Herb in a glass-stoppered centrifuge tube, add 40 mL of methanol, shake for 15 minutes, centrifuge, and separate the supernatant liquid. To the residue add 40 mL of methanol, and proceed in the same manner. Combine the extracts, and add methanol to make exactly 100 mL. Pipet 5 mL of the solution, add the mobile phase to make exactly 20 mL, and use this solution as the sample solution. Separately, weigh accurately about 0.01 g of Swertiamarin Reference Standard (separately determine the water content), dissolve in methanol to make exactly 20 mL. Pipet 5 mL of the solution, add the mobile phase to make exactly 20 mL, and use this solution as the standard solution. Perform the test with exactly 10 μL each of the sample solution and the standard solution as directed under the Liquid Chromatography according to the following conditions, and determine the peak areas, A_T and A_S, of swertiamarin in each solution.

Amount (mg) of swertiamarin ($C_{16}H_{22}O_{10}$)
= amount (mg) of Swertiamarin Reference Standard, calculated on the anhydrous basis

$$\times \frac{A_T}{A_S} \times 5$$

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 238 nm).

Column: A stainless steel column 4.6 mm in inside diameter and 15 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 μm in particle diameter).

Column temperature: A constant temperature of about 50°C.

Mobile phase: A mixture of water and acetonitrile (91:9).

Flow rate: Adjust the flow rate so that the retention time of swertiamarin is about 12 minutes.

System suitability—

System performance: Dissolve 1 mg each of Sweriamarin Reference Standard and theophylline in the mobile phase to make 10 mL. When the procedure is run with 10 μL of this solution under the above operating conditions, theophylline and swertiamarin are eluted in this order with the resolution of these peaks being not less than 10.

System repeatability: When the test is repeated 6 times with 10 μL of the standard solution under the above operating conditions, the relative standard deviation of the peak areas of swertiamarin is not more than 1.5%.

Swertia and Sodium Bicarbonate Powder

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Method of preparation

Powdered Swertia Herb	30 g
Sodium Bicarbonate	700 g
Starch, Lactose or their mixture	a sufficient quantity
To make	1000 g

Prepare as directed under Powders, with the above ingredients.

Description Swertia and Sodium Bicarbonate Powder occurs as a light grayish yellow powder, having a bitter taste.

Identification (1) To 10 g of Swertia and Sodium Bicarbonate Powder add 10 mL of ethanol (95), shake for 15 minutes, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of swertiamarin for thin-layer chromatography in 1 mL of ethanol (95), and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 30 μL each of the sample solution and the standard solution on a plate of silica gel with fluorescent indicator for thin-layer chromatography. Proceed as directed in the Identification under Swertia Herb.

(2) To 0.5 g of Swertia and Sodium Bicarbonate Powder add 10 mL of water. After stirring, centrifuge the mixture with 500 revolutions per minute. Smear, using a small glass rod, the slide glass with a small amount of the precipitate, add 1 drop of a mixture of water and glycerin (1:1), and put a cover glass on it so that the tissue section spreads evenly without overlapping each other, taking precaution against inclusion of bubbles, and use this as the preparation for microscopic examination. If the precipitate separates into two layers, proceed with the upper layer in the same manner, and use as the preparation for microscopic examination. Heat the preparation for microscopic examination in a short time: the preparation reveals the yellow-green to yellow-brown, approximately spherical pollen grains with granular patterns under a microscope. The pollen grains are about 33 μm in diameter.

(3) The supernatant liquid obtained in (2) by centrifuging responds to the Qualitative Tests (1) for bicarbonate.

Containers and storage Containers—Well-closed containers.

Talc

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Talc is a native, hydrous magnesium silicate, sometimes containing a small portion of aluminum silicate.

Description Talc occurs as a white to grayish white, fine, crystalline powder. It is odorless and tasteless.

It is unctuous, and adheres readily to the skin.

It is practically insoluble in water, in ethanol (95) and in diethyl ether.

Identification (1) Mix 0.2 g of Talc with 0.9 g of anhydrous sodium carbonate and 1.3 g of potassium carbonate, and heat the mixture in a platinum or nickel crucible until fusion is complete. Cool, and transfer the fused mixture to a beaker with the aid of 50 mL of hot water. Add hydrochloric acid until it ceases to cause effervescence, add 10 mL of hydrochloric acid, and evaporate the mixture on a water bath to dryness. Cool, add 20 mL of water, boil, and filter. Add 10 mL of a solution of methylene blue trihydrate (1 in 10,000) to the residue, and wash with water: the precipitate is blue in color.

(2) Dissolve 2 g of ammonium chloride and 5 mL of ammonia TS in the filtrate obtained in (1), filter if necessary,