Dandelion Root

Taraxacum officinale

Common names

Lion's tooth, taraxacum, blowball, puffball, wet-a-bed

Family

Asteraceae (daisy)

Part used

Root

Background and traditional uses

Dandelion is a perennial herbaceous plant with a large taproot, native to many areas of the northern hemisphere, that grows to around 30cm high. It is considered a weed in many parts of the world, but a useful one, as it has been employed both in traditional medicines and as a kitchen edible for centuries. It has hairless, shiny, deeply toothed leaves, reflected in the French common name from which the English derives: '*dent-de-lion*' or 'lion's tooth'. Dandelion plants have bright yellow inflorescence atop hollow stems that produce a milky-white sap when broken. These flowers bloom for most of the year, opening at dawn and in fine weather, and closing at dusk and in wet weather. Dandelion flowers were considered 'rain predictors' in folklore. On maturation, the flowers close and wither and a cypsela is formed to disperse seeds via the wind.[1]

Dandelion's botanical name, *Taraxacum officinale,* has been claimed to have several origins. It may be derived from the Greek words '*taraxo*' meaning 'disturbance' and '*akos*' meaning 'heal' or 'remedy', or possibly from the Persian-Arabic word '*tharakhcharkon*' meaning 'edible'.[1]

The ground, roasted root is a popular coffee substitute with a similar bitter, earthy flavour.

Nicolas Culpeper designated dandelion as a herb of Jupiter, thereby having a cleansing and opening action, particularly on the gallbladder, liver and spleen. He recommended the use of the root in states of 'cachexia' (an 'evil disposition of the whole body').[2]

Actions

Primary:[3]

- Bitter tonic
- Cholagogue
- Choleretic
- Hepatic
- Diuretic
- Anti-inflammatory
- Antioxidant

Secondary:[3]

- Hepatoprotective
- Aperient
- Antidiabetic
- Antibacterial
- Antifungal
- Prebiotic

Applications and indications

Although there are very few clinical trials supporting the therapeutic use of dandelion root, it has a strong reputation as an effective liver tonic, mild laxative and general cleanser in traditional herbal medicine paradigms.[3]

- The British Herbal Pharmacopoeia has approved the use of dandelion root in the treatment of cholecystitis, gallstones, jaundice, atonic dyspepsia with concurrent constipation, muscular rheumatism and oliguria.[4]
- Kings American Dispensary recommends the use of dandelion root in conditions such as, enlargement and/or sluggishness of the liver and/or spleen, impaired digestion, constipation, dropsy, uterine obstructions and skin conditions and irritations.[5]
- The German Commission E approves the use of dandelion root in dyspepsia[6] and ESCOP recommends the herb for hepatic and biliary restoration.[7]

Active constituents and pharmacodynamics

Dandelion contains an abundance of **terpenoid** and **sterol bitter principles** including taraxacin and taraxacerin, which are equally distributed in the roots, leaves, and flowers of the plant. The root also contains **sesquiterpenes**, and **phenolics** such as chicoric and caffeic acid.[8]

As a whole plant, dandelion is nutrient rich and a good source of vitamins A, B complex, C, and D, tannins, alkaloids, pectins, starch, caffeic acid and flavonoids and many minerals,[3] explaining their prevalent use as an edible vegetable. Additionally, the roots of dandelion are a rich source of inulin, the characteristic storage carbohydrate of the *Asteraceae* plants. In the fresh root inulin is in the cell sap. In the dry root it becomes transparent solid, barely soluble in water but soluble in hot water.[9] The bitter sesquiterpene lactones in dandelion are concentrated in the roots and have been attributed to its aperient action and ability to increase bile flow and production.[3]

Summary of clinical evidence

Scientific evidence to support the therapeutic use of dandelion root is extremely limited and the continued popular use of the herb rests upon its longstanding traditional reputation and some *in vivo* and *in vitro* studies.

Antidiabetic

The results of an experimental study on rabbits suggested that the inulin content of dandelion root may have the ability to modulate blood glucose levels.[10]

Hepatic

The oxidative stress-reducing effects of dandelion extract was tested on rats with liver damage from carbon tetrachloride (CCl4), a chemical used in fire extinguishers and refrigerants which is highly toxic to the liver.[12]

Water-based dandelion extract was observed to significantly reduce the amount of oxidative stress and inflammation present in the livers of rats.[12]

Prebiotic

Dandelion root infusion has been found to be a rich source of oligofructans, which stimulate the growth of several strains of bifidobacteria in feeding pigs and it has been suggested that it may have value as a prebiotic agent.[13]

Dosage summary

Liquid extract (1:1): 20-40mL weekly[4]
Dried herb equivalent: 2-8g three times daily[4]

Safety information

- Dandelion root is considered safe in pregnancy and lactation.[3]
- Avoid/prescribe with caution for individuals who are known to be sensitive to plants in the *Asteraceae* family.[8]
- The use in children under 12 years of age has not been established due to lack of adequate data.[8]
- If fever, dysuria, spasms or blood in urine occur during the use of dandelion root, a doctor should be consulted.[8]
- Sesquiterpene lactones are believed to cause allergic dermatitis in sensitive patients.[14]
- The British Herbal Compendium suggests that dandelion root is contraindicated in closure of the bile ducts, cholecystitis and gallstones (cholelithiasis).[4]

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