

# BITTER ALMONDS



This product is the dried mature seeds of the Rosaceae plants *Prunus armeniaca* L. var. *ansu* Maxim., *Prunus sibirica* L., *Prunus mandshurica* (Maxim) Koehne or *Prunus armeniaca* L. The mature fruits are harvested in summer, the pulp and kernel shell are removed, the seeds are taken out and dried in the sun.

## 【 PROPERTIES 】

This product is flat heart-shaped, 1~1.9cm long, 0.8~1.5cm wide, and 0.5~0.8cm thick. The surface is yellow-brown to dark brown, with one end pointed and the other end blunt and rounded, thick, asymmetrical, with a short linear hilum on one side of the pointed end, and many dark brown veins at the round end. The seed coat is thin, with 2 cotyledons, milky white, and rich in oil. The smell is slight and the taste is bitter.

## 【 IDENTIFICATION 】

- (1) Seed coat surface view: Seed coat stone cells are scattered individually or connected in groups, yellow-brown to brown, polygonal, oblong or shell-shaped in surface view, with a diameter of 25~150μm. The outer epidermal cells of the seed coat are light orange-yellow to brown-yellow, often connected to the seed coat stone cells, round or polygonal, and the wall is often wrinkled.
- (2) Take 2g of the powder of this product, put it in a Soxhlet extractor, add an appropriate amount of dichloromethane, heat and reflux for 2 hours, discard the dichloromethane liquid, evaporate the solvent from the residue, add 30ml of methanol, heat and reflux for 30 minutes, cool, filter, and use the filtrate as the test solution. Take another bitter apricot kernel reference substance, add methanol to make a solution containing 2mg per 1ml as the reference solution. According to the thin layer chromatography method (General Rule 0502), take 3μl of each of the above two solutions and spot them on the same silica gel G thin layer plate, use chloroform-ethyl acetate-methanol-water (15:40:22:10) at 5~10°C for 12 hours as the developing agent, develop, take out, and immediately soak the plate with 0.8% phosphoinositol 15% sulfuric acid ethanol solution, and heat at 105°C until the spots are clearly colored. In the chromatogram of the test product, spots of the same color appear at the corresponding positions of the chromatogram of the reference substance.

## 【 INSPECTION 】

Water content shall not exceed 7.0% (General Rule 0832 Method 4). Peroxide value shall not exceed 0.11 (General Rule 2303).

## 【 CONTENT DETERMINATION 】

Determine according to high performance liquid chromatography (General Rule 0512).

Chromatographic conditions and system suitability test Use octadecylsilane bonded silica gel as filler; acetonitrile-0.1% phosphoric acid solution (8:92) as mobile phase; detection wavelength is 207nm. The theoretical plate number calculated based on the bitter amygdalin peak should not be less than 7000. Preparation of reference solution Take an appropriate amount of bitter amygdalin reference substance, accurately weigh it, and add methanol to make a solution containing 40μg per 1ml. Preparation of test solution Take about 0.25g of the powder of this product (passed through No. 2 sieve), weigh accurately, place in a stoppered conical bottle, add 25ml of methanol accurately, stopper, weigh, ultrasonically treat (power 250W and frequency 50kHz) for 30 minutes, let cool, weigh again, make up the lost weight with methanol, shake well, filter, accurately measure 5ml of the filtrate, place in a



50ml volumetric bottle, add 50% methanol to dilute to the scale, shake well, filter, take the filtrate, and get it. Determination method Accurately take 10~20 $\mu$ l of the reference solution and the test solution respectively, inject into the liquid chromatograph, and determine, and get it. This product, calculated on the basis of dry product, contains not less than 3.0% amygdalin (C<sub>20</sub>H<sub>27</sub>NO 11).

### 【 PROCESSING 】

Bitter almonds should be crushed when used.

### 【 PROPERTIES 】 【 IDENTIFICATION 】 【 INSPECTION 】 【 CONTENT DETERMINATION 】

Same as medicinal materials. Bitter almonds Take clean bitter almonds and peel them according to the method of frying (General Rule 0213). Crush them when used.

### 【 PROPERTIES 】

This product is flat and heart-shaped. The surface is milky white or yellowish white, with a sharp end and the other end blunt and round, thick, asymmetrical, and oily. It has a unique aroma and tastes bitter.

### 【 CONTENT DETERMINATION 】

The same as the medicinal material, containing amygdalin (C<sub>20</sub>H<sub>27</sub>NO 11) shall not be less than 2.4%.

[Identification] (2) [Inspection] The same as the medicinal material.

Stir-fried bitter almonds Take bitter almonds and stir-fry them according to the method of stir-frying (General Rule 0213) until they turn yellow. Crush them when used.

### 【 PROPERTIES 】

This product is shaped like bitter almonds, with a yellow to brownish yellow surface and slight burnt spots. It has an aroma and tastes bitter.

### 【 INSPECTION 】

Water content The same as the medicinal material, not more than 60%.

### 【 CONTENT DETERMINATION 】

The same as the medicinal material, containing amygdalin (C<sub>20</sub>H<sub>27</sub>NO 11) shall not be less than 2.4%.

### 【 IDENTIFICATION 】 (2) 【 INSPECTION 】 (PEROXIDE VALUE)

Same as medicinal material.

### 【 NATURE AND FLAVOR AND MERIDIANS 】

Bitter, slightly warm; slightly toxic. Enters the lung and large intestine meridians.

### 【 FUNCTIONS AND INDICATIONS 】

Descends qi, relieves cough and asthma, moistens the intestines and promotes bowel movements. Used for cough and asthma, chest fullness and phlegm, dry intestines and constipation.

### 【 USAGE AND DOSAGE 】

5-10g, add the raw product to the decoction before adding.

### 【 NOTE 】

Do not take too much internally to avoid poisoning.

### 【 STORAGE 】

Store in a cool and dry place to prevent moths.

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