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Toiduained. Patuliini sisalduse määramine puuviljamahlas ja väikelastele mõeldud puuviljapüreedes vedelikkromatograafilisel meetodil UV detektoriga ja eelneva vedelik/vedelik puhastamise ning tahke faasi ekstraktsiooniga

Foodstuffs - Determination of patulin in fruit juice and fruit based puree for young children - HPLC method with liquid/liquid partition cleanup and solid phase extraction and UV detection

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ESTONIAN CENTRE FOR STANDARDISATION

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Käesolev Eesti standard EVS-EN 15890:2010 sisaldab Euroopa standardi EN 15890:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 15890:2010 consists of the English text of the European standard EN 15890:2010.
Standard on kinnitatud Eesti Standardikeskuse 31.10.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.10.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
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ICS 67.080.10, 67.160.20, 67.230

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15890

September 2010

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English Version

Foodstuffs - Determination of patulin in fruit juice and fruit based purée for infants and young children - HPLC method with liquid/liquid partition cleanup and solid phase extraction and UV detection

Denrées alimentaires - Dosage de la patuline dans le jus de fruits et la compote de fruits en alimentation infantile - Méthode par CLHP avec purification par partition liquide-liquide et extraction en phase solide et détection UV

Lebensmittel - Bestimmung von Patulin in Fruchtsaft und Obstbrei für Säuglinge und Kleinkinder - HPLC-Verfahren mit Reinigung durch Flüssig/Flüssig-Verteilung, Festphasenextraktion und UV-Detektion

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Foreword

This document (EN 15890:2010) 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 March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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WARNING — The use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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1 Scope

This European Standard specifies a method for the determination of patulin in fruit juices and fruit-based purée, such as baby food purée, using high performance liquid chromatography with ultra-violet detection (HPLC-UV). Using naturally contaminated and spiked samples this method has been validated for the determination of patulin in apple juice, at levels ranging from 3,0 µg/kg to 15,5 µg/kg, and in fruit-based baby food purée, at levels ranging from 3,4 µg/kg to 17,9 µg/kg. Baby food fruit purée used in this study contained a mixture of the following ingredients which are commercially available on the European market: blueberry; apple; banana; lemon; wheat biscuits; wheat syrup; whole milk; and vegetable oil. A detailed listing, including the fractions, of each product used in this study is given in [1].

Further information on validation, see Clause 9 and Annex B.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

3 Principle

Patulin is extracted from apple juice, or fruit-based purée, with a mixture of ethyl-acetate and hexane in the presence of sodium sulfate and sodium hydrogen carbonate. An aliquot of the extract is purified by solid-phase extraction and evaporated. The residue is re-dissolved in water of pH = 4 and patulin is separated by reverse phase (RP)-HPLC and quantitatively determined by UV detection.

4 Reagents

4.1 General

Use only reagents of recognized analytical grade and water complying with grade 1 of EN ISO 3696:1995, unless otherwise specified. Solvents shall be of quality for HPLC analysis, unless otherwise specified. Commercially available solutions with equivalent properties to the reagents listed may be used.

4.2 Perchloric acid, the mass fraction $w(HClO_4) \geq 60$ % in water.

4.3 Sand, 50 mesh to 70 mesh particle size.

4.4 Silicagel solid phase extraction (SPE) cartridges (500 mg SiO_2).

4.5 Sodium sulfate anhydrous, Na_2SO_4.

4.6 Sodium hydrogen carbonate, $NaHCO_3$.

4.7 Glacial acetic acid, $w(CH_3COOH) \approx 98$ % in water.

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