

## Citrus Unshiu Peel

*Aurantii Bobilis Pericarpium*

チンピ

Citrus Unshiu Peel is the pericarp of the ripe fruit of *Citrus unshiu* Markovich or *Citrus reticulata* Blanco (*Rutaceae*).

**Description** Irregular pieces of pericarp, about 2 mm in thickness; externally yellow-red to dark yellow-brown, with numerous small dents associated with oil sacs; internally white to light grayish yellow-brown; light and brittle in texture. Odor, characteristic aroma; taste, bitter and slightly pungent.

**Identification** To 0.5 g of pulverized Citrus Unshiu Peel add 10 mL of methanol, warm on a water bath for 2 minutes, and filter. To 5 mL of the filtrate add 0.1 g of magnesium in ribbon-form and 1 mL of hydrochloric acid, and allow to stand: a red-purple color develops.

**Loss on drying** Not more than 13.0% (6 hours).

**Total ash** Not more than 4.0%.

**Extract content** Dilute ethanol-soluble extract: not less than 30.0%.

**Essential oil content** Perform the test with 50.0 g of pulverized Citrus Unshiu Peel as directed in Essential oil content under the Crude Drugs, 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 0.2 mL.

## Clove

*Caryophylli Flos*

チヨウジ

Clove is the flowering bud of *Syzygium aromaticum* Merrill et Perry (*Eugenia caryophyllata* Thunberg) (*Myrtaceae*).

**Description** Dark brown to dark red buds, 1–1.8 cm in length, consisting of slightly compressed and four-sided receptacle, crowned by 4 thick sepals and 4 nearly spherical, membranous, imbricated petals, enclosing numerous stamens and a single style. Odor, strong and characteristic; taste, pungent, followed by a slight numbness of the tongue.

**Identification** Mix 0.1 mL of the mixture of essential oil and xylene, obtained in the Essential oil content, with 2 mL of ethanol (95), and add 1 to 2 drops of iron (III) chloride TS: a green to blue color develops.

**Purity (1)** Stem—The amount of the stem contained in Clove does not exceed 5.0%.

**(2)** Foreign matter—The amount of foreign matter other than the stem contained in Clove does not exceed 1.0%.

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

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

**Essential oil content** Perform the test with 10.0 g of Clove as directed in the Essential oil content under the Crude Drugs: the volume of essential oil is not less than 1.6 mL.

## Powdered Clove

*Caryophylli Flos Pulveratus*

チヨウジ末

Powdered Clove is the powder of Clove.

**Description** Powdered Clove occurs as a dark brown powder. It has a strong, characteristic odor and a pungent taste, followed by slight numbness of the tongue.

Under a microscope, Powdered Clove reveals epidermal tissue with stomata, collenchyma, parenchyma with oil sacs, and spongy parenchyma or its fragments; furthermore, a few fusiform thick-walled fibers, spiral vessels 6–10  $\mu\text{m}$  in diameter, anther and pollen grains, and rosette aggregates of calcium oxalate 10–15  $\mu\text{m}$  in diameter. Epidermis of anther shows characteristically reticulated walls; pollen grains tetrahedral 10–20  $\mu\text{m}$  in diameter; rosette aggregates of calcium oxalate arranged in crystal cell rows, or contained in collenchyma cells and parenchyma cells.

**Identification** Mix 0.1 mL of a mixture of essential oil and xylene, obtained in the Essential oil content, with 2 mL of ethanol (95), and add 1 to 2 drops of iron (III) chloride TS: a green to blue color develops.

**Purity** Foreign matter—Under a microscope, Powdered Clove does not contain stone cells or starch grains.

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

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

**Essential oil content** Perform the test with 10.0 g of Powdered Clove as directed in the Essential oil content under the Crude Drugs: the volume of essential oil is not less than 1.3 mL.

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

## Clove Oil

*Oleum Caryophylli*

チヨウジ油

Clove Oil is the volatile oil distilled with steam from the flower buds or leaves of *Syzygium aromaticum* Merrill et Perry (*Eugenia caryophyllata* Thunberg) (*Myrtaceae*).

It contains not less than 80.0 vol% of total eugenol.

**Description** Clove Oil is a colorless or light yellow-brown, clear liquid. It has a characteristic aroma and a burning taste.

It is miscible with ethanol (95) and with diethyl ether.