

ICS 67.220.20
CCS C 54;X40



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

GB 28313-2012

Food additives -- Grape skin red

食品添加剂 葡萄皮红

(English Translation)

Issued on: April 25, 2012

Implemented on: June 25, 2012

Issued by: Ministry of Health of the People's Republic of China

Table of Contents

- 1 Scope
- 2 Formula, structural formula
 - 2.1 Molecular formula
 - 2.2 Structural formula
- 3 Technical requirements

1 Scope

This standard applies to grape skin or grape juice after the skin as the main raw material, by water or edible ethanol extraction, refined food Tim Plus grape skin red. Its main coloring composition is anthocyanin. Grape skin red products can contain dextrin and other accessories.

2.1 Molecular formula

Peony flower anthocyanin. $C_{16}H_{13}O_6X$ Mallow pigment. $C_{17}H_{15}O_7X$ Fenghua anthocyanin. $C_{15}H_{11}O_7X$ Morning glaucoma anthocyanin. $C_{16}H_{13}O_7X$ X-. acid group

2.2 Structural formula

Peony anthocyanin. $R = OCH_3$; $R' = H$ Mallow pigment. $R, R' = OCH_3$ Fenghua anthocyanin. $R, R' = OH$ Morning glaucoma. $R = OCH_3$; $R' = OH$

3 Technical requirements

3.1

sensory requirements. should be consistent with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Odorless or slightly odorous Color red to purple Traits of powder, granules or liquids Take the appropriate amount of sample in a clean, dry white porcelain dish. in natural light, Observe the color, traits; in the absence of odor environment, smell the smell

3.2

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

Table 2 Physical and chemical indicators

project

index

Powder or granular liquid Testing method Color Price E1 m (515 ~ 535) nm Compliant in Appendix A A.3 Dry reduction, w /% ≤ 8.0 - GB 5009.3 direct drying method Sulfur dioxide/(mg/kg) ≤ 500 (converted in terms of one color) Appendix A A.4 Total arsenic (in As)/(mg/kg) ≤ 3 GB/T 5009.11 Lead (Pb)/(mg/kg) ≤ 2 GB 5009.12 Note. Commercial grape skin red products should be in line with this standard grape skin red as raw material, can be made of edible dextrin made, the color price indicators in line with claims.

Appendix A

Testing method

A.1 General provisions the reagents and water used in this standard, when not specified in other requirements, refer to the analysis of pure reagents and GB/T 6682-2008 in the provisions of the three Water level. Standard titration solution used in the test, the standard solution for the determination of impurities, preparations and products, without any other requirements, GB/T 601, GB/T 602, GB/T 603. The solution used in the test refers to water when it is not specified with the formulation of the solvent Solution.

A.2 Identification test A.2.1 Maximum absorption peak Take the sample 0.1g, with pH3.0 citric acid - disodium hydrogen phosphate buffer solution and diluted to 100mL, the sample solution in the 515nm ~ 535nm range has the largest absorption peak.

A.2.2 Color response Take 0.1g sample, dissolved in 50mL water, the solution was red ~ purple, in the solution by adding sodium hydroxide solution (4.3g hydroxide Sodium dissolved in 100mL water), the solution color to blue or dark green.

A.3 Determination of color price A.3.1 Reagents and materials A.3.1.1 0.2mol/L disodium hydrogen phosphate solution. accurately charged disodium hydrogen phosphate ($\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$) 71.64g, dissolved in water and set to 1000mL.

A.3.1.2 0.1mol/L citric acid solution. 21.01 g of citric acid ($\text{C}_6\text{H}_8\text{O}_7 \cdot \text{H}_2\text{O}$) was accurately weighed and dissolved in water and allowed to 1000mL.

A.3.1.3 pH3.0 citric acid - disodium hydrogen phosphate buffer solution. take 0.2mol/L disodium hydrogen phosphate solution 4.11mL and 0.1mol/L Citric acid solution 15.89mL mixed.

A.3.2 Instruments and equipment Spectrophotometer.

A.3.3 Analysis steps Weigh 0.1g ~ 0.2g sample, accurate to 0.0001g, with pH3.0 citric acid - disodium hydrogen phosphate buffer solution, transferred to 100mL volumetric flask, add pH3.0 citric acid - disodium hydrogen phosphate buffer solution volume to the scale, shake. Take this sample solution at 1cm Pigment, pH3.0 citric acid - disodium hydrogen phosphate buffer solution as a blank control, with a spectrophotometer in the range of 515nm ~ 535nm

of the maximum absorption wavelength measured absorbance (absorbance should be controlled between 0.3 to 0.7, otherwise it should adjust the concentration of sample solution, and then re-determination Absorbance).

A.3.4 Calculation of results the color of the test sample concentration of 1%, with 1cm cuvette, in the range of 515nm ~ 535nm maximum absorption wavelength measured at the suction Luminosity E1 m (515 ~ 535) nm, calculated according to formula (A.1).

$E1\text{ m (515 to 535) nm} = A_c \times (A.1)$ where.

A --- the actual determination of the sample solution of the absorbance value;

c - the value of the test solution concentration in grams per milliliter (g/mL).

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value is not greater than 2.5%.

A.4 Determination of sulfur dioxide A.4.1 Method of measurement the total sulfur dioxide content (x) in the sample was measured by the second distillation method in GB/T 5009.34 and then calculated in accordance with A.4.2 the formula is converted to the sulfur dioxide content (y) at a color price.

A.4.2 Result calculation the sulfur dioxide content is expressed in mg/kg in terms of the sulfur dioxide mass fraction y in a color product, according to the formula (A.2) Calculate.

$y = x \times 1000E1\text{ m (515 to 535) nm}$ (A.2) where.

x --- Total amount of sulfur dioxide in the sample measured according to the second method of distillation in GB/T 5009.34, Per gram per gram (g/kg);

1000 --- unit conversion factor;

E1 m (515 ~ 535) nm --- the color of the sample to be tested.

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value must not exceed 10% of the arithmetic mean.