

Scutellaria Root

Scutellariae Radix

オウゴン

Scutellaria Root is the root of *Scutellaria baicalensis* Georgi (*Labiatae*), from which the periderm has been removed.

It contains not less than 10.0% of baicalin, calculated on the basis of dried material.

Description Cone-shaped, semitubular or flattened root, 5–20 cm in length, 0.5–3 cm in diameter; externally yellow-brown, with coarse and marked longitudinal wrinkles, and with scattered scars of lateral root and remains of brown periderm; scars of stem or remains of stem at the crown; xylem rotted in old roots, often forming a hollow; hard in texture and easily broken; fractured surface fibrous and yellow in color. Almost odorless; taste, slightly bitter.

Identification (1) Boil gently 0.5 g of pulverized Scutellaria Root with 20 mL of diethyl ether under a reflux condenser on a water bath for 5 minutes, cool, and filter. Evaporate the filtrate, dissolve the residue in 10 mL of ethanol (95), and to 3 mL of the solution add 1 to 2 drops of dilute iron (III) chloride TS: a grayish green color develops, and it changes to purple-brown.

(2) To 2.0 g of pulverized Scutellaria Root add 10 mL of methanol, warm on a water bath for 3 minutes, cool, filter, and use the filtrate as the sample solution. Separately, dissolve 1 mg of baicalin 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 μ L each of the sample solution and the standard solution on a plate of silica gel for thin-layer chromatography. Develop the plate with a mixture of 1-butanol, water and acetic acid (100) (4:2:1) to a distance of about 10 cm, and air-dry the plate. Spray evenly a solution of iron (III) chloride hexahydrate in methanol (1 in 100) on the plate: one spot among the spots from the sample solution and a dark green spot from the standard solution show the same color tone and the same R_f value.

Total ash Not more than 6.0%.

Loss on drying Not more than 12.0% (6 hours).

Assay Weigh accurately about 0.5 g of pulverized Scutellaria Root, add 30 mL of the mobile phase, heat under a reflux condenser on a water bath for 30 minutes, and cool. Transfer the mixture of the pulverized Scutellaria Root and the mobile phase into a glass-stoppered centrifuge tube, centrifuge after shaking for 5 minutes, and separate the supernatant liquid. Wash the vessel for the reflux extraction with 30 mL of the mobile phase, transfer the washings to the glass-stoppered centrifuge tube, centrifuge, and separate the supernatant liquid. To the residue add 30 mL of the mobile phase, shake for 5 minutes, centrifuge, and separate the supernatant liquid. Combine all the extracts, add the mobile phase to make exactly 100 mL, then pipet 2 mL of the extract, 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 Baicalin Reference Standard, and dissolve in methanol to

make exactly 20 mL. Pipet 2 mL of the solution, add the mobile phase to make exactly 20 mL, and use this solution as the standard solution. Pipet 10 μ L of the sample solution and the standard solution, and perform the test as directed under the Liquid Chromatography according to the following conditions. Determine the peak areas, A_T and A_S , of baicalin in each solution.

$$\begin{aligned} & \text{Amount (mg) of baicalin (C}_{21}\text{H}_{18}\text{O}_{11}) \\ &= \text{amount (mg) of Baicalin Reference Standard,} \\ & \quad \text{calculated on the anhydrous basis} \\ & \quad \times \frac{A_T}{A_S} \times 5 \end{aligned}$$

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 277 nm).

Column: A stainless steel column 4 to 6 mm in inside diameter and 15 to 25 cm in length, packed with octadecylsilylanized silica gel for liquid chromatography (5 to 10 μ m in particle diameter).

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

Mobile phase: A mixture of diluted phosphoric acid (1 in 146) and acetonitrile (18:7).

Flow rate: Adjust the flow rate so that the retention time of baicalin is about 6 minutes.

Selection of column: Dissolve 1 mg of Baicalin Reference Standard and 2 mg of methyl parahydroxybenzoate in methanol to make 100 mL. Perform the test with 10 μ L of this solution under the above operating conditions and calculate the resolution. Use a column giving elution of baicalin and methyl parahydroxybenzoate in this order with the resolution between these peaks being not less than 3.

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

Powdered Scutellaria Root

Scutellariae Radix Pulverata

オウゴン末

Powdered Scutellaria Root is the powder of Scutellaria Root.

It contains not less than 10.0% of baicalin, calculated on the basis of dried material.

Description Powdered Scutellaria Root occurs as a yellow-brown powder. It is almost odorless, and has a slight, bitter taste.

Under a microscope, Powdered Scutellaria Root reveals fragments of parenchyma cells containing small amount of starch grains, fragments of reticulated vessels, tracheids and elongated stone cells; also a few fragments of spiral vessels and xylem fibers are observed.

Identification (1) Boil gently 0.5 g of Powdered Scutellaria Root with 20 mL of diethyl ether under a reflux condenser on a water bath for 5 minutes, cool, and filter. Evaporate the