

dark red-brown, with numerous dented spots originated from oil sacs; the inner surface, light yellowish white. Odor, characteristically aromatic; taste, acrid, which gives numbing sensation to the tongue.

Under a microscope, transverse section of Zanthoxylum Fruit reveals the external epidermis and the adjoined unicellular layer containing red-brown tannin; the pericarp holds oil sacs being up to approximately 500  $\mu\text{m}$  in diameter and sporadically vascular bundles consisting mainly of spiral vessels; the endocarp consists of stone cell layers; inner epidermal cells very small.

**Identification** To 0.5 g of pulverized Zanthoxylum Fruit add 100 mL of diluted ethanol (7 in 10), stopper the vessel tightly, shake for 30 minutes, filter, and use this filtrate as the sample solution. Perform the test with the sample solution as directed under the Thin-layer Chromatography. Spot 10  $\mu\text{L}$  of the sample solution on a plate of silica gel with complex fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of ethyl acetate, ethanol (95) and water (8:2:1) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (broad spectrum wavelength): one spot showing a grayish red to red color at the *Rf* value of about 0.7 appears.

**Purity** (1) Seed—The amount of the seeds contained in Zanthoxylum Fruit does not exceed 20.0%.

(2) Peduncle and twig—The amount of the peduncles and twigs contained in Zanthoxylum Fruit does not exceed 5.0%.

(3) Foreign matter—The amount of foreign matter other than peduncles and twigs contained in Zanthoxylum Fruit does not exceed 1.0%.

**Total ash** Not more than 6.0%.

**Acid-insoluble ash** Not more than 1.5%.

**Essential oil content** Perform the test with 30.0 g of pulverized Zanthoxylum Fruit as directed in the Essential oil content under the Crude Drugs: the volume of essential oil is not less than 1.0 mL.

## Powdered Zanthoxylum Fruit

### *Zanthoxyli Fructus Pulveratus*

サンショウ末

Powdered Zanthoxylum Fruit is the powder of Zanthoxylum Fruit.

**Description** Powdered Zanthoxylum Fruit occurs as a dark yellow-brown powder. It has a strong, characteristic aroma and an acrid taste leaving a sensation of numbness on the tongue.

Under a microscope, Powdered Zanthoxylum Fruit reveals fragments of inner tissue of pericarp consisting of stone cells with membranes about 2.5  $\mu\text{m}$  in thickness; fragments of spiral and annular vessels 10 to 15  $\mu\text{m}$  in diameter; fragments of oil sacs containing essential oil or resin; fragments of epidermal cells, polygonal in surface view, containing tannin; numerous oil drops; masses of tannin, colored red by adding vanillin-hydrochloric acid TS.

**Identification** To 0.5 g of Powdered Zanthoxylum Fruit add 100 mL of diluted ethanol (7 in 10), stopper the vessel tightly, shake for 30 minutes, filter, and perform the test with the filtrate as the sample solution as directed under the Thin-layer Chromatography. Spot 10  $\mu\text{L}$  of the sample solution on a plate of silica gel with complex fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of chloroform, methanol and water (30:10:1) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (broad spectrum wavelength): one spot showing a grayish red to red color at the *Rf* value of about 0.85 appears.

**Total ash** Not more than 6.0%.

**Acid-insoluble ash** Not more than 1.5%.

**Essential oil content** Perform the test with 30.0 g of Powdered Zanthoxylum Fruit as directed in the Essential oil content under the Crude Drugs: the volume of essential oil is not less than 0.8 mL.

**Containers and storage** Containers—Tight containers.

## Zedoary

### *Zedoariae Rhizoma*

ガジュツ

Zedoary is the rhizome of *Curcuma zedoaria* Roscoe (*Zingiberaceae*), usually after being passed through hot water.

**Description** Nearly ovoid rhizome, 4–6 cm in length, 2.5–4 cm in diameter; externally grayish yellow-brown to grayish brown; nodes protruded as rings; internode of 0.5–0.8 cm, with thin, longitudinal wrinkles, scars of removed roots, and small protrusions of branched rhizomes; under a magnifying glass, external surface covered with coarse hairs; horny in texture and difficult to cut; cross section grayish brown in color; cortex 2–5 mm in thickness, stele thick, a light grayish brown ring separating them. Odor, characteristic; taste, pungent, bitter and cooling.

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

**Essential oil content** Perform the test as directed in the Essential oil content under the Crude Drugs using 50.0 g of pulverized Zedoary, provided that 1 mL of silicon resin is previously added to the sample in the flask: the volume of essential oil is not less than 0.5 mL.

## Zinc Chloride

塩化亜鉛

ZnCl<sub>2</sub>: 136.30

Zinc Chloride contains not less than 97.0% of ZnCl<sub>2</sub>.