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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 23748-2016

Replacing GB/T 23748-2009; NY/T 2214-2012; SN/T 2910.2-2011

Detection of irradiated foodstuffs -- DNA comet assay -- Screening method

食品安全国家标准 辐照食品鉴定 筛选法

(English Translation)

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Foreword

This standard replaces GB/T 23748-2009 "Identification of irradiated food were screened DNA comet assay method", NY/T 2214-2012 "Identification of irradiated food OSL Law" and SN/T 2910.2-2011 "Identification of irradiated food outlet - Part 2. Single Cell Gel electrophoresis. " this standard compared with GB/T 23748-2009, the main changes are as follows.

--- Standard name was changed to "national food safety standard screening method to identify irradiated foods";

--- Adds two screening methods. optically stimulated luminescence method and microbiological screening method;

--- Increased DNA comet assay method of limiting instructions.

National Food Safety Standard Identification of irradiated food screening

1 Scope

This standard specifies three rapid screening of food irradiation had accepted identification methods. optically stimulated luminescence method, DNA comet assay method and microorganisms Learning was screening.

This standard OSL law applies to crustaceans, spices and condiments irradiation

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identification products; DNA comet assay method is suitable for Animal products, identification of irradiated grains, nuts, fruits and vegetables; microbiological screening method is suitable for frozen Poultry and Seafood, and other fresh food Irradiation identification.

The first method OSL method

2.1 OSL (photostimulatedluminescence, PSL)

After the rich silicate sample capture radiant energy by certain wavelengths of light excitation, in the form of light released from the phenomenon.

2.2 PSL intensity (PSLintensity)

After the amount of light emitted by the sample is detected by optical excitation, the photon count rate indicates.

2.3 Screening PSL (screeningPSL)

PSL initial strength of the sample measurement.

2.4 Calibration PSL (calibratedPSL)

After screening PSL measurement, the same sample with a known dose of radiation after the PSL intensity measurement.

2.5 Threshold (thresholds)

In the screening mode, for determining whether or not a sample irradiated PSL strength, comprising a lower threshold (T1) and a high threshold (T2).

2.6 Negative PSL (negativePSLresult)

PSL measured intensity below the low threshold value.

2.7 Suspicious PSL (intermediatePSLresult)

PSL measurement of strength between the low threshold and high threshold.

2.8 Positive PSL (positivePSLresult)

PSL intensity measured above the high threshold.

2.9 Blank (darkcount)

When no light stimulation, empty sample containers obtained photon count rate.

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2.10 Positive control (lightcount)

The reference light source (such as a scintillator containing 14C or equivalent) placed photon count rate of the sample container obtained.

Principle 3

Rich silicate material samples can be stored ray energy. Can excited by certain wavelengths of light irradiation again, the stored sample the amount can be released, resulting in the release of an optical signal light. Use light intensity of light release detector test light signal, large signal intensity comparison of different light Small, it is determined whether the samples irradiated.

4 Instruments and equipment

4.1
OSL measurement system. including sample containers, excitation light source, and synchronous pulse stimulator photon counting system.

4.2
Measurement disc. diameter 5cm.

4.3
sources of ionizing radiation. ionizing radiation sources used and managed according to GB 17568 and GB/T 25306 requirements.

5 Step, Analysis

Note: Place the sample in the dark before measuring. Use disposable measuring disc is measured.

5.1 Preparation of spices and condiments samples

Prepare duplicate samples, spread evenly in the bottom of the measuring plate were detected. If the two test results compared with the determination threshold value is inconsistent, then After re-detected sample aliquot 4, whichever is the highest value as a result of two detection determination, and so on.

5.2 Preparation of samples crustaceans

The shell or shelled into the test sample dish, help detect the OSL signal when samples with animal intestines. As larger individuals, the samples can be cut; also desirable intestines (less than 6) in a measuring plate is measured.

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