

Astragalus mongholicus Bunge

Standardized Common Name: Astragalus

Other Common Names: Chinese Astragalus, Chinese Milkvetch, Huang Qi

Family: Fabaceae (Leguminosae)

Taxonomy: This plant is almost universally known in herbal and pharmaceutical literature as *Astragalus membranaceus* (Fisch.) Bunge. That name and *A. mongholicus* were published by Bunge as names for two very similar plants that are now considered by most botanists to be two varieties of a single species. Unfortunately, the name *A. membranaceus* had already been used by Moench, about a century earlier, to refer to a different species. This makes Bunge's *A. membranaceus* an illegitimate name (unless it were to be officially conserved by the procedures specified in the *International Code of Botanical Nomenclature*), so that the combined species should properly be called *A. mongholicus* even though that name is much less familiar. The variety formerly known as *A. membranaceus* should then be called *A. mongholicus* Bunge var. *daburicus* (Fisch.) Podlech. Both varieties may be sold as Astragalus. Other synonyms include *Phaca membranacea* Fisch. and *P. alpina* var. *daburica* Fisch.

A very recent revision (Zhu, 2005) lumps this and other Asian species with a similar European species, *A. penduliflorus* Lam. If this view is accepted, the correct names for the commonly used varieties would be *A. penduliflorus* subsp. *mongholicus* var. *daburicus* and *A. penduliflorus* subsp. *mongholicus* var. *mongholicus*. However, the concept of *A. penduliflorus* accepted in that revision seems quite broad, encompassing taxa with significant and consistent morphological differences. It is therefore questionable whether this approach is the most appropriate or most useful.

Astragalus includes perhaps as many as 2500 species, which are widely distributed and morphologically diverse. Infrageneric taxonomy is very complicated, with several subgenera and numerous sections. *A. mongholicus* is classified in Subg. *Phaca*, Sect. *Cenantrum*. Its native range extends from Siberia to China, Mongolia, Korea and Japan.

Description: Perennial herb, to 50 cm tall. Leaves alternate, compound, stipulate, with a terminal leaflet and (5-)7-15(-18) opposite pairs of lateral leaflets; petiole very short to absent; stipules 3-7 mm long, not fused; leaflets 4-18 mm long, elliptical to somewhat oblong, narrowly ovate, obovate or suborbicular; apices rounded, mucronulate; bases rounded; lower surfaces sparsely pubescent. Inflorescences racemose, lateral in leaf axils, borne on peduncles about as long as leaves, lax, 10-15-flowered, 4-5 cm long, elongating to 8-10 cm in fruit; flowers subtended

by bracts about as long as pedicels, 2-3 mm long. Calyx campanulate, 5-lobed, 6-9 mm long, nearly glabrous except for teeth. Petals 5, yellow or whitish, bilaterally symmetrical; single standard petal the longest, outermost, reflexed, 13-20 mm long; 2 wing petals slightly shorter than standard petals; 2 lowermost petals fused into a keel, as long as wings or slightly shorter. Stamens 10, 1 separate, 9 in a group with basally fused filaments. Ovary 1-carpellate, borne on a stipe that elongates in fruit. Fruit a legume, extended from calyx on a narrow stipe, 2-2.5(-3.5) cm long, laterally compressed, asymmetrically elliptical, frequently pubescent with short black or white hairs; seeds brown, mottled, ca. 3 mm long.

Parts in Commerce: Root

Identification:

- Cylindrical, sometimes branching, up to 30-90 cm long
- Large old roots 1-3.5 cm in diameter, upper portion thickest; young roots much smaller
- Pale or yellowish brown, irregularly wrinkled or furrowed by drying
- Fracture hard, fibrous
- Inner wood yellowish, sometimes blackened or hollowed like rotten wood in center of older roots
- In cross-section, contains yellowish or pale brown cork, in large roots thick and many-layered; broad pale ring of cortex and phloem with numerous narrow, often curving, slightly darker parenchyma rays, sometimes radiately fissured; cambial line; pale, sometimes asymmetrical xylem with scattered vessels, parenchyma rays beginning outside the center
- Taste slightly sweet and bean-like

Adulterants: *Hedysarum polybotrys* Hand.-Mazz. (*Hedysarum*) is reported to be a substitute. It is a Chinese legume, sometimes called Red Astragalus, that has similar uses in Chinese medicine and a similar flavor. The outer bark is reddish-brown, sometimes grayish, and easily peeled off. The cork is not more than 6-8 layers thick, the phloem usually is not fissured, and the cambium line may be darker and more conspicuous. The xylem is yellowish-brown rather than pale or whitish, and the center is not usually blackened or hollow even in older roots.

References:

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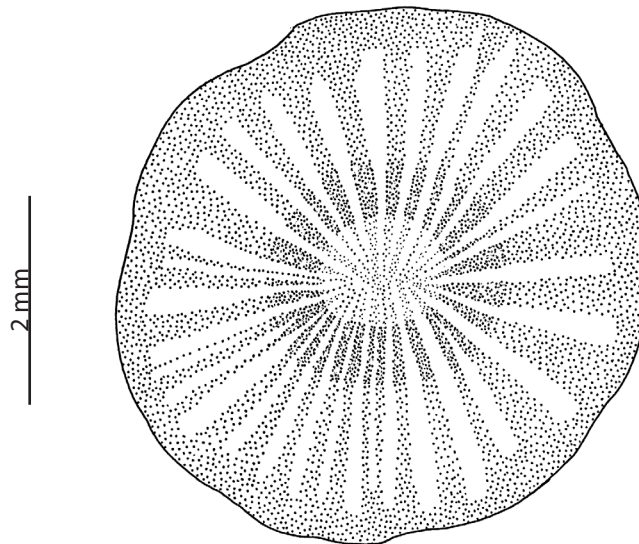


Figure 11: *Astragalus mongholicus* root cross-section.