

## **Scutellaria lateriflora L.**

### **Skullcap Aerial Parts**

#### *Herba Scutellariae lateriflorae*

#### *Lamiaceae*

Skullcap is one of the primary nerve tonics used in Western herbal medicine. A number of different species native to North America were used for various purposes by a large variety of tribes. In addition to its nervine properties, skullcap has also been used for colds, rabies, and as an antispasmodic. Different species of *Scutellaria* can be traded and sold as “skullcap.” A complete microscopic examination of these species is lacking. A different plant germander (*Teucrium* spp.), which is a potential hepatotoxin, is more readily found as an adulterant of skullcap. For a differentiation between *Scutellaria lateriflora* and *Teucrium*, see the table at the end of this section.

### **A. Leaf**

**Surface view:** Upper epidermal cells have sinuous anticlinal walls; stomata are absent; cuticular striations occur over veins and around bases of covering trichomes; small glandular scales are found predominantly along veins, each head consisting of four to eight cells and ~30 µm in diameter; covering trichomes are rare, occurring mostly along veins, one to three cells long, up to 100 µm long, with slightly thickened walls, conspicuous cuticular striations, and acute apex; epidermal cells around the base of covering trichomes are arranged in a rosette pattern; lower epidermis has diacytic and anomocytic stomata, 25–30 µm long; glandular scales and covering trichomes are more frequent than on upper surface; small glandular scales typically have a four-celled head ~30 µm diameter; large glandular scales have a six- to eight-celled head ~45–50 µm diameter; covering trichomes are up to 300 µm long, bent, with conspicuous cuticular striations; leaf margin has small covering trichomes of one or two cells.

**Transverse section:** Bifacial; palisade cells in one or two rows; spongy parenchyma as broad as palisades.

### **B. Flowers**

**Calyx:** Two lips, with a dorsal crest (scutellum); outer epidermis with dense cuticular striations; diacytic and anomocytic stomata; densely covered with short, one- or two-celled covering trichomes up to 50 µm in length and small glandular scales; longer uniseriate covering trichomes are rare; few glandular trichomes with a uniseriate stalk up to 100 µm long and unicellular spheroidal head ~20 µm diameter.

**Corolla:** Epidermal cells on the margins are papillose, those in the central portion have sinuous anticlinal walls; glandular scales small; glandular trichomes with a uniseriate stalk up to 100 µm long and unicellular spheroidal head ~20 µm diameter; covering trichomes up to 200 µm long have one short basal cell and one long, acute terminal cell; few covering trichomes along the margin may reach 400 µm in length.

**Stamens:** Filament is glabrous except in the lower half, where unicellular and uniseriate thin-walled covering trichomes up to 400 µm occur; glandular trichomes are absent; apical region of the anthers has straight unicellular trichomes and papillae ranging from short to 100 µm in length.

### **C. Stem**

**Surface view:** Rare covering or glandular scales are similar to those found on the leaf.

**Transverse section:** Quadrangular, alate; collenchyma occurs in the wings; endodermis is apparent; in each corner is a crescent-shaped vascular bundle containing occasional fibers; vessels are up to 25 mm diameter; pith is present.

**Powder:** Fragments of leaf epidermis with diacytic and anomocytic stomata; glandular scales and bases of broken covering trichomes; fragments of covering trichomes with striated cuticle; parenchyma and fibers of the stem, with some vessels; few fragments of petals.