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FILE: ■ Dandelion (*Taraxacum officinale*; *T. mongolicum*)

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RE: Monograph of Dandelion

Yarnell E, Abascal K. Dandelion (*Taraxacum officinale* and *T. mongolicum*). *Integrative Med.* April-May 2009;8(2):34-38.

Dandelion (*Taraxacum officinale*; *T. mongolicum*), perhaps the best-known "weed" in the world, was human food and medicine before the development of writing. First mentioned in writing in the *Tang Materia Medica* (659 B.C.E.), it is used both internally and externally in Chinese medicine for abscesses, eye inflammations, and as a diuretic. The English common name, from French *dent-de-lion*, and its names in many Indo-European languages refer to its serrated leaf margins ("lion's teeth"); however, the preferred common name in France is *pissenlit* ("piss in bed"), undoubtedly on account of its reputation as a diuretic. Its Latin name, derived from the Greek, means "disease remedy." European traditional medicine uses dandelion roots for liver function; its leaves and flowers as bitter digestive stimulants and diuretics. Despite its long history of use, dandelion remains little studied.

Among dandelion's important constituents are sesquiterpene lactones, believed to exert anti-inflammatory and anticancer effects; phenylpropanoids, believed to have inflammation-modulating effects; triterpenoid saponins that in other herbs are adaptogenic; polysaccharides, and inulin, a dietary fiber. While the leaf contains potassium, one would have to ingest an impractical amount of leaf tincture for this to be clinically relevant. Sesquiterpene lactones give a bitter taste to leaves and, especially if harvested in spring, to roots. Animal studies support traditional use as digestive bitters. Dandelion roots are demulcent and probiotic due to their inulin content, particularly if fall-harvested. Both root and leaf have hypoglycemic properties, but the mechanism of action is unclear. One report attributes the effect to stimulation of pancreatic beta-cell insulin release; this could contribute to insulin resistance and beta-cell burnout in diabetics. Human trials are needed to determine if dandelion is helpful or harmful in diabetes. Dandelion contains numerous polysaccharides, and studies on its immune system effects are contradictory. This may indicate immunomodulation. Polysaccharides are key intermediaries in immune interactions. Alternatively, dandelion may have different effects on different lymphocytes or body tissues. Other preclinical studies have found that various dandelion parts have anti-cancer effects;

upregulate estrogen, progesterone, and follicle-stimulating hormone receptors; and that some effects are due to its compounds acting synergistically.

While there are few Western clinical studies evaluating dandelion's traditional uses, a preliminary trial evaluating its use as a diuretic is expected shortly. It is approved for this use by the German Commission E, and for anorexia, dyspepsia, and biliary abnormalities. As a hormone detoxifier, an herbal formula containing dandelion and several other herbs, compared with healthy diet and a placebo in 40 premenopausal women, reduced early follicular-phase androgens without affecting other sex steroid hormones; implications are difficult to assess. For indigestion or other atonic gastrointestinal (GI) issues, a case series of 24 patients with chronic colitis who used a formula of dandelion and other herbs, reported "remarkable improvement" in pain reduction and stool normalization.

Chinese studies have reported effects of several formulas containing *T. mongolicum* and other herbs; however, full-text translations are unavailable. *Fu zheng qu xie* was as effective as gentamycin in 75 cases of gastric disease caused by *Helicobacter pylori*. *Jie du yang gan gao* was significantly more effective than another herbal formula in lowering elevated liver enzymes in hepatitis B patients in a 96 person double-blind trial (patients were considered cured if serum hepatitis B virus-DNA became negative; this result was reported for 32% of patients taking the dandelion formula compared to 18% of the other group). *Xiao wei yan* effectively reversed intestinal metaplasia in 120 patients compared to 120 untreated controls.

Dose recommendations are given. Fresh dandelion root or leaf may be eaten as food at up to 50 g or more/d. Extracts are "generally recognized as safe" (GRAS) for supplements and foods. Allergy to dandelion, while rare, may occur, particularly in patients sensitized to other members of the *Asteraceae* plant family. Herbicides are widely used against dandelions in lawns, and they should not be harvested in urban areas unless it can be determined that they have not been sprayed with poisons. No negative effects have been reported in pregnancy or lactation, in children, or when used with pharmaceutical drugs. Because it is a bitter, dandelion should be used cautiously in persons with acute GI problems or nonatonic reflux esophagitis may be aggravated by bitters.

Prolifically naturalized around the world, dandelion is in no danger of overharvesting, nor environmentally threatened in any way. Further research on its benefits is clearly warranted.

—Mariann Garner-Wizard

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