

Withania somnifera (L.) Dunal

Standardized Common Name: Ashwagandha

Other Common Name: Winter Cherry

Family: Solanaceae

Parts in Commerce: Root

Identification: The root of *W. somnifera* is a vertical taproot, 0.2–2.0(–3.5) cm thick, in cross-section showing a cork layer, a whitish starchy cortex, and a large central stele. Morphology is quite variable, and roots of cultivated plants are very different from roots of certain wild plants. Cultivated material has the following characters:

- Vertical taproot, to 30 cm long, straight to moderately curving, with few or no large lateral roots
- (0.2–)0.5–1.5(–3.5) cm thick
- Surface smooth or with slight longitudinal wrinkles, light brown to yellowish or whitish
- Root hairs few
- Texture soft
- Fracture short, even, “powdery”
- In cross-section, has cork layer, narrow whitish to cream starchy cortex, prominent brownish cambium ring, and large pale starchy central stele; xylem vessels mostly in a ring around outer edge of stele
- Cork thin, not separating from cortex, soft and easily powdered
- Odor characteristic, slightly pungent
- Taste bitter, acrid

Some wild populations have woody roots that, although belonging to the same species, display completely different characteristics. This material is considered unacceptable in commerce. Its features include the following:

- Often with many large lateral roots
- Frequently 2–3 cm in diameter
- Bark dark or reddish brown, sometimes prominently wrinkled, coarse, up to 3 mm thick and separating easily from cortex
- Stele containing lignified xylem throughout, making root woody and hard
- Odor strong

Taxonomy: *Withania* includes about a dozen species, broadly distributed but restricted to certain subtropical regions. *Withania somnifera* is one of two species native to India. It grows wild in the Mediterranean, Africa, and Australia (where it is natural-

ized), and is widely cultivated. The basionym is *Physalis somnifera* L.; several synonyms exist. One of these is *W. obtusifolia* Tackh., referring to certain distinctive populations in Egypt and Saudi Arabia that may be distinguished as *W. somnifera* subsp. *obtusifolia* (Tackh.) Abedin, Al-Yahya, Chaudhary & Mossa. The name *Withania ashwagandha* Kaul has been used for cultivated material, but this name was not validly published and there is little justification for treating cultivated plants as a separate species. There is considerable variation within the species, in both wild and cultivated material.

Description: Shrub, 0.3–1.5(–2.1) m tall, only the lower part becoming woody. Stems sparsely to frequently branching, densely pubescent with branching hairs. Leaves alternate beneath, often opposite above, broadly ovate to ovate-lanceolate or elliptic, (2–)4–10(–16) cm long, thin or somewhat leathery, usually densely pubescent with branching hairs especially on lower surface and when young, sometimes nearly glabrous in subsp. *obtusifolia*; base cuneate to attenuate, oblique or nearly truncate in subsp. *obtusifolia*; apex acute to obtuse; margins undulate to entire; venation pinnate. Inflorescences of (1–)4–6(–16) flowers, clustered in leaf axils. Pedicels usually short, 4–8 mm long in subsp. *obtusifolia*; calyx (2–)4–5 mm long, pubescent, basally fused, with 5 acute lobes, the tube inflating in fruit; corolla (2–)5–8 mm long, yellowish green, pubescent, the lower portion fused and campanulate, 5-lobed, the lobes linear to ovate-triangular and sometimes recurved; stamens 5, basally fused to and enclosed within corolla. Fruit a berry, 5–10 mm in diameter, glossy red or sometimes yellowish, borne inside an expanded calyx to >2 cm in diameter; seeds numerous.

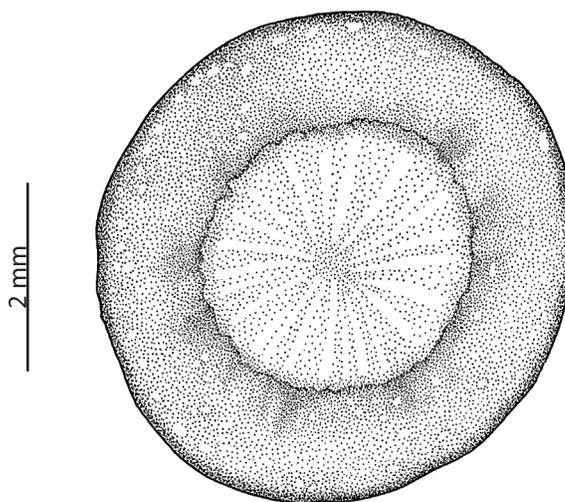


Figure 85: *Withania somnifera* cultivated root cross-section.

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