SOPHORA FLAVESCENS

This product is the dried root of Sophora flavescens Ait. of the Leguminosae family. It is dug up in spring and autumn, the root head and small branches are removed, washed, and dried, or sliced and dried while fresh.

【PROPERTIES】

This product is long cylindrical, often with branches at the bottom, 10-30cm long, 1-6.5cm in diameter. The surface is gray-brown or brown-yellow, with longitudinal wrinkles and transverse lenticel-like protrusions. The outer skin is thin, often cracked and curled, easy to peel off, and the peeling part is yellow and smooth. It is hard and not easy to break. The cross section is fibrous; the slice thickness is 3-6mm; the cross section is yellow-white, with radial texture and cracks, and some have heteromorphic vascular bundles in concentric rings or irregularly scattered. The smell is slight and the taste is extremely bitter.

【IDENTIFICATION】

(1) The powder of this product is light yellow. The cork cells are light brown, flat and rectangular in cross section, with slightly curved walls; the surface is polygonal, with irregular fine cracks on the surface of the flat wall, and intermittent pits on the vertical wall. Fibers and crystal fibers, mostly in bundles; fibers are slender, 11~27μm in diameter, thick wall, non-lignified; cells around fiber bundles contain calcium oxalate crystals, forming crystal fibers, and the walls of crystal-containing cells are unevenly thickened. Calcium oxalate crystals are bipyramidal, rhombic or polyhedral, with a diameter of about 237μm. Starch granules, single grains are round or oblong, 2~20μrn in diameter, with a crack-like umbilicus, and the large grain layer pattern is faintly visible; there are many complex grains, consisting of 2~12 sub-grains.

(2) Take a cross-section of this product and add a few drops of sodium hydroxide test solution. The cork will turn orange-red, gradually turn to blood red, and will not disappear after long-term storage. The wood does not show color reaction.

(3) Take 0.5g of this product powder, add 0.3ml of concentrated ammonia test solution and 25ml of chloroform, leave overnight, filter, evaporate the filtrate to dryness, and add 0.5ml of chloroform to the residue to dissolve it as the test solution. Take matrine reference substance and sophoridine reference substance separately, add ethanol to make a mixed solution containing 0.2 mg of each per 1 ml, as the reference substance solution. According to the thin layer chromatography method (General Rule 0502), take 4R of each of the above two solutions and spot them on the same silica gel G thin layer plate prepared with 2% sodium hydroxide solution, use toluene-acetone-methanol (8:3:05) as the developing agent, develop, develop 8 cm, take out, dry, and then use toluene-ethyl acetate-methanol-water (2:4:2:1) The upper layer solution placed below 10°C is used as the developing agent, develop, take out, dry, and spray with potassium iodide test solution and sodium nitrite ethanol test solution in turn. In the chromatogram of the test sample, the same orange spot appears at the corresponding position of the chromatogram of the reference substance.

(4) Take oxymatrine reference substance, add ethanol to make a solution containing 0.2 mg per 1 ml, as the reference substance solution. According to the thin layer chromatography method (General Rule 0502), 4 μl of the test solution and the reference solution under [Identification] (3) are taken and spotted on the same silica gel G thin layer plate prepared with 2% sodium hydroxide solution. The lower layer solution of chloroform-methanol-concentrated ammonia test solution (5:0.6:0.3) placed below 10°C is used as the developing agent. After development, the plate is taken out, dried, and sprayed with potassium iodide test solution and sodium nitrite ethanol test solution in turn. In the chromatogram of the test sample, the same orange spot appears at the corresponding position of the chromatogram of the reference sample.

【INSPECTION】

Water content shall not exceed 11.0% (General Rule 0832, second method).
Total ash content shall not exceed 8.0% (General Rule 2302).

【EXTRACT】

Determined by cold leaching method under water-soluble extract determination method (General Rule 2201), shall not be less than 20.0%.

【CONTENT DETERMINATION】

Determined by high performance liquid chromatography (General Rule 0512).
Chromatographic conditions and system suitability test: Octadecylsilane bonded silica gel is used as filler; acetonitrile-[0.01mol/L acetic acid solution (adjusted to pH 8.1 with concentrated ammonia test solution)] (3:2) is used as mobile phase A, 0.01mol/L acetic acid solution (adjusted to pH 8.1 with concentrated ammonia test solution) is used as mobile phase E, and gradient elution is performed according to the provisions in the following table; the detection wavelength is 225nm, and the number of theoretical plates calculated based on the oxymatrine peak should not be less than 4000.

TIME (MINUTES)	TIME (MINUTES)	MOBILE PHASE B (%)
0～20	10→30	90→70
20~40	30→40	70→60
40~50	40→60	60→40

Preparation of reference solution Take appropriate amount of matrine reference and oxymatrine reference, weigh accurately, add ethanol to make solutions containing 50mg of matrine and 0.15mg of oxymatrine per ml, respectively.
Preparation of test solution Take about 0.3g of the powder of this product (passed through No. 3 sieve), weigh accurately, put it in a stoppered conical bottle, add 0.4ml of concentrated ammonia test solution, accurately add 25ml of chloroform, plug it tightly, weigh the weight, ultrasonically treat (power 250W, frequency 33kHz) for 40 minutes, cool, weigh again, make up the lost weight with chloroform, shake well, filter, accurately measure 10ml of the filtrate, recover the solvent to dryness, add appropriate amount of anhydrous ethanol to dissolve the residue, transfer it to a 10ml volumetric bottle, add anhydrous ethanol to the scale, shake well, and get it.
Determination method: Accurately pipette 50 of each of the two reference solutions and 5-10R of the test solution, inject into the liquid chromatograph, and determine.
The total amount of matrine ($C_{15}H_{24}N_2O_2$) and oxymatrine ($C_{15}H_{24}N_2O_2$) in this product shall not be less than 1.2% based on the dry product.

MEDICINAL PIECES

【PROCESSING】

Remove the remaining root heads, separate the large and small, wash, soak until about 60% through, moisten thoroughly, cut into thick slices, and dry.

【 PROPERTIES 】

This product is in the form of thick slices of quasi-circular or irregular shapes. The outer skin is gray-brown or brown-yellow, and sometimes horizontal long lenticel-like protrusions can be seen. The outer skin is thin, often cracked, curled or fallen off, and the fallen part is yellow or brown-yellow and smooth. The cut surface is yellow-white, fibrous, with radial texture and cracks, and some concentric ring patterns can be seen. The smell is slight and the taste is extremely bitter.

【 CONTENT DETERMINATION 】

The total amount of matrine ($C_{15}H_{24}N_2O$) and oxymatrine ($C_{15}H_{24}N_2O_2$) in the same medicinal material shall not be less than 1.0%.

【 IDENTIFICATION 】 【 INSPECTION 】 【 EXTRACT 】

The same medicinal material.

【 NATURE AND FLAVOR AND MERIDIANS 】

Bitter, cold. It enters the heart, liver, stomach, large intestine, and bladder meridians.

【 FUNCTIONS AND INDICATIONS 】

Clears heat and dries dampness, kills insects, and promotes urination. It is used for heat dysentery, blood in stool, jaundice and urine retention, leucorrhea, vaginal swelling and itching, eczema, wet sores, skin itching, scabies and leprosy; external treatment of trichomoniasis vaginitis.

【 USAGE AND DOSAGE 】

4 5~9g. For external use, decoct in water and wash the affected area.

【 NOTE 】

It should not be used with Veratrum.

【 STORAGE 】

Store in a dry place.