

## TRADITIONALLY USED MEDICINAL FLORA OF LADAKH

O. P. CHAURASIA, BRAHMA SINGH AND COL., S.K. SAREEN

*Field Research Laboratory (DRDO), C/o 56 APO*

### ABSTRACT

A floristic survey of Ladakh was made to assess the medicinal value of herbaceous flora. It is observed that local people still practice their unique traditional system of medicine for their health care system. About 57 plants used by tribals and local people of Ladakh in medicine have been enumerated in the present paper. Most of the plants contain valuable chemical substances that may be employed in Ayurvedic / Unani / Tibetan systems of treatment. The plants are employed in the treatment of fever, dysentery, diarrhoea, cough, cold, stomach trouble, headache, skin disease etc. The present work aims at documentation of traditional uses of the local medicinal plants for the benefit of mankind and for further scientific investigation.

### INTRODUCTION

Plants have always been the source of food, medicine and other necessities of life, since ages. Medicinal plants were recognised as early as the Vedic period. The Atharva Veda, written around 2000 B.C. is a wealth of information on medicinal plants. The tribal societies even today depend on the surrounding flora to cure their ailments.

Ladakh being the northern most part of Jammu and Kashmir state of Western Himalaya possesses rich medicinal and aromatic plant resources. Having an area of 82,665 sq. km. it lies approximately between latitude 32° 30' N and longitude 74° 30' E to 80° 30' E. Ladakh, one of the most elevated plateau on the earth is situated between 2500 and 5900 m above m.s.l.

Varied soil types, altitude and climate provide different types of vegetational ecosystems which are discernable from April to October.

### MATERIALS AND METHODS

Several field trips at Ladakh were conducted during June to September in 1993-95 to collect medicinal plants and information on them. The information was collected from the villagers and from shepherds. Detailed information was collected from the Amchis who are in practice of traditional system of medicine based on locally available plants.

### OBSERVATIONS

During the course of this study some important medicinal plant species have been identified. An alphabetical list alongwith their families, local/english names, place of collection, altitude and uses has been provided below.

### ENUMERATION

***Allium wallichii* Kunth (Liliaceae).**

*Local / Eng. name* : Skotch / Wild garlic.

*Locality & altitude* : Partapur 9,500 ft (Nubra valley).

*Uses* : Aerial part & bulb of the plant are made into paste which are used in tablet form in stomach upset.

**Arabidopsis wallichii** Hook. (F & J) M. Bush (Brassicaceae).

*Local / Eng. name* : Pasaka.

*Locality & altitude* : Darbuk, 1400 ft (Changthang valley).

*Uses* : Dried plant powder is used on measles.

**Artemisia brevifolia** Wallich. (Asteraceae).

*Local/Eng. name* : Khamchu.

*Locality & altitude* : Phyang, 12,500 ft (Leh valley).

*Uses* : This aromatic plant yields a drug. "Santonin" used to get rid of intestinal worms.

**A. dracunculus** L. (Asteraceae).

*Local / Eng. name* : Sesashin/Tarragon.

*Locality & altitude* : Sabbo village, 12,500 ft (Leh valley).

*Uses* : Leaves are used for toothache. Plant yields an aromatic oil.

**A. sieversiana** Wallichii (Asteraceae).

*Local/Eng. name* : Khamchu.

*Locality & altitude* : Hundur, 9,500 ft (Nubra valley).

*Uses* : Plant is a nervine tonic and is good remedy for indigestion and debility. It yields 'Absinthin' a glucoside.

**Astragalus rhizanthus** Royle ex Benth. (Fabaceae).

*Local/Eng. name* : Sarma.

*Locality & altitude* : Chumathang, 10,500 ft (Changthang valley).

*Uses* : Decoction of the plant is used on skin diseases.

**Acantholimon lycopodioides** (Girard) Boiss. (Plumbaginaceae).

*Local/Eng. name* : Longze.

*Locality & altitude* : South pullu, 15,500 ft (Leh valley).

*Uses* : The ash after burning plant is given with milk in cardiac disorders.

**Biebersteinia odora** Stephen ex Fischer (Geraniaceae).

*Local/Eng. name* : Khardung.

*Locality & altitude* : Zingral, 15, 500 ft. (Changthang valley).

*Uses* : Leaf paste is applied on septic wounds.

**Capparis spinosa** L. (Capparidaceae).

*Local/Eng. name* : Kabra/Caperbush.

*Locality/altitude* : Nimmu 10,500 ft (Leh valley)

*Uses* : The fruit paste is used as pain reliever.

**Capsella bursa-pastoris** Medic. (Brassicaceae)

*Local/Eng. name* : Shanso/Shepherd's purse.

*Locality/altitude* : FRL Campus, 11,500 ft (Leh valley).

*Uses* : Tea made out of dried plants is used for stopping haemorrhages in stomach, uterus & kidney. It has antiscorbutic, stimulant properties and acts as diuretic. It is used in kidney complaints.

**Circium arvense** (L.) Scop. (Asteraceae).

*Local/Eng. name* : Vangstar/Canada thestle.

*Locality & altitude* : Darbuk, 14,000 ft, (Changthang valley).

*Uses* : The leaf extract is used for healing wounds.

**Clematis tebetana** Kuntze (Ranunculaceae).

*Local/Eng. name* : Zakzic.

*Locality & altitude* : Khalsar, 10,000 ft (Nubra valley).

*Uses* : The leaf extract is used internally against syphilis.

**Codonopsis clematidea** Schrenk & C.B. Clarke (Campanulaceae).

*Local/Eng. name* : Mokhting.

*Locality & altitude* : Kargil 9,200 ft (Suru valley).

*Uses* : The root decoction is considered a mild stomach tonic and stimulant. It is useful in loss of appetite and in stomach complaints.

**Corydalis flabellata** Edgw. (Papaveraceae).

*Local/Eng. name* : Lepam.

*Locality & altitude* : Lamayaru, 12,000 ft (Leh valley).

*Uses* : Plants used as tonic and diuretic. Useful in chronic cutaneous affections, syphilis and scrophula.

**Cousinia thomsonii** C.B. Clarke (Asteraceae).

*Local/Eng. name* : Megtham.

*Locality & altitude* : Darbuk, 14,000 ft.

*Uses* : Leaf possesses antiseptic property.

**Cremanthodium ellisii** (Hook.) Kitam (Asteraceae).

*Local/Eng. name* : Phunchuk.

*Locality & altitude* : Changla, 17,500 ft.

*Uses* : Leaf possess antiseptic property.

**Crepis flexuosa** (DC.) Benth. (Asteraceae).

*Local/Eng. name* : Remang.

*Locality & altitude* : Panamik, 11,000 ft (Nubra valley).

*Uses* : Leaf extract is used to cure muscle pain.

**Cuscuta europaea** var. **indica** (Convolvulaceae).

*Local/Eng. name* : Amarlata/Large dodder.

*Locality & altitude* : FRL, Leh 11,500 ft.

*Uses* : Decoction made with ginger is used in urinary, kidney & spleen complaints.

**C. reflexa** Roxb. (Convolvulaceae).

*Local/Eng. name* : Amarlata/Dodder.

*Locality & altitude* : Phyang, 13,000 ft (Leh valley).

*Uses* : Plant paste is applied on warts.

**Carum carvi** L. (Apiaceae).

*Local/Eng. name* : Thamay, Local zeera.

*Locality & altitude* : Kargil, 8,500 ft (Suru

valley).

*Uses* : Pounded plant is taken with water twice daily for relief in cough, cold and fever.

**Dactylorhiza hatagirea** L. (Orchidaceae).

*Local/Eng. name* : Sanchu/Spotted heart orchid.

*Locality & altitude* : Kargil, 9,500 ft (Suru valley).

*Uses* : Tubers are used for eliminating round worms in the intestine. It is said to increase fertility.

**Delphinium cashmerianum** Royle (Ranunculaceae).

*Local/Eng. name* : Lunde-kaown.

*Locality & altitude* : Changla, 17,500 ft.

*Uses* : Leaf extract is used to cure bleeding piles. The flower juice and infusion of the whole plant are used against colic.

**Dianthus anatolicus** Boiss. (Caryophyllaceae).

*Local/Eng. name* : Boits.

*Locality & altitude* : Khardungla, 18,380ft (Leh valley).

*Uses* : The leaf extract is used for skin diseases.

**Echinops cornigerus** DC. (Asteraceae).

*Local/Eng. name* : Ekjema.

*Locality & altitude* : Leh valley, 11,500 ft.

*Uses* : Leaf paste is applied on septic wounds.

**Ephedra gerardiana** Wallich ex Stapf (Ephedraceae).

*Local/Eng. name* : Chhapat/Ephedra.

*Locality & altitude* : Diskit, 9,500 ft (Nubra valley).

*Uses* : Plant yields a drug 'Ephedrine' which is a nerve stimulant and used in Asthma.

**Equisetum debile** Roxb. (Equisetaceae).

*Local/Eng. name* : Zethemanpo/Horsetail.

*Locality & altitude* : Partapur, 9,500 ft.

*Uses* : The plant decoction is given against hyperacidity.

**Euphorbia tibetica** Boiss. (Euphorbiaceae).

*Local/Eng. name* : Tingling.

*Locality & altitude* : Kargil, 8,500 ft (Suru valley).

*Uses* : The plant extract is used on boils.

**Gentiana aligida** Pallas (Gentianaceae)

*Local/Eng. name* : Tictas.

*Locality & altitude* : Tangtse, 14,500 ft (Changthang valley).

*Uses* : The root decoction is used as tonic to promote appetite and digestion.

**Gentianella moorcroftiana** (Wallich ex G. Don) Air Shaw. (Gentianaceae).

*Local/Eng. name* : Chhukmu.

*Locality & altitude* : Darbuk, 14,000 ft (Changthang valley).

*Uses* : Leaf paste is applied on wounds.

**Geranium pratense** L. (Geraniaceae).

*Local/Eng. name* : Gugchuk/Meadow cranesbill.

*Locality & altitude* : South pullu, 16000 ft

*Uses* : Plant is styptic, astringent tonic and is used for piles and to check internal bleeding.

**Heracleum pinnatum** Clarke (Apiaceae).

*Local/Eng. name* : Khras.

*Locality & altitude* : Lamayaru, 12,000 ft (Leh valley).

*Uses* : The crushed root is applied on cuts and wounds.

**Hippophae rhamnoides** L. ssp. *turkestanica* Rousi (Elaeagnaceae).

*Local/Eng. name* : Tsermang/Seabuckthorn.

*Locality & altitude* : Leh valley, 11,500 ft.

*Uses* : Fruit juice is used against stomach complaints, to control menstrual cycle and in heart diseases.

**Hyoscyamus niger** L. (Solanaceae).

*Local/Eng. name* : Henbane.

*Locality & altitude* : Kharbuthang, 8,000ft.

*Uses* : Plant yields a drug hyoscamine which is pain reliever, narcotic and hypnotic.

**Inula obtusifolia** Kerner (Asteraceae).

*Local/Eng. name* : Ripmak.

*Locality & altitude* : Phyang, 13,000 ft.

*Uses* : Leaf decoction is used for internal wounds, pains and breathing problems.

**Iris ensata** Thunb. (Iridaceae).

*Local/Eng. name* : Tesma mentok/Wild iris

*Locality & altitude* : Leh valley, 11,500 ft.

*Uses* : Powdered flowers with hot water are used twice a day as vermifuge.

**Juniperus macropoda** Boiss. (Cupressaceae).

*Local/Eng. name* : Shupa/Janiper.

*Locality & altitude* : Batalic 9,000 ft (Suru valley).

*Uses* : Twigs are used as incense in monasteries. Leaf oil is used in pharmaceutical industries.

**Lancea tibetica** Hook. & Thoms. (Scrophulariaceae).

*Local/Eng. name* : Chagna.

*Locality & altitude* : Kargil, 8,000 ft (Suru valley).

*Uses* : A decoction of leaves and flowers is given in cough, cold and fever.

**Leontopodium jacotianum** Beauverd. (Asteraceae).

*Local/Eng. name* : Palu/Himalayan edelweiss.

*Locality & altitude* : Khardungla. 18,380ft.

*Uses* : Decoction of whole plant is used against septic wounds.

**Lonicera spinosa** (Jacquem ex Decne) Walp. (Caprifoliaceae).

*Local/Eng. name* : Lamora.

*Locality & altitude* : Mulbeck, 9000 ft (Suru valley).

*Uses* : The flower decoction is employed

in asthma and headache.

**Matthiola flavida** Boiss. (Brassicaceae).

*Local/Eng. name* : Gamshu.

*Locality & altitude* : Nimmu, 12,000 ft. (Leh valley).

*Uses* : Leaf powder is used locally as tonic and against intestinal worms.

**Mentha longifolia** (L.) Hudson (Lamiaceae).

*Local/Eng. name* : Phololing/Horse mint.

*Locality & altitude* : F.R.L., Leh 11,500ft.

*Uses* : Plant is used in various gastronomical disorders.

**Nepeta discolor** Royle ex Benth. (Lamiaceae).

*Local/Eng. name* : Tianko.

*Locality & altitude* : Phyang, 13,000 ft. (Leh valley).

*Uses* : Plant is carminative, tonic and diaphoretic and used in cold and caught.

**N. podostachys** Benth. (Lamiaceae).

*Local/Eng. name* : Shangukaram.

*Locality & altitude* : Sabbo village.

*Uses* : It is useful in kidney diseases.

**Oxyria digyna** (L.) Hill. (Polygonaceae).

*Local/Eng. name* : Lamanchu/Mountain sorrel.

*Locality & altitude* : Nang village, 12,500 ft.

*Uses* : The leaf decoction is given in fever.

**Papaver nudicaule** L. (Papaveraceae).

*Local/Eng. name* : Serchang/Iceland poppy.

*Locality & altitude* : Changla, 17,500 ft.

*Uses* : Seeds are used to relieve pain.

**Pedicularis cheilanthifolia** Schrenck. (Scrophulariaceae).

*Local/Eng. name* : Chukchuk.

*Locality & altitude* : Panamik 11,000 ft (Nubra valley).

*Uses* : The dried leaves are used as blood purifier.

**Peganum harmala** L. (Zygophyllaceae).

*Local/Eng. name* : Sepan/Harmala shrub.

*Locality & altitude* : Leh valley, 15,000 ft.

*Uses* : Seeds are narcotic. Seeds are smoked to get a feeling of exaltation.

**Physochlaina praealta** (Decne) Miers. (Solanaceae).

*Local/Eng. name* : Langthang.

*Locality & altitude* : Mulbek, 9000 ft. (Suru valley).

*Uses* : Seeds of this plant and flowers of *Artemisia brevifolia* are mixed and used as vermifuge. The seeds made into ash after burning is used to relief toothache.

**Potentilla anserina** L. (Rosaceae).

*Local/Eng. name* : Toma/Silver weed.

*Locality & altitude* : South pullu, 15,500 ft.

*Uses* : Leaf decoction is used in diarrhoea and for kidney stone.

**Podophyllum hexandrum** Wall. (Barberidaceae).

*Local/Eng. name* : Himalayan Mayapple.

*Locality & altitude* : Panikhar, 10,000 ft. (Zaskar valley).

*Uses* : Fruits are used both as vermifuge and also for treatment of skin diseases. Rhizome is used as a purgative. A drug podophylline is extracted from this plant which is used against cancer.

**Prangos pabularia** Lindley (Apiaceae).

*Local/Eng. name* : Prangos/Avipriva.

*Locality & altitude* : Drass, 13,000 ft. (Suru valley).

*Uses* : Fruits are used in stomach complaints & to control menstrual cycle.

**Rosa webbiana** Smith (Rosaceae).

*Local/Eng. name* : Syah/Wild rose.

*Locality & altitude* : Panamik, 10,000 ft.,

*Uses* : Fruits are source of vitamin 'C' & used to get relief in cold.

**Rumex hastatus** D. Don. (Polygonaceae).*Local/Eng. name* : Gungantse.*Locality & altitude* : F.R.L. Leh 11,500 ft.*Uses* : Whole plant is used against stomach disorders.**Rhodiola imbricata** Edgew (Crassulaceae).*Local/Eng. name* : Sholo/Himalayan stone crop.*Locality & altitude* : Khardungla, 18,380 ft. The plant is abundant between South pullu to North pullu.*Uses* : The leaf decoction is useful in cold, cough and asthma.**Saussurea obvallata** (DC.) Edgew. (Asteraceae).*Local/Eng. name* : Spenchi towa/Brahma Kamal.*Locality & altitude* : Khardungla, 18,380 ft.*Uses* : Buds are made into paste and applied on boils.**Sedum ewersii** Ledeb (Crassulaceae).*Local/Eng. name* : Gornii/Stone crop.*Locality & altitude* : Phyang and Nang village, 12,000 ft. (Leh valley).*Uses* : Decoction of young leaves is used as appetizer.**Senecio chrysanthemoides** DC. (Asteraceae).*Local/Eng. name* : Gorpush.*Locality & altitude* : Kargil, 8,500 ft.*Uses* : Plant is stomachic, tonic & aphrodisiac. It is also used in rheumatism.

## CONCLUSION

Majority of the people in Ladakh largely depend on the surrounding medicinal plants for health care and prefer local herbs in the treatment of various diseases instead of modern medicine. The aim of the present study is not to prescribe the remedies for the diseases but it is an endeavour to draw attention for the need of a detailed study on the high altitude medicinal

plants which could provide better & efficient remedies for many dreadful diseases. There is a good scope to research upon the traditional system of medicine used in Ladakh for healthcare system in that area.

## ACKNOWLEDGEMENTS

Authors are thankful to Defence Research and Development Organisation (DRDO) for providing financial and administrative support for the study. Authors are very grateful to local tribals and amchis who have willingly shared their knowledge on the local medicinal flora.

## REFERENCES

- ANONYMOUS. The wealth of India-Raw Materials CSIR, New Delhi. 1948-76.
- CHAURASIA, O.P AND B. SINGH. Cold Desert Flora Vol. I-IV. Field Research Laboratory. C/o 56 APO. 1996-98.
- GRIEVE, M. A Modern Herbal. Penguin Books Ltd. Harmondsworth, England. 1982.
- KAPUR, S.K. AND S. NANDA. Traditionally important medicinal plants of Bhaderwah hills-Jammu Province-1. *Jour. Econ. Tax. Bot. Addl. Ser.* 10 : 307-318. 1992.
- POLUNIN, O AND A. STANTON. Flowers of the Himalaya. Oxford Univ. Press. New Delhi. 1989.
- RANJAN, S. Medicinal plants of Utacamund, Nilgiris, Tamil Nadu. *Jour. Econ. Tax. Bot. Addl. Ser.* 10 : 429-460. 1992.
- AND O. P. CHAURASIA. Comparative morphophysiological studies in wild and cultivated gram (*Cicer* ssp.) at Ladakh. *Ad. Plant Sci.* 8(2) 308-311. 1995.
- , — AND K.L. JADHAV. An ethnobotanical study of Indus valley (Ladakh) *Jour. Econ. Tax. Bot. Addl. Ser.* 12 : 92-101. 1996.
- , — AND — Botanical curiosities in the alpine flora of Khardungla (Ladakh). *Ibid.* Vol. 20 No. 1 : 135 142. 1996.
- USER, G. A Dictionary of plants used by man, C.B.S. Publisher & Distributor. New Delhi. 1994.