

**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  $\mu\text{m}$  in diameter. Starch grains are observed very rarely, in simple grains about 10–20  $\mu\text{m}$  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  $\mu\text{L}$  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  $R_f$  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

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### 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  $\mu\text{L}$  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  $R_f$  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