CODEX ALIMENTARIUS COMMISSION

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World Health Organization

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Agenda Item 4 **CX/FO 26/29/4**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FATS AND OILS

Twenty-ninth Session

Kuala Lumpur, Malaysia

9 – 13 February 2026

STANDARD FOR NAMED VEGETABLE OILS (CXS 210-1999)

APPENDIX, SECTION 5 METHODS OF ANALYSIS AND SAMPLING

FITNESS FOR PURPOSE OF THE METHOD FOR THE DETERMINATION OF GAMMA ORYZANOL IN RICE BRAN OIL

COMMENTS IN REPLY TO CL 2024/38-FO

(Submitted by Chile, China, Cuba, Ecuador, Egypt, European Union, Iran (Islamic republic of), Senegal)

Background[1]

1. CCFO28 (2024) considered the matters related to methods of analysis and noted the information presented in FO28/CRD06 Part B, that the method for the determination of gamma oryzanol in rice bran oil in the *Standard for named vegetable oils* (CXS 210-1999) had not been reviewed by CCMAS since it was never transferred to the standard on *Recommended methods of analysis and sampling* (CXS 234-1999). CCFO noted the need to consider whether this method was still fit for purpose and if so, to request CCMAS to include it in CXS 234-1999; or that an alternative method be proposed for endorsement by CCMAS and inclusion in CXS 234-1999.

2. CCFO28 agreed to defer discussions on the method for the determination of gamma oryzanol in rice bran oil transcribed in the *Standard for named vegetable oils* (CXS 210-1999) to CCFO29; and to request the Codex Secretariat to issue a circular letter (CL) to collect information on whether the method for the determination of gamma oryzanol in rice bran oil transcribed in CXS 210-1999 was still “fit for purpose” and should be included in the standard CXS 234-1999; and if there was alternative method(s) that could be proposed for endorsement by CCMAS and inclusion in CXS 234-1999.

3. The circular letter CL 2024/38-FO was issued in May 2024 with a deadline of 28 February 2025, and the replies received are complied in Appendix I to this document.

Conclusion and recommendation

4. CCFO29 is invited to:

   - consider the comments in Appendix I; and
   - determine if the method is still fit for purpose; and recommend to CCMAS to have it included in CXS 234-1999.

[1] REP24/FO paragraph 11(b) & 15(ii)

Appendix I

Comments in reply to CL 2024/38-FO

COMMENT	MEMBER / OBSERVER
Chile welcomes the invitation to participate in this EWG. Chile has no comments since it is not a producer of rice bran oil.	**Chile**
a. The method for the determination of gamma oryzanol in rice bran oil remains "fit for purpose." We have also conducted inter-laboratory tests in China, and the results confirm that the method is effective . Therefore, it is recommended to include it in CXS 234-1999. b. Due to the simplicity of the current method's description in the standard, China proposes to lead the development of a series standard (spectrophotometer method and high-performance liquid chromatography method) for the determination of gamma oryzanol in rice bran oil within ISO. We are currently in contact with ISO/TC34/SC11 to discuss the proposal. Should these two standards be published, it is recommended to propose their inclusion in CXS 234-1999.	**China**
Cuba welcomes the opportunity to submit its comments in response to this circular letter. Cuba has no experience in using this test method for the determination of gamma oryzanol in rice bran oil, as described in Section 5 of the Appendix to CXS 210-1999.	**Cuba**
There are no products registered under the name 'rice bran oil' at national level. We are therefore unaware of any application of this method. However, we believe that this method should undergo prior validation by the competent bodies to ensure its proper implementation and compliance with relevant standards. We do not have any comments or proposals for inclusion in CXS 234-1999. However, we consider that the methods of analysis should be validated first by the competent bodies to ensure their reliability and compliance with established standards.	**Ecuador**
The method is suitable for application to crude rice bran oil and has not mentioned its application to refined rice oil. Currently, no alternative method can be suggested.	**Egypt**
The European Union and its Member States (EUMS) support the transfer of the ultraviolet (UV) method described in CXS 210-1999 to CXS 234-1999 as a Type IV method as no standardised and fully validated alternative method is currently available. Gamma oryzanols are a mixture of ferulic acid esters of sterols and triterpene alcohols. The UV spectrophotometric method for gamma oryzanol as described in CXS 210-1999 is simple and low-cost. It determines the total content of gamma oryzanol as the absorption spectra of the individual components of gamma oryzanol are almost identical. Whilst alternatives to the UV spectrophotometric method exist, most of them based on the chromatographic separation of gamma oryzanol or by other more selective spectroscopic techniques, none of those methods have been collaboratively tested and are not available via the Standards Developing Organisations usually supplying validated methods to Codex (ISO, CEN, AOAC, NMKL).	**European Union**

COMMENT	MEMBER / OBSERVER
Iran recommends retaining the method outlined in CXS 234-1999 for the following reasons: Gamma oryzanol is a natural antioxidant exclusively found in rice bran oil. Therefore, having a reliable method for measuring it is essential for accurately identifying this type of oil. This method employs a spectrophotometer, which makes it straightforward and accessible for all producers who wish to identify rice bran oil. Additionally, the method shows acceptable levels of accuracy and repeatability, especially at high concentrations of gamma oryzanol. For these reasons, we advocate for the continued use of this method in CXS 234-1999. Gamma oryzanol is a natural antioxidant known for its numerous nutritional, and health benefits and it has significant potential to replace synthetic antioxidants. To fully realize its applications in both refined and crude oils, it is essential to measure gamma oryzanol using more accurate instrumental methods that minimize or eliminate matrix effects. Currently, two HPLC-based methods have been developed for this purpose, and we recommend that these methods be reviewed and incorporated into the relevant codex. The details of these methods are attached. - https://patents.google.com/patent/CN102353743A/en - HPLC method for determination of Oryazanol: https://www.fao.org/fileadmin/user_upload/codexalimentarius/doc/fo29_04e_Method_HPLC.pdf	**Iran (Islamic republic of)**
Senegal has a national 'NS' standard,equivalent to the ECOSTAND standard, which is used for the determination of gamma oryzanol in rice bran oil, in accordance with the Standard for Named Vegetable Oils (CXS 210-1999). Upon comparison, it appears that national laboratories use the same method for the determination of gamma oryzanol in rice bran oil. However, they rarely perform this analysis. It should also be noted that the Senegalese standard is based on the same method of determination.	**Senegal**