



ETHNO-MEDICINAL PROPERTIES OF *DACTYLORHIZA HATAGIREA* IN HIGHER HIMALAYAN VILLAGES OF RUDRAPRAYAG DISTRICT OF UTTARAKHAND

K.P. Chamoli and Hariom Sharan

Department of Botany, Govt. P.G. College, Augustyamuni (Rudraprayag) UK-246421

Corresponding Author Email Id: kpchamoli5@gmail.com

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Abstract: The present communication deals with studies pertaining to field observations recorded on indigenous therapeutic applications of *Dactylorhiza hatagirea* (D. Don) Soo among the native people inhabiting high mountain areas of Uttarakhand, in western Himalaya. Information gathered from natives of the areas surveyed, indicated its uses to cure various diseases like dysentery, diarrhoea, chronic fever, cough, stomachache, wounds, cuts, burns, fractures, general weakness, etc., and widely used in modern medicine. Therefore, an attempt has been made to assess the medicinal potential of the species both in traditional as well as in modern medicine system. This paper provides the relevant properties of the high value medicinal orchid.

Keywords: Ethno-medicinal, Orchid, Traditional Knowledge, Rudraprayag, Uttarakhand

Introduction

Orchids are known worldwide for their fascinating and long lasting flowers. *Dactylorhiza hatagirea* (D. Don) Soo belongs to the family Orchidaceae. The plant is native and near endemic to Himalayan region (Badola and Aitken, 2003; Samant et al., 1998; Ved et al., 2003; Pant and Rinchen, 2012). In India, about 1,229 species belonging to 184 genera (Chowdhery, 1999) are distributed in a wide range of climatic conditions ranging from tropical-subtropical to temperate-alpine deserts. Of the total species, more than 30% are endemic to India (Jain and Mehrotra, 1984). Despite the availability of a large number of species, very few orchids are known for their therapeutic significance. *Dactylorhiza hatagirea* (D. Don) Soo (synonyms-*Orchis hatagirea* D. Don, *O. latifolia* auct. non-Linn.) is one of the beautiful orchids having significant medicinal value. *Dactylorhiza hatagirea* is a terrestrial, perennial herb, 20-50 cm tall with fleshy, flattened, palmately lobed or finger like tuberous

roots, leaves linear-lanceolate to ellipticlinear, upto 15cm long, terminal, dense, cylindrical spike, seeds minute, black or dark-brown in colour (Fig.1). *D. hatagirea* is distributed throughout Himalayan region from East to West between the elevations of 2,800-4,500 m above mean sea level. In Western Himalaya, it has been reported from various locations of Jammu & Kashmir (Dhar and Kachroo, 1983) Himanchal Pradesh (Aswal and Mehrotra, 1994), and Uttarakhand (Hajra and Balodi, 1995). It is, perhaps the only orchid recorded from the highest altitude in western Himalaya (Rau, 1975). The tubers of this species, commonly sold as 'Salampanja' are known to yield a high quality 'Salep' which is extensively used in local medicines as nervine tonic for its astringent and aphrodisiac properties (Viz et al., 1992). *D. hatagirea* is known by its different vernacular names such as Salam-panja, Hatajiri, Hatajori, Salep or Marsh orchid. It is evident that Salam-Panja is extensively used in Indian systems



of medicine particularly in Ayurveda, Siddha and Unani Medicine as an aphrodisiac and nervine tonic (CSIR, 1966; Singh, 1999). However, no information on the traditional medicinal uses of salam-panja pertaining to any specific area or tribe, were brought out of far. This is why that the present study is aimed to document and bring out the comprehensive account on the prevailing indigenous knowledge related to medicinal uses of *D. hatagirea* among the people of Rudraprayag district in Uttarakhand.

Materials and Methods

The study area lies in Ukhimath block, the Northwest part of Uttarakhand. The area falls between 30° 30' - 30° 45' N Latitude and 79° 0' - 79° 15' E Longitude and covers an area of about 400 sq km. The altitude ranges between 1,000 to 6,000 asl. Field surveys were undertaken in almost all parts of the Ukhimath block during 2015-2018 including frequent field explorations regarding floristic survey and ecological studies in the Triyuginarayan and Tungnath areas. Efforts were made to record the prevailing indigenous knowledge related to medicinal applications of Salam-panja among the native people. During 2015-2018, several tours were conducted in the different localities of the above areas during monsoon period only. Close contacts were developed with local people particularly traditional healers called Vaidyas in different villages of Ukhimath block of Rudraprayag district. The survey includes information about local names of medicinal plants, plant parts used in treatment and number of ailments being treated by medicinal formulations by local inhabitants. The detailed information on medicinal uses and mode of prescription were also recorded. In addition, voucher specimens of plants were collected, processed, documented, and finally deposited in the herbarium of the Department of Botany, Govt. P.G. College, Augustyamuni as reference material. Observations on the current status of distribution of *D. hatagirea* in nature were also recorded.

Results and Discussion

The study highlights that in absence of modern healthcare facility, people in the study area are dependent on plants for medicinal purposes. During the field studies, it was observed that a number of plants, growing in nature, are used for medicinal purposes by the native people. *D. hatagirea*, locally known as Hatajori, Panja, Salam panja, Salam pamisri has been identified as one of the potential species used as a healing herb for treating ailments like stomachache, general debility, bone-fracture and other diseases (Gupta et al., 1998). However, many Ayurvedic herbs are prescribed alone to cure different ailments but the *Dactylorhiza hatagirea* is highly significant in terms of its uses in this area (Semwal et al., 2009). The plant is used alone or as a mixture along with other ingredients (Brij Lal et al., 2004). In the interior parts of this block, people still depend on the plants for medicinal purpose and are very much concerned about their exploitation in the wild (Negi et al. 1993; Semwal et al., 2009). The information in detail is given in Table 1.

Conservation status

D. hatagirea has been categorized as critically endangered species (CAMP status), critically rare (IUCN status) and is listed under Appendix II of CITES (Kala, 2000; Samant et al., 2001), with the current restricted regional distribution in only a few pockets of Jammu & Kashmir, Himachal Pradesh and Uttarakhand (Ved and Tandon, 1998). Efforts for its conservation are going on at HAPPRC, Srinagar under NMHS program of Ministry of Environment, Forests and Wildlife, Government of India.

Conclusion

The present study reveals that *D. hatagirea* is a valuable medicinal plant, but to harness the potential of this plant, documentation of its in-depth traditional utility and long term ecological monitoring are urgently required. Therefore, call for its conservation strategies combining traditional wisdom and modern scientific tools and



techniques ensuring its protection, mass propagation, and sustainable utilization becomes imperative.

Table 1. Medicinal uses of *D. hatagirea*.

Ailments	Mode of prescription	Distribution in the area
General weakness	Roots along with the fruit pulp of kunja (wild rose), Shilajeet and other ingredients are crushed and made into paste. The pills made from the paste are given as tonic in case of general weakness and debility.	Triyuginarayan, Mansoona, Kalimath, Gaurikund, Chopta
Cough	The fresh tubers extract is taken to treat cough.	Toshi, Triyuginarayan, Sonprayag, Makkumath, SirsiBdasu
Bone fracture	The boiled extract of tubers mixed with milk is given orally in the treatment of bone fracture.	Triyuginarayn, Sirsi, Rampur, Sitapur, Kimana
Spermatorrhoea	The processed (refined) tubers mixed with misri (sugar crystal) are mixed with milk and given to control spermatorrhoea.	Toshi, Sirsi, Badasu, Makkumath, Kotma
Stomachache	The fresh root juice is given in cough and stomachache.	Triyuginarayan, Baniyakund, Gaurikund, Chopta, Tungnath
Wound healing	The paste obtained after rubbing tubers on stones, is applied on boils for wound healing caused due to burnt.	Triyuginarayn, Toshi, Sirsi, Rampur, Sitapur, Kimana, Makkumath, Kalimath
Diarrhoea	Tuber paste is taken orally to cure diarrhea	Tiryuginarayan, Sirsi, Rampur, Sitapur, Kimana, Makumath, Sari, Ransi

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