

AN OVERVIEW OF MEDICINAL HERB *Taraxacum officinale* WEBER.

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ABSTRACT

Medicinal plants have been used in the healthcare system since time immemorial in almost all cultures of world. In modern pharmaceutical drugs many of the active mechanisms are either directly or indirectly derived from natural products from plants. Herbal medicines are extensively employed all across the globe. The World Health Organization (WHO) states that herbal remedies are utilized by 4 billion individuals for various aspects of basic healthcare. The World Health Organization recognizes herbal remedies as a crucial element of fundamental health care, with plants representing approximately 11 percent of the 252 medicines accessible. Plants play many pharmacological roles, including antimicrobial, antifungal, antiparasitic, antiviral, antioxidant, anticancerous (Watson, 2021). The paper mainly focuses on the detailed account of important medicinal herb *Taraxacum officinale* Weber. It is perennial milky latex containing hairy herb. The distribution, habitat, taxonomic and morphological details, brief phytochemistry and medicinal uses of plant are provided in this research paper. This study will help in providing data on proper identification of the plant and for future research on new drug designing based on this plant and also formulations of plans for conservation of the plant as there are risks of disappearance of plant from its natural habitat due to excessive commercial harvest and local uses by the people.

KEY WORDS:

Taraxacum, Pharmacological, habitat, taxonomic, conservation.

INTRODUCTION

More than three-quarters of the global population primarily depends on plants and plant-based extracts for medical purposes. Among the 250,000 species of higher plants on our

planet, over 80,000 are used for medicinal purposes. India is recognized as one of the planet's twelve biodiversity hotspots, boasting over 45,000 distinct plant species. In Unani and Ayurveda system of medicines, drugs of herbal origin have been used since ancient time. Plants produce and store numerous biochemical substances, some of which can be extracted and utilized as chemical feedstocks or as raw materials for various scientific purposes. Several plant secondary metabolites are of commercial significance and are employed in various pharmaceutical compounds (Joy et al., 1998). Taxonomic and morphological details about a particular plant are basic requirement for preliminary identification of a particular plant species and is a basic step in any of the pharmacological research on plant.

OBJECTIVE

To provide detailed information on the distribution, habitat, taxonomic and morphological features, brief phytochemistry and medicinal uses of the plant is the objective of this study. This would be useful for future research on plant, drug designing and developing conservation methods for the plant species.

MATERIALS AND METHODS

The field visits were done during the flowering period of the plant, in the catchment area of Chandertal Lake. Chandertal wetland or Chandertal Lake is one of the natural high altitude glacier lakes in the cold desert areas of district Lahaul & Spiti, Himachal Pradesh. This deep blue-water lake is situated at an altitude of 4420 m above the mean sea level. Its latitudinal and longitudinal positions are 32° 28' 30" N and 77° 37' E respectively. Standard procedures were adopted for collecting, preserving and identifying the plant. The characteristic features were noted in the field. The plant samples were collected for further studies. Herbarium mount of the plant was prepared for record and identification.

TARAXACUM OFFICINALE WEBER.

(Family Asteraceae nom. alt. Compositae)



ETYMOLOGY:

This herb is commonly known as, DANDELION, BLOWBALL, CANKER, CANKERWORT, CROW-PARSNIP, DASHEL-FLOWER, DENTELION, , DOON-HEAD-CLOCK, FORTUNE-TELLER. **HIMACHAL PRADESH:** Barau, Dandelion, Dugdapheni, Dudhli, Dulal, Kanphuli, Paranbala, Sarshanmendo. **HINDI:** Dulal, Barau kanphul. *Taraxacum Weber* is derived from Greek word *tarasso* meaning to stir up, referring to its medicinal properties (Collett, 1902, 1921). According to Nayar (1985) *Taraxacum* is a Latin word, which is derived from the Persian word *tarashqm* meaning a dandelion

TAXONOMIC AND MORPHOLOGICAL DETAILS:

A small, perennial, scapigerous herb with milky latex. **Rootstock** woody, upright, stout. **Stems** 2-10 cm tall. **Leaves** narrowly oblong, sessile, radical, glabrous, variable in shape, oblanceolate or linear, 5-20 cm, pinnatifid; lobes triangular or linear, acute, toothed, pointing back or downwards. **Flowers** numerous, small, yellow in heads. **Heads** solitary, ligulate, 0.8-5 cm in diameter, ,homogamous, , glabrous, solitary on a hollow, leafless stalk (scape) 5-20 cm long, yellow. Outer bracts short, erect, ovate, receptacle naked, flat. 1-seriate, erect, nearly equal inner involucral- bracts linear, margins white, tips hooked or thickened ; multi-seriate ovate or recurved; receptacle naked, flat. **Calyx (Pappus)** copious, hairs simple, white, soft, slender, unequal, not feathery. **Corolla (Ligules)** brown on the back, inserted on the ovary ,long, spreading, 3-5 toothed. **Stamens** 5, anthers cohering in a tube, sheathing the style, attached to the corolla tube, free, 2-celled, base of each cell tailed downwards in a minute bristle. ; filaments free; , **Ovary** divided at the top into two stigmatic arms; 1-celled; style linear,; solitary ovules; style-arms long. **Fruits (Achenes)** 3-4 mm long, oblong or narrowly obovoid, , ribbed glabrous, flattened, ribs muricate, minutely spiny (echinate) on upper half, contracted into a slender, long beak crowned by pappus. **Seeds** erect, membranous testa, non albuminous, straight, plano-convex cotyledons, radical short. **FLOWERING:** March-October.

FRUITING: September-November.

PLACES OF COLLECTION: Chandertal, Chhatru.

HABITAT: Almost every where as a weed in fields, road sides, grasslands, pastures, etc.

DISTRIBUTION: Temperate and cold regions, N. and S. Hemisphere.

INDIA: Almost Cosmopolitan, W. Tibet, Himalayas, Mishmi Mts., Khasia hills.

HIMACHAL PRADESH: Kangra, Kinnaur, Kullu, Sissu-Gondhla (Lahaul & Spiti), Shimla, Mashobra, Mahasu, Barogi, Chor, Kalpa, Kanam, Roghi, Songra, Urni, Rohtang Pass, Bhunter, Aut, Bathad, Jalori Pass, Bajoura, Rajgarh, Shasholi, Tirthan valley, Sainj valley, Jiwa Nal valley.

ALTITUDE: 1100-5500 m (Aswal and Mehrotra, 1999; Bamber, 1916; Chowdhery and Wadhwa, 1984; Collett, 1902, 1921; Dhaliwal and Sharma, 1999; Hooker, 1879-1897; Kaur and Sharma, 2003; Nair, 1977; Polunin and Stainton, 1984; and Singh and Rawat, 2000).

BRIEF PHYTOCHEMISTRY

Dandelion is known to contain sesquiterpene lactones, which are often referred to as bitter elements. These lactones primarily consist of taraxacin and taraxacerin (Leung et al., 1996). The leaves are rich in vitamins and minerals, including beta carotene, non-provitamin A carotenoids, xanthophylls, chlorophyll, vitamins C and D, several B-complex vitamins, choline, iron, magnesium, silicon, sodium, potassium, zinc, manganese, copper, and phosphorus (William *et al.*, 1996).

The analysis revealed that fresh leaves with a mass of about 100 g contain 88.5 g of water, 19.1 g of crude protein, 6.03 g of crude fat, and 10.8 g of crude fiber. Additionally, the leaves contain 0.67 g of calcium, 6.51 g of potassium, and 3.99 g of zinc per 100 g of dry matter, as well as 12.6 mg of tocopherols, 156.6 mg of L-ascorbic acid, and 93.9 mg of carotenoids per 100 g of dry matter (Biel *et al.*, 2017).

USES:

In France it is eaten raw as a salad in place of lettuce, though rather too bitter to be very palatable. However, it forms good food for the cattle. In Germany and Kashmir it is boiled for use as a vegetable. It is also used in soups. The root has diuretic, tonic, laxative, cholagogue, and anti-rheumatic properties, and it also acts as a hepatic stimulant and blood purifier. It is predominantly employed to treat kidney and liver disorders, and it is possibly one of the most commonly recommended treatments in Europe. The main components of the dandelion root are phenolic acids and sesquiterpene lactones which are responsible for its antidiabetic properties (Wirngo *et al.*, 2016). The root is sometimes employed instead of chickory for mixing with coffee and is given to people who can not digest ordinary coffee.

The leaves are used for fomentations in Baluchistan. The leaves are found to be excellent food for taming rabbits in the Himalayas as in Europe. They are antiscorbutic. Flowerbuds are pickled. Dandelion leaves and flowers contain polyphenols (Williams *et al.*, 1996; Schütz *et al.*, 2005; Jêdrejek *et al.*, 2017). The strong antioxidant and hypocholesterolemic properties are a defining feature of dandelion leaves. Dandelion roots are also rich in inulin. (Jalili *et al.*, 2020; Williams *et al.*, 1996). A naturally occurring polysaccharide, inulin is a member of the fructans class of dietary fibers. Additionally, this plant provides a significant source of minerals (such as iron and silicon), sodium, copper, zinc, magnesium, and manganese, as well as vitamins A, C, E, K, and B (Jalili *et al.*, 2020; Olas, 2022). Potassium present in Dandelion leaves is related to its diuretic activity (Hook *et al.*, 1993).

Open floral heads and leaves are employed in the preparation of wines, beer, stouts. (Ambasta, 1986; Aswal and Mehrotra, 1999; Kirtikar and Basu, 1935; Stewart, 1869; and Watt, 1889-1893). The literature lists the traditional applications of dandelion as a treatment for renal ailments, diabetes, bacterial infections, liver, kidney, and spleen abnormalities, as well as an anti-inflammatory agent. Conversely, dandelion edibles are used in salads, while young leaves are added to a variety of cuisines, and the inulin-rich roots can be used in place of coffee or tea (Esiyok et al., 2004)). Dandelion flower extracts can be used to a variety of foods, including puddings, baked cakes, sweets, desserts, and other foods that are comparable (Gonzalez-Castejon et al., 2012).

CONCLUSIONS

This study indicates that *Taraxacum officinale* Weber is an important medicinal herb which is widely used for curing different ailments because of various phytochemicals present in plant. There should be conservation of traditional knowledge on medicinal uses and other uses of plant and various conservation methods should be applied for protection of this valuable plant. Further proper scientific screening is also required for future research in plant on new drug designing. Many pharmacological and therapeutic activities are exhibited by this medicinal plant, and its many components, including its flowers, leaves, and roots, have all been shown to have therapeutic benefits. Therefore, more research on the aforementioned plant might be conducted to solve its riddles and meet the requirement.

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