EESTI STANDARD

EVS-EN 13585:2002

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Foodstuffs - Determination of fumonisins B1 and B2 in maize - HPLC method with solid phase extraction clean-up

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EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
Käesolev Eesti standard EVS-EN 13585:2002 sisaldab Euroopa standardi EN 13585:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 19.06.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 13585:2002 consists of the English text of the European standard EN 13585:2001. This document is endorsed on 19.06.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard specifies a method for the determination of fumonisin B1 (FB1) and fumonisin B2 (FB2) in maize using high performance liquid chromatography (HPLC).	**Scope:** This European Standard specifies a method for the determination of fumonisin B1 (FB1) and fumonisin B2 (FB2) in maize using high performance liquid chromatography (HPLC).

ICS 67.060

Võtmesõnad: analysis, chemical analysis and testin, det, determination of content, food additives, food inspection, food products, food technology, food testing, fumonisines, inorganic, liquid chromatography, maize, maize .gb., methods of analysis, mycotoxin, residues, testing

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Eesti Standardikeskusele kuulub standardite reprodutseerimis- ja levitamisõigus

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13585

December 2001

ICS 67.060

English version

Foodstuffs - Determination of fumonisins B1 and B2 in maize - HPLC method with solid phase extraction clean-up

Produits alimentaires - Dosage des fumonisines B1 et B2 dans le maïs - Méthode CLHP avec purification par extraction en phase solide

Lebensmittel - Bestimmung von Fumonisin B1 und B2 in Mais - HPLC-Verfahren mit Reinigung durch Festphasenextraktion

This European Standard was approved by CEN on 2 November 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Ref. No. EN 13585:2001 E

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Foreword

This European Standard has been prepared by Technical Committee CEN /TC 275, "Food analysis - Horizontal methods", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

The annexes A, B and C are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies a method for the determination of fumonisin B_1 (FB_1) and fumonisin B_2 (FB_2) in maize using high performance liquid chromatography (HPLC).

The method has been successfully validated in an interlaboratory study according to AOAC Guidelines for Collaborative Studies [1] on maize containing 405 µg/kg to 6732 µg/kg fumonisin B_1 and 152 µg/kg to 2619 µg/kg fumonisin B_2. The method works well with maize or minimally processed maize (e.g. fresh, dried and milled maize), but does not provide reliable results with most maize-based processed products.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 3696 *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987).*

3 Principle

Fumonisins are extracted from the sample of maize with a mixture of methanol and water. The filtered extract is purified on a strong-anion-exchange (SAX) solid-phase extraction (SPE) cartridge, and the fumonisins are eluted with a mixture of acetic acid and methanol. The extract is evaporated and the residue is redissolved in methanol and o-phthaldialdehyde/2-mercaptoethanol (OPA/MCE) is added to form fluorescent fumonisin derivatives. The derivatives are analysed by reverse-phase high performance liquid chromatography (HPLC) with fluorescence detection.

WARNING - Fumonisins are hepatoxic, nephrotoxic and carcinogenic to rats and mice. Effects on humans are not fully known. Observe appropriate safety precautions for handling fumonisins. Any laboratory spills should be washed with a 5 % solution of sodium hypochlorite.

4 Reagents and materials

4.1 General

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of grade 1 as defined in EN ISO 3696. Solvent shall be of quality for HPLC analysis.

4.2 Methanol, abs.

4.3 Methanol solution, volume fraction $\varphi(CH_3OH)$ = 75 %

Mix 75 parts per volume of methanol (4.2) with 25 parts per volume of water.

4.4 Acetonitrile solution, $\varphi(CH_3CN)$ = 50 %

Mix 50 parts per volume of acetonitrile with 50 parts per volume of water.

4.5 o-phosphoric acid, $\varphi(H_3PO_4)$ = 85 %

4.6 Acetic acid-methanol solution, $\varphi(CH_3COOH)$ = 1 % for eluting the SPE column.

Mix 1 part per volume of glacial acetic acid with 99 parts per volume of methanol (4.2).

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