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BSI Standards Publication

Horizontal methods for molecular biomarker analysis — Methods of analysis for the detection of genetically modified organisms and derived products

Part 3: Construct-specific real-time PCR method for detection of P35S-pat-sequence for screening for genetically modified organisms

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National foreword

This Published Document is the UK implementation of ISO/TS 21569-3:2020. It supersedes PD ISO/TS 21569-3:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AW/275, Food analysis - Horizontal methods.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Horizontal methods for molecular biomarker analysis — Methods of analysis for the detection of genetically modified organisms and derived products —

Part 3: Construct-specific real-time PCR method for detection of P35S-pat-sequence for screening for genetically modified organisms

Méthodes horizontales d'analyse moléculaire de biomarqueurs — Méthodes d'analyse pour la détection des organismes génétiquement modifiés et des produits dérivés —

Partie 3: Méthode PCR en temps réel construit-spécifique pour la détection de la séquence P35S-pat pour criblage des organismes génétiquement modifiés

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 16, *Horizontal methods for molecular biomarker analysis.*

This second edition cancels and replaces the first edition (ISO/TS 21569-3:2015), which has been technically revised. The main changes compared with the previous edition are as follows:

— the section on in silico search has been updated;

— minor typographical changes have been made throughout.

A list of all parts in the ISO 21569 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Horizontal methods for molecular biomarker analysis — Methods of analysis for the detection of genetically modified organisms and derived products —

Part 3: Construct-specific real-time PCR method for detection of P35S-pat-sequence for screening for genetically modified organisms

1 Scope

This document describes a procedure for the detection of the DNA transition sequence between the 35S promotor (*P35S*) from *Cauliflower mosaic virus* and a modified phosphinothricin-acetyltransferase gene (*pat*) from *Streptomyces viridochromogenes*. The *P35S-pat* construct is frequently found in genetically modified plants with tolerance for phosphinothricin-containing herbicides. The *P35S-pat* construct specific method is based on a real-time PCR and can be used for qualitative and quantitative screening purposes. For identification and quantification of a specific event, a follow-up analysis can be carried out.

This document is applicable to the analysis of DNA extracted from foodstuffs. It can also be suitable for the analysis of DNA extracted from other products such as feedstuffs and seeds. The application of this method requires the extraction of an adequate quantity and quality of amplifiable DNA from the relevant matrix.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 16577, *Molecular biomarker analysis — Terms and definitions*

ISO 21569, *Foodstuffs — Methods of analysis for the detection of genetically modified organisms and derived products — Qualitative nucleic acid based methods*

ISO 21571, *Foodstuffs — Methods of analysis for the detection of genetically modified organisms and derived products — Nucleic acid extraction*

ISO 24276, *Foodstuffs — Methods of analysis for the detection of genetically modified organisms and derived products — General requirements and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16577 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/