

## MEDICAL ETHNOBOTANY IN THE INDO-TIBETAN HIMALAYAS. II. FURTHER DOCUMENTATION OF MEDICINAL PLANT FOLKLORE

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**ABSTRACT**—The present study documents the medicinal plant folklore prevalent in a remote part of the Indo-Tibetan Himalayas. The therapeutic applications of 40 species of plants described in this study have been used to treat a wide spectrum of human ailments since time immemorial. Furthermore, these applications are intertwined with very strong cultural, religious, social, and economic ramifications in the area.

The Himalayas represent a very unique flora, diverse topography, and human populations of varied ethnic groups. These mountains, extending from Afghanistan to Burma (Myanmar), cover a 3,000-km long arc and affect >500 million people in the Asian continent. The flora of these mountains has richly contributed to the systems of medicine used in the area. The "Unani" (Greek), "Amchi" (Tibetan), and "Ayurvedic" (Indian) systems of medicine rely heavily on the utilization of plants native to the Himalayas. Pioneer ethnomedicinal studies (Hemsley and Pearson, 1902; Steward, 1916; Abrol and Chopra, 1962; Sharma, 1977, 1989, 1993; Buth and Navchoo, 1988) of the flora of the Himalayas have yielded valuable information. However, the Himalayan ecosystem is facing a great ecological crisis and a thorough analysis of the plant folklore must be done before this ecosystem is eliminated. The present investigation concentrates on the ethnomedicinal folklore of a remote, secluded, geographic territory in the Himalayas.

### MATERIALS AND METHODS

Periodic ethnobotanical surveys of the area were conducted between 1987 and 1993. Local healers, priests, religious mendicants, Tibetan lamas (priests), village chiefs, and hermits were consulted for ethnomedicinal information. Hired assistants and local people assisted in the collection of plant specimens. Inquiries regarding the vernacular names of plants with their different therapeutic significance and methods of administration were made and recorded. Identification of plants was confirmed at the local Garhwal University in the Himalayas. Voucher specimens were prepared and deposited at the herbarium facilities at The University of Tennessee at Martin. The study area was situated near the Indo-Tibetan border in the Himalayas at 31°55' to 33°59'N longitudes and 77°41' to 79°42'E latitudes at an elevation ranging from 2,500 to 4,800 m.

### RESULTS

Plants used for medicinal purposes by the inhabitants of the Indo-Tibetan Himalayas are listed alphabetically. For each species, the botanical name and family (in parenthesis), local name (in quotation marks), and medicinal use are given.

*Achyranthes aspera* L. (*Amaranthaceae*) "apamarg"—Paste made from fresh leaves and tender shoots is used to treat gum disease.

*Aloe barbadensis* Mill. (*Liliaceae*) "ghee kanvar"—Leaf juice is taken to regulate menstrual flow. It also is used for blood purification.

*Alstonia neriifolia* Don. (*Apocynaceae*) "shaitan"—Young shoots are chewed for dental hygiene. Milky sap from the leaves and shoots is applied externally for rheumatic pains.

*Amaranthus polygamus* L. (*Amaranthaceae*) "chioi"—Poultice made from tender leaves is used to treat eczema. Chopped leaves, stems and roots are boiled in water, and the mixture is given in to treat diarrhea. Seeds are roasted and used as an aphrodisiac.

*Asparagus racemosus* L. (*Liliaceae*) "sahester guli"—Dried root powder is taken with milk to treat liver disorders. The root is one of the six ingredients (*Asparagus racemosus*, *Piper longum*, *Plumbago zeylanica*, *Pueraria tuberosa*, *Semecarpus anacardium*, and *Withania somnifera*) used in the treatment of autoimmune deficiency syndrome (AIDS).

*Asplenium polypodioides* L. (*Polypodeaceae*) "lingri"—Fiddleheads are chopped and fried in clarified butter. The mixture is used for the treatment of rheumatic pains.

*Cantella asiatica* Urban. (*Umbelliferae*) "brahmi"—Leaves, flowers, and fruits are dried, powdered, and boiled in water. The warm decoction is used to improve memory.

*Chenopodium alba* L. (*Chenopodiaceae*) "bathu"—Leaves are boiled in water and made into a gruel in clarified butter. The mixture is used as a laxative. It also is used to treat liver disorders.

*Chrysanthemum pyrethroides* L. (*Compositae*) "gaidaphool"—Leaf and flower juice is used for the treatment of gonorrhea.

*Commiphora mukul* Engl. (*Burseraceae*) "guggal"—Paste of the root secretion is mixed with cow's urine and then applied over the cancerous area. The paste also is used for rheumatic pains. Smoke from the burning paste is inhaled to treat bronchitis and hay fever. The paste is taken internally to lower blood cholesterol.

*Crataeva nurvala* Buch. (*Capparidaceae*) "varuna"—Stem and root bark are ground into a fine powder and mixed with honey. The mixture is given with water for dissolving kidney stones.

*Dolichos biflorus* L. (*Leguminosae*) "kulth"—Seeds are soaked and then boiled in water. The filtrate is claimed to dissolve kidney stones. It also is used to treat piles.

*Emblca officinalis Gaertn. (Euphorbeaceae) "amia"*—Fruit is given to patients suffering from digestive disorders. Fruit jam is used as a blood purifier and for treating the common cold.

*Ficus palmata Forsskal. (Moraceae) "camree"*—Ripe fruit is used for its properties as a laxative. Leaves are boiled in water, and the decoction is used in diseases of the stomach, lungs, and urinary bladder.

*Hedysarum campylocarpon L. (Leguminosae) "sarivan"*—A decoction of the root powder is used as a general tonic and for relieving body pains associated with high fever.

*Juglans regia L. (Juglandaceae) "akhrot"*—Ash from burned leaves is mixed with yogurt and used externally for the treatment of eczema and herpes.

*Juniperus indica L. (Pinaceae) "hapusha"*—Powder made from roasted leaves and berries is used for rheumatic pains.

*Lansea grandis Engl. (Anacardiaceae) "jingran"*—Juice of green twigs is given for treating tooth decay and to relieve toothache. Leaves are boiled, and the filtrate is applied externally to relieve body pains.

*Mangifera indica L. (Anacardiaceae) "am"*—Fruit pulp is mixed with sugar and water or milk. It is consumed for treating apoplexy.

*Momordica charantia L. (Cucurbitaceae) "karela"*—Consumption of fruit and leaf juice twice a day is claimed to treat diabetes. Roasted seeds are used for expelling tapeworms. Cooked fruit is used for liver disorders.

*Musa paradisiaca L. (Musaceae) "kela"*—Stems are dried, powdered, and then used for treating blisters in the mouth. The fruit is soaked in milk overnight and consumed for removing intestinal worms. It also is claimed to be effective for treating diarrhea and dysentery. Dried skin of the fruit is used for removing kidney stones.

*Parmelia perlata Esch. (Lichenes) "pather-ka-phool"*—The entire plant is boiled in water. The filtrate is mixed with honey and used as a diuretic. It also is used to treat dysentery. A poultice made from tender plants is used for healing wounds.

*Parthenococcus himalayana Royle (Vitaceae) "chota angoor"*—Leaves are chopped and cooked with onions in olive oil and consumed with black tea for the treatment of abdominal pains.

*Pinus wallichiana Roxb. (Pinaceae) "chir pine"*—Paste made from inner bark in kerosene oil is applied for bites by snakes and scorpions.

*Piper longum L. (Piperaceae) "magh"*—Powdered seeds are mixed with honey, and the mixture is consumed for the treatment of chronic coughs and tuberculosis. Furthermore, it is part of the six-herb mixture used in the treatment of AIDS.

*Plantago ovata Forsk. (Plantaginaceae) "isabgul"*—Powder made from roasted seeds is consumed with water as a laxative. Furthermore, it is used for the treatment of piles and gonorrhea.

*Plantago tibetica Hook. (Plantaginaceae) "kanthmal"*—Leaves and stems are boiled in water. The decoction is mixed with honey and taken several times a day for relieving discomforts associated with tonsils.

*Plumbago zeylanica L. (Plumbaginaceae) "chitrik"*—Leaves, roots, and flowers are roasted and crushed to make a fine powder. It is then mixed with clarified butter, and the mixture is taken internally for relieving rheumatic pains. Also, the plant is part of the six-herb mixture for the treatment of AIDS.

*Polypodium vulgare L. (Polypodeaceae) "chiva"*—Dried and powdered leaves and rhizomes are mixed with cream from cow's milk. The mixture is made into paste to be used externally for treating skin burns.

*Punica granatum L. (Punicaceae) "anar"*—Fruit juice and seeds in powdered form are claimed to treat diarrhea, dysentery, and malarial fever. Paste of seeds is mixed with cow's or goat's milk and given for kidney stones. It also is used as a digestive aid.

*Raphanus sativus L. (Cruciferae) "muli"*—Raw or cooked roots and leaves are used as a digestive aid and as a diuretic. Seeds are soaked in water overnight, and the filtrate is given for its laxative properties.

*Ricinus communis L. (Euphorbeaceae) "erand"*—Seed oil is used as a purgative. A leaf poultice is applied over boils and areas with rheumatic pain. Root paste is used for gum diseases.

*Sapindus trifoliatus L. (Sapindaceae) "ritha"*—A decoction made by soaking fruit in vinegar is used for head lice and insect bites. Fruit juice is used internally for epilepsy and hysteria.

*Sorbaria tomentosa Rehder (Rosaceae) "sorbia"*—Leaves and flowers are boiled in water. The decoction is taken with honey for the treatment of a bad cold.

*Tamarindus indica L. (Leguminosae) "imli"*—Paste made from the pulp of the soaked fruit is consumed as a general digestive aid and as a laxative. Leaves are eaten raw to reduce fever and treat jaundice.

*Tinospora cordifolia Willd. (Menispermaceae) "gilaya"*—Leaves and stems are boiled in water. The filtrate is taken with honey as an aphrodisiac and as a general tonic.

*Trigonella foenumgraecum L. (Leguminosae) "methi"*—Seeds are soaked in water overnight. The fresh filtrate is taken twice a day to treat diabetes. Leaves are cooked in various ways and used as a blood purifier.

*Viola odorata L. (Violaceae) "banakhsha"*—Flowers and leaves are boiled in water. The decoction is taken several times during the day for treating oral cancer. It also is claimed to treat a bad cold. A paste made with flowers and leaves in mustard oil is used for treating eczema.

*Withania somnifera Dun. (Solanaceae) "ashwagandha"*—Powdered root is taken with warm cow's milk and honey for skin disorders and as an aphrodisiac. It is part of the six-herb mixture used in the treatment of AIDS.

*Zizyphus jujuba Mill. (Rhamnaceae) "ber"*—Raw fruit is consumed to treat mild constipation. Fresh leaves and flowers are crushed in a little water and made into a paste. It then is applied as a poultice to treat boils and wounds. A paste made with seeds and mustard oil is effective in treating rheumatic pains.

## DISCUSSION

The Himalayan flora has contributed greatly to the pharmacopoeias of the world. However, it is shrouded in the mysteries of this enigmatic part of the world. A challenge for the scientific community is to decipher the code of this treasure-trove in view of the medicinal potentialities of the plants of this unique area. The entire gamut of ethnobotanical literature in this area, beginning with the remote antiquity of ancient times to the present day, shows plants of this mountain complex have been used for treating human ailments. Furthermore, the Himalayan ecosystem is facing a constant threat of anthropogenic activities and, hence, a danger to the medicinal flora and its folklore.

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