



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

GB 23200.19-2016

Replacing SN/T 2114-2008

**Food safety national standard -- Determination of abamectin
residues in fruits and vegetables -- Liquid chromatographic
method**

水果和蔬菜中阿维菌素残留量的测定 液相色谱法

(English Translation)

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Foreword

This standard replaces SN/T 2114-2008 "Determination of abamectin residues in fruits, vegetables and vegetables by liquid chromatography".

Compared with SN/T 2114-2008, the main changes are as follows.

- Standard text format is modified to national standard text format for food safety;
- the name of the "import and export of fruits and vegetables" to "fruit and vegetables".

- increase the "other food reference implementation" in the standard range.

This standard replaced the previous version of the standard release.

-SN/T 2114-2008.

National standards for food safety Determination of abamectin residues in fruits and vegetables - Liquid chromatographic method

1 Scope

This standard specifies the production of avermectins in fruits and vegetables and the method of liquid chromatography.

This standard applies to the detection of abamectin residues in apples and spinach. Other food can refer to the implementation.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB 2763 National Standard for Food Safety - Maximum Residue Limit of Pesticides in Foodstuffs GB/T 6682 Analytical laboratory water specifications and test methods

3 Method summary

The avermectin in the sample was extracted with acetone, concentrated, purified with SPE C18 column and eluted with methanol. The eluate was concentrated, Constant volume, filtered, with a UV detector with high performance liquid chromatography, external standard method quantitative.

4 Reagents and materials

Unless otherwise specified, all reagents are of analytical grade and water is in accordance with the primary water specified in GB/T 6682.

4.1 Reagents

4.1.1

Acetone (C₃H₆O). Chromatographic pure.

4.1.2

Methanol (CH₄O). Chromatographic purity.

4.2 Standards

4.2.1

Avermectin standard (molecular formula $C_{48}H_{72}O_{14}$). purity $\geq 96.0\%$.

4.3 Standard solution preparation

4.3.1

Avermectin standard stock solution. Weigh 0.1 g (accurate to 0.0002 g) Avermectin standard in 100mL volumetric flask, with a the alcohol was dissolved and set to a standard stock at a concentration of 1.0 mg/mL.

4.3.2

abamectin standard working solution. according to the need to remove the appropriate amount of avermectin standard stock solution, diluted with methanol to the appropriate concentration of the standard quasi. Standard working fluid should be prepared once a week.

5.2 Analysis of balance. 0.01 g and 0.0001 g

5.3 Tissue crusher.

5.4 Oscillator.

5.5 Rotary evaporator.

5.6 Solid phase extraction column. SPE C18. Specifications. 60 mg/3 mL Activated with 5 mL of methanol and 5 mL of water before use.

6.1 Preparation of the sample

The sample was sorted out 1 kg, the sampling site according to GB 2763 Appendix A implementation, the sample was broken by the organization crusher, are divided into two, Into a clean container, sealed as a sample and marked with a mark.

6.2 Sample storage

Store the sample below -18°C .

During sample and sample preparation, the sample should be protected from contamination or changes in the residue content.

7.1 Extraction

Weigh the sample about 20 g (accurate to 0.1 g) in a 100 mL stoppered conical flask, add 50 mL of acetone, shake on an oscillator at 0.5 H Filtration with a Buchner funnel, washing

the conical flask and residue with 20 mL x 2 acetone. The acetone extract was combined and evaporated to about 40 ° C in a water bath 2 mL.

7.2 Purification

The concentrated extract was transferred to the SPE C18 column and rinsed with 5 mL of water to remove the eluent. Finally eluted with 5 mL of methanol, the eluate was collected and purged with nitrogen. Accurately add 1.0 mL of methanol to dissolve the residue, filter with 0.45 µm filter, the filtrate for the liquid phase Chromatography. External standard method.

7.3 Determination

7.3.1

High Performance Liquid Chromatography Reference Conditions.

A) Column. ODS-C18 reverse phase column, 4.6 mm x 125 mm;

B) mobile phase. methanol. water = (90 10, V/V);

C) Flow rate. 1.0 mL/min;

D) Detection wavelength. 245 nm;

E) Column temperature. 40 ° C;

F) Injection volume. 20 µL.

7.3.2 Chromatographic determination

According to the content of avermectin in the sample solution, the standard working fluid in the standard working fluid and the concentration of avermectin in the sample solution should be in the instrument within the linear range of testing, the standard working fluid and sample volume and other volume injection. In the above chromatographic conditions, abamectin retention time About 5.3 min.

For standard chromatograms, see Appendix A, Standard UV Spectra See Appendix B.

7.4 Blank test

Except for the addition of samples, are carried out according to the above measurement steps.

8 Results are calculated and expressed

Use the chromatographic data processor, or according to formula (1) to calculate the amount of abamectin residues in the sample.