Description Powdered Gentian occurs as a yellowish brown powder, and has a characteristic odor. It has a sweet taste at first, which later becomes persistently bitter.

Under a microscope, Powdered Gentian reveals parenchyma cells containing oil droplets and minute needle crystals, vessels, tracheids, cork tissues, and crystals of calcium oxalate. Vessels are chiefly reticulate vessels and scalariform vessels, 20 - 80 μm in diameter. Starch grains are observed very rarely, in simple grains about 10 - 20 μm in diameter.

Identification (1) Place 0.1 g of Powdered Gentian, previously dried in a desiccator (silica gel) for 48 hours, on a slide glass, put a glass ring 10 mm in both inside diameter and in height on it, then cover with another slide glass, and heat gently and gradually: light yellow crystals are sublimed on the upper glass. The crystals are insoluble in water and in ethanol (95), and soluble in potassium hydroxide TS.

(2) To 0.5 g of Powdered Gentian add 10 mL of methanol, shake for 5 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of gentiopicroside 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 μL each of the sample solution and the standard solution on a plate of silica gel with fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of ethyl acetate, ethanol (99.5) and water (8:2:1) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 254 nm): one spot among the spots from the sample solution and a dark purple spot from the standard solution show the same color tone and the same *Rf* value.

Purity Foreign matter—Under a microscope, no stone cell or fiber is observed.

Total ash Not more than 6.0%.

Acid-insoluble ash Not more than 3.0%.

Containers and storage Containers—Tight containers.

Gentian and Sodium Bicarbonate Powder

ゲンチアナ・重曹散

Method of preparation

Powdered Gentian	300 g
Sodium Bicarbonate	700 g
To make	1000 g

Prepare as directed under Powders, with the above ingredients.

Description Gentian and Sodium Bicarbonate Powder occurs as a light yellow-brown powder, and has a bitter taste.

Identification (1) To 2 g of Gentian and Sodium Bicarbonate Powder add 10 mL of water, stir, and filter: the filtrate responds to the Qualitative Test (1) for bicarbonate.

(2) To 1.5 g of Gentian and Sodium Bicarbonate Powder add 10 mL of methanol, shake for 5 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of gentiopicroside 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 5 μL each of the sample solution and the standard solution on a plate of silica gel with fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of ethyl acetate, ethanol (99.5) and water (8:2:1) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 254 nm): one spot among the spots from the sample solution and a dark purple spot from the standard solution show the same color tone and the same *Rf* value.

Containers and storage Containers—Well-closed containers.

Geranium Herb

Geranii Herba

ゲンノショウコ

Geranium Herb is the terrestrial part of *Geranium thunbergii* Siebold et Zuccarini (*Geraniaceae*).

Description Stem with leaves opposite; stem, slender and long, green-brown; stem and leaf covered with soft hairs; leaf divided palmately into 3 to 5 lobes, and 2 - 4 cm in length, grayish yellow-green to grayish brown; each lobe oblong to obovate, and its upper margin crenate. Odor, slight; taste, astringent.

Identification Boil 0.1 g of Geranium Herb with 10 mL of water, filter, and to the filtrate add 1 drop of iron (III) chloride TS: a dark blue color develops.

Purity Foreign matter—The amount of the root and other foreign matter contained in Geranium Herb does not exceed 2.0%.

Total ash Not more than 10.0%.

Acid-insoluble ash Not more than 1.5%.

Extract content Dilute ethanol-soluble extract: not less than 15.0%.

Powdered Geranium Herb

Geranii Herba Pulverata

ゲンノショウコ末

Powdered Geranium Herb is the powder of Geranium Herb.

Description Powdered Geranium Herb occurs as a grayish green to light yellow-brown powder. It has a slight odor and an astringent taste.

Under a microscope, Powdered Geranium Herb reveals mainly fibers, spiral vessels, pitted vessels, and unicellular

hairs; furthermore, multicellular glandular hairs, epidermis with stomata, fragments of palisade tissue, rosette aggregates of calcium oxalate, and starch grains. Fiber is thick-walled, with somewhat distinct pits; unicellular hair shows small point-like protrusions on the surface; palisade tissue consisting of circular parenchyma cells in surface view, each cell containing one rosette aggregate of calcium oxalate which is about 20 μm in diameter. Starch grains consisting of simple grains but rarely of 2-compound grains, ovoid to spherical, 5 - 30 μm in diameter, with distinct hilum.

Identification Boil 0.1 g of Powdered Geranium Herb with 10 mL of water, filter, and to the filtrate add 1 drop of iron (III) chloride TS: a dark blue color develops.

Purity Foreign matter—Under a microscope, Powdered Geranium Herb reveals no stone cells.

Total ash Not more than 10.0%.

Acid-insoluble ash Not more than 1.5%.

Extract content Dilute ethanol-soluble extract: not less than 15.0%.

Ginger

Zingiberis Rhizoma

ショウキョウ

Ginger is the rhizome of *Zingiber officinale* Roscoe (*Zingiberaceae*).

Description Irregularly compressed and often branched massive rhizome or a part of it; the branched parts are slightly curved ovoid or oblong-ovoid, 2 - 4 cm in length, and 1 - 2 cm in diameter; external surface grayish white to light grayish brown, and often with white powder; fractured surface is somewhat fibrous, powdery, light yellowish brown; under a magnifying glass, a transverse section reveals cortex and stele distinctly divided; vascular bundles and secretes scattered all over the surface as small dark brown dots. Odor, characteristic; taste, extremely pungent.

Identification To 2 g of pulverized Ginger add 5 mL of acetone, shake for 3 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of [6]-gingerol for thin-layer chromatography in 1 mL of acetone, and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 10 μL of the sample solution on a plate of silica gel for thin-layer chromatography. Develop the plate with a mixture of hexane, acetone and acetic acid (100) (10:7:1) to a distance of about 10 cm, and air-dry the plate. Spray evenly the plate with 2,4-dinitrophenylhydrazine TS, and heat at 105°C for 10 minutes: one of the spots from the sample solution and a brown spot from the standard solution shows the same color tone and *R*f value.

Total ash Not more than 8.0%

Powdered Ginger

Zingiberis Rhizoma Pulveratum

ショウキョウ末

Powdered Ginger is the powder of Ginger.

Description Powdered Ginger occurs as a light grayish brown to light grayish yellow powder. It has a characteristic odor and an extremely pungent taste.

Under a microscope, Powdered Ginger reveals mainly starch grains and parenchyma cells containing them; also, parenchyma cells containing yellow-brown to dark brown resinous substances or single crystals of calcium oxalate; fragments of fibers with distinct pits; fragments of spiral, ring and reticulate vessels, and rarely fragments of cork tissue; starch grains composed of simple, compound or half-compound grains, spherical, ovoid or globular, with abaxial hilum, usually 20 - 30 μm in long axis.

Identification To 2 g of Powdered Ginger add 5 mL of acetone, shake for 3 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of [6]-gingerol for thin-layer chromatography in 1 ml of acetone, and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 10 μL of the sample solution on a plate of silica gel for thin-layer chromatography. Develop the plate with a mixture of hexane, acetone and acetic acid (100) (10:7:1) to a distance of about 10 cm, and air-dry the plate. Spray evenly the platewith 2,4-dinitrophenylhydrazine TS, and heat at 105°C for 10 minutes: one of the spots from the sample solution and a brown spot from the standard solution shows the same color tone and *R*f value.

Purity Foreign matter—Under a microscope, Powdered Ginger does not show stone cells, lignified parenchyma cells and other foreign matter.

Total ash Not more than 8.0%.

Containers and storage Containers—Tight containers.

Ginseng

Ginseng Radix

ニンジン

Ginseng is the root of *Panax ginseng* C. A. Meyer (*Panax schinseng* Nees) (*Araliaceae*), from which rootlets have been removed, or the root has been quickly passed through hot water.

Description Thin and long cylindrical to fusiform root, often branching 2 to 5 lateral roots from the middle; 5 - 20 cm in length, main root 0.5 - 3 cm in diameter; externally light yellow-brown to light grayish brown, with longitudinal wrinkles and scars of rootlets; sometimes crown somewhat constricted and with short remains of rhizome; fractured surface practically flat, light yellow-brown in color, and brown