



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 1886.77-2016

**National Food Safety Standard -- Food Additives -- Mangosteen
sweet glycosides**

食品安全国家标准 食品添加剂 罗汉果甜苷

(English Translation)

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1 Scope

This standard applies to Mangosteen [*Siraitiagrosvenorii* (Swingle) C.Jeffrey] as raw material, boiled extract, concentrated and dried Refining process food additive mogrosides.

2 Formula, Structure and molecular weight

Formula 2.1

C₆₀H₁₀₂O₂₉

2.3 Molecular Weight

1287.43 (according to 2011 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements in Table 1.

Table 1 Sensory requirements

Project requires test methods Color white, yellow,, light brown or brown Status powder
Proper amount of sample is placed in a clean, dry porcelain dish, natural light the observed color and state

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Mogrosides V content a, w /% ≥ 20 Appendix A A.4 Ash, w /% ≤ 2.0 GB 5009.4 Water, w /% ≤ 6.0 GB 5009.3 Lead (Pb)/(mg/kg) ≤ 1.0 GB 5009.12 Total

arsenic (As)/(mg/kg) $\leq$ 1.0 GB 5009.11 a Mogrosides content mogrosides V count.

Appendix A

Testing method

A.1 Safety Tips

Reagents of this standard test methods used toxic or corrosive, operating according to the relevant regulations, care should be taken. If splash to the skin immediately wash with water, severe cases should be treated immediately. , Be carried out in a fume hood at the time of a volatile acid.

A.2 General Provisions this standard reagents and water, in the absence of other requirements specified, refer to three predetermined water analytical reagents and GB/T 6682 in.

The test standard solution, the standard solution impurities, products and preparations, in the absence of other requirements specified, are by use GB/T 601, GB/T 602 Preparation and predetermined GB/T 603 a. The test does not indicate when the solution which is formulated with a solvent, refer to the aqueous solution.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 V Mogrosides reference substance. not less than 98% purity.

A.3.1.2 sulfuric acid.

A.3.1.3 acetic anhydride.

A.3.1.4 silica gel TLC plate. 110 deg.] C prior to use activated 1h.

A.3.1.5 developing solvent. methanol. butyl acetate. water = 15.15.4.

A.3.1.6 methanol. weighed, diluted with methanol and 70mL in 100mL volumetric flask to the mark with water.

A.3.1.7 sulfuric acid. 10%, 1 -> 10.

A.3.1.8 V Mogrosides reference solution. Weigh 5mg ~ 10mg mogrosides V reference substance was dissolved in 1mL ~ 3mL methanol Solution to prepare reference solution.

A.3.2 identification method A.3.2.1 color reaction in 5mg ~ 10mg sample (dried) was added 2mL of acetic anhydride, warmed 2min, 0.5mL of sulfuric acid was slowly added, boundary layers Surface reddish-brown.

A.3.2.2 TLC

Weigh 0.05g ~ 0.1g sample in 1mL ~ 3mL methanol solution, shaken dissolved to obtain a test solution.

Suction using a micro spotter 2μL test solution and reference solution was spotted on a

TLC plate spotted line (line were spotted on silica gel plates from Bottom 2.0cm, each spotted drying required), placed in the cylinder chromatography (developing solvent previously placed) expand. When the solvent front to expand the distance spotting About 10cm line, remove the thin layer plate. Drying the solvent, the sulfuric acid solution is sprayed evenly, 105 color deg.] C for 10min.

Mogrosides V Following color was dark purple, the test solution obtained after deployment point, Rf value and color should be a point and the average Mangosteen V sweet glycosides same.

A.4 Determination of the content of V Mogrosides A.4.1 Method summary Mogrosides V sample was extracted with methanol, the extract was filtered, equipped with a diode array detector or UV detector Liquid chromatography measurement.

A.4.2 Reagents and materials A.4.2.1 V Mogrosides reference substance. not less than 98% purity.

A.4.2.2 Acetonitrile. chromatographically pure.

A.4.2.3 Water. in line with a water GB/T 6682 provisions.

A.4.2.4 phosphoric acid. 0.05%, 0.5 -> 1000.

A.4.2.5 methanol. Chromatography amount of pure methanol 70mL in 100mL volumetric flask, dilute to the mark with water (A.4.2.3).

A.4.2.6 V Mogrosides reference solution. Weigh at 105 °C dried to constant weight mogrosides V reference substance 10 mg (accurately to 0.0001g) in 10mL volumetric flask, dissolved in methanol and dilute to volume, and mix.

A.4.3 Instruments and Equipment High performance liquid chromatography with diode array detector or UV detector.

A.4.4 Reference chromatographic conditions A.4.4.1 Column. 150mm, inner diameter of 4.6mm, the filler contents C18, 5 m, or the equivalent diameter C18 column separation, column length Column.

A.4.4.2 Mobile phase. phosphoric acid solution (A) - acetonitrile (B), gradient program shown in Table 3.

A.4.4.3 flow rate. 0.6mL/min.

A.4.4.4 Detection wavelength. 203nm.

A.4.4.5 Injection volume. 10μL.

A.4.4.6 Column temperature. 30 °C.

Table 3 gradient elution program

Time/min phosphoric acid solution (A) /% acetonitrile (B) /% 8 86.5 13.5 A.4.5 Analysis step

Preparation of sample solution A.4.5.1 Weigh at 105 °C dried to constant weight of the sample 0.05g ~ 0.1g (accurate to 0.0001g), was placed in a 25mL volumetric flask, was added 15mL methanol solution, sonicated to completely dissolve, methanol was further added to volume, filtered through a 0.45μm microporous membrane.

A.4.5.2 Determination Under predetermined chromatographic conditions, sample solution and reference solution, respectively, each of 10μL into the liquid chromatograph, chromatographic analysis, in order to maintain Retention time qualitative and quantitative peak area.

A.4.6 calculation results Mogrosides V content mass fraction w, according to equation (A.1) is calculated.

$$A \times c \times V$$

$$A_s \times m \times 1000 \times$$

$$100\% \quad (A.1)$$

Where.

A --- sample solution mogrosides V peak area;

C --- concentration mogrosides V reference solution, in milligrams per milliliter (mg/mL);

V --- constant volume of the sample solution, in milliliters (mL);

--- AS reference solution mogrosides V peak area;

--- m sample mass in grams (G);

1000 --- conversion factor.

The results to two decimal places.