

***Aconitum carmichaeli* Debx.,
Aconitum kusnezoffi Reicher**

Aconite Prepared Root (Tuber)

Radix aconiti praeparata

Pinyin: Bai fu pian, zhi fu zi

(*A. carmichaeli* lateral roots); zhi chuan

wu (*A. carmichaeli* with lateral roots

removed); zhi cao wu (*A. kusnezoffi*)

Ranunculaceae

Aconite root is predominantly used in traditional Chinese medicine and must be prepared in a manner that effectively reduces the potential for toxicity of its alkaloids, among them, aconitine. Detoxification of aconite roots requires a very detailed multistep process that results in a degradation of the alkaloids, which is often accomplished by steam processing. Microscopic examination of steamed roots will show gelatinized masses of starch granules, whereas the structures of the unprepared root will be intact. This can be used as an indicator that the root has been processed, but is no guarantee that toxic alkaloids were completely eliminated. Chemical confirmation to show absence of aconitine is recommended.

Transverse section: The outermost tissue consists of a metaderm of brown suberized tabular cells from the cortex (true cork is absent); cortex of tangentially elongated cells; endodermis with Casparian strip; vascular bundles are irregularly arranged as a ring adjacent to the endodermis or closer to the root center; between the bundles are rectangular parenchyma cells; additional bundles are scattered throughout the section, their orientation is not always axial, appearing

oblique in transverse section; bundles have an irregular structure, with the phloem usually in narrow radial strands of small cells; fibers may be present near vascular bundles; large pith may be irregular in shape (stellate), primarily parenchymatous, and cells filled with gelatinized starch; sclereids may be scattered in all parenchyma, either solitary or in small groups, their shape is similar to parenchyma cells with walls slightly thickened and pitted.

Longitudinal section: Vessels with reticulate walls or bordered pits.

Starch: Traditional processing by boiling partially or completely degrades the starch; hence, in prepared samples, the starch appears as a gelatinized and amorphous substance.

Powder: Starch granules are absent or present as a gelatinized and amorphous substance in parenchyma; few sclereids; brown fragments of suberized cells; vessels with reticulate walls or bordered pits.

