamiaceae	Cuts, burns	Leaf juice
34	<i>Coelobrookea oppositifolia</i> Sm.	Lamiaceae	Cuts, bruises	Leaf juice
35	<i>Curculigo orchioides</i> Gaertn.	Cucurbitaceae	Jaundice, cholera, diarrhea	Root
36	<i>Curcuma longa</i> Linn.	Zingiberaceae	Cough, wounds, dyspnoea	Rhizome powder
37	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Jaundice, protracted fevers	Whole plant
38	<i>Datura stramonium</i> Linn.	Solanaceae	Narcotic, dandruff, hairfall	Seed
39	<i>Desmostachya bipinata</i> (L.) Stapf	Poaceae	Astringent, galactagogue	root
40	<i>Dichroa febrifuga</i> Lour.	Hydrangeaceae	Febrifuge	Ripe fruit
41	<i>Disporum cantoniense</i> (Lour.) Merr.	Liliaceae	Sprains	Root
42	<i>Drymaria cordata</i> (L.) Willd. ex Roem & Schult.	Caryophyllaceae	Diarrhoea,dysentery, sinusitis	Leaf
43	<i>Eclipta alba</i> Hassk.	Asteraceae	Cuts, wounds, jaundice	Leaf, tender shoot
44	<i>Embllica officinalis</i> Gaertn.	Euphorbiaceae	Cooling, ulcers, vitamin C	Bark, fruit
45	<i>Entada phaseoloides</i> (L.) Merr.	Mimosaceae	Astringent, dandruff, emetic	Seed
46	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	Aphrodisiac, febrifuge	Whole plant
47	<i>Ficus semicordata</i> Buch.-Ham ex sm.	Moraceae	Wounds	Milky sap
48	<i>Glycine max</i> (L.) Merr.	Papilionaceae	Diabetes	Seed
49	<i>Heracleum nepalense</i> D.Don	Apiaceae	Common cold, cough	Fruits
50	<i>Heynea trijuga</i> Roxb.	Meliaceae	Cholera, toxic to animals	Leaf, fruit
51	<i>Holarrhena antidysentrica</i> Wall. Ex DC.	Apocynaceae	Gastric troubles, anthelmintic	Bark, seed
52	<i>Hoya longifolia</i> Wall. ex Wight	Asclepiadaceae	Burns	Leaf

53	<i>Juglans regia</i> L.	Juglandaceae	Pneumonia, wounds	Fruit
54	<i>Leea robusta</i> Roxb.	Vitaceae	Snake bite	Root tuber
55	<i>Lepidium sativum</i> L.	Brassicaceae	Syphilis, abortifacient	Root, seed
56	<i>Leucas cephalotus</i> Spreng.	Lamiaceae	Scabies, malarial fever	Whole plant
57	<i>Lilium nepalens</i> D. Don.	Liliaceae	Scabies, boils, carminative	Bulb
58	<i>Lindera nessiana</i> (Nees) Kurz	Lauraceae	Carminative, headache	fruit
59	<i>Lycopodium clavatum</i> L.	Lycopodiaceae	Scabies, ringworms	Spores
60	<i>Madhuca longifolia</i> (Roxb.) Macbride	Sapotaceae	Bone crack	Bark
61	<i>Mentha arvensis</i> Linn.	Lamiaceae	Cholera, antiemetic	Tender shoot, leaf
62	<i>Mucuna purita</i> Hook.	Papilionaceae	Aphrodisiac, antipyretic	Seed, root
63	<i>Myrica esculenta</i> Buch.-Ham ex D. Don	Myricaceae	Sinusitis, fever, cough	Bark, fruits
64	<i>Oroxylum indicum</i> (L.) Vent	Bignoniaceae	Burns, boils, diarrhoea	Bark
65	<i>Osyris wightiana</i> Wall. ex Wight	Santalaceae	Body pain, bone fracture	Root bark
66	<i>Paederia scandens</i> (Lour.) Merr.	Rubiaceae	Rheumatism	Swollen part of stem
67	<i>Pogostemon benghalensis</i> (Brum. f.) O. Kuntze	Lamiaceae	Scabies, ringworms	Leaf
68	<i>Potentilla fulgens</i> Wall.	Rosaceae	Gastric troubles	Root stock
69	<i>Rabdosia coeistra</i> (Buch. -Ham ex D. Don) Hara	Lamiaceae	Cuts, wounds	Leaf, shoot
70	<i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz.	Apocynaceae	Fever, sedative, hypnotic	Root, stem bark, leaf
71	<i>Rhododendron arborium</i> Sm.	Ericaceae	Headache, dysentery	Leaf, flower
72	<i>Rhus parviflora</i> Roxb.	Anacardiaceae	Diarrhoea, dysentery	Ripe fruit
73	<i>Rubus ellipticus</i> J.E. Smith	Rosaceae	Gastric problems, diarrhea	Bark, root
74	<i>Rubus rugosus</i> J.E. Smith	Rosaceae	Anthelmintic	Root bark
75	<i>Sapindus cytheria</i>	Sapindaceae	Pneumonia	Fruit
76	<i>Sapindus mukorossi</i> Gaertn.	Sapindaceae	Emetic, Spermicidal	Fruit, seed
77	<i>Swertia chirata</i> Hamilt.	Gentianaceae	Febrifuge, blood purifier	Stem, leaf
78	<i>Tagetes erecta</i> L.	Asteraceae	Pneumonia, piles, rheumatism	Floret
79	<i>Thalictrum reniforme</i> Wall.	Ranunculaceae	Jaundice	Root
80	<i>Thysanolaena maxima</i> (Roxb.) O. Kuntze	Poaceae	Abortifacient	Young leaf
81	<i>Uncaria sessilifructus</i> Roxb.	Rubiaceae	Bone fractures and crack	Root
82	<i>Viburnum capitellatum</i> Wight & Arn.	Caprifoliaceae	Burns	Seed oil
83	<i>Viscum articulatum</i> Brum. f.	Loranthaceae	Bone fractures	Whole plant
84	<i>Vitex nigundo</i> Linn.	Verbenaceae	Sinusitis, rheumatism	Leaf
85	<i>Woodfordia fruticosa</i> Kurz.	Lythraceae	Burns, fracture, dysentery	Bark, flower
86	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Apetiser, cholera	Fruit
87	<i>Zizyphus jujuba</i> Lam.	Rhamnaceae	Measles, pneumonia	Root, seed, bark

On the basis of present study the most common diseases treated and cured by the medicinal plants were diarrhoea, dysentery, gastric troubles, pneumonia, sprains and fractures, scabies, fever and jaundice. During the field work it was found that specific plants were used for specific disease in some regions but the same plants were not used for that specific activity in another region even though the plants was available in both the regions. For example, the plant *Vitex nigundo* was used in common cold, cough and sinusitis at one place but it was used in rheumatism at another place. Furthermore, this plant was recommended for family planning in India (Chaudhary, 1992). There could be two reasons for such a difference. The first is that the same plant, in different environment does not possess the same activity as the active alkaloids or steroids may vary according to the environs and influence of other factors such as soil, humidity, rainfall, photoperiod etc. The second possibility may be that the plant possesses that activity but that this beneficial therapeutic effect has just not been discovered. In spite of this, few such examples were met that some plants were used for the same purpose in different regions. As for example, the *Asparagus racemosus* was used as galactagogue at different villages of Panchthar and also in other places of Nepal (DMP, 1970). It was also prescribed as a medicine for care of the mother in India (Chaudhary, 1992). The plants believed to induce an aphrodisiac effect in

Panchthar were *Allium cepa*, *A. sativum*, *Amomum subulatum* etc. The discovery of such plants throughout the country, and its legitimate use after regulation would prevent indiscriminate slaughter of wild life, such as rhinoceroses for its horn and many other species of animals.

Medicinal plants and their uses in the indigenous medicine are well known to many Nepalese communities. The recent trend has been to blend the traditional knowledge with modern health care practices to provide effective health care services to a wider population. The basic ingredients in the traditional medicine are the medicinal plants, which are depleting at a faster rate due to increase in consumption and indiscriminate drawl of resources from the wild. With the changing scenario, there is a need to enhance and promote the conservation and cultivation of these natural resources especially medicinal plants. In addition to the requirement for conservation of medicinal plants it has also become essential to protect and patent the traditional knowledge.

### Conclusion

Information on uses of 87 species of plants for different diseases gathered during field trips are presented in this paper. This information was checked with available literature (Kirtikar & Basu, 1980; Chopra *et al.*, 1982; Jain, 1995). Most of the ethno-medicinal information provided in this study is new, as they have not been reported earlier. Although these herbal remedies and their efficacy is claimed to be high; detail clinical study is needed for better utilization of ethno-bio-resources. Such studies may also provide some information to biochemists and pharmacologists in screening of individual species and in rapid assessing of phyto-constituents for the treatment of various diseases. The success of medicinal plants sector mainly depends on the awareness and interest of the farmers as well as its other stakeholders, supportive government policies, availability of assured markets, profitable price levels, and assess to simple and appropriate agro-techniques. The successful establishments of medicinal plants sector may help in raising rural employment, boost commerce around the world, and contribute to the health of millions.

### References

- Chaudhary, R.R. 1992. *Herbal medicine for Human health*. Regional Publication, SEARO, No. 20. World Health Organisation, New Delhi, pp. 87. DMP (Department of medicinal plants). (1970). Medicinal Plants of Nepal, Bull. No.3. Department of Medicinal Plants, Thapathali, Kathmandu, pp. 153.
- Chopra, R.N., I.C. Chopra and B.S. Verma (1992). *Glossary of Indian Medicinal Plants*. Publication and Information Directorate, CSIR, New Delhi, India (Reprint).
- Chopra, R.N., I.C. Chopra, K.L. Handa & L.D. Kapur. 1982. *Indigenous drugs of India*: 2<sup>nd</sup> Edition (Reprinted), Academic Publishers, New Delhi.
- Govaerts, R. 2001. How many species of seed plants are there? *Taxonomy* **50**: 1085-1090.
- Jain, S.K. 1995. *A manual of ethno-botany*. Scientific Publishers, Jodhpur.
- Jha, P.K., S.B. Karmacharya, M.K. Chettri, C.B. Thapa & B.B. Shrestha. 2008. *Medicinal plants in Nepal, An anthology of contemporary research*. Ecological Society, Kathmandu, Nepal.
- Kirtikar, K.R. & B.D. Basu. 1980. *Indian medicinal plants*. Bishensingh and Mahendrapal Singh, Dehra Dun.
- Malla, S.B. & P.R. Shakya. 1984-85. Medicinal plants. In: *Nepal Natures Paradise* (Ed. T.C. Majupuria). White Lotus Co. Ltd. pp. 261-297.

- Manandhar, N.P. 1990. *Medicinal plants of Nepal Himalaya*. Ratna Pustak Bhandar, Kathmandu.
- Press, J.R., K.K. Shrestha & D.A. Sutton. 2000. *Annotated checklist of the flowering plants of Nepal*. The Natural History Museum, London, U.K. 430 p.
- Schippmann, U., D.J. Leaman & A.B. Cunningham. 2002. Impact of cultivation and gathering of medicinal plants on Biodiversity: FAO. Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries. Satellite event on the occasion of the Ninth Regular Session of the Commission on Genetic Resources for Food and Agriculture. Rome. Inter-Departmental Working Group on Biological Diversity for Food and Agric. Rome. pp. 12-13.