

sclerenchymatous cells containing solitary crystals; portion near cambium is distinct; cells around the pith remarkably thick-walled; xylem medullary rays and parenchymatous cells around the pith contain solitary crystals of calcium oxalate and starch grains less than 8  $\mu\text{m}$  in diameter.

**Identification** To 0.5 g of pulverized *Akebia Stem* add 10 mL of water, boil, allow to cool, and shake vigorously: a lasting fine foam is produced.

**Total ash** Not more than 7.0%.

## Alisma Rhizome

### *Alismatis Rhizoma*

タクシャ

*Alisma Rhizome* is the tuber of *Alisma orientale* Juzepczuk (*Alismataceae*), from which periderm has been usually removed.

**Description** Spherical or conical tubers, 3 – 8 cm in length, 3 – 5 cm in diameter, sometimes a 2- to 4-branched irregular tuber; externally light grayish brown to light yellow-brown, and slightly annulate; many remains of root appearing as small warty protrusions; fractured surface nearly dense, the outer portion grayish brown, and the inner part white to light yellow-brown in color; rather light in texture and difficult to break. Slight odor and taste.

**Total ash** Not more than 5.0%.

**Acid-insoluble ash** Not more than 0.5%.

## Powdered Alisma Rhizome

### *Alismatis Rhizoma Pulveratum*

タクシャ末

Powdered *Alisma Rhizome* is the powder of *Alisma Rhizome*.

**Description** Powdered *Alisma Rhizome* occurs as a light grayish brown powder, and has a slight odor and taste.

Under a microscope, Powdered *Alisma Rhizome* reveals mainly starch grains, fragments of parenchyma containing them, parenchyma cells containing yellow contents, and fragments of vascular bundles. Starch grains, spheroidal to ellipsoidal simple grains, 3 – 15  $\mu\text{m}$  in diameter.

**Total ash** Not more than 5.0%.

**Acid-insoluble ash** Not more than 0.5%.

## Aloe

### *Aloe*

アロエ

*Aloe* is the dried juice of the leaves mainly of *Aloe ferox* Miller, or of hybrids of the species with *Aloe africana* Miller or *Aloe spicata* Baker (*Liliaceae*).

**Description** *Aloe* occurs as blackish brown to dark brown, irregular masses; sometimes the external surface covered with a yellow powder; the fractured surface smooth and glassy. Odor, characteristic; taste, extremely bitter.

**Identification** (1) Dissolve 0.5 g of pulverized *Aloe* in 50 mL of water by warming. After cooling, add 0.5 g of siliceous earth, and filter. Perform the following tests using the filtrate as the sample solution.

(i) Dissolve 0.2 g of sodium tetraborate decahydrate in 5 mL of the sample solution by warming in a water bath. Drop a few drops of this solution into 30 mL of water, and shake: a green fluorescence is produced.

(ii) Shake 2 mL of the sample solution with 2 mL of nitric acid: a yellow-brown color which changes gradually to green is produced. Then warm this colored solution in a water bath: the color of the solution changes to red-brown.

(2) To 0.2 g of pulverized *Aloe* add 10 mL of methanol, shake for 5 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of barbaloin for thin-layer chromatography in 1 mL of methanol, and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 10  $\mu\text{L}$  each of the sample solution and the standard solution on a plate of silica gel for thin-layer chromatography. Develop the plate with a mixture of ethyl acetate, acetone, water and acetic acid (100) (20:5:2:2) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 365 nm): one spot among several spots from the sample solution and a red fluorescent spot from the standard solution show the same color tone and the same *R<sub>f</sub>* value.

**Purity** (1) Resin—Warm 0.5 g of pulverized *Aloe* with 10 mL of diethyl ether on a water bath, and filter. Wash the residue and the filter paper with 3 mL of diethyl ether. Combine the filtrate and the washing, and evaporate the diethyl ether solution: the mass of the residue does not exceed 5.0 mg.

(2) Ethanol-insoluble substances—Boil 1.0 g of pulverized *Aloe* with 50 mL of ethanol (95) on a water bath for 30 minutes under a reflux condenser. Filter the warm mixture through a tared glass filter (G4), and wash the residue on the filter with ethanol (95) until the last washing becomes colorless. Dry the residue at 105°C for 5 hours, and weigh: the mass of the residue does not exceed 0.10 g.

**Loss on drying** Not more than 12.0% (6 hours).

**Total ash** Not more than 2.0%.

**Extract content** Water-soluble extract: not less than 40.0%.