GASTRODIA ELATA

This product is the dried tuber of Gastrodia elata Bl., an orchid plant. It is dug up between the beginning of winter and before Qingming Festival of the following year, immediately washed, steamed thoroughly, and left open to dry at low temperature.

【PROPERTIES】

This product is oval or long, slightly flat, wrinkled and slightly curved, 3-15cm long, 1.5-6cm wide, 0.5-2cm thick. The surface is yellowish white to yellowish brown, with longitudinal wrinkles and multiple rounds of transverse rings formed by latent buds, and sometimes brown cords can be seen. There are reddish brown to dark brown parrot-beak-shaped buds or residual stem bases at the top; there is a round umbilical scar at the other end. It is hard and not easy to break. The cross section is relatively flat, yellowish white to light brown, and keratinous. It has a slight smell and tastes sweet.

【IDENTIFICATION】

(1) Cross-section of this product: The epidermis is remnant, and the hypodermis is composed of 2-3 rows of tangentially elongated suberized cells. The cortex is composed of 10 rows of polygonal cells, some of which contain bundles of calcium oxalate needles. The junction between the cortex and the hypodermis of older tubers has 2-3 rows of oval thick-walled cells, which are lignified and have obvious pits. The pith occupies the majority, with small circumflex vascular bundles scattered; the thin-walled cells also contain bundles of calcium oxalate needles. The powder is yellow-white to yellow-brown. The thick-walled cells are elliptical or sub-polygonal, with a diameter of 70-180 μm, a wall thickness of 3-8 μm, lignified, and obvious pits. The calcium oxalate needles are bundled or scattered, 25-75 (93) μm long. The thin-walled cells containing gelatinized polysaccharides are colorless when mounted with glycerol acetic acid test solution. Some cells can be seen as long oval, long oval or sub-round particles, which appear brown or light brown purple when exposed to iodine solution. The diameter of the spiral vessels, reticular vessels and annular vessels is 8-30 μm. (2) Take 1 g of the powder of this product, add 10 ml of methanol, ultrasonically treat for 30 minutes, filter, concentrate the filtrate to dryness, add 1 ml of methanol to dissolve the residue, and use it as the test solution. Take 1 g of Gastrodia elata control medicinal material and prepare the control medicinal material solution in the same way. Then take the reference gastrodin, add methanol to make a solution containing 1 mg per 1 ml, as the reference solution. According to the thin layer chromatography method (general rule 0502), take 10R of the test solution and the reference medicinal material solution, and 5R of the reference solution, and spot them on the same silica gel G thin layer plate, respectively, with dichloromethane-ethyl acetate-methanol-water (2:4:2.5:1) as the developing agent, develop, take out, dry, spray with p-hydroxybenzaldehyde solution (take 0.2g of p-hydroxybenzaldehyde, dissolve in 10ml of ethanol, add 1ml of 50% sulfuric acid solution, mix well), heat at 120°C until the spots are clearly colored, and inspect under sunlight. In the chromatogram of the test sample, spots of the same color appear at the corresponding positions of the chromatogram of the reference medicinal material and the chromatogram of the reference substance.

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【CHARACTERISTIC SPECTRUM】

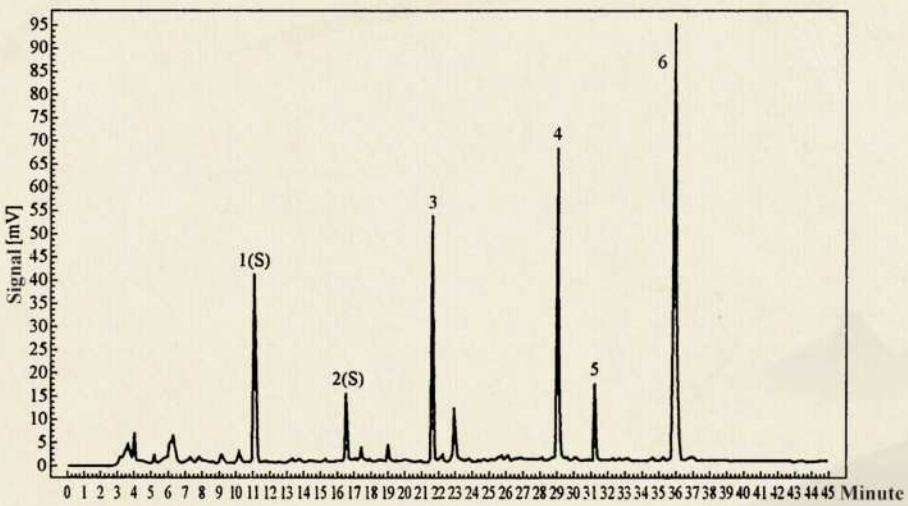
Determine according to high performance liquid chromatography (general rule 0512).

Chromatographic conditions and system suitability test: Octadecylsilane bonded silica gel was used as filler; acetonitrile was used as mobile phase A, 0.1% phosphoric acid solution was used as mobile phase B, and gradient elution was performed according to the provisions in the following table; the flow rate was 0.8 ml per minute; the column temperature was 30°C; the detection wavelength was 220 nm. The theoretical plate number calculated based on the gastrodin peak should be no less than 5000.

TIME (MINUTES)	MOBILE PHASE A (%)	MOBILE PHASE B (%)
0~10	3→10	97→90
10~15	10→12	90→88
15~25	12→18	88→82
25~40	18	82
40~42	18→95	82→5

Preparation of reference solution Take about 0.5g of Gastrodia elata reference medicinal material, place it in a stoppered conical flask, add 25ml of 50% methanol, ultrasonically treat (power 500W, frequency 40kHz) for 30 minutes, cool, shake well, filter, and take the filtrate as the reference solution of the reference medicinal material. Take the reference solution under [Content determination] as the reference solution of the reference material.

Preparation of test solution Take about 0.5g of this product powder (passed through No. 4 sieve) and prepare the test solution in the same way as the preparation method of the reference solution of the reference medicinal material. Determination method Accurately aspirate 30% of the reference solution and the test solution respectively, inject into the liquid chromatograph, determine, and record the chromatogram to obtain. There should be 6 characteristic peaks in the chromatogram of the test sample, and they should correspond to the 6 characteristic peaks in the chromatogram of the reference medicinal material. Among them, peak 1 and peak 2 should be consistent with the retention time of the reference peaks of the gastrodin reference substance and the p-hydroxybenzyl alcohol reference substance.



Peak 1 (S): Gastrodin; Peak 2 (S): p-hydroxybenzyl alcohol; Peak 3: Balisende E; Peak 4: Balisende B; Peak 5: Balisende C; Peak 6: Balisende

【INSPECTION】

Water content shall not exceed 150% (General Rule 0832, second method). Total ash content shall not exceed 4.5% (General Rule 2302). Sulfur dioxide residue shall be determined according to the method for determining sulfur dioxide residue (General Rule 2331), and shall not exceed 400mg/kg.

【EXTRACT】

Determined according to the hot leaching method under the method for determining alcohol-soluble extract (General Rule 2201), using dilute ethanol as solvent, and shall not be less than 15.0%.

【CONTENT DETERMINATION】

Determined according to the high performance liquid chromatography method (General Rule 0512).
Chromatographic conditions and system suitability test: Octadecylsilane bonded silica gel is used as filler; acetonitrile-0.05% phosphoric acid solution (3:97) is used as mobile phase; the detection wavelength is 220nm, and the theoretical plate number calculated based on the gastrodin peak should not be less than 5000. Preparation of reference solution Take appropriate amount of gastrodin reference and p-hydroxybenzyl alcohol reference, weigh accurately, add acetonitrile-water (3:97) mixed solution to make a mixed solution containing 50 mg of gastrodin and 25 mg of p-hydroxybenzyl alcohol per 1 ml, and obtain the solution. Preparation of test solution Take about 2 g of this product powder (passed through No. 3 sieve), weigh accurately, place in a stoppered conical bottle, accurately add 50 ml of dilute ethanol, weigh the weight, ultrasonically treat (power 120W, frequency 40kHz) for 30 minutes, cool, weigh again,
make up the lost weight with dilute ethanol, filter, accurately measure 10 ml of the filtrate, concentrate to near dryness without alcohol taste, dissolve the residue with acetonitrile-water (3:97) mixed solution, transfer to
a 25 ml volumetric flask, dilute to scale with acetonitrile-water (3:97) mixed solution, shake well, filter, and take the filtrate, and obtain the solution. Determination method: Accurately pipette 50% of the reference solution and 50% of the test solution, inject them into the liquid chromatograph, and determine them.

MEDICINAL PIECES

【PROCESSING】

Wash, moisten or steam until soft, slice thinly, and dry.

【PROPERTIES】

This product is in irregular thin slices. The outer skin is light yellow to yellow-brown, and sometimes horizontal rings arranged in dots can be seen. The cut surface is yellow-white to light brown. It is keratinous and translucent. It has a slight smell and tastes sweet.

【INSPECTION】

The water content is the same as the medicinal material, and shall not exceed 12.0%.

【IDENTIFICATION】 【EXCEPT THE CROSS SECTION】 【INSPECTION】 (TOTAL ASH SULFUR DIOXIDE RESIDUE) |EXTRACT】 【CONTENT DETERMINATION】

Same as the medicinal material.

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【NATURE AND FLAVOR AND MERIDIAN】

Sweet, flat. It enters the liver meridian.

【FUNCTION AND INDICATIONS】

Calming wind and stopping spasms, calming liver yang, dispelling wind and unblocking meridians. Used for infantile convulsions, epilepsy, tetanus, headache, dizziness, paralysis of hands and feet, numbness of limbs, rheumatic pain.

【USAGE AND DOSAGE】

3~10g.

【STORAGE】

Place in a ventilated and dry place to prevent moth.