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

GB 31618-2014

**National food safety standard -- Food Nutrition Enhancer-
Raffinose**

食品安全国家标准 食品营养强化剂 棉子糖

(English Translation)

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Table of Contents

- 1 Scope
- 2 Formula, Structure and molecular weight
 - 2.2 Structure
 - 2.3 Molecular Weight
- 3 Technical requirements
 - 3.1 Sensory requirements
 - 3.2 Physical and Chemical Indicators
 - 3.3 Microbial indicators

1 Scope

This standard applies to sugar beet molasses, the extraction means by a column chromatography, and then purified, dried foods and other business process made Raising enhancer raffinose.

2 Formula, Structure and molecular weight

Formula 2.1

$C_{18}H_{32}O_{16} \cdot 5H_2O$.

2.3 Molecular Weight

594.51 (according to 2007 international relative atomic mass).

3.1 Sensory requirements

Shall comply with the requirements in Table 1.

Table 1 Sensory requirements

Project requires test methods Color White Status powder Slightly sweet taste Proper amount of sample is placed in clean, dry white porcelain plate, since in Under natural light, the color observed and the state, its taste and flavor

3.2 Physical and Chemical Indicators

Shall be in accordance with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Raffinose content (dry basis, w) /% ≥ 98 Appendix A A.2 pH (50g/L solution, 20 °C) 5.0 ~ 7.0 GB/T 9724 Loss on drying (w) /% ≤ 15 GB 5009.3 direct drying Total arsenic (As)/(mg/kg) ≤ 1 GB/T 5009.11 Heavy Metals (as Pb)/(mg/kg) ≤ 5 GB/T 5009.74

3.3 Microbial indicators

Shall be in accordance with Table 3.

Table 3 microbiological indicators

Item Index Test Method Cfu/(CFU/g) ≤ 1000 GB 4789.2 Coliforms/(MPN/g) Appendix A Testing method A.1 General Provisions Unless otherwise specified in this standard, it should be analytical reagent purity above, the standard titration solution, impurities determined by standard solution used, Formulations and products, shall GB/T 601, GB/T 602, GB/T 603 provisions prepared test water shall comply with GB/T 6682's.

The test does not indicate when the solution which is formulated with a solvent, refer to the aqueous solution.

A.2 Determination of the content of raffinose cotton A.2.1 Reagents and materials A.2.1.1 raffinose Reference Sample. Purity $\geq 99\%$.

A.2.1.2 Acetonitrile. chromatographically pure.

A.2.2 Instruments and Equipment A.2.2.1 HPLC. equipped with a differential refractive index detector, or other equivalent detectors.

A.2.2.2 ultrasonic oscillator.

A.2.3 Reference chromatographic conditions A.2.3.1 Column. gel-bound column (amino-bonded phase column).

A.2.3.2 mobile phase. acetonitrile = 75 25 water, the ratio is increased or decreased appropriately separated condition.

A.2.3.3 Column temperature. 40 °C.

A.2.3.4 flow rate. 0.8mL/min, the appropriate speed adjusted according to the column diameter and the separation conditions.

A.2.3.5 Injection volume. 10 μ L.

A.2.4 Analysis step

Preparation of standard solution A.2.4.1 Weigh about 0.05g reference raffinose, accurate to 0.0001g, placed in a 10mL volumetric flask, dilute to volume dissolved in water to give Raffinose the standard solution.

Preparation of sample solution A.2.4.2 Weigh about 0.5g sample, accurate to 0.0001g, a

50mL volumetric flask, dilute to volume with water dissolved. Solution by ultrasound Processing 10min, filtered through a 0.45µm filter, and the filtrate set aside.

A.2.4.3 Determination in reference A.2.3 chromatographic conditions, respectively, the standard solution and the sample solution was subjected to chromatographic analysis. Recording standard solution and sample solution Chromatogram peak area value of raffinose FIG.

A.2.5 calculation results Raffinose content (dry basis) by the mass fraction w1 of formula (A.1) is calculated.

$cS \times V1$

$m1 \times (1-w0) \times$

100% (A.1)

Where.

cS --- raffinose standard solution concentration in grams per milliliter (g/mL);

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

--- mass M1 of the sample solution in the sample in grams (G);

Loss on drying W0 --- sample,%;

A1 --- peak area values of the sample solution of raffinose graph;

--- the AS value of the peak area of standard solution of raffinose in FIG.