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Traditional Use of Ethnomedicinal Plants of Asteraceae in the Alpine Zone of Tungnath Region

Dr. Vaibhav Sharma
Department of Botany,
S. M. P. Govt. Girls P.G. College, Meerut, (Uttar Pradesh), INDIA

(Corresponding author: Vaibhav Sharma)
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ABSTRACT: Data based on a three year field survey of alpine zone of Tungnath Region has brought into light that this region is beautifully ornamented with miraculous aromatic plants expressing panoramic view during summer months. Among this attractive floristic wealth of alpine meadows at least nineteen (19) naturally occurring species belong to the single family Asteraceae. It has been observed that amazingly these plant species are traditionally used as indigenous drugs by the natives of Tungnath region.

Key Words: Alpine meadows, Asteraceae, traditional use, indigenous drugs.

I. INTRODUCTION

In Garhwal, the high altitude pastures and grassy slopes are locally known as 'bugyals'. One of the prettiest examples of such bugyals (meadows) is Tungnath region. This region is the heart of western Himalayas with its robust grandeur and pristine glory enriched with treasure of medicinal herbs. The approximate bearings of this region are 30°14'N latitude and 79°13' E longitude, situated in Rudraprayag district of Uttaranchal. This region is one of the most picturesque pockets of western Himalayas enjoying moist alpine climate with lush green carpet of alpine herbs in great profusion, which serve as potent source of ethnomedicines for local inhabitants. The region is named after Tungnath shrine, the highest Hindu temple dedicated to Lord Shiva and one of the five punchkedar temples of Uttaranchal. The alpine meadow of Tungnath region is situated just above tree line and at the flank of alpine bushes which exists at an altitudinal range between 3100-4090 meters asl.

The inhabitants of alpine zone have their own ways of life belief and culture. They have inherently learnt to utilize local herbs in various ailments after centuries of trials at the risk of the human life. The plants grow in harsh and stress alpine climate tend to adapt rosette forms and develop underground perennating organs like bulbs, rhizomes, tubers, bulbils, runners and suckers. It is miraculous to note that these perennating organs of alpine flora develop wonderful secondary metabolites in the form of alkaloids, amino acids, polysaccharides, glycosides, saponins, amines and purines, which attribute the alpine herbs to become highly medicinal 'jadi-buties'. Moreover, this adaptation helps them to perennate during freezing winters of snow cladded alpine meadows.

An analysis of present day flora of Tungnath region indicates that among all the high altitude plants reported so far species of Asteraceae has largest and dominant representation. They are widely distributed in all the altitudinal range with the upper limit reaching the snow line. Some outstanding high altitude herbs of Asteraceae common in alpine zone having highly attractive and showy flowers are dandelions (*Taraxacum* sp.), everlastings (*Anaphalis* sp.), ragworts (*Senecio* sp.), thistles (*Cicium* sp.) and warm woods (Artemisia sp.). The most curious of them all are the wooly members of the genus Saussurea and Inula. During survey it has also been noted that these herbs of Asteraceae come across those medicinal plants which serve as life line of inhabitants living in severely cold alpine zone of Tungnath region.

II. MATERIAL AND METHODS

An extensive survey of Tungnath region covering the 10 villages of vicinity was conducted during 2014-2016 at regular intervals from May to October to cover the study of all successive floristic patterns ranging from 3100-4000 meters' altitude. Simultaneously available herbs of Asteraceae of each altitudinal zone were collected and herbarium was prepared after noting all necessary field notes including vernacular name. Plant specimens were identified with the help of relevant floras (Hooker 1872-1897; Polunin *et.al.* 1984; and Naithani 1984), and herbarium specimens of FRI Dehradun.

Informations of folk medicinal claims of collected plant species viz. local names, parts used, method of preparing medicine, dosages, mode of application and diseases to be treated were collected through interviewing local medicine men, palsies, village headmen, elders and curers. The data was collected through questionnaires and was cross checked with other informants following standard ethnomedicinal methods suggested by Jain (1995) and Martin (1995).

III. RESULTS

The extensive survey and keen observation of Tungnath region reveals that various vegetational types and floristic boundaries are governed by altitudinal limits. In the present study the investigator has observed that there is a drastic change in physiognomy with the reduction of life forms as well as floristic composition as per ascent of altitude. It has been noted that early flowering plants emerge just after snow melts in mid-April and their flowering is completed till the end of May. Successively another series of species emerge and complete their flowering phase with the span of one to one and half month. August is one of the month when maximum plant species can be observed in full swing flowering stage. However, by the end of October most of the species start undergoing senescence. The present study has been focused on the taxa belonging to Asteraceae which are enumerated below.

Enumeration: The plants of Asteraceae growing in different altitudinal range of alpine zone of Tungnath region are enumerated alphabetically. Each binomial is followed by local name mentioned within parenthesis, altitudes at which naturally grown and their traditional ethnomedicinal uses among inhabitants of this region.

Achillea millefolium Linn. **(Gandrain)**

Habitat: Found on grassy slopes at 3200-3500 meters.

Ethnomedicinal Uses: Decoction of flowers and leaves is used as carminative and stimulant; powdered flower heads are smoked with tobacco in toothache, cough and cold. Palsies (Sheep rearing persons) prepare paste of fresh shoots and apply to cure toothache and gum swelling.

Anaphalis adnata Wallich ex. DC. **(Bugla)**

Habitat: Found on the flanks of moist rocks among herbaceous alpine vegetation at 3100-3300 meters.

Ethnomedicinal Uses: Paste of leaves and flowers is applied on cuts wounds and boils. Fibers of leaves and stems are used to lit the fire by friction of stones, locally knowns as 'Agela'.

Anaphalis controta Hook F. **(Buglya)**

Habitat: Grown on grassy slopes at 3300-4000 meters.

Ethnomedicinal Uses: Local persons prepare poultice of leaves and flower head to cure cuts, wounds and boils. Paste of flowers is used to check bleeding.

Artemisia meritima Linn **(Chhamriya)**

Habitat: Usually grown among alpine herbs in between 3100-3800 meters.

Ethnomedicinal Uses: Plants used as anthelmintic. Dried immature leaves and young flower heads release Santonin which has antiseptic and anthelmintic property. The drug is used for expulsion of worms from stomach.

Artemisia nilagirica **(Clarke)** ***Pamp.*** **(Kunja)**

Habitat: Plants are grown among alpine herbs at an altitude of 3100-3300 meters.

Ethnomedicinal Uses: Leaves and flower tips are given to cure asthma in the form of decoction. Leaves extract is given as anthelmintic for children.

Artemisia sacrorum Ledeb. **(Ganga Tulsi)**

Habitat: Plants grow on sloppy rock at 3200-3400 meters.

Ethnomedicinal Uses: The leaves are used as anthelmintic by local persons. The whole plant after crushing is given to cure head infections in horses.

Aster thomsonii C. B. Clark **(Phulari)**

Habitat: Commonly found in grassy slopes of alpine zone at 3300-3600 meters.

Ethnomedicinal Uses: Leaves and flowers are purgative in nature. Local persons use the leaves to cure indigestion.

Circium verutum (D. Don) Spreng **(Kandaru)**

Habitat: Common in moist grassy slopes at the altitude between 3200-3300 meters.

Ethnomedicinal Uses: Roots are chewed to cure dysentery and to quench the thirst; the paste of leaves is rubbed over the chest to check the pain.

Doronicum roylei D.C. **(Kanul)**

Habitat: Found in Tungnath region on southern rocky faces at an altitude between 3200-3600 meters.

Ethnomedicinal Uses: Decoction of fresh roots or powder rinsed in warm water is used in cough and chest troubles. The dried root powder is also given in inflammation and headache. The local persons collect the roots in September and October and store them after drying to use up to another season.

Inula racemosa Hook F. **(Poshkar)**

Habitat: Commonly grown on edges of slopes at the altitude of 3200-3400 meters.

Ethnomedicinal Uses: The inhabitants use the decoction of roots for the treatment of cough. Local vaidyas also use roots to treat dysmenorrhea during menstrual periods in ladies.

Jurinea dolomiea Boiss **(Dhoop)**
Habitat: Sporadically found in grassy alpine slopes at 3100-3800 meters elevation.
Ethnomedicinal Uses: Roots are aromatic emitting pleasant smell and are dried to prepare dhoop to create fragrances in houses and temples. Decoction of roots is given to cure colic pains and sores.
Ligularia amplexicaulis (DC.) **(Kalank)**
Habitat: Found in alpine sloppy meadows between 3200-3600 meters.
Ethnomedicinal Uses: Roots of plants are used as general health tonic. The swollen basal stem (pseudobulb) is sweet refrigerant, aphrodisiac and used in sterility and seminal weakness. The local persons collect the pseudobubls in the month of September and October and use them to increase the vital power. They also sell them to pilgrims as vital tonic at high cost.
Saussurea costus (Falc) Lipsch. **(Kuth)**
Habitat: Grow usually on rocky slopes of alpine grassland and moist ravines in between 3200-4000 meters.
Ethnomedicinal Uses: Roots are used as insect repellent and smoked as a substitute of opium. Root oil is used to cure joint pain of bones. Root powder is used to cure asthma and bronchitis.
Saussurea gossypiphora D Don. **(Phen Kamal)**
Habitat: Grows sporadically on screes and open slopes in alpine meadows between 3800-4000 meters.
Ethnomedicinal Uses: Local people use the whole plant to cure epilepsy.

Circium verutum

Inula racemosa

Jurinea dolomiaea

Ligularia amplexicaulis

Saussurea gossypiphora

Saussurea obvallata

Fig. 1. Some Devine Plants of Family Asteraceae.

Saussurea obvallata (DC.) Edgew **(Brahm Kamal)**
Habitat: Grows on rocky slopes along mountain streams and open screes at 3600-4000 meter.
Ethnomedicinal Uses: Flower heads are used to cure hydrocele. To prepare the medicine bracts are removed and the flower heads are roasted with ghee and one to two teaspoonful are given to patients in the morning for three to six days. Root paste is used to cure leukoderma. The Garhwalies believe that flowers of Brahm Kamal are divine flowers and protect their families from evil spirits. They keep these flowers in their houses with idols of God and Goddesses in their Pooja Ghar.

Senecio alatus Wall. ex. DC. **(Ghuni Dhool)**
Habitat: Found on steep grassy slopes of alpine meadows at an altitude of 3100-3600 meters.
Ethnomedicinal Uses: Aqueous extract of plants is used as antipyretic. Root extract is given to children against cholera and lung diseases.
Tanacetum longifolium Wall ex. DC. **(Gugglu)**
Habitat: Commonly grown on grassy slopes of alpine meadows at an elevation of 3200-4000 meters.
Ethnomedicinal Uses: Peoples of Garhwal use leaf extract as vermifuge and anthelmintic. Decoction of whole plant is also used in treatment of fever.
Taraxacum officinale G.H. Weber ex. Wiggers **(Kanphulia)**
Habitat: Commonly found on moist meadows in exposed slopes at an elevation of 3100-3600 meters.
Ethnomedicinal Uses: Root extract is used in treatment of jaundice, hepatitis, and migraines. Locally the young shoots and leaves are cooked as vegetables. Paste of leaves is used on mouth ulcers.

IV. DISCUSSION

After ethnomedicinal survey, it is concluded that among the floristic wealth of alpine herbs there is pretty well representation of members of family Asteraceae. These plants emerge to flourish during summer months and are harvested by inhabitants of the region before the winter starts. These plants provide a highly effective efficacious system of medicine to the inhabitants of the region. It seems that the important medicinal ingredients are synthesize in stress climate of alpine zone and stored in leaves, flowers, and roots. In present study 19 plants of Asteraceae have been studied for their ethnomedicinal uses and in majority of them roots, leaves and flowers are traditionally used as ethnomedicines as the life line among the inhabitants of Tungnath Region.

REFERENCES

[1]. Hooker, J.D. (1872-97). *The Flora of British India* Vol. **1-7** London.
[2]. Kimothi, G.P and Shah B.C. (1989). Some Medicinal Plants of Gopeshwar-Tungnath Region of Uttar Pradesh. *Ancient Sci. life* **8**: 283-292.
[3]. Naithani, B.D. (1984-85). *Flora of Chamoli* Vol. **1-2**, Botanical Survey of India, Howrah.
[4]. Nautiyal, M.C., Nautiyal, B.P., Prakash, V. (2001). Phenology and Growth Form Distribution in an Alpine Pasture at Tungnath, Garhwal Himalaya. *Mountain Research and Development* **21**(2): 168-174.
[5]. Polunin, O. and Stainton, A. (1984). *Flowers of the Himalayas*, Oxford University Press, New Delhi.
[6]. Rajwar, G.S. (1987). Vegetation Types and Floristic Pattern in Alpine Zone of Garhwal Himalaya, *Environment Problems and Development*, Gyanodaya Prakashan, Nainital Vol. **I** P 65-70.
[7]. Rau, M.A. (1975). *High Altitude Flowering Plants of West Himalayas*. Botanical Survey of India, Howrah.
[8]. Semwal, J.K., Gaur, R.D. and Purohit, A.N. (1981). Floristic Pattern of an Alpine Zone; Tungnath in *Garhwal Himalayas Acta Botanica Indica,* **9**: 110-114.
[9]. Semwal, J.K., Gaur, R.D. (1981). Alpine Flora of Tungnath in Garhwal. *Himalaya Jour. Bombay Nat. Hist. Soc.* **78**(3): 498-512.
[10]. Sharma, V., (2002). Biodiversity of Alpine Medicinal Herbs of Kedarnath Range (Garhwal Himalaya) and their Ethnomedicinal Status. Thesis submitted for Ph.D. Degree to C.C.S. University, Meerut.
[11]. Sharma, V., (2008). Studies on Ethnomedicinal uses of herbal plant resources in Mandankini Valley (Garhwal Himalaya). *Advances in Plant Sciences* **21**(1): 337-340.
[12]. Sharma, V., (2016). Studies on orgnaoleptic characteristics of some devine alpine ethnomedicinal herbs of kedarnath range (Garhwal Himalayas) Proceedings of the 103rd Indian Science Congress held at Mysore PP339 3-7 January 2016.