INTERNATIONAL STANDARD

ISO 16050

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Foodstuffs — Determination of aflatoxin B_1, and the total content of aflatoxins B_1, B_2, G_1 and G_2 in cereals, nuts and derived products — High-performance liquid chromatographic method

Produits alimentaires — Dosage de l'aflatoxine B_1 et détermination de la teneur totale en aflatoxines B_1, B_2, G_1 et G_2 dans les céréales, les fruits à coque et les produits dérivés — Méthode par chromatographie liquide à haute performance

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16050 was prepared by Technical Committee ISO/TC 34, *Food products*. It is based on EN 12955:1999 elaborated by CEN/TC 275, *Food analysis — Horizontal methods*.

Foodstuffs — Determination of aflatoxin B_1, and the total content of aflatoxins B_1, B_2, G_1 and G_2 in cereals, nuts and derived products — High-performance liquid chromatographic method

WARNING — The use of this standard involves hazardous materials and operations. 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 practice and to determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a reverse-phase high-performance liquid chromatographic method, with immunoaffinity column clean-up and post-column derivatization, for the determination of aflatoxins in cereals, nuts and derived products. The limit of quantification for aflatoxin B_1, and for the sum of aflatoxins B_1, B_2, G_1 and G_2, is 8 µg/kg.

The method has been validated for maize containing 24,5 µg/kg, for peanut butter containing 8,4 µg/kg, and for raw peanuts containing 16 µg/kg of total aflatoxins. It has also been shown that this method can be used for oilseed products, dried fruits and derived products.

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.

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

3 Principle

The test sample is extracted with a mixture of methanol and water. The sample extract is filtered, diluted with water, and applied to an affinity column containing antibodies specific for aflatoxins B_1, B_2, G_1 and G_2. The aflatoxins are isolated, purified and concentrated on the column then removed from the antibodies with methanol. The aflatoxins are quantified by reverse-phase high-performance liquid chromatography (HPLC) with fluorescence detection and post-column derivatization.

4 Reagents

Use only reagents recognized analytical grade, unless otherwise stated.

4.1 Water, according to grade 1 of ISO 3696:1987.

4.2 Sodium chloride.