

Some Ethnomedicinal Plants of Bhardew village, Lalitpur District, Nepal

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Abstract

This paper describes fifteen important ethnomedicinal plant species of Bhardew village of Lalitpur district. The several field visits were carried out during 2020 and 2021 to gather information from local people and key informants regarding the ethnomedicinal plants and their uses to cure various human diseases. On the basis of 25 common informants and five key informants total 15 ethnomedicinal plants were documented as very common and highly used medicinal plants. Some of the important medicinal plants were Artimesiadubia, Valerianajatamansi, Acoruscalamusand Urticadioica in the study area. Despite the fact that the study area is very close to the capital city, medicinal plants have played a significant role in the health care of the local people.

Keywords: Local people; Health care; Informants & Traditional knowledge

Introduction

Ethnobotany is the study of the relationship between people and plants and most commonly refers to the study of how people of a particular culture and region make use of indigenous plants (Rajbhandari, 2001). An American botanist John W. Harshburger first used term "Ethnobotany" in 1896, as "the study of plants used by the primitive and aboriginal people" (Harshburger, 1896). People who live in rural areas have a deep connection to the natural resources in their surroundings and have first-hand experience with the numerous ways in which the plants they depend on might be used. The ethnic communities have a significant customary knowledge on utilization of plant and the plant parts and there is a long tradition of transferring this indigenous knowledge from generation to generation (Acharya and Acharya, 2009). They collect the useful plants from various habitats such as forests, marginal lands, cultivated lands and use these plant materials as raw drugs.

Use of plants for curing diseases was common in most parts of the world for a long time. Of the 75,000 plants used in different systems of medicine, more than 20,000 species of higher plants are used in traditional treatment practices of indigenous cultures living around the world (Ved Prakash, 1998). About 6000 species of flowering plants have so far been recorded from Nepal (Press *et al.*, 2000). Among these, about 820 species are potential medicinal plants in Nepal (DPR, 2016). These have been utilized to heal and treat diseases as traditional medicine (Arshad *et al.*, 2014). In context of Nepal, ethnobotany study started

when Banerji, 1995 published a paper on medicinal and food plants from east Nepal. Since then numerous studies were carried out (Manandhar, 1989, 1993; Ghimire and Bastakoti, 2009; Bhattarai et al., 2009; Shrestha et al., 2016; Pangeniet al., 2020; Bhatt et al., 2021; Das et al., 2021) However, there are very few ethnobotanical studies (Shrestha and Joshi, 1993; Maharjan et al., 2021) from Lalitpur district. In the present study, an attempt has been made to highlight the important species which are being used by local people of Bhardew village of Lalitpur district to cure various diseases.

Materials and Methods

The study area Bhardew village, is located in Konjyosom rural municipality of Lalitpur district central Nepal between 27° 28' 36" N to 27° 33' 49" N latitude and 85° 18' 27" E to 85° 24' 23" E longitude with an altitudinal range from 1053 to 2650 masl (meter above sea level). The study area has a subtropical to temperate monsoon climate with a mean annual rainfall of 1697 mm and four distinct seasons: Winter (December to February), Spring (March to May), Summer (June to August) and Autumn (September to November). The temperature variation is high ranging from 2.3°C (January) to 26.4°C (May) with an average temperature of 14.8°C. The average relative humidity is 50 to 80 % (Figure 1). The village is inhabited by Tamang, Newar and BramhinChhetri communities. The major occupation is agriculture followed by animal husbandary. The information about the ethnomedicinal plants were collected during 2020 and 2021 on the basis of semi structured interviews with local people and key informants. The During the collection, field notes on taxonomic characters such as local names, location, habit, habitat, color of flower and period of flowering and fruiting were noted for identification. The collected specimens were properly tagged with field number before keeping them in polythene bags. The collected specimens were used for the preparation of herbarium specimens by pressing in between newspapers and dried by using standard technique (Jain and Rao, 1967) and identified using herbarium specimens deposited in KATH and literatures (Flora of Kathmandu valley 1986, Flora of Phulchoki and Godawari 1969 and Flora of Langtang and cross vegetation survey 1976). The valid name of the plant specimens were acquired based on the web portal (<https://www.catalogueoflife.org>).

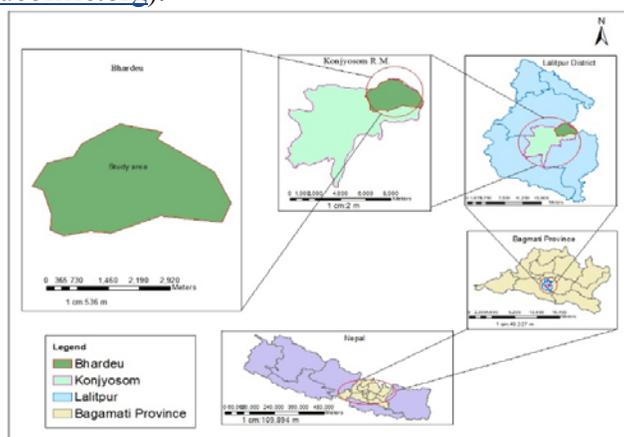


Figure 1. Map of the study area

Results and Discussion

During the field survey, ethnomedicinal information of 15 species were collected on the basis of priority of using by the local people. In the following description, the species are arranged alphabetically along with their Nepali name, family, distribution, short description, parts used and mode of utilization. The medicinal plants were collected from nearby forest and open marginal land of the study area. The plant species like *Aloe vera* (L.) Burm. f., *Curcuma longa* L., *Ocimum tenuiflorum* Burm. f. and *Acorus calamus* L. were cultivated in home gardens also. The list of plants along with the collected information are listed below:

***Acorus calamus* L.**

Nepali name: Bojho

Family: Acoraceae

Description: Herb about 1m high with aromatic rhizomes, leaves basal, flat, linear. Flower small, bisexual, yellowish.

Habitat: Moist and open places

Flowering and fruiting: April- July

Parts used: Rhizome

Mode of use: In sore throat and any other throat trouble, small pieces of dry or fresh rhizome is chewed.

***Ageratina adenophora* (Spreng.) R.M. King & H. Rob.**

Nepali name: Kalmunte

Family: Asteraceae

Description: Shrub about 2-3 m high. Leaves stalked, ovate, serrate. Inflorescence in terminal corymbs, flower white, fruit achene.

Distribution: Distributed throughout Nepal from 500-2500 m.

Habitat: Invasive species found on waste and uncultivated land

Flowering and fruiting: March- October

Parts used: Leaves, Stem

Mode of use: Some leaves or young stem is squeezed properly and four to five drops of juice is applied in cuts and wounds to stop bleeding.

***Aloe vera* (L.) Burm. f.**

Nepali name: Gheukumari

Family: Asphodelaceae

Description: *Aloe vera* is a stemless or very short-stemmed plant growing to 60–100 cm tall, the leaves are thick and fleshy, green to grey-green, serrate margin. The flowers are produced on a tall spike, flower pendulous, with a yellow tubular corolla.

Habitat: Wild/ cultivated

Flowering and fruiting: March- December

Parts used: Leaves

Mode of use: Peeled leaf pieces are taken as raw orally to cure stomach disorders and to control high blood pressure. Leaf gel is applied to get relief from Skin burn.

***Artemisiadubia* L. ex B.D.Jacks.**

Nepali name: Titepati

Family: Asteraceae

Description: Gregarious shrub with strong aroma. Stem pubescent, leafy. Lower leaves petiolate, ovate with stipules like lobe at the base. Inflorescence axillary paniced raceme.

Distribution: Distributed throughout Nepal from 300-2500 m.

Habitat: Marginal and waste land

Flowering and fruiting: August- December

Parts used: Leaves and twigs

Mode of use: Dry twigs are burnt and smoke is inhaled during asthma. warm twigs are put in the muscular pain. Extract or juice of plant is applied over the body surface to get rid of mosquitoes and to stop bleeding from cuts and wounds.

***Berberis asiatica* DC.**

Nepali name: Chutro

Family: Berberidaceae

Description: A branched shrub up to 3 m high, wood yellow. Leaves alternate, margin spinose toothed. Inflorescence corymbose raceme. Flowers small yellow. Fruit black or deep purple berry.

Distribution: Throughout Nepal 1200- 2200 m.

Habitat: Open, sunny and dry places

Flowering and fruiting: March- June

Parts used: Root, stem

Mode of use: Root or stem decoction is used in jaundice and fever

***Centella asiatica* (L.) Urb.**

Nepali name: Ghodtapre

Family: Apiaceae

Description: Prostrate herb about 1 cm long. Leaves wide and orbiculate, flower reddish, fruit oblong, brown.

Habitat: Open, moist marginal land

Flowering and flowering: Most of the year

Distribution: Throughout Nepal from 500-2100 m.

Parts used: Whole plant

Mode of use: Raw plant is taken during urine inflammation it is used as urine and blood purifier. It is also useful in fever and frequently used as tonic.

***Curcuma longa* L.**

Nepali name: Besar

Family: Zingiberaceae

Description: *Curcuma longa* L. is a rhizomatous herbaceous perennial herb, with pointed leaves that bears funnel-shaped yellow flowers which grows to a height of three to five feet and is cultivated extensively in Nepal.

Distribution: Tropical to subtropical

Habitat: Cultivated in dry and open land

Flowering: June- August

Parts used: Rhizome

Mode of use: The extract of rhizome powder with cumin seed, zinger and tulasi leaf is useful in common cold, sore throat, tonsillitis and stomach disorders. The paste is applied in wound, burn and muscular sprain.

***Cuscutareflexa* Roxb.**

Nepali name: Aakashbeli

Family: Convolvulaceae

Description: A leafless stem parasite, yellow in colour. Flowers few, very small. Inflorescence racemes, fruit capsules globose, seeds large black.

Habitat: Forest and marginal open space

Flowering and Fruiting: December - February

Parts used: Stem

Mode of use: The extract of plant is given in jaundice. Plant juice or paste is applied in scalp to control hairfall and dandruff (khoirolageko).

***Jasminumhumile* L.**

Nepali name: Sanojai

Family: Oleaceae

Description: Diffused shrub about 4 m high. Leaves stalked ovate, leaflets 3-7, flower golden yellow, umbels

Habitat: Open places

Flowering and fruiting: February- May

Distribution: Throughout Nepal from 1200- 3400 m.

Parts used: Twigs, leaves

Mode of use: The young twigs are chewed during tonsillitis and fever

***Menthaspicata* L.**

Nepali name: Babari

Family: Lamiaceae

Description: Herb about 50 cm high. Leaves having ovate, serrate, aromatic. Flower white in a whorl of many flowered spike.

Habitat: Common on moist and open places and also cultivated

Flowering and fruiting: June- august

Parts used: Twigs, leaves

Mode of use: The plant twigs are taken as pickle or plant juice is useful in nausea, diarrhoea, dysentery, vomiting and gastritis.

***Ocimumtenuiflorum* Burm. f. late: K)**

Nepali name: Tulasi

Family: Lamiaceae

Description: Shrub about 80 cm high, leaves stalked, elliptic, acute at both side, flower purplish in racemes.

Habitat: Cultivated

Flowering and fruiting: July-October

Parts used: Whole plant

Mode of use: The twigs decoction is useful in common cold and fever.

***Rhododendron arboreum* Sm.**

Nepali name: Laligurans

Family: Ericaceae

Description: Tree about 15 m high. Leaves oblong, Inflorescence large red round corymbos, fruit capsule, cylindrical

Habitat: Hillside forest

Flowering and fruiting: March- June

Distribution: throughout Nepal from 1400- 3300 m.

Parts used: Flower

Mode of use: Dry or fresh flower petals are chewed and eat to get relief when the fish bone or splinter of wheat incidentally get stuck in throat.

***Urticadioica* L.**

Nepali name: Sisnoo

Family: Urticaceae

Description: Shrub about 2 m high with bristly stinging hairs with hooked protrusion that irritate when they contact skin. Leaves stalked stipulate both side covered hair that produce burning sensation.

Habitat: Waste and uncultivated land

Flowering and fruiting: June- November

Distribution: Throughout Nepal from 500- 4500 m

Parts used: Whole plant

Mode of use: Young twigs cooked and eaten as tonic, the paste with Maslahari and kahreto is used to cure bone or muscle fracture.

***Valerianajatamansii* Jones.**

Nepali name: Sughandawala

Family: Valerianaceae

Description: Herb about 50 cm high having thick rootstock. Leaves long stocked, ovate. Flowers whitish.

Habitat: Moist and shady marginal land

Flowering and fruiting: March- June

Distribution: Throughout Nepal from 1300- 3300 m.

Parts used: Whole plant

Mode of use: In irritating nausea (Runchelageko) on children, plants with *Hydrocotylasiatica* (Ghodtapre) and *Artemisia dubia*(Titepate) is crushed and mixed with cow's urine and bath the children to get relief.

***Zanthoxylumarmatum*DC.**

Nepali name: Timmur

Family: Rutaceae

Description: Spiny shrub about 3- 5 m high having strong prickles on leaves and branches.

Leaves lanceolate, fruit solitary, spherical.

Habitat: Forest and waste land

Flowering and fruiting: April- September

Distribution: Throughout Nepal from 1100- 2900 m.

Parts used: Fruits

Mode of use: Seed decoction is useful in stomach disorders and food poisoning.

The above 15 plant species were highly used ethnomedicinal plant species in the study area. These were used in cuts, wounds, stomach disorders, fever, common cold, jaundice, musculo skeletal problems etc. The study showed that the leaves and twigs were used vigorously for medicinal purposes. The reason behind this might be the high concentration of biologically active substances in leaves compared to other parts (Srithiet *al.*, 2009) and the removal of leaves or aerial parts is much more sustainable (Gidayet *al.*, 2003). Similar results were reported by Acharya and Acharya 2009; Mallaet *al.*, 2015 and Khan *et al.*, 2021. The underground parts (Rhizome) of some plant species like *Cucurma longa* was used medicinally similar results were found by Ghimire and Bastakoti, 2009; Budhamagaret *al.*, 2020 and Maharjanet *al.*, 2021. There was various mode of utilization of medicinal plants among them juice, paste, extract and powder were found prominent in the study area. Utilization of medicinal plants in the form of juice and paste were probably the easiest method of application and were highly used form according to Bastakoti, 2019 and Adhikariet *al.*, 2019.

Conclusion

The present study showed that the area has rich knowledge in the use of plant species to treat various human diseases. According to local communities the majority of medicinal plant species are used in the treatment of some very common human diseases such as stomach disorders, cuts and wounds, fever and jaundice. Despite the fact that the study area is very close to the capital city, medicinal plants have played a significant role in the health care of the local people. This study concluded that it is necessary to document and preserve biodiversity and its associated knowledge, which may lead to additional research activities.

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Photo plates: A: *Acorus calamus*, B: *Ageratina adenophora*, C: *Aloe vera*, D: *Artemisia dubia*, E: *Berberis asiatica*, F: *Centella asiatica*, G: *Curcuma longa*, H: *Cuscuta reflexa*, I: *Jasminum humile*, J: *Mentha spicata*, K: *Ocimum tenuiflorum*, L: *Rhododendron arboretum*, M: *Urtica dioica*, N: *Valeriana jatamansi*, O: *Zanthoxylum armatum*

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