



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME**  
**CODEX COMMITTEE ON FATS AND OILS**

Twenty-eighth Session  
Kuala Lumpur, Malaysia  
19 – 23 February 2024

**PROPOSED DRAFT AMENDMENT/REVISION TO THE STANDARD FOR NAMED VEGETABLE OILS  
(CXS 210-1999): INCLUSION OF SACHA INCHI OIL**

**(Step 3)**

(Prepared by the Electronic Working Group chaired by Peru<sup>1</sup>)

Codex Members and Observers wishing to submit comments, at Step 3, on Annex I of this proposed draft amendment/revision to the *Standard for Named Vegetable Oils* (CXS 210-1999): inclusion of Sacha inchi oil should do so as instructed in CL 2023/59/OCS-FO available on the Codex webpage/Circular Letters 2023:

<https://www.fao.org/fao-who-codexalimentarius/resources/circular-letters/en/>

## INTRODUCTION AND TERMS OF REFERENCE

1. Peru presented a new work proposal on amendment/revision of the *Standard for Named Vegetable Oils* (CXS 210-1999): inclusion of Sacha inchi oil at the 27th Session of the Codex Committee on Fats and Oils (CCFO27)<sup>2</sup>.
2. CCFO27 (2021) agreed:
  - i. To submit for approval by CAC45 the proposal for new work on the inclusion of Sacha inchi oil in the *Standard for Named Vegetable Oils* (CXS 210-1999)
  - ii. To establish an Electronic Working Group (EWG) chaired by Peru, working in English and Spanish, subject to the approval of new work, to prepare the proposed draft revision for circulation for comments at Step 3 and consideration by CCFO28.
  - iii. That the report of the EWG should be made available at least three months before CCFO28.

## PARTICIPATION AND METHODOLOGY

3. Codex Members and Observers were invited to register on the Codex EWG forum until 28 February 2022 and the following registered to participate in the EWG: Brazil, Colombia, Dominican Republic, Egypt, Iran, India, France, Malaysia, Mexico, Peru, Republic of Korea, Saudi Arabia, Thailand, USA, and US Pharmacopeia Convention.
4. The EWG conducted two rounds of consultations, with the first round ending on 16 July 2022, and the second one ending on 27 October 2022.

## ANALYSIS OF RESPONSES

5. During the first round of consultations, comments were received from Iran, Saudi Arabia, and Peru. One EWG Member noted that the cold pressing method had not been mentioned in the proposal; and that the proposed draft standard should be aligned to the format of CXS 210-1999. Other proposals were made to change the fatty acid ranges in Table 1 (especially C18:0, C18:1, C18:2 and C18:3), and acid value. Based on these comments, the first draft was revised and circulated for the second round of consultations.

<sup>1</sup> Members of the EWG included: Brazil, Colombia, Dominican Republic, Egypt, Iran, India, France, Malaysia, Mexico, Peru, Republic of Korea, Saudi Arabia, Thailand, USA, and US Pharmacopeia Convention

<sup>2</sup> REP22/FO, para 157 - 160

6. During the second round of consultations, comments were received from Iran, Peru, Thailand and USA, and; based on the responses provided, the draft was further revised, as follows:
  - i. Description: Proposals for changes to the product definition were received.
  - ii. Section 3 - Essential composition and quality factors: There was agreement to include under 3.1 GLC ranges of fatty acid composition (expressed as percentages) as follows:

*Sacha inchi oil shall contain not less than 44 % linolenic acid (as a percentage of total fatty acid content) and more than 32 % linoleic acid.*
  - iii. Section 4 – Food additives: It was noted that Sacha inchi oil is a cold pressed oil and that no food additives are permitted for use in virgin or cold pressed oils.
  - iv. Section 8 – Methods of Analysis and Sampling: It was agreed that this section should be in accordance with the provisions listed in the *Recommended Methods of Analysis and Sampling* (CXS 234-1999).
  - v. Table 1: There was no consensus on the proposed values for the fatty acid ranges for C16:0; C16:1; C17:0; C17:1; C18:0; C18:1, C18:2; C18:3 and the corresponding values for fatty acid ranges were put in square brackets.
  - vi. Appendix – Quality Characteristics: It was agreed that these will remain the same as those in CXS 210-1999 as there were no special requirements for Sacha inchi oil.
  - vii. Table 2 - All values in Table 2 were agreed except the minimum value for the saponification value and the value for the unsaponifiable matter. The proposed values are based on sample data and technical standards obtained from the Latin America region. Additionally, Members and Observers are requested to submit data, from the various regions, to determine the fatty acid ranges in Table 2, 3 and 4.

## CONCLUSIONS AND RECOMMENDATIONS

7. The EWG has completed the task according to its work program, and the CCFO is now able to proceed with the consideration of the proposed Amendment/Revision of the *Standard for Named Vegetable Oil* (CXS 210-1999) to include Sacha inchi oil. During the two rounds of consultations with EWG members, a significant amount of information has been gathered that will form the basis for the development of the draft amendment/revision.
8. The EWG recommends requesting Codex Members and Observers for data on Sacha inchi oil samples from regions, cultivars, seasons, climates, among others, to determine the ranges for the fatty acids in Table 2, Table 3 and Table 4.
9. The EWG recommends to CCFO28 to consider at Step 3 of the proposed draft amendment/revision of the *Standard for Named Vegetable Oils* (CXS 210-1999) to include Sacha inchi oil as specified in **ANNEX I**.

**ANNEX I**

**PROPOSED DRAFT AMENDMENT/REVISION OF THE STANDARD FOR NAMED VEGETABLE OILS  
(CXS 210-1999): INCLUSION OF SACHA INCHI OIL  
(Step 3)**

**2 DESCRIPTION****2.1 Product definitions**

**Sacha inchi oil** is obtained by cold pressing from seeds of sacha inchi fruit (*Plukenetia volubilis* L.).

**3. ESSENTIAL COMPOSITION AND QUALITY FACTORS****3.1 GLC ranges of fatty acid composition (expressed as percentages)**

Sacha inchi oil shall contain not less than 44% linolenic acid (as a percentage of total fatty acid content) and more than 32 % linoleic acid.

**TABLE 1: Fatty acid composition of sacha inchi oil as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids) (see Section 3.1 of the Standard)**

Fatty acid	Sacha Inchi oil
C6:0	ND
C8:0	ND
C10:0	ND
C11:0	ND
C12:0	ND
C14:0	ND
C15:0	ND
C16:0	3.6 – [4.8]
C16:1	ND – [0.1]
C17:0	ND – [0.1]
C17:1	ND
C18:0	2.6 – [4.0]
C18:1	8,4 – [11.7]
C18:2	[32.0] – [40.0]
C18:3	[44.0] – [50.0]
C20:0	ND – 0.10
C20:1	ND – 0.4
C20:2	ND – 0.1
C22:0	ND – 0.1
C22:1	ND – 0.1
C22:2	ND
C24:0	ND
C24:1	-

ND - Non detectable, defined as  $\leq 0.05$  %

## APPENDIX TO CXS 210-1999 - OTHER QUALITY AND COMPOSITION FACTORS

TABLE 2 - Chemical and physical characteristics in sachu inchi oil

	Sachu inchi oil
Relative density (x°C/water at 20 °C)	0.920 – 0.930 x=20 °C
Refractive index (ND 40 °C)	1.478 – 1.482
Saponification value (mg KOH/g oil)	[189] – 196
Iodine value	182 – 199
Unsaponifiable matter (g/kg)	[≤ 5]

TABLE 3 - Levels of desmethylsterols of sachu inchi oil from authentic samples as a percentage of total sterols

	Sachu Inchi oil
Cholesterol	ND – 1,0
Brassicasterol	ND – 0,1
Campesterol	6,6 – 7,8
Stigmasterol	23,4 – 27,0
Beta-sitosterol	51,6 – 56,9
Delta-5avenasterol	4,3 – 8,7
Delta-7stigmastenol	ND – 0,3
Delta-7avenasterol	ND – 0,7
Others	ND
Total sterols (mg/kg)	2 080 – 2 480

ND - Non-detectable, defined as ≤ 0,05 %

TABLE 4 - Levels of tocopherols and tocotrienols in sachu inchi oil from authentic samples (mg/kg)

	Sachu inchi oil
Alpha-tocopherol	3,0 – 7,0
Beta-tocopherol	ND – 3,0
Gamma-tocopherol	1 040 – 1 370
Delta-tocopherol	640 – 860
Alpha-tocotrienol	ND
Gamma-tocotrienol	ND
Delta-tocotrienol	ND
Total (mg/kg)	1 683 – 2 240

ND - Non-detectable.