

Zingiber officinale Roscoe

Standardized Common Name: Ginger

Family: Zingiberaceae

Taxonomy: *Zingiber* is native to warmer parts of Asia; estimates of the number of species range from 80 to 135. *Zingiber officinale* exists only in cultivation, and its country of origin is unknown; it is widely cultivated in tropical areas.

Description: Rhizomatous perennial herb. Rhizome 3–16 cm long, to 3–4 cm broad and 2 cm thick, laterally flattened, irregularly branching, pale yellowish brown, bearing leaves reduced to scales. Roots numerous, fleshy, yellow, brittle. Stems unbranching, to 1.5 m high. Leaves basal or cauline in 2 vertical ranks, linear, 5–30 cm long; base sheathing, apex acuminate. Inflorescence a spike, borne on peduncle 15–25(–35) cm high, the fertile portion 4–5 cm long, 1.5–2 cm thick, few-flowered, with flowers subtended by bracts. Calyx tubular, cleft on one side, ca. 1–1.2 cm long. Corolla tubular below with tube 2–2.5 cm long, 3-lobed with lobes 1.6–1.8 cm long, yellow to orangish or greenish yellow, the dorsal lobe partly purple with cream patches. Stamens 6, purple; only 1 stamen fertile, the anther cream; anterior staminode petaloid, 3-lobed. Ovary inferior, trilobular; fruit a red capsule.

Parts in Commerce: Rhizome

Identification: Ginger has customarily been sold by reference to the region of its cultivation (Jamaican and African ginger being commonly used in the United States; see Evans for details of the characteristics of ginger from different regions). Processors in certain regions often engage in traditional methods of processing the rhizome that include peeling or scraping off the cork, either in whole or just on the flattened sides, followed by drying. Since unpeeled fresh ginger is a common vegetable and is easily recognized, only peeled ginger, which looks rather different, is described.

- Irregularly branched, usually 7–16 cm long, with short branches curving in the direction of the main rhizome axis, 1–3 cm long, all produced more or less in one plane
- Laterally flattened; branches of fresh material up to 3–4 cm broad and ca. 2 cm thick, those of peeled and dried material reduced to as little as 1 cm broad
- When peeled, exposed layer is usually pale, yellowish-gray to pale brown or orangish, finely striated (sometimes gray to blackish in certain varieties); cork remains are usually yellowish to grayish brown or brown

- Fracture short, often mealy, but variable; ends of vascular bundles often protrude slightly from surface
- Interior yellow to yellowish or orange-brown, not bright orange
- In cross-section, contains (in the absence of outer cork layers) a comparatively thin ring of starchy cortex containing yellowish secretory cells and (towards the inside) grayish vascular bundles; light brown endodermis; large parenchymatous central stele containing numerous scattered vascular bundles, with yellow oil cells and yellow to reddish or dark brown resin cells plentiful throughout
- Odor aromatic, pleasant
- Taste characteristic, aromatic and pungent

Adulterants: Since ginger is always cultivated, virtually no confusion with other species occurs. Several other species of *Zingiber* have been substituted for *Z. officinale* in the past. Though some of these are also used medicinally, they may generally be distinguished from *Z. officinale* by their comparatively unpleasant taste and aroma, sometimes resembling camphor. They may also vary in other ways, such as:

- Much larger or smaller than typical rhizomes
- Epidermis (if present) without wrinkles or lacking developed scale leaves
- Bright orange rather than yellowish inside
- Yellow oil cells sparsely distributed

Whitening by dusting with lime has been reported as a deliberate adulteration. A simple chemical test for this adulteration, according to Wichtl, is that dilute acetic acid (aka vinegar) in contact with lime will cause bubbling due to production of carbon dioxide.

References:

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