

SALVIA MILTIORRHIZA



This product is the dried root and rhizome of *Salvia miltiorrhiza* Bge., a plant of the Lamiaceae family. It is dug in spring and autumn, desilted, and dried.

【 PROPERTIES 】

The rhizome of this product is short and thick, and sometimes the stem base remains at the top. There are several roots, which are long cylindrical and slightly curved. Some are branched and have whisker-like fine roots. They are 10-20cm long and 0.3-1cm in diameter. The surface is brownish red or dark brownish red, rough, and has longitudinal wrinkles. The outer bark of old roots is loose, mostly purple-brown, and often peels off in scales. It is hard and brittle, with loose cross-sections, cracks or slightly flat and dense. The cortex is brownish red, the wood is grayish yellow or purple-brown, and the vascular bundles are yellowish white and arranged radially. The smell is slight and the taste is slightly bitter. The cultivated product is relatively sturdy, with a diameter of 0.5-1.5cm. The surface is reddish brown with longitudinal wrinkles, and the outer bark is tightly attached and not easy to peel off. The texture is solid, the cross-section is relatively flat, and it is slightly horny.

【 IDENTIFICATION 】

(1) The powder of this product is reddish brown. Stone cells are round, triangular, rectangular or irregular, or elongated and fibrous, with uneven edges, 14 to 70 μm in diameter and up to 257 μm in length, with obvious pores and grooves, and some cell cavities contain yellow-brown substances. Wood fibers are mostly fiber tracheids, long fusiform, with oblique or blunt ends, 12 to 27 μm in diameter, with punctate margins, oblique cracks or cross-shaped pits, and sparse pores and grooves. The diameter of the reticular vessels and rimmed pit vessels is 11 to 60 μm .

(2) Take 1 sample of this product powder, add 5 ml of ethanol, ultrasonically treat for 15 minutes, centrifuge, and take the supernatant as the test solution. Take another sample of Danshen control medicinal material and prepare the control medicinal material solution in the same way. Then take Tanshinone U a reference substance and Danshen acid B reference substance, add ethanol to prepare mixed solutions containing 0.5 mg and 1.5 mg per ml respectively, as the reference solution. According to the thin layer chromatography method (General Rule 0502), 5Q of each of the three solutions mentioned above are taken and spotted on the same silica gel G thin layer plate to form strips. The strips are developed with chloroform-toluene-ethyl acetate-methanol-formic acid (6:4:8:1:4) as the developing agent, developed to about 4cm, taken out, dried, and then developed with petroleum B (60-90°C)-ethyl acetate (4:1) as the developing agent, developed to about 8cm, taken out, dried, and respectively placed under sunlight and ultraviolet light (365nm) for inspection. In the chromatogram of the test sample, spots of the same color or fluorescent spots appear at the corresponding positions of the chromatogram of the reference medicinal material and the chromatogram of the reference sample.

【 INSPECTION 】

The moisture content shall not exceed 13.0% (General Rule 0832 Method 2).

The total ash content shall not exceed 10.0% (General Rule 2302).

Acid insoluble ash shall not exceed 3.0% (General Rule 2302).

Heavy metals and harmful elements shall be determined according to the lead, cadmium, arsenic, mercury and copper determination method (General Rule 2321 atomic absorption spectrophotometry or inductively coupled plasma mass spectrometry), lead shall not exceed 5mg/kg; cadmium shall not exceed 1mg/Rg; arsenic shall not exceed 2mg/kg; mercury shall not exceed 0.2mg/kg; copper shall not exceed 20mg/kg.

【 EXTRACT 】

Water-soluble extracts shall be determined according to the cold leaching method under the water-soluble extract determination method (General Rule 2201), and shall not be less than 35.0%. Alcohol-soluble extracts shall be determined according to the hot leaching method under the alcohol-soluble extract determination method (General Rule 2201), using ethanol as the solvent, and shall not be less than 15.0%.

【 CONTENT DETERMINATION 】

Tanshinones shall be determined according to the high performance liquid chromatography method (General Rule 0512). Chromatographic conditions and system suitability test Octadecylsilane bonded silica gel was used as filler; acetonitrile was used as mobile phase A, 0.02% phosphoric acid solution was used as mobile phase E, and gradient elution was performed according to the provisions in the following table; column temperature was 20°C; detection wavelength was 270 nm, and the theoretical plate number should be no less than 60,000 based on the peak of tanshinone Ua.

TIME (MINUTES)	MOBILE PHASE A (%)	MOBILE PHASE B (%)
0~6	61	39
6~20	61→90	39→10
20~20.5	20~20.5	20~20.5
20.5~25	61	39

Preparation of reference solution Take an appropriate amount of tanshinone Ua reference, accurately weigh it, place it in a brown volumetric flask, and add methanol to make a solution containing 20 tanshinones per 1 ml. Preparation of test solution Take about 0.3g of the powder of this product (passed through No. 3 sieve), weigh accurately, place in a stoppered conical flask, accurately add 50ml of methanol, seal, weigh, ultrasonically treat (power 140W, frequency 42kHz) for 30 minutes, cool, weigh again, make up the lost weight with methanol, shake well, filter, and take the filtrate. Determination method Accurately aspirate 100ml of reference solution and test solution respectively, inject into liquid chromatograph, and determine. Using tanshinone Ha reference as a reference, and its corresponding peak as S peak, calculate the relative retention time of cryptotanshinone and tanshinone I, and the relative retention time should be within the range of $\pm 5\%$ of the specified value. Relative retention time and correction factor are shown in the table below.

COMPONENT TO BE MEASURED (PEAK)	RELATIVE RETENTION TIME	CORRECTION FACTOR
CRYPTOSANSHINONE	0.75	1.18
TANSHINONE I	0.79	1.31
TANSHINONE N A	1.00	1.00

Using the peak area of tanshinone Ua as a reference, multiply by the correction factor to calculate the content of cryptotanshinone, tanshinone I and tanshinone Da.

This product is calculated as a dry product, and the total amount of tanshinone nA (C₁₉H₁₈O₃), cryptotanshinone (C₁₉H₂₀O₃) and tanshinone I (C₁₈H₁₂O₃) shall not be less than 0.25%.

Tanshinone B is determined according to the high performance liquid chromatography method (General Rule 0512). Chromatographic conditions and system suitability test Octadecylsilane bonded silica gel was used as filler; acetonitrile-0.1% phosphoric acid solution (22:78) was used as mobile phase; column temperature was 20°C; flow rate was 1.2 ml per minute; detection wavelength was 286 nm; theoretical plate number calculated based on the peak of salvianolic acid B should be no less than 6000.

Preparation of reference solution Take an appropriate amount of salvianolic acid E reference substance, accurately weigh it, add methanol-water (8:2) mixed solution to make a solution containing 0.10 mg per 1 ml. Preparation of test solution Take about 0.15g of the powder of this product (passed through No. 3 sieve), weigh accurately, place in a stoppered conical flask, accurately add 50ml of methanol-water (8:2) mixed solution, seal, weigh, ultrasonically treat (power 140W, frequency 42kHz) for 30 minutes, let cool, weigh again, make up the lost weight with methanol-water (8:2) mixed solution, shake well, filter, accurately measure 5mL of the filtrate, transfer to a 10ml volumetric flask, add methanol-water (8:2) mixed solution to dilute to the scale, shake well, filter, take the filtrate, and get it. Determination method Accurately aspirate 10Q of reference solution and test solution respectively, inject into liquid chromatograph, and determine, and get it.

This product, calculated on the basis of dry product, contains no less than 3.0% of salvianolic acid B (C₃₆H₃₀O₁₆).

MEDICINAL SLICES

【 PROCESSING 】

Remove impurities and residual stems from Danshen, wash, moisten thoroughly, cut into thick slices, and dry.

【 PROPERTIES 】

This product is in the form of thick slices that are quasi-circular or oval. The outer skin is brownish red or dark brownish red, rough, and has longitudinal wrinkles. The cut surface has cracks or is slightly flat and dense, and some are horny, with brownish red cortex, grayish yellow or purple-brown wood, and yellow-white radial textures. Slight odor, slightly bitter taste.

【 INSPECTION 】

Acid-insoluble ash Same as medicinal materials, not more than 20% (General Rule 2302).

【 EXTRACT 】

Alcohol-soluble extract Same as medicinal materials, not less than 110%.

【 IDENTIFICATION||INSPECTION 】 (WATER CONTENT, TOTAL ASH) 【 EXTRACT 】 (WATER-SOLUBLE EXTRACT)

Same as medicinal materials.

Danshen with wine Take Danshen slices and stir-fry them dry according to the wine roasting method (General Rule 0213).

【 PROPERTIES 】

This product is shaped like Danshen tablets, with a reddish-brown surface and a slight wine aroma.

【 INSPECTION 】

Water content is the same as the medicinal material, not more than 10.0% (General Rule 0832, Method 2).

【 EXTRACT 】

Alcohol-soluble extract is the same as the medicinal material, not less than 11.0%

【 EXIDENTIFICATION】 【 INSPECTION 】 (TOTAL ASH) 【 EXTRACT 】 (WATER-SOLUBLE EXTRACT)

Same as the medicinal material.

【 NATURE AND FLAVOR AND MERIDIANS 】

Bitter, slightly cold. It enters the heart and liver meridians.

【 FUNCTIONS AND INDICATIONS 】

It can activate blood circulation and remove blood stasis, relieve pain, clear the heart and eliminate vexation, cool blood and eliminate carbuncle. It is used for chest pain, abdominal pain, accumulation of symptoms, heat pain, vexation and insomnia, irregular menstruation, dysmenorrhea, amenorrhea, sores and swelling.

【 USAGE AND DOSAGE 】

10~15g.

【 NOTE 】

It should not be used with Veratrum.

【 STORAGE 】

Store in a dry place.

