Stephania tetrandra S. Moore

Stephania Root

Radix Stephaniae tetrandrae

Pinyin: Han fang ji, fang ji

Menispermaceae

The roots of *Stephania tetrandra* are used almost exclusively in traditional Chinese medicine, predominantly for their ability to "drain dampness." The common name for *Stephania* in Chinese pinyin is fang ji or, more specifically, han fang ji. This shares the common name of fang ji or, more specifically, guang fang ji, with *Aristolochia fangchi,* a botanical that contains the nephrotoxic and carcinogenic aristolochic acids (AAs). *Stephania* does not contain these compounds (AHP 2006a). Because of this nomenclatural similarity, the two herbs can be mixed up in trade. Although they were once considered to be used interchangeably, *A. fangchi* has been removed from China's pharmacopoeia. Aristolochic acid-containing ingredients are prohibited for importation or trade in the European Union and United States, though certain species remain available in some parts of Asia. The microscopic characterizations for each of these species are provided in this text. In *Stephania,* the stem may also be present, so a full characterization of the stem has been provided. However, for medicinal purposes, only the root should be used.

A. Root

Transverse section: Cork is composed of several layers of dark brown quadratic cells; inside the cork are roundish, light brown parenchyma cells with intercellular spaces; frequent small calcium oxalate prisms, up to 10 µm long; sclereids are scattered throughout the parenchyma in small groups of 3–10 cells; areas of sieve cells are gray, tapering toward the cork; secondary xylem consists of narrow radial lines of vessels and tracheids embedded in broad parenchymatous medullary rays containing starch and small calcium oxalate prisms; central pith is small or absent.

Longitudinal section: Vessels and tracheids with bordered pits.

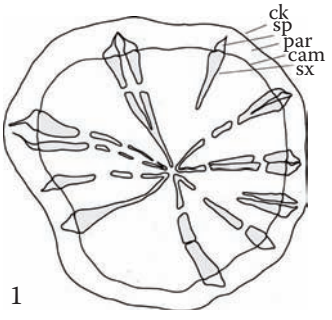
B. Stem

Transverse section: Cork is irregular in width, partially ruptured, consisting of up to 12 rows of rectangular, tangentially elongated, brown cells; primary cortex of roundish parenchyma cells with numerous intercellular spaces; yellow sclereids form a ring just exterior to the secondary phloem; sclereids are replaced by fibers adjacent to regions of sieve cells; where the medullary rays occur, the sclereids branch off radially from the ring toward the center of the stem, penetrating the outer portion of the rays; solitary sclereids are scattered throughout the parenchyma; secondary xylem consists of cuneiform regions of vessels, tracheids, and thickened parenchyma cells, separated by broad medullary rays composed of radially elongated parenchyma cells; broken concentric rings of parenchyma occur in the xylem; large vessels, up to 250 µm diameter; narrow tracheids; pith of roundish parenchyma cells; calcium oxalate crystals similar to those found in the root are scattered throughout the parenchyma.

Longitudinal section: Vessels and tracheids with bordered pits.

Starch: Abundant in root and stem parenchyma; granules are simple or two or three (rarely four) compounds; individual granules are spherical, up to 23 µm diameter, with a central hilum appearing as a small point, cleft, or radiating split; compound granules are often found separated into apparently single grains with a flat rather than convex surface where they were joined.

Powder: Predominantly parenchyma cells, some with gelatinized starch and most containing small calcium oxalate crystals (easily detected under polarized light); fragments of cork; groups of pitted sclereids; few fragments of vessels and tracheids with bordered pits; starch abundant.



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