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Ethnomedicine of Dolpa district, Nepal: the plants, their vernacular names and uses

Etnomedicina del Cantón Dolpa, Nepal: las plantas, sus nombres vernaculares y usos.

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Abstract

An account of 58 medicinal plant species used by local people of Dunai, Juphal, Suu, Sahartara and Majphal villages of Dolpa district is given. Greater numbers of species were found to be used in fever (17 spp.) and diarrhea & dysentery (17 spp.). Roots and rhizomes of 29 species; leaves of 27 species; and stem and barks of 17 species were mostly used. Juice, raw items, paste and decoction of plant species were the common method of usages. The ethnomedicinal contribution from Nardostachys grandiflora 'Vulte', and Neopicrorhiza scrophulariiflora 'Katuko', each for eight ailments was important. Local people have adequate knowledge on ethnomedicine, while ethnomedicinal plants are under threat due to habitat destruction and over exploitation, indicating an urgent need for conservation of species and their habitats and indigenous knowledge as well. Key words: Ethnomedicine, Dolpa, ailments, parts used, group discussion

Resumen

Se presenta 58 plantas medicinales usadas por la población local de los pueblos Dunai, Juphal, Suu, Sahartara y Majphal en el Canton Dolpa en Nepal. Varias especies se usan contra fiebre (17 spp.), diarrea y disentería (17 spp.). Raíces de 29 especies, hojas de 27 especies, tallos y corteza de 17 especies son usadas. En la mayoría de los casos se usa el "jugo" de plantas frescas maceradas y planchadas. La contribución etnomedicinal de Nardostachys grandiflora 'Vulte', y Neopicrorhiza scrophulariiflora 'Katuko', son ambos usados para ocho enfermedades. Las poblaciones locales tienen conocimiento propio de la etnomedicina, mientras las plantas medicinales están bajo de peligro de extinción por destrucción de habitats y sobre-explotación, indicando la necesidad urgente de conservación de las especies y sus habitats, junto con el conocimiento tradicional. Palabras claves: Etnomedicina, Dolpa, partes usadas, discusión en grupo, enfermedades

Introduction

The art of use, treatment and prevention of disease is pre historic (Gill & Ogbor 1997) noticeably in south Asia (Bawa & Godoy 1993). About 80% of the world's population depends wholly or partially on traditional medicine for its primary health care needs (Wambebe 1990). Nepal is an excellent repository of cultural heritage for diverse ethnic groups and it has a rich tradition of folk practices for utilization of wild plants (Manandhar 1993). Rural people have used plants particularly wild for fulfilling their subsistence needs (Bhattarai 1992) and treating disease since time immemorial. About 70-80% rural population depends on traditional medicine for health care (Manandhar 1980). Bhattarai (1988) and Justice (1981) reported that when modern health care fails, the patient frequently turns to use of indigenous health care. It is evident that indigenous system of health care is mostly the first choice as well as last resort of Nepal (Bhattarai 1998). Understanding the local people's indigenous knowledge in relation to biodiversity/resource management is one of the key issues for the development today (Kunwar & Duwadee 2003). However, due to changing perception of the forest dwellers, commercialization and socio-economic transformation all over the world, there has been a general observation that the indigenous knowledge on resource use has degraded severely (Gadgil et al. 1993; Silori & Rana 2000).

Recognizing these facts, of late, efforts have been made in Nepal to document such knowledge that has accumulated through a long series of observations, interactions and practices with and of local people and thus contains important information relevant to sustainable use of medicinal plant resources. Over the last three decades, intensive ethnomedicinal surveys have been carried out among the rural and tribal population in different parts of the world, however, such studies started in Nepal since 1990. Information on the ethnomedicinal plants of Dolpa is lacking and the work related to medicinal plants and ethnic groups, culture etc. has not been carried out so far. Hence, an attempt has been made to collect information on ethnomedicinal uses by the local people in Dolpa district, Nepal.

Materials and Methods

Study area

Dolpa, the largest but the least developed and remote district lies in mid-western region of Nepal. Most of the hills are naked, open and dry due to low rainfall (450-850 mm), dry air, and severe anthropogenic interference like firing, over-grazing, over exploitation, deforestation, slash and burn agriculture, etc. (Kunwar 2002). The district ranges from as low as sub tropical (1575m) to as high as nival zone (6883m) and extends between 27 21' 27 40' north longitude to 84 35' 84 41' east latitude. This physical intersection coupled with other abiotic factors such as geology, soil and climate has allowed supporting many endemic, threatened, ethnobotanically and economically useful medicinal plants and unique trans-himalayan ecosystems. Some noteworthy medicinal plants, which are more valued, include Cordyceps sinensis 'Jibanbuti', Morchella conica 'Mathyaura', Nardostachys grandiflora 'Vulte', Valeriana jatanmansi 'Samayo', Taxus wallichiana 'Kandelotto' etc. The major ethnic groups/castes in study area are 'Kshetri', 'Dangi', 'Rokaya', 'Shahi', 'Budha', 'Thakuri', 'Thakulla', 'Brahmin', 'Karki', 'Shrestha', 'Sherpa', etc. They are Indo-Aryan and Tibeti-Burmans, speaking Nepali, Tibetan and Kham (Tibetan dialect), being involved in cultivation of wild rice (Chino), wheat, buckwheat (Phapar), potato, etc. in less fertile land. Due to low productive soil, most of them rely upon wild medicinal plants for the subsistence. They are engaged particularly in collecting medicinal herbs and raw food items as part of their traditional ventures.

Methods

Ethnomedicinal notes of plants being used by local people were recorded in July 2001 and May 2003 at 'Dunai', 'Juphal', 'Suu', 'Sahartara' and 'Majphal' villages of Dolpa district. Group discussions, field observations, informal interviews, institutional survey, etc. were used as tools under participatory rural appraisal. Checklist was also made and asked to gather the information. Altogether, 15 group discussions (GDs), three in each village, were carried out. Participants for checklist survey, group discussion and crosschecking were local people: layman, collectors, farmers, traders, leaders, elderly people, traditional healers, witch doctors and Amchis. The information was further verified by crosschecking and validated by the common response from all villages on same species treatment. The plants were identified comparing with authentic specimens at Tribhuvan University Central Herbarium (TUCH) and housed in TUCH.

Results and Discussion

Fifty-eight plant species belonging to 42 families and 56 genera are listed in alphabetical order by their scientific names along with their family name; followed by vernacular names; location from where specimens recorded and collected; and uses. Of 42 families, Rosaceae was important in terms of ethnomedicinal contribution.

Of total 45 types of ailments recorded, diarrhea & dysentery and fever were indigenously treated with use of the most number of plant species (17). Contribution from 16 species was for curing cough & cold. It was followed by cuts & wounds and bleedings treated from 14 species. In terms of parts used, roots and rhizomes were used most (29 species). Leaves of 27 species; stems and barks of 17 species; flowers, fruits and inflorescence of 15 species; seeds of five species; and wood, resin and whole plant of five species were reported to be used. Juice, raw items, paste and decoction of 21, 20, 19, 18 medicinal plant species respectively were used to treat ailments indigenously.

Species wise contribution to ethnomedicine in Dolpa district was highest for *Neopicrorhiza scrophulariiflora* 'Katuko' and *Nardostachys grandiflora* 'Vulte' each for eight ailments, followed by *Plantago major* 'Sajaino', and *Valeriana jatanmansi* 'Samayo' each for seven ailments. However, N. grandiflora is most vulnerable (Ghimire et al. 2005b). The uses of Cedrus deodara oil in skin diseases and respiratory troubles, raw rhizome of Dactylorhiza hatagirea as tonic, ripen fruits of Ephedra gerardiana to control blood pressure and Hippophae salicifolia as appetizer were important. Dolpa district is rich in medicinal herbs and indigenous knowledge. However, the knowledge is constricting within the few healers and medicinal plants are less available. Human impact has been considered an important factor in Dolpa in structuring the resources available nearby (Kunwar and Sharma 2004). The plants are under threat due to habitat destruction and over exploitation. Premature harvesting and over harvesting of tradable medicinal herbs was eminent posing serious threats (Ghimire et al. 2005a). High demand of Nardostachys oil in world market has also led un-sustainable harvesting. An urgent need, therefore, for conservation of species as well as their habitats and indigenous knowledge, is required (Agrawal 2002; Ghimire et al. 2005b). Medicinal tree species Taxus wallichiana and Cedrus deodara are in great peril due to overexploitation as thatching

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Aconitum spicatum (Bruhl) Stapf., Kunwar 0655 TUCH (**Ranunculaceae**) *Bish*, **Juphal**. Root juice is used in cuts & wounds, cough & cold and liver problems. Leaf paste is applied in fever and headache.

Acorus calamus L., (**Araceae**) *Bojho*, **Juphal**. Small dried rhizome is used to treat cough & cold, toothache, headache and throat pain. It is also used as pesticide. The extract is taken to cure measles.

Aesculus indica (Colebr. ex Cambess) Hook., (**Hippocastanaceae**) *Naru, Ghodepangro,* **Suu**. Seed oil is used for rheumatism and skin diseases.

Amaranthus spinosus L., Kunwar 0454 TUCH (**Amaranthaceae**) *Kathgainya, Lunde,* **Dunai**. Decoction of leaf and root is taken for digestive disorders. Root paste is applied on boils & scalds to

remove scars & pus. Root juice is given to get relief from acute fever.

Arisaema flavum (Forsk.) Schott., Kunwar 0423 TUCH (*Araceae*) *Bhalebanko*, **Suu**. Root is boiled and taken to treat stomach pain. Root extract is also used as anthelmintic and insecticide.

Artemisia dubia Wall. ex Besser, (**Compositae**) *Titepati*, **Juphal**. Fresh leaf juice is used to cure cuts & wounds. Flower and leaf juice is also applied as antileech and antiseptic. Leaf extracts are used as pesticide.

Asparagus filicinus Buch.-Ham. ex D. Don, (Liliaceae) Kurilo, Satawari, Dunai. Root powder is given as tonic. Paste of root is also used in fever, cough & cold. Fruits are taken to treat pimples.

Berberis aristata DC., (**Berberidaceae**) *Chutro,* **Majphal**. Fruit and leaf juice is applied for diarrhea & dysentery. Bark and root decoction is used for jaundice and fever.

Berberis mucrofolia Ahrendt, (**Berberidaceae**) Chutro, **Majphal**. Bark decoction is used in lymph disorder and swelling.

Bergenia ciliata (Haw.) Sternb., (**Saxifragaceae**) *Silpari, Pakhanbed, Dhungephul,* **Juphal**. Root decoction is taken in diarrhea & dysentery, fever and respiratory problems. It is also used as antiemetic and anthelmintic properties.

Betula utilis D.Don, Adhikari 0788 TUCH (**Betulaceae**), *Bhojpatra*, **Juphal**. Leaf decoction is taken as diuretics. Bark paper is used to release fear and cure fever. A portion of papery bark is kept in indoor spaces to get harmony in families.

Cedrus deodara (Roxb. ex D.Don) Hook. f., (**Pinaceae**) *Dewdar*, **Juphal**. Wood oil is used in skin diseases and respiratory troubles. It is also applied as antileech. The dried bark decoction is used in fever, diarrhea & dysentery. Leaf extract is messaged to get relief body pain.

Celosia argentea L., Kunwar 0454 TUCH (**Amaranthaceae**) Sahastrajadi, **Juphal**. Leaf juice is used in diarrhea & dysentery. Root juice and paste is applied in piles and menstrual disorders. Seed is used to cure eye problems.

Centella asiatica (L.) Urb., (**Umbelliferae**) *Ghodtapre,* **Juphal**. Fresh leaf is used to stimulate nervous system. Plant extract is taken in pneumonia, skin diseases, toothache and indigestion. Leaf paste is used to treat dysentery.

Chenopodium murale L., (**Chenopodiaceae**) *Bhatebethu*, **Dunai**. Fresh leaf is used to treat diarrhea & dysentery. Seed is abortive in function and applied to control blood pressure.

Cinnamomum tamala (Buch.-Ham.) Nees & Eb., (**Lauraceae**) *Dalchini, Sinkauili,* **Sahartara**. Bark powder is applied in astringent and controlling nausea. Bark extract is used in treatment of intestinal disorder. Leaf is used as spice, which is considered to control diarrhea.

Cordyceps sinensis (Berk.) Sacc., (**Hypocreaceae**) *Yarsagumba, Jibanbuti,* **Majphal**. Dried shoot portion is used as tonic, expectorant and sex stimulant. It is also applied in diarrhea and rheumatism.

Dactylorhiza hatagirea (D.Don) Soo, (**Orchidaceae**) *Hathajadi, Panchaunle*, **Juphal**. Paste of the rhizome is applied on fever, cuts & wounds. Decoction of rhizome is given in intestinal pain. Powder of rhizome is sprayed on wounds to control bleedings. Rhizome is eaten raw as tonic.

Delphinium himalayai Munz., Kunwar 0468 TUCH (**Ranunculaceae**) *Atis*, **Majphal**. Decoction of root is used in cough, fever and stomach pain. Root juice is also used in snake bite. Root paste is considered as antiseptic properties.

Ephedra gerardiana Wall., (**Ephedraceae**) Sallejari, **Sahartara**. Leaf and stem powder is taken to control asthma. Ripe fruit is eaten to maintain blood pressure, altitude sickness, hydrocoel and indigestion.

Fragaria nubicola Lindl. ex Lacaita, (Rosaceae) *Bhuiainselu*, **Juphal**. Root paste is used in controlling bleeding, cough & cold. Fruit is taken as digestive and laxative.

Gnaphalium hypoleucum DC., (**Compositae**) *Jhulo*, **Suu**. Root juice is used in indigestion and stomach pain.

Hippophae salicifolia D. Don., Adhikari 0777 TUCH (**Elaegnaceae**) *Dalenchuk*, **Majphal**. Ripe fruit is eaten as tonic and appetizer. It is also taken in tuberculosis and diabetes.

Juglans regia L., (**Juglandaceae**) *Okhar*, **Juphal**. Stem bark decoction is taken to cure arthritis, rheumatism, skin diseases and toothache. Dried young shoot bark is taken as anthelmintic.

Juniperus indica Bertol., (Cupressaceae) *Dhupi*, **Juphal**. Seed is eaten to get relief from the kidney disorders, cough & cold.

Jurinea dolomiaea Boiss., Kunwar 0492 TUCH (**Compositae**) *Dhupjadi,* **Suu**. Root juice is used in diarrhea & dysentery as well as stomach pain.

Justicia adhatoda L., (**Acanthaceae**) Asuro, **Sahartara**. Decoction of leaf is used in fever, headache and bronchitis. Leaf and inflorescence juice is applied in jaundice and rheumatism. Root

juice is taken to relief cough and bronchitis.

Nardostachys grandiflora DC., Adhikari 0710 TUCH (**Valerianaceae**) *Vulte, Jatanmansi,* **Majphal**. Leaf juice is applied in headache, altitude sickness, epilepsy, cough & cold, cuts & wounds. Rhizome decoction is taken as diuretics and tonic. Its paste is applied to cure piles.

Neopicrorhiza scrophulariiflora (Wall. ex Benth.) Hemsl., Kunwar 0502 TUCH (Scrophulariaceae) Katuko, Suu.Root paste is applied in cough & cold, snakebite, stomachache and liver troubles. Root powder is used as laxative and administered for getting relief from abdominal pain. It is also used in anaemia and jaundice.

Orobanche alba Steph. ex Willd, (Orobanchaceae), Juphal. Root paste is applied on burns & scalds.

Osyris quadripartita Salz. ex Dacne., Adhikari 0706 TUCH (**Santalaceae**) *Nundhiki*, **Sahartara**.Stem bark paste is applied in fracture & sprain. Leaf infusion has emetic properties.

Parispolyphyla Smith, Kunwar 0498 TUCH (**Liliaceae**) Satuwa, **Majphal**.Decoction of root is used as anthelmintic and antiseptic. Root paste is applied to cuts & wounds. Root powder is used for fever and sprain.

Parnassia nubicola Wall., Adhikari 0746 TUCH (**Parnassiaceae**) *Mamira, Nirbansi,* **Majphal.** Root paste is taken to get relief from cuts & wounds. Leaf juice is applied to treat eye problems and inflammation.

Phytolacca acinosa Roxb., (**Phytolaccaceae**) Jaringo, **Juphal**. Root juice is taken to cure sinusitis. Fruit is used as laxative.

Pinus wallichiana A.B. Jackson, (*Pinaceae*) *Gobresalla, Dunai*. Resin is employed to treat stomachache and body pain. It is also used to cure snake bite.

Plantago major L., (**Plantaginaceae**) Sajaino, **Dunai**. Flower and fruits are used to cure cough & cold, indigestion, diarrhea & dysentery. Root paste is applied in boils, joints, fever and headache. **Podophyllum hexandrum** Royle, (**Berberidaceae**), Laghupatra, Shinmedo, **Majphal**. Fruit is eaten to control menstrual disorder, cold & cough. Paste from rhizome is applied for worm infection and controlling bleeding.

Populus ciliata Wall. ex Royle, (Salicaceae) Pipal, Juphal. Bark juice is taken as blood purifier and tonic.

Potentilla microphylla D.Don, (**Rosaceae**) Bajradante, **Suu**. Root extract is taken to cure tooth and gum problems. Root paste is taken with milk to cure diarrhea.

Princepia utilis Royle, (**Rosaceae**) *Dhatelo*, **Juphal**. Seed oil is used as sedative and used during pregnancy for easy delivery. It is used to get relief the muscular pain.

Punica grantum L., (**Punicaceae**) Anar, Darim, **Juphal**. Root juice and fruit is taken in dysentery. Extract of bark and fruit is used to treat diarrhea. Root and bark decoction is used as anthelmintic. Fruit pulp is beneficial in cardiac disorders and stomachache.

Rheum australe D. Don., Adhikari 0702 TUCH (**Polygonaceae**) *Latechuk, Padamchal, Juphal.* Root paste is applied in sprain & fractures. It is also taken to relief from headache. Juice of shoot portion is taken in dysentery and intestinal problems. Petiole is eaten as an appetizer.

Rheum moorcroftianum Royle, (**Polygonaceae**) *Halejwaro*, **Suu**. Root juice is used in bile problems, fever and dysentery. Decoction of stem is taken in arthritis.

Rhododendron arboreum D. Don., (**Ericaceae**) *Gurans*, **Dunai.** Flower is used in diarrhea and throat pain. Young leaf is chewed to get relief from headache.

Rosasericea Lindl., (**Rosaceae**) Jangaligulab, **Juphal**. Juice of Flowers, fruits and stem barks are used in menstrual and lymph disorders. Decoction of leaf is used to wash wounds. Flower paste is taken to treat headache.

Roscoea purpurea Smith., (Zingiberaceae) Kaklo, Rasgari, Suu. Rhizome juice is used in cleaning wounds.

Rubia manjith Roxb., (**Rubiaceae**) *Majitho*, **Juphal.** Leaf and root juice is applied in fever, stomachache and dysentery. Fruit is taken to lower the body temperature and used as laxative. Decoction of leaves and stems is used as a vermifuge.

Rumex nepalensis Spreng., (**Polygonaceae**) Halhale, **Sahartara**. Root paste is applied for body pain, skin disease and sprain. Leaf extract is used in cuts & wounds and swellings.

Sapindus mukorossi Gaertn., (**Sapindaceae**) *Riththa, Uristha, Juphal.* Fruit is taken to wash wounds. It is believed to have expectorant and emetic properties.

Selenium teuifolium Wall., Adhikari 0709 TUCH (**Umbelliferae**) *Bhutkesh, Bhatauri,* **Majphal**. Root decoction is taken to cure diarrhea, cuts & wounds, fever, stomachache, shock and vomiting. Extract of root is also used in cough & cold.

Silene conoidea L., Kunwar 0495 TUCH (**Caryophyllaceae**) *Naru*, **Majphal**. Root is dried, crushed and used as soap to wash wounds and hair.

Swertia nervosa (G. Don) C.B. Clarke, Adhikari 0783 TUCH (**Gentianaceae**) *Tite, Chirayito,* **Juphal.** Decoction of plant is used for controlling fever, food poisoning, cough & cold and liver problems. Young leaf juice has property to stimulate appetite.

Taxus wallichiana (Zucc.) Pilger, (**Taxaceae**) *Kandelotto, Loathsalla, Juphal.* Leaf extract is used in skin diseases and cancer. It is also used in asthma and bronchitis.

Thymus linearis Benth., Kunwar 0497 TUCH (**Labiatae**) *Godamarcha*, **Suu**. Leaf juice is used as blood purifier, digestive and appetizer. It is also used to get relief from body pain. Young flower is taken to cure gum and toothache.

Toona ciliata M. Roem., (**Meliaceae**) *Kansilo*, **Suu**. Stem bark is taken to cure toothache. Fruit is used for chest pain, fever and measles.

Urtica dioca L., (**Urticaceae**) *Sisnu*, **Juphal**. Root juice is taken in skin diseases and kidney problems. Root extract is used in toothache, asthma and easy delivery.

Valeriana jatamansi Jones, (**Valerianaceae**) *Sugandhwal, Samayo,* **Juphal**. Rhizome paste is used in headache, sore throat and shock. It is also taken as tonic. Leaf and rhizome extract is applied in common cold, boils & scalds, eye problems and stomachache.

Zanthoxulum armatum DC., (**Rutaceae**) *Timur*, **Sahartara**. Fruit is used as appetizer. Fruits and stem barks are taken in indigestion and toothache. Decoction of fruits is used in cold and stomachache and as anthelmintic.