

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 μm in diameter, anther and pollen grains, and rosette aggregates of calcium oxalate 10–15 μm in diameter. Epidermis of anther shows characteristically reticulated walls; pollen grains tetrahedral 10–20 μm 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.

It is slightly soluble in water.

It acquires a brown color upon aging or by air.

Identification (1) To 5 drops of Clove Oil add 10 mL of calcium hydroxide TS, and shake vigorously: the oil forms a flocculent mass, and a white to light yellow color develops.

(2) Dissolve 2 drops of Clove Oil in 4 mL of ethanol (95), and add 1 to 2 drops of iron (III) chloride TS: a green color is produced.

Refractive index n_D^{20} : 1.527 – 1.537

Optical rotation α_D^{20} : 0 – -1.5° (100 mm).

Specific gravity d_{20}^{20} : 1.040 – 1.068

Purity (1) Clarity of solution—Dissolve 1.0 mL of Clove Oil in 2.0 mL of diluted ethanol (7 in 10): the solution is clear.

(2) Water-soluble phenols—To 1.0 mL of Clove Oil add 20 mL of boiling water, shake vigorously, filter the aqueous layer after cooling, and add 1 to 2 drops of iron (III) chloride TS: a yellow-green, but no blue or violet, color develops.

(3) Heavy metals—Proceed with 1.0 mL of Clove Oil according to Method 2, and perform the test. Prepare the control solution with 4.0 mL of Standard Lead Solution (not more than 40 ppm).

Assay Take 10.0 mL of Clove Oil in a Cassia flask, add 70 mL of sodium hydroxide TS, shake for 5 minutes and warm for 10 minutes in a water bath with occasional shaking, add sodium hydroxide TS to the volume after cooling, and allow to stand for 18 hours. Measure the volume (mL) of the separated oily layer.

$$\begin{aligned} & \text{Total eugenol (vol\%)} \\ & = [10 - (\text{volume of separated oily layer})] \times 10 \end{aligned}$$

Containers and storage Containers—Tight containers.
Storage—Light-resistant.

Cnidium Rhizome

Cnidii Rhizoma

センキュウ

Cnidium Rhizome is the rhizome of *Cnidium officinale* Makino (*Umbelliferae*), usually passed through hot water.

Description Irregular massive rhizome, occasionally cut lengthwise; 5 – 10 cm in length, and 3 – 5 cm in diameter; externally grayish brown to dark brown, with gathered nodes, and with knobbed protrusions on the node; margin of the vertical section irregularly branched; internally grayish white to grayish brown, translucent and occasionally with hollows; dense and hard in texture. Odor, characteristic; taste, slightly bitter.

Under a microscope, a transverse section reveals cortex and pith with scattered oil canals; in the xylem, thick-walled and lignified xylem fibers appear in groups of various sizes; starch grains usually gelatinized, but rarely remaining as grains of 5 – 25 μm in diameter; crystals of calcium oxalate not observable.

Total ash Not more than 6.0%.

Acid-insoluble ash Not more than 1.0%.

Powdered Cnidium Rhizome

Cnidii Rhizoma Pulveratum

センキュウ末

Powdered Cnidium Rhizome is the powder of Cnidium Rhizome.

Description Powdered Cnidium Rhizome occurs as a gray to light grayish brown powder. It has a characteristic odor and a slightly bitter taste.

Under a microscope, Powdered Cnidium Rhizome reveals colorless and gelatinized starch masses, and fragments of parenchyma containing them; fragments of scalariform and reticulate vessels 15 – 30 μm in diameter; fragments of thick-walled and lignified xylem fibers 20 – 60 μm in diameter; fragments of yellow brown cork tissue; fragments of secretory tissue.

Purity Foreign matter—Under a microscope, Powdered Cnidium Rhizome does not contain a large quantity of starch grains, stone cells, crystals of calcium oxalate or other foreign matter.

Total ash Not more than 6.0%.

Acid-insoluble ash Not more than 1.0%.

Containers and storage Containers—Tight containers.
Storage—Light-resistant.

Coconut Oil

Oleum Cocois

ヤシ油

Coconut oil is the fixed oil obtained from the seeds of *Cocos nucifera* Linné (*Palmae*).

Description Coconut Oil is a white to light yellow mass or a colorless or light yellow, clear oil. It has a slight, characteristic odor and a mild taste.

It is freely soluble in diethyl ether and in petroleum ether. It is practically insoluble in water.

At a temperature below 15°C, it congeals to a hard and brittle solid.

Melting point: 20 – 28°C (Method 2)

Acid value Not more than 0.2.

Saponification value 246 – 264

Unsaponifiable matter Not more than 1.0%.

Iodine value 7 – 11

Containers and storage Containers—Tight containers.