

Zingiber officinale Roscoe

Ginger Rhizome

Zingiberi Rhizoma

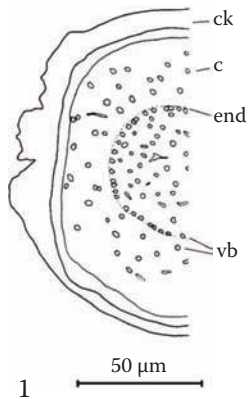
Pinyin: Gan jiang (dry)

Sanskrit: Shunthi (dry)

Zingiberaceae

Ginger is ubiquitously used in almost all systems of herbal medicine, including ayurvedic, Chinese, Western, and Hispanic folk traditions. There are many different cuts, shapes, and forms of ginger. However, the microscopic characteristics of ginger are the same regardless of cut, with one exception: In some samples, the outer peel (periderm) may be present or absent (peeled).

Transverse section: Rhizome is often peeled and parenchyma dominates the section; cork is present when unpeeled, absent when peeled. If unpeeled, a metaderm of brown epidermal cells, followed by several rows of light brown, rounded parenchyma cells and a cambial region of regularly arranged thin-walled cells is present; area outside the endodermis is composed of thin-walled parenchyma and scattered collateral vascular bundles; parenchyma cells are rounded or elliptic in outline, with small intercellular spaces, and filled with starch granules; oil cells containing yellow oleoresin are frequent—most are considerably larger than surrounding parenchyma cells and their walls are slightly suberized; endodermis is



free of starch, with a visible Casparian strip; interior to the endodermis is a ring of collateral vascular bundles, which toward the center, are less frequent and scattered; vessels are 20–60 μm diameter, usually not lignified, with only a few vessels per bundle; in the central portion of the rhizome, the bundles are associated with fairly large septate fibers that are usually only lignified at the middle lamella; parenchyma in the stele is similar to cortical parenchyma containing numerous oil cells.

Longitudinal section: Annular, spiral, or reticulate vessels; collateral vascular bundles branching off to lateral roots appear undulate; large, unligified fibers may be divided by transverse septa; their walls are frequently dentate or have numerous circular or slit-shaped pits; axially elongated secretory cells containing yellow oleoresin occasionally accompany vessels.

Starch: Abundant; mostly simple, oblong, elliptic, ovate or sack shaped, up to 25 μm long, some with a papillary protuberance at the hilum; eccentric hilum is situated at the narrower end of the granules very close to the margin.

Powder: Pale yellow to cream. Fragments of parenchyma; cork; many fibers sometimes accompanied by vessels; few oleoresin cells remain intact after processing; starch (water). The powder of peeled rhizomes is free of fragments of the cork.

