

***Cinchona succirubra* Pav. ex  
Klotzsch (syn. *C. pubescens* Vahl)**

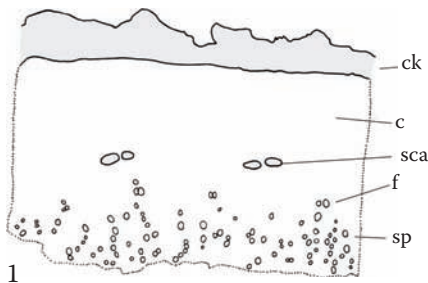
**Red Cinchona Bark**

*Cortex Cinchonae Rubrae*

*Rubiaceae*

The bark of the cinchona tree, also known as Peruvian bark, was the original source of the alkaloid quinine, one of the primary treatments of malaria worldwide. Its use for malarial fevers was discovered by native Peruvians and knowledge of its use was spread through Jesuit missionaries. The bark still remains one of the primary sources of quinine today. Two primary forms have been used historically: red cinchona (*C. succirubra*), the description of which is provided here, and yellow cinchona (*C. calisaya*). Histologically, both are similar (Youngken 1930).

**Transverse section:** Dark brown cork; a colorless pheloderm is apparent in some samples; cortex of dark brown parenchyma cells, some with thin walls and some with thickened, frequently pitted walls; parenchyma cells may be filled with calcium oxalate crystal sand; small crystals, up to 4  $\mu\text{m}$ , are irregularly shaped; secretory cavities occur primarily in the inner part of the cortex; these are up to 250  $\mu\text{m}$  diameter in the tangential direction and have a distinct cell wall; secondary phloem parenchyma cells contain calcium oxalate crystal sand; phloem rays are one to three (four) cells broad; large phloem fibers, up to 100  $\mu\text{m}$  diameter with circular striations, are usually solitary but may occur in radial rows; sclereids are absent.



**Longitudinal section:** Cortex contains broad secretory cavities ~1 mm long; narrow, elongated cells that may be secretory ducts are also apparent; fibers have conspicuous longitudinal striations and many unbranched pit channels, which become larger toward the cell lumen.

**Starch:** Infrequent; granules usually simple, may be two or three compounds, spheroidal or occasionally elliptical, up to 8  $\mu\text{m}$  long.

**Powder:** Fragments of fibers with pit channels becoming larger toward the lumen; brown parenchyma, some cells filled with calcium oxalate crystal sand; few fragments of cork; starch is infrequent.

