

Original Research Article

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## Indigenous Use of Some Important Trans-Himalayan Medicinal Plants of Himachal Pradesh (North India)

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### ABSTRACT

#### Keywords

Medicinal plants, Himalayan, Sowa-Rigpa, Ayurveda

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The survey on pictorial guide to commonly used medicinal plants of Sowa-rigpa and Ayurveda was carried out and document 50 important medicinal plants used by the traditional healer, out of 50 medicinal plants only 11 medicinal plants are selected for present study. The raw material for these plants is the primary mode of health care for most of the population and traditional doctors. Fresh leaves, fresh stem, root, bark, resin, flower, seeds and sometimes the whole part of the plant are used for the preparation of folk medicine. But the existing population of medicinal plants is declining at alarming rate due destruction of habitat and unsustainable utilization lead to declining of number of medicinal plant, therefore a preventive strategy is needed to maintain Himalayan ecology. Present paper enables the readers to identify the use of various species for different kinds of disease.

### Introduction

Plants have an immense economic and medicinal significance throughout the world. It is the basic requirement for human life like feeding, clothing, sheltering, nursing and hunting. The Indian Himalayan region is a mega hotspot of biological diversity (Myers *et al.*, 2000; Boktapa and Sharma 2010). Trans-Himalayan regions are the treasure house of floristic wealth and Himalaya is known as a home for Ayurvedic and Sowa-Rigpa drugs (Gurmet *et al.*, 1998). The major physiographic division of the state comprises three distinct regions the outer Himalaya,

middle Himalaya and greater Himalaya. Himalaya, a hilly state with altitude ranging from 3500m -7000m above mean sea level (Sharma *et al.*,2012). Because of varied altitudinal and climatic condition, flora of Himalaya includes 8000 species of angiosperm, 44 species of gymnosperm, 600 species of pteridophyte and 1737 species of bryophyte (Polunin and Stainton 1987; Sharma *et al.*, 2000).

The dominant family is Asteraceae followed by Poaceae and Fabaceae. Medicinal plants are used in Ayurveda, Sowa-rigpa and other system of medicine. The region is having

several essential plants which are widely used in formulation of herbal drug in Ayurveda and Sowa-rigpa. The present study is based on medicinal plants of Himachal Pradesh in varied ecosystem it contains large number of plants which have rich medicinal and aromatic value. Medicinal plants gained importance recently not only as medicinal value but also as a ingredient for cosmetics industry (Sharma and Lal 2005; Sharma *et al.*, 2012). There may be chances of extinction of medicinal plants due to change in climatic condition, lack of knowledge, over collection, unscientific exploration, uprooting for fuel, overgrazing and environmental degradation. All over the world demand for herbal based products are increasing day by day due to growing interest of people towards herbal medicine. Taking above points, it is therefore becomes imperative to conserve and cultivate those medicinal plants for present and future generation. And greater efforts should be given to document the outcome found during this period of time.

### ***In-situ* conservation**

This is the best way of protection of biological and genetic diversity because here the wild species are preserved or protected in their own habitat. For example establishment of biosphere reserve, wild life sanctuaries, national parks, sacred grooves and many other protected area. Ultimately it will scrutinize the genetic loss.

### ***Ex-situ* conservation**

Protection of species away from their natural habitat in a specific manner for long-term. Seed storage is considered as the best method of *ex-situ* conservation of endangered medicinal plant. It includes identification method and prioritization of taxa and another method of *ex-situ* conservation establishment of herbal garden, maintenance of medicinal plant nurseries and cultivation in farmer field.

### **Study area**

The study area includes Marila, Rewalsar, Manikaran, Dharamshala and Jogindar nagar. Botanical name, Sowa-rigpa name, Botanical description, Sowa-rigpa uses and part use of 11 medicinal plants were provided with this paper. The Himachal state located between 30° 22' 40"-33° 12' 40"N to 75° 45' 55"-79° 04' 20". The region comes under various types of vegetation like tropical, temperate and alpine covering various kinds of flora of varying altitude diverse habitat, species, population, communities and ecosystem that possess difference with regards to various factors and features. Tropical vegetation includes plants with broadleaf, deciduous and evergreen. Subtropical vegetation is dominated by evergreen forest, ever coniferous forest and broadleaf deciduous. Temperate vegetation comprises of *Cedrus sp*, *Pinus sp*, *Quercus sp*, etc. Subalpine is dominated by *Abies*, *Betula utilis*, *Picea sp*, etc. Alpine vegetation mainly comprise herbaceous species, scattered patches of shrub such as *Rhododendron sp*, *Juniper sp*, *Rosa macrophylla* and *Salix lindleyana* are wide spread.

Himalaya with wide range of altitudinal gradient, deep mountain valley and area of high rainfall is a rich diversity of flora of endemism. The observation reveals that these medicinal plants are highly used to cure various different kinds of disease in Sowa-rigpa and Ayurveda. We documented the data of around 50 medicinal plants that are using in both system of medicine i.e. Ayurvedic system of medicine and Sowa-rigpa system of medicine. In this piece of writing only 11 important medicinal plants are selected which are highly used to cure various disease like blood disorder, diarrhoea, fever, ophthalmic disease, swelling of breast, constipation, amenorrhoea, indigestion, gastric, liver disease, genital warts, white discharge, etc.

**Table.1** Observation

Botanical name	Sowa-rigpa name	Family	Habitat	Botanical feature	Part use	Sowa-rigpa uses
<i>Acorus calamus</i> Linn	Shu-dag nag-po	Araceae	Habitats include edges of small lakes, ponds and rivers, marshes, swamps, and wetlands	An herbaceous aromatic plant and underground rhizome. Leaves are ensiform and bright green. Inflorescence spike-like spadix	Rhizome	It cures appetite, diphtheria, chronic wound, elephantiasis, arthritis, poisoning and tag worms
<i>Bergenia stracheyi</i>	ga-dur-kongli	Saxifragaceae	Moist place, forests, hills and high mountains near pastures	A perennial herb, leaves are fleshy and serrate margin. Inflorescence cymose and flower pink in dropping cluster.	Rhizome, leaves	It cures common cold, diarrhoea, liver and vessel fever
<i>Camellia sinensis</i> (L.) Kuntze	jashing	Theaceae	Tropical and subtropical climates, in areas with at least 127 cm (50 inches) of rainfall a year. It prefer a rich and moist growing location in full to part sun,	An erect solitary shrub, leaves toothed, leathery, flower white with ovate petal. Capsule round with persistent calyx	Leaves	It cure appetite, kappa and pitta disorder
<i>Curcuma longa</i> Linn.	yung-wa	Zingiberaceae	It is a tropical plant, and it grows in a humid warm weather with a lot of rainfall.	A perennial herb, roots are fleshy and tuberous. Leaves sheathing base, undulate margin, parallel venation. Flower grows between two sheathing leaf base and inflorescence spike	Rhizome	It cures toxicities, wound, inflammation, haemorrhoids and nerves disorder
<i>Inula racemosa</i> Hook.f	Manu	Compositae	Field and its commercially cultivated by the locals.	A perennial herb leaves narrowed to winged, stalked, lanceolate, dentate. Stem grooved. inflorescence spike. Ray florets slender, woolly haired, disk florets yellow.	Root	It used to treat blood disorder and good for acidic stomach
<i>Plumbago zeylanica</i> Linn.	Tse-rta-ka(rGyar-gyi-tse)	Plumbaginaceae	Scrub jungles, wastelands and fallow lands.	A tall perennial herb, stem nodular, delicate with vertical striations, leaves alternate, entire. Flower white,	Fruit	It cures digestive heat, indigestion, tumour, leprosy, haemorrhoids and colon disorder.

				bracteates, glandular born in spike inflorescence. Fruit legumes, sticky.		
<b><i>Punica granatum</i> L.</b>	Sin-du	Punicaceae	Grown in dry areas with either a Mediterranean winter rainfall climate or in summer rainfall climates.	A large deciduous shrub leaves ovate, opposite. Flowers scarlet large with red petal. Fruit globular, crowned calyx, thick leathery rind, flesh pink juicy. Seed red or pink.	Fruit	It helps to restore weak digestive heat and cures indigestion, loss of appetite, cold diseases and disorder of rlung.
<b><i>Rheum australe</i></b>	Chhu-rTsa	Polygonaceae	Grassland, forest, open slopes, rocky and moist place.	A perennial herb leaves rounded to broadly ovate, reddish brown at maturity. Rootstock stout.	Roots	It cures infection, indigestion, chronic and fresh wounds.
<b><i>Terminalia chebula</i></b>	Aa-ra-ru	Combretaceae	Warmer region of foothills, among shrubberies and roadsides.	A tall deciduous tree with thick bark, longitudinal furrows. Wood hard, bulky. Leaves ovate, alternate, and entire. Inflorescence spike and flowers dull yellowish. Fruit ovoid, 5-ribbed.	Fruits	It is an excellent blood purifier and good health tonic.
<b><i>Terminalia bellirica</i></b>	ba-raru	Combretaceae	Scattered forests, sunny mountain slopes, one of the upper layer trees of stream valleys and lower seasonal rain forests at elevations of 500 - 1,400 metres.	A tall deciduous tree dark brown. Leaves thick, alternate, clustered towards end of the branches. Inflorescence spadix. Flower solitary. Fruit globular. Seed coat hard, taste like walnut.	Fruits	It cures bile disorder, dries excess lymph accumulation and skin diseases.
<b><i>Tinospora cordifolia</i></b>	sle-tres	<i>Menispermaceae</i>	It prefers wide range of soil, acid to alkaline and it needs moderate level of soil moisture. Found throughout tropical India.	A deciduous woody climber. Stem succulent, twining branches, tentacles hanging down, bark corky. Leaves long petiolate, alternate, cordate, entire. Flowers unisexual. Inflorescence raceme. Fruit drupe.	Stem, branch	It balances three principal energies (rlung, mkhis pa and badkan), cures infectious fever, pain, arthritis, gout and chronic fever.

**Picture Plates-1**



*Acorus calamus*



*Bergenia*



*Camellia sinensis*



*Curcuma longa*



*Inula racemosa*



*Plumbago zeylanica*



*Punica granatum*



*Rheum australe*



*Terminalia chebula*



*Terminalia bellerica*



*Tinospora cordifolia*

These valuable plants are facing major challenges from nature due to which their population are declining at alarming rate. Destructive harvesting pressure and anthropogenic activities have been identified as the main cause of declining population and availability of medicinal plant resource in the Himalayan region. Construction of road, dams, etc are also changing the ecosystem thus result in continuous loss of biodiversity from nature. Overexploitations by local people, traders and improper management have also threatened the survival of valuable species. Rapid declining rate of medicinal plant can be assured with the aid of collaborative research project between national and international partner having associate experts. To overcome this problem, ethno botanical survey was conducted to some hotspot area of trans-Himalayan region with the aim of document their information for future reference. Collection and marketing of these medicinal plants generate income for people living in mountain area. Ultimately increase in demand leads to increase the rate of extinction of valuable medicinal plants from nature. Therefore it becomes necessary to conserve and cultivate those valuable medicinal plants for long term sustainable use. For cultivation appropriate agro techniques and cultivation technology for

commercially viable are crucial to ease the pressure on natural habitat. Some of methods for conservation are:-

- Effective *in situ* and *ex situ* conservation.
- Organized and rational collection.
- Identification and commercially viable medicinal plants
- Documentation of indigenous use and traditional practise
- Development of agro techniques and propagation protocol.
- Heavy grazing and destruction should be checked.

All of this action requires collaboration of state and central government along with NGO's, researchers, farmers to work together. The authors are thankful to officers and staff members of National Research Institute for Sowa-rigpa, Leh for their help during the study and Central Council for Research in Ayurvedic Sciences and Ministry of AYUSH for funding the study.

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