

Expert Herbal Reality Resource

Astragalus

Names

Botanical Name: *Astragalus membranaceus* (Fisch.) Bge

Family: Leguminosae

Common names: Membranous milk-vetch root (Engl), huang qi (Chin).

Alternate botanical names: The Pharmacopoeia of the People's Republic of China includes both *Astragalus membranaceus* and *A. membranaceus* var. *mongholicus* (synonym: *A. mongholicus*) in its definition of astragalus. The Japanese Pharmacopoeia officially also permits substitutes including *A. chrysopterus*, *A. floridus* and *A. tongolensis*. The source of gum tragacanth is another species from mountainous areas of Iran and Iraq.



Description

Astragalus is a perennial herb growing up to 150 cm high. The leaves are elliptic, pinnate, with many leaflets. The racemes are axillary, the calyx is 5 mm long and tubular. The root is flexible, long and covered with a tough, wrinkled, yellowish-brown epidermis. The woody interior is of a yellowish-white colour. Astragalus resembles and is closely related taxonomically to licorice.

Constituents

- **Triterpenoid saponins** (including astragalosides I to VIII)
- **Polysaccharides.**
- **Isoflavonoids** (including formononetin)
- **Phytosterols**
- **Essential oil**

Traditionally, astragalus is taken as the powdered dried root or decoction. Water will extract the polysaccharides that are likely to be important to the plant's benefits. Hot water extracts will also contain saponins. Alcoholic tinctures and extracts will contain only low levels of polysaccharides and only saponins if relatively high alcohol ratios are used.

Traditional use

The root has been used for many hundreds of years in Traditional Chinese Medicine as a tonic in fatigue, especially with decreased appetite, spontaneous sweating and diarrhoea. Also to reduce blood loss and improve kidney function. and to recover from postpartum fever, organ prolapse, uterine bleeding and and other severe loss of blood.

Traditional actions

Traditional Ayurvedic characteristics are

Rasa (taste) sweet, pungent

Virya (action) heating

Vipaka (post-digestive effect) sweet

Guna (quality) heavy, smooth, penetrating, hot

Dosha effect: balances all doshas, in excess aggravates *pitta* and *kapha*

Dhatu (tissue) rakta/blood, rasa/plasma, majja/nerve, mamsa/muscle

Srotas (channels) anna/digestive, mutra/urinary, rakta/circulatory

What practitioners say

- **Respiratory:** recurrent viral infections are probably the prime use of astragalus in modern practice.
- **Circulation:** use as a heart tonic in recovery from a wide range of cardiovascular problems as it will help steady the heart beat and improve cardiac performance. It is specific after viral endocarditis.
- **Urinary:** helpful in the aftermath of kidney disease by improving urine elimination and other kidney functions
- **Metabolic and inflammatory:** likely particularly to benefit chronic low-level inflammatory (especially viral) conditions associated with leucopenia and other evidence of compromised immunity. Also helpful in reducing inflammatory pressures in pre-diabetes or ‘metabolic syndrome’, where there is also high cholesterol and related markers.
- **Reproductive system:** astragalus traditional reputation could be harnessed to supporting women with heavy blood loss from periods; it was also used by midwives in China to help stop postpartum bleeding and has a reputation (as with other related species of encouraging lactation)
- **Viral conditions:** consider astragalus in supporting regimes recovering from a wide range of viral conditions like endocarditis, cervicitis or pneumonia.

Evidence

Much of the clinical research literature until recently has been published in China, in Chinese, and relates often to the widespread medical practice there of prescribing astragalus extracts by intravenous injection. This mode of application avoids the digestive breakdown of polysaccharides and so delivers a remedy that is not comparable with traditional oral consumption. Other research literature applies to astragalus in combination with other ingredients.

There is also a considerable research literature that refers to laboratory studies. The difficulty with this evidence is that two key groups of constituents will not reach the tissues unaffected by their transformation in the digestive system. Polysaccharides are unlikely to survive early stomach digestion at all and the saponins will be significantly changed, including by the action of the microbiome.



The following are clinical trials that refer to astragalus taken alone and by mouth.

In a preliminary randomised controlled clinical trial among patients with post-stroke fatigue astragalus was found, compared with placebo, to improve fatigue scores; cognitive functioning, social functioning, and global quality-of-life scores.ⁱ

In a double-blind crossover clinical trial a supplement with an extract of astragalus was found to improve cholesterol balance and reduce TNF- α (a marker of inflammation) in patients with metabolic syndrome (a precursor to diabetes).ⁱⁱ Benefits for heart function were also seen when astragalus was added to standard prescriptions in cases of postmenopausal women with metabolic syndrome.ⁱⁱⁱ

A diuretic action has been observed in a small placebo-controlled study on healthy men astragalus increased urinary sodium and chloride excretion during the first 4 hours although not 12 hours. Test results indicated enhanced kidney responses to endogenous atrial natriuretic peptide. A key saponin astragaloside IV was ruled out as the active principle.^{iv}



Safety

No adverse reactions are expected. There are some reviews suggesting that astragalus could disrupt the body's response to acute infections. However these are theoretical assumptions based on laboratory studies which cannot mimic the digestive effects on the polysaccharide and saponin constituents.

Dosage

10 to 30 g/day of the dried root as a powder or by decoction.

References

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- ⁱ Liu CH, Tsai CH, Li TC, et al. (2016) Effects of the traditional Chinese herb *Astragalus membranaceus* in patients with poststroke fatigue: A double-blind, randomized, controlled preliminary study. *J Ethnopharmacol.* 194: 954-962
- ⁱⁱ Fernandez ML, Thomas MS, Lemos BS, et al. (2018) TA-65, A Telomerase Activator improves Cardiovascular Markers in Patients with Metabolic Syndrome. *Curr Pharm Des.* 24(17): 1905-1911
- ⁱⁱⁱ Li NY, Yu H, Li XL, et al. (2018) *Astragalus Membranaceus* Improving Asymptomatic Left Ventricular Diastolic Dysfunction in Postmenopausal Hypertensive Women with Metabolic Syndrome: A Prospective, Open-Labeled, Randomized Controlled Trial. *Chin Med J (Engl).* 131(5): 516-526
- ^{iv} Ai P, Yong G, Dingkun G, et al. (2008) Aqueous extract of *Astragali Radix* induces human natriuresis through enhancement of renal response to atrial natriuretic peptide. *J Ethnopharmacol.* 2008;116(3):413-421