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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 23890-2026

Replacing GB/T 23890-2009

Determination of erucic acid and glucosinolates in rapeseed

油菜籽中芥酸及硫苷的测定

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Standardization Administration of the PRC

Table of Contents

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 23890-2009 "Determination of Erucic Acid and Glucosides in Rapeseed by Spectrophotometry", and is consistent with GB/T 23890- Compared to.2009, aside from structural adjustments and editorial changes, the main technical changes are as follows:

a) The principle of near-infrared spectroscopy has been added (see 4.1);

b) The instrumentation for near-infrared spectroscopy has been expanded (see 4.2);

c) Near-infrared spectroscopy sample preparation has been added (see 4.3);

d) A calibration model for near-infrared spectroscopy has been added for establishment and verification (see 4.4);

e) Near-infrared spectroscopy was added for sample determination (see 4.5);

f) Increased the repeatability and reproducibility of near-infrared spectroscopy (see 4.6). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the Ministry of Agriculture and Rural Affairs of the People's Republic of China. This document was drafted by the Oil Crops Research Institute of the Chinese Academy of Agricultural Sciences and Chongqing Zhongyi Seed Industry Co., Ltd. The main drafters of this document are. Li Peiwu, Wang Du, Zhang Liangxiao, Ma Fei, Wang Xuefang, Zhang Wen, Jiang Jun, Bai Yizhen, and Huang Taocui. The release history of this document and the document it replaces is as follows:

---First published in.2009 as GB/T 23890-2009;

---This is the first revision. Determination of Erucic Acid and Glucosides in Rapeseed

1 Scope

GB/T 23890-2026 is the Chinese national standard covering the two figures that define double-low rapeseed - the erucic acid in the oil and the glucosinolates in the meal, both bred down to make the crop usable as food and as feed. It replaces GB/T 23890-2009 and has been in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, replacing GB/T 23890-2009. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes methods for determining the content of erucic acid and glucosinolates in rapeseed using near-infrared spectroscopy and spectrophotometry. This document applies to the determination of erucic acid and glucosinolate content in rapeseed.

4 Near-infrared spectroscopy

4.1 Principle Utilizing the overtone vibrations or rotations of chemical bonds such as CH,

OH, CO, CC, and SO in erucic acid and glucosinolate molecules in rapeseed The absorption characteristics of near-infrared light are obtained by diffuse reflection or transmission to obtain absorption or transmission spectra in the near-infrared region, and chemometric methods are used. A near-infrared calibration model for erucic acid and glucosinolates in rapeseed was established to calculate the content of erucic acid and glucosinolates in rapeseed.

4.2 Instruments and Equipment

4.2.1 Near-infrared analyzer It meets the requirements of GB/T 24895.

4.2.2 Working Environment Temperature 15°C~30°C, relative humidity 20%~80%.

4.3 Sample Preparation

4.3.1 Sampling and subsampling shall be performed in accordance with GB 5491.The calibration model samples should cover the content range of erucic acid and glucosinolates, and the number of samples should be no less than [number missing]. There are 100.

4.3.2 The moisture content of rapeseed samples should meet the requirements of GB/T 11762.

4.4 Calibration Model Establishment and Verification

4.4.1 Spectral Acquisition Take an appropriate amount of rapeseed sample and measure it using a near-infrared analyzer. Each sample should be prepared three times. After each measurement, the sample should be compared with... The original sample to be tested was mixed thoroughly, and a new sample was taken for the next measurement. The calculated average spectrum was used as the sample measurement spectrum.

4.4.2 Determination of Chemical Values During the same period of spectral acquisition, the contents of erucic acid and glucosinolates were determined according to the methods specified in GB 5009.168 and NY/T 1582.

4.4.3 Calibration Model Establishment A calibration model for erucic acid and glucosinolates was established using chemometric methods, and the calibration model was validated in accordance with GB/T 29858.

4.4.4 Calibration Model Upgrade Periodically select representative or anomalous samples to add to the calibration model sample set, re-establish the calibration model, and complete the calibration after validation. Model upgrade.

4.5 Sample Determination

4.5.1 Measurement Method The average spectrum of the samples was acquired using the

method described in 4.4.1, and each sample was collected twice. The mustard color was determined using the calibration model established in 4.4.3. Content of acid and glucosinolates.

4.5.2 Result Processing and Representation The absolute difference between the two measurements should meet the requirements of 4.6.1.The arithmetic mean of the two independent measurements should be taken as the measurement result, and the result should be kept consistent. Leave one decimal place.

4.5.3 Confirmation and handling of abnormal measurement results

4.5.3.1 Confirmation of Abnormal Measurement Results The following are all considered abnormal measurement results.

---The measured results exceeded the range of erucic acid and glucosinolate content covered by the calibration model;

---The absolute difference between the two measurements does not meet the requirements of 4.6.1.

4.5.3.2 Handling of Abnormal Measurement Results Abnormal samples that exceed the calibration model range should have erucic acid and glucosinolates determined according to the methods specified in GB 5009.168 and NY/T 1582, respectively. Samples whose content and results match those obtained by near-infrared spectroscopy can be used for calibration model upgrades. For abnormal samples where the absolute difference between two measurements does not conform to section 4.6.1, the spectral data and calibration model prediction results should be retested. Samples whose absolute difference between two retests meets the requirements of

4.6.1 can be used for calibration model upgrades.

4.6 Repeatability and Reproducibility

4.6.1 Repeatability In the same laboratory, by the same operator using the same instruments and equipment, the same samples were resampled and repacked within a short period of time to analyze the same... The samples to be tested are tested independently of each other, and the specific requirements for the absolute difference between the two independent measurements are shown in Table 1.

4.6.2 Reproducibility In different laboratories, by different operators using different equipment, the same sample was tested using the same method, with two independent measurements. The specific requirements for the absolute difference of the results are shown in Table 1.

5.1 Principle