

Translated English of Chinese Standard: GB5009.148-2014

www.ChineseStandard.net → Buy True-PDF → Auto-delivery.

Sales@ChineseStandard.net

GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 5009.148-2014

**National food safety standard - Determination of free
gossypol in vegetable good**

食品安全国家标准

植物性食品中游离棉酚的测定

Issued on: February 04, 2015

Implemented on: May 01, 2015

Issued by: National Health and Family Planning Commission of PRC

Table of Contents

Foreword.....	3
1 Scope.....	4
2 Principle	4
3 Reagents and materials	4
4 Instrument and equipment	5
5 Analytical procedures.....	5
6 Expression of analysis results.....	6
7 Precision	7
8 Others	7
Appendix A Standard solution of gossypol and sample spiked chromatogram	8

National food safety standard - Determination of free gossypol in vegetable good

1 Scope

This standard specifies the method for determination of free gossypol in vegetable oil or other liquid foods using cottonseed cake as raw material.

This standard applies to the determination of free gossypol in vegetable oil or other liquid foods using cottonseed cake as raw material.

2 Principle

The free gossypol in vegetable oil was extracted by absolute ethanol and detected by high performance liquid chromatography. The retention time of the chromatographic peak is qualitatively determined, and it is quantified by external standard method.

The free gossypol in the water-soluble liquid sample using cottonseed cake as the raw material is extracted by the use of anhydrous ether, concentrated to dryness, then dissolved in ethanol, detected by high performance liquid chromatography. The retention time of the chromatographic peak is qualitatively determined, and it is quantified by external standard method.

3 Reagents and materials

Note: Unless otherwise specified, the reagents used in this method are all analytically pure; the water is the level 1 water as specified in GB/T 6682.

3.1 Reagents

3.1.1 Phosphoric acid (H_3PO_4).

3.1.2 Anhydrous ethanol ($\text{CH}_3\text{CH}_2\text{OH}$).

3.1.3 Acetone ($\text{C}_3\text{H}_6\text{O}$).

3.1.4 Nitrogen (N_2).

3.1.5 Methanol (CH_3OH).

upper layer of ether. Use nitrogen to blow it dry. Use 1.0 mL of absolute ethanol to make its volume reach to the mark. Make it pass through a 0.45 µm filter membrane, which is the sample solution.

5.2 Chromatographic determination

5.2.1 Reference chromatographic conditions

Chromatographic column: C₁₈ column, 250 mm × 4.6 mm, 5 µm, or a column with equivalent performance.

Mobile phase: Methanol: phosphoric acid solution = 85: 15.

Flow rate: 1.0 mL/min.

Column temperature: 40 °C ± 1 °C.

Measurement wavelength: 235 nm.

Sample injection volume: 10 µL.

5.2.2 Drawing standard curve

Inject the standard working solution of gossypol into the high performance liquid chromatograph and record the peak height or peak area. Draw a standard curve with the peak height or peak area as the ordinate and the concentration of the standard working solution of gossypol as the abscissa (see Figure A.1 in Appendix A for the liquid chromatogram of the standard solution).

5.2.3 Specimen measurement

Inject the specimen solution into the high performance chromatograph. Record the peak height or peak area. Calculate the concentration of gossypol in the test solution based on the standard curve (see Figure A.2 in Appendix A for the sample spiked liquid chromatogram).

6 Expression of analysis results

The free gossypol content in specimen 5.1.1 is calculated according to formula (1):

$$X = \frac{5 \times c}{m} \dots\dots\dots (1)$$

Where:

X - The content of gossypol in the specimen, in milligrams per kilogram

This is an excerpt of the PDF (Some pages are marked off intentionally)

Full-copy PDF can be purchased from 1 of 2 websites:

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, Sales@ChineseStandard.net

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

----- The End -----