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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 19540-2025

Replacing GB/T 19540-2004

Determination of zearalenone in feeds

饲料中玉米赤霉烯酮的测定

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Standardization Administration of the PRC

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document replaces GB/T 19540-2004 "Determination of zearalenone in feeds" and GB/T 28716-2012 "Determination of zearalenone in feeds".

Determination of mithralenone by immunoaffinity column cleanup - high performance liquid chromatography.

Compared with 2012, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) The scope of application has been changed (see Chapter 1 of GB/T 19540-2004 and Chapter 1 of GB/T 28716-2012);

b) Thin layer chromatography and enzyme-linked immunosorbent assay (ELISA) have been deleted (see Chapter 3 and Chapter 4 of GB/T 19540-2004);

c) Liquid chromatography-tandem mass spectrometry has been added (see Chapter 4).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document is proposed and coordinated by the National Feed Industry Standardization Technical Committee (SAC/TC 76).

This document was drafted by: Shanghai Academy of Agricultural Sciences and Shanghai Animal Disease Prevention and Control Center.

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The previous versions of this document and the documents it replaces are as follows.

--Published as GB/T 19540-2004 in 2004 and GB/T 28716-2012 in 2012; --This is the first revision.

Determination of Zearalenone in Feed

1 Scope

This document describes a liquid chromatography-tandem mass spectrometry and high performance liquid chromatography method for the determination of zearalenone in feed.

This document applies to the determination of zearalenone in compound feed, concentrate supplements, concentrate feed and plant feed ingredients.

The detection limit of this document is 2 μg/kg and the quantification limit is 10 μg/kg.

2 Normative references

GB/T 6682

GB/T 20195

3 Terms and Definitions

There are no terms or definitions that require definition in this document.

4.1 Principle

The analytes in the sample were extracted with acetonitrile solution, the extract was diluted with phosphate buffer solution, purified by immunoaffinity column, and analyzed by liquid chromatography-mass spectrometry.

The samples were determined by tandem mass spectrometry, calibrated by matrix-matched standard curve, and quantified by external standard method.

4.2 Reagents or materials

Warning - Zearalenone is highly toxic. Avoid contact with skin and clothing during operation and wear medical latex gloves.

Handle the reagents carefully and use them in a fume hood.

Unless otherwise specified, only analytical grade reagents were used.

4.2.1 Water. GB/T 6682, Grade 1.

4.2.2 Methanol. chromatographic grade.

4.2.3 Acetonitrile. chromatographic grade.

4.2.4 Formic acid. chromatographically pure. 4.2.5 Sodium chloride.

4.2.6 Sodium hydroxide solution (0.2 mol/L). Weigh 8.0 g of sodium hydroxide, dissolve it in water, transfer it to a 1000 mL volumetric flask, make up to volume, and mix thoroughly.

4.2.7 80% acetonitrile solution. Measure 800 mL of acetonitrile (4.2.3) into a 1000 mL volumetric flask, dilute with water, make up to volume, and mix thoroughly.

4.2.8 0.1% formic acid solution. Pipette 1 mL of formic acid (4.2.4) into a 1000 mL volumetric flask, dilute with water, make up to volume, and mix thoroughly.

4.2.9 Phosphate buffer solution (PBS). weigh 8.0 g sodium chloride, 1.16 g disodium hydrogen phosphate, 0.2 g potassium dihydrogen phosphate, and 0.2 g potassium chloride.

Dissolve and dilute with water to 1000 mL, and adjust the pH to 7.4 with sodium hydroxide solution (4.2.6).