

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**  $\alpha_D^{20}$ : 0 –  $-1.5^\circ$  (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  $\mu\text{m}$  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  $\mu\text{m}$  in diameter; fragments of thick-walled and lignified xylem fibers 20 – 60  $\mu\text{m}$  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.