

## Traditional Knowledge and Usage of Ethno Medicinal Plants in District Kinnaur of Himachal Pradesh

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### SUMMARY

A large population in the rural area of Kinnaur district of Himachal Pradesh is still dependent upon traditional ethno medicinal plants to combat various disease conditions. In this article, it was found that new generations are not much interested in traditional knowledge of ethno medicinal plants due to modernization in society as a result; traditional knowledge about the use of these important dietary plants faces complete erosion. Knowledge of such plants is part of traditional knowledge, which is largely transmitted through participation of individuals. Besides erosion in traditional knowledge, ethno medicinal plant species suffer neglect for its conservation. Hence, there is dire need to preserve traditional knowledge. Kinnaur district harbors many ethno medicinal plants; some of these are regularly used by tribal people. Keeping all the above facts in view, the present study was undertaken to explore ethno medicinal plant consumed by the tribal people of the Kinnaur district, Himachal Pradesh, India.

### INTRODUCTION

Himachal Pradesh is a hilly state which is situated between 30° 22' N to 33° 13' N latitude and 75° 23' to 79° 4' East longitude. A north-west Himalayan state having about 1.7 per cent of the India's geographical area has vast potential of medicinal plant wealth. Most of the population of the State as well as Kinnaur district resides in the rural areas and the forest and its resources are integral part of their lives whether it is social or cultural or as source of income. Kinnaur is a mountainous, north-eastern frontier district that mostly consists of the valleys along river Sutlej and its tributaries (Spiti and Baspa rivers). Kinnaur is a tribal area that remained cut off from the rest of the world till now and hence is still in its early stages of evolution. The climate of the district is characterized by extremes in temperature coupled with excessive dryness, dry and highly evaporative wind exhausting whatever little moisture is there in the already rarefied atmosphere. The wide range of altitudinal and climatic geospatial gradients have endowed the landscape with a rich botanic diversity, dominated by conifers in the temperate zone. The life style and tradition of each indigenous community is unique and is related to the utilization of particular natural resource and particular type of work. Local traditional knowledge and practice of ethno medicinal plants is quite widespread in the rural areas of Kinnaur and is an indispensable part of the healthcare system. Plants have been used by humans for food and medicine since the beginning of time. Traditional diets are said to have numerous health benefits, including the prevention of some age-related degenerative diseases such as arteriosclerosis, stroke etc. (Lindeberg *et al.*, 2003). It plays an important role in the absence of basic medical facilities and tremendous paucity of trained medical personnels. These ethno medicinal plants contain a significant level of biological active components. Most of these traditional plants have a potential for income generation but fail to compete (Samant and Dhar, 1997; Maikhuri *et al.*, 2004; Jansen *et al.*, 2004). Different factors that affect these ethno medicinal plants are their abundance, availability, cultural preference, economic conditions and unsecure food production systems which affect preference and use of these plants (Ghorbani *et al.*, 2012). At present heavy destruction of natural habitat results in degradation of these plants at a faster rate along with associated indigenous knowledge (Jamir NS, 1996; Mengistu and Hager, 2008). Ethno medicinal plants form a major source of income in tribal communities, especially those having less than two hectares of land. Marginal tribals generally exploit more forests than small and medium tribals. Tribal people in the Kinnaur district support themselves on the five bighas (1 bigha=0.08 hectare) of forest lands that were allotted to them in the 1980s which they found insufficient to raise their family. Therefore claiming individual rights under the Forest Right Act, 2006 (FRA). However, these forest lands were generally used by them for the collection of Ethno medicinal plants as these provide additional income for them. The people of *Kanauras* although defined by remoteness, as well as geological and ecological vulnerability but are blessed with useful ethno medicinal plants that provide substantial income to them.

### Some important ethno medicinal plants of Kinnaur district

#### *Pinus gerardiana* (Pinaceae)

##### Vernacular name: Chilgoza pine

In Himachal Pradesh, it is mainly distributed in Kinnaur district and small patches have also been seen in Pangi and Bharmour parts of Chamba district. It is one of the most important cash crops of tribal people residing in the Kinnaur district and is being presently sold at very high rates Rs150000-200000/qlt in the market. The average cost of collection of *Chilgoza* was Rs. 36829.14/qlt/annum which indicates that benefits are more than their cost of production. Seed of *Chilgoza* pine are commonly called as Neoza in local dialect of *Kinnauras*. They are rich source of carminative, stimulative and anodyne which improves general debility. *Chilgoza* seed also possesses antibacterial, antiviral, antifungal, antiseptic, antihypertensive, expectorant and diuretic effect. Some traditional uses of *Chilgoza* tree has also been witnessed in the study area. e.g. the seed-coat left after the removal of seed are used for preparation of garlands that were offered to the local deities, relatives and guests during wedding ceremonies, death ceremonies and important festivals in the study area. Seeds start its germination in natural forest during March-April after melting of snow when temperature and climatic conditions become favourable. Seeds get mature during September to October and fall on the ground.

#### *Bunium persicum* (Umbellifereae)

##### Vernacular name: Kala zeera

*Kala Zeera* is one of the most economically important NTFPs that are found at an elevation of 1850 – 3100 metres. It is being sold at high rates Rs100000/qlt in the market. The average cost of collection of *kala zeera* was Rs. 2122.79/qlt/annum which indicates that benefits are more than their cost of production. Commercially important part of *Kala jeera* is seed. *Kala zeera* has anti-inflammatory, analgesic, antispasmodic, carminative and lactation stimulant properties, for curing urinary tract disorders, to treat diarrhoea, piles, insomnia, gynaecological complications and respiratory problems. It is also highly recommended to treat diabetes and prevent heart and brain diseases. This wild delightful spice has been awarded with the Geographical Indication Tag (GI) in 2017s. By the end of June or first week of July these tribal people go for collecting *Kala jeera*.

#### *Jurenia macrocephala* (Asteraceae)

##### Vernacular name: Dhoop

*Jurenia macrocephala* commonly called as *Dhoop* belongs to family Asteraceae. It is a prostrate stem less perennial herb. It was also found in the Himalayas at altitudes of 3000-4300 m. It usually flowers during July-September. The commercially important part of *Dhoop* is root. Roots of *Dhoop* are being sold at 30000 Rs/qlt. The average cost of collection of *Dhoop* was Rs. 815.94/qlt/annum again their benefits are more than their cost of production. *Dhoop* is as an important source of active constituents, used in pharmaceutical industry and various perfume and fragrance industries (Dogan *et al.*, 2009). The phytochemical studies also revealed that the alcoholic extract of plant possesses anti-malarial (Mishra *et al.*, 1991) and antibacterial properties (Dwivedi and Wagay, 2014; Singhet *et al.*, 2015). These valuable properties make it prone to the over exploitation and due to diminishing populations in the wild, the plant has been categorized as 'vulnerable' for Himachal Pradesh (Awasthi *et al.*, 2003). The roots of *Dhoop* are aromatic in nature and chief ingredient of *Dhoop* industries. The roots are considered stimulant, anti-pyretic, anti-septic and useful in gout and rheumatism.

#### *Picrorhiza kurroa* (Scrophulariaceae)

##### Vernacular name: Karro

*Picrorhiza kurroa* commonly known as *Karro* belongs to family Scrophulariaceae. It is small herb having pale or purplish blue flowers and is usually found in alpine and rocky slopes at an elevation of 4000-4500 m (Hooker 1885; Chopra & Ghosh 1934; Blatter 1984; Jain 1996; Agrawal 2003). The commercially important part of the plant is rhizome. It is also a major income generating NTFPs and is being sold at Rs 120000/qlt. The average cost of collection of *karoo* was Rs. 567.61/qlt/annum which means their benefits are more than their cost of production. Harvesting of *Karro* is generally done between July-September. It is valued for its hepato-protective, anti-periodic, cholagogue, stomachic, anti-amoebic, anti-oxidant, anthelmintic, anti-inflammatory,

cardio-tonic, laxative, carminative, expectorant properties (Chopra & Ghosh 1934; Uphof 1959; Kapoor 1990; Kapahi *et al.* 1993; Singh *et al.* 2006; Bhatt & Bhatt 1996; Gaddipati *et al.* 1999; Prajapati, 2003). Picroside I and II are the two most important chemical constituents present in its rootstock which have therapeutical importance (Dutt *et al.* 2004).

### *Saussurea costus* (Asteraceae)

#### **Vernacular name:** Kuth

*Saussurea costus* locally known as *Kuth*, is a small herbaceous plant distributed between 2500-3500 m (Blatter, 1927; Samant and Joshi, 2004) and native to the Himalayan Region (Samant *et al.*, 1998). Its natural populations are reported in the higher elevations of Kinnaur district of Himachal Pradesh. It is a large plant which stands about 1-2 m in length and is found in mountainous areas. The official part of the plant is root and is being sold at Rs 20000/qtl. The average cost of collection of *Kuth* was Rs. 193.57/qtl/annum again their benefits are more than their cost of production. *Kuth* is used for various ailments like dyspepsia, asthma, bronchitis, chronic rheumatism and gout and gathered by the collectors in the autumn season. Harvesting of *Kuth* is generally done between July-September.

### *Saussurea obvallata* (Asteraceae)

#### **Vernacular name:** Brahamkamal

*Saussurea obvallata* is considered sacred and is used to decorate the temples in festive occasions like 'Savan-Janmashami'. The inflorescences and the flowers are used in preparing garlands. The flowers and garlands are kept in houses for long period and are offered to their deities, Goddess Ganga and Lord Shiva on the occasion of local festivals. This plant has several medicinal uses such as roots are applied to cure cuts and wounds, floral buds are used as medicines in leucoderma, urinary troubles, bone fractures, wounds, bone pain, cough and cold, hydrocele, boils, reproductive disorder and digestive problems. This plant is not marketed by the tribal people they only collect them for their rituals practices.

### *Fagopyrum esculentum* (Polygonaceae)

#### **Vernacular name:** Buckwheat

Buckwheat is a multipurpose and nutritious crop that grows only up to 4500 m elevation. Tribal people in Kinnaur grow them in between their apple orchards for bee culture and honey production that ultimately leads to increase in apple production due to increased bee activity. However marketing of Buckwheat are generally not done by them as they are giving more preferences to other quick grain. Currently the cultivation and production of buckwheat is declining due to change in land use pattern. Buckwheat is highly nutritive, unlike cereals which are deficient in lysine, one of the essential amino acids for human health (Anonymus, 1979). The tender shoots are used as leafy vegetable, the flowers and green leaves are often used for extraction of rutin used in medicine and the flower produces honey of good quality (McGregor and McKillican, 1952).

## CONCLUSION

The present study reveals that the tribal people dwelling in remote areas are the custodians of knowledge associated with a wide range of utility of plant resources of their surroundings. Out of the total plant species reported here maximum species are used as general home remedies to treat common ailments like cough and cold, fever, throat and stomach related problems. It has been analysed from the survey that a vast treasure of knowledge lies with these ethnic people living in remote tribal areas, but they do not disclose it easily to others particularly to outsiders, as there is a general belief that if the information about the use of herbs are revealed, it will lose its healing power. Therefore, there is a need to document such valuable knowledge not only about plants, but also about other natural resources like animals, insects, and minerals, before it is lost forever.

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