

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
Organization of the
United Nations



World Health
Organization

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REP22/FO

JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX ALIMENTARIUS COMMISSION

45th Session

TBC

REPORT OF THE 27th SESSION OF THE CODEX COMMITTEE ON FATS AND OILS

Virtual

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SUMMARY AND STATUS OF WORK					
Responsible Party	Purpose	Text/Topic	Code	Step	Para(s)
Members CCEXEC83 CAC45	Adoption	Proposed draft revision to the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): Essential composition of Sunflowerseed oils	N09-2017	5/8	45 and App. III
		Proposed draft revision to the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): avocado oil	N12-2017	5	82(i) and App. IV
		Editorial amendments/changes to the <i>Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk</i> (CXC 36-1987): Appendix 2	-	-	144 (iii) App. IX,
	Approval	Amendment/revision to the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999) to include <ul style="list-style-type: none"> - Camellia seed oil; - Sacha inchi oil; - High oleic acid soya bean oil 	-	1,2	152 160 169
		Amendment/revision to the <i>Standard for Fish Oils</i> (CXS 329-2017) - Inclusion of Calanus oil	-	1,2	166
Action	Mechanisms for revising the <i>Standard for Milk Fat Products</i> (CXS 280-1973)	-	-	175	
CCMAS	Information	Supported the proposed editorial amendments to the methods of analysis (including changes to typing of methods) for fats and oils as proposed by CCMAS in CXS 234-1999	-	-	22 (i)
	Action	Informed CCMAS that there were no trade implications related to retyping of methods	--	-	22(i)
		Informed CCMAS that the Crismer value and Halphen test in the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999) were still in use and these methods should to be retained	-	-	22(iii)
		Forwarded proposed performance criteria for total arsenic in edible fats and oils and inorganic arsenic in fish oils	-	-	22 (ii) and App II
CCFA	Action	Confirmation of the technological justification for the use of mono- and diglycerides of fatty acids (INS 471) as antifoaming agents in oils for deep frying, conforming to the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999) excluding virgin and cold-pressed oils	-	-	23
Canada, EU Egypt, India, Saudi Arabia, Uganda, USA, and WHO	Drafting	Preparation of a discussion paper to address the possible work that CCFO could undertake to reduce TFAs or eliminate PHOs			11

SUMMARY AND STATUS OF WORK					
Responsible Party	Purpose	Text/Topic	Code	Step	Para(s)
EWG Members CCFO28	Drafting/ Comments	Amendment/Revision of the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): Inclusion of avocado oil		5/6	82 (ii)
		Revision of the <i>Standard for Olive Oils and Pomace Olive Oils</i> (CXS 33-1981): Sections 3, 8 and Appendix		2,3	135 (ii)
		Amendment/Revision of the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): inclusion of camellia seed oil		2,3	152 (ii)
		Amendment/Revision of the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): inclusion of sacha inchi oil		2,3	160 (ii)
		Amendment/Revision of the <i>Standard for Named Vegetable Oils</i> (CXS 210-1999): inclusion of high oleic acid soya bean oil		2,3	169 (ii)
		Amendment/Revision of the <i>Standard for Fish Oils</i> (CXS 329-2017): inclusion of Calanus oil		2,3	166 (ii)
		Consideration of proposals on new substances to be added to the List of Acceptable Previous Cargoes		-	144 (ii)

LIST OF ACRONYMS

ADI	Acceptable Daily Intake
AOAC	Association of Official Agricultural Chemists
AOCS	American Oil Chemists Society
CAC	Codex Alimentarius Commission
CCEXEC	Executive Committee of the Codex Alimentarius Commission
CCCF	Codex Committee on Contaminants in Food
CCFA	Codex Committee on Food Additives
CCFL	Codex Committee on Food labelling
CCFO	Codex Committee on Fats and Oils
CCMAS	Codex Committee on Methods of Analysis and Sampling
CCMMP	Codex Committee on Milk and Milk Products
CCNFSDU	Codex Committee on Nutrition and Foods for Special Dietary Uses.
CL	Circular letter
CRD	Conference room document
CXG	Codex Guidelines
CXS	Codex Standard
DHA	Docosahexaenoic acid
EPA	Eicosapentaenoic acid
EU	European Union
EWG	Electronic Working Group
FAO	Food and Agriculture Organization of the United Nations
FOSFA	Federation of Oils, Seeds and Fats Association International
GL	Guideline
GLC	Gas-liquid chromatography
GMP	Good Manufacturing Practice
GSFA	General Standard on Food Additives
IOC	International Olive Council
INS	International Numbering System
ISO	International Organisation for Standardization
JECFA	Joint Experts Committee on Food Additives
ND	Not Detected
OVOO	Ordinary Virgin Olive Oil
PHOs	Partially Hydrogenated Oils
PWG	Physical Working Group
RI	Refractive Index
TDI	Tolerable Daily Intake
TFA	Trans-Fatty Acids
USA	United States of America
USPC	United States Pharmacopeia Convention
WHO	World Health Organization

INTRODUCTION

1. The Codex Committee on Fats and Oils (CCFO) held its Twenty-Seventh Session virtually from 18 to 26 October at the kind invitation of the Government of Malaysia. The Session was chaired by Ms Norrani Eksan, Director for Compliance and Industry Development, Food Safety and Quality Division of the Ministry of Health Malaysia. The Session was attended by 66 member countries, one member organisation and 10 observer organisations. A list of participants is given in Appendix I.

OPENING OF THE SESSION

2. Mr. Khairy Jamaluddin, the Honourable Minister of Health Malaysia welcomed delegates, and underscored the important role fats and oils play in diets of population. Being traded globally, he emphasized that it was crucial to establish standards to assure their quality, safety and authenticity. He called for reinforcing and strengthening of the work of CCFO to take into account increasing demand for healthier fats and oils, and the need to address various emerging global challenges including changes in food systems; climate change, new geographical locations of production and technological advancement. He congratulated the new Chairperson of CCFO and wished the Committee a successful and fruitful session.
3. Mr. Mohd Salim Dulatti, Senior Director for Food Safety and Quality, Ministry of Health Malaysia; Dr Markus Lipp, Senior Officer, of the Food Systems and Food Safety Division of the of the Food and Agriculture Organization of the United Nations (FAO); Dr Francesco Branca, Director of the Department on Nutrition and Food Safety of the World Health Organization (WHO); Professor Mr. Purwiyatno Hariyadi, Vice Chairperson of the Codex Alimentarius Commission (CAC), and Mr Tom Heilandt, Codex Secretary also addressed the meeting.

Division of competence¹

4. The Committee noted the division of competence between the European Union and its Member States, according to paragraph 5, Rule II of the Rules of Procedure of the Codex Alimentarius Commission.

ADOPTION OF THE AGENDA (Agenda Item 1)²

5. The Committee adopted the provisional agenda as its agenda for the session.
6. The Committee agreed to consider, under Agenda Item 8 (Other Business) and subject to the availability of time, a discussion paper on the metal content of butter oil in the Codex *Standard for milk fat products* (CXS 280-1973) prepared by Iran.

MATTERS REFERRED BY THE CODEX ALIMENTARIUS COMMISSION AND OTHER SUBSIDIARY BODIES (Agenda Item 2)³

Matters for information

7. CCFO27 noted the matters for information from CAC42, CAC43, CCEXEC78, CCEXEC80, CCFL45, CCMAS40, CCMAS41, CCCF13 and CCFA52.

Matters for action from CCNFSDU41 and CCFL46 – Trans-Fatty Acids

8. CCFO27 noted the discontinuation of work on the claim for “free” of *trans*-fatty acids (TFAs) by the 41st Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU41) and the request to CCFO to consider possible ways to reduce TFAs or eliminate partially hydrogenated oils (PHOs). It was further noted that the 46th Session of the Codex Committee on Food Labelling (CCFL46) had recently discussed possible new work on TFAs but had agreed not to proceed as yet, but that a discussion paper should be prepared taking into account the outcomes of discussions at CCFO.
9. The Representative of WHO, recalling the proposal of CCNFSDU41, requested CCFO to consider possible ways to reduce TFAs or eliminate PHOs. The Representative noted that despite the growing number of countries implementing strict measures to eliminate industrially produced TFAs or to ban the production and use of PHOs, accelerated actions were needed by all Member States to achieve the global goal to eliminate industrially produced TFAs by 2023. The Representative therefore highlighted the important role CCFO could play, including for example, amending the *Standard for Fat Spreads and Blended Spreads* (CXS 256-2007) and amending the *Standard for Edible Fats and Oils Not Covered by Individual Standards* (CXS 19-1981) to include a prohibition on PHOs.
10. There was general support among delegations to explore how CCFO could address TFAs and PHOs in the food supply. In doing so the paper previously prepared by Canada and included in CRD15 could be considered.

¹ CRD1 (Annotated Agenda – Division of competence between the European Union and its Member States)

² CX/FO 21/27/1; CRD18 (Iran)

³ CX/FO 21/27/02; CX/FO 21/27/02 Add.1; CRD02 (Netherlands and USA); CRD07 (Codex Secretariat); CRD08 (EU, Norway, GOED); CRD15 (Canada)

In order to proceed it was proposed that a group of interested members could come together to prepare a discussion paper to explore the kind of work CCFO could undertake to support the reduction of TFAs or elimination of PHOs. A Circular Letter (CL) to seek data to support this process could also be issued; and/or new work proposals could also be submitted in response to the CL for New Work Proposals.

Conclusion

11. CCFO27 agreed that a discussion paper to address the possible work that CCFO could undertake to reduce TFAs or eliminate PHOs would be prepared by Canada in collaboration with the European Union, Egypt, India, Saudi Arabia, Uganda, the United States of America, and WHO for consideration by the next session of CCFO.

Matters for action – CCMAS41

12. The Chairperson of CCFO informed the meeting that matters referred by the 41st Session of the Codex Committee on Methods of Analysis and Sampling (CCMAS) covered four main issues, i.e. editorial changes to CCFO methods of analysis; retyping of methods of analysis and their implication for trade; the use of the criteria approach for methods used in the determination of arsenic for fish oils; and consideration of new methods. She further noted that the United States of America and the Netherlands had prepared responses to the questions raised by CCMAS (CRD02); and proposed that CRD02 be used as the basis for the discussion. CCFO27 agreed to the proposal of the Chairperson.

Methods of analysis of Fats and Oils in *Recommended methods of analysis and sampling (CXS 234-1999)*, endorsed by CCMAS, for consideration by CCFO⁴

13. CCFO27 recognised that the proposed changes were primarily editorial in nature and were intended to align the provisions in CXS 234-1999 with those in the CCFO standards; as well as ensure consistency with the language currently used by CCMAS.
14. The Committee agreed to the proposed editorial changes (including retyping) as these would ensure consistency between the Codex texts and supported the proposal by CCMAS that these changes should be forwarded directly to CAC44 for adoption.

Trade implications of retyping the methods⁵

15. CCFO27 noted that CCMAS41 had retyped a number of methods for the fats and oils in CXS 234-1999 including: methods for synthetic antioxidants; fatty acid composition in fish oil; fatty acid composition in named animal fat; titre in named animal fats; unsaponifiable matter in named vegetable oil; and that CCMAS had asked CCFO for any trade implications of retyping the methods especially the following:
 - fats and oils (AOCS Ce 6-86 for synthetic antioxidants as Type II, AOAC 983.15 as Type III)
 - fish oils (AOCS Ce 2-66 and AOCS Ce 1i-07 for fatty acid composition as Type II, ISO 12966-2 and ISO 12966-4 to Type III)
 - named animal fats (AOCS Ce 2-66 and AOCS Ce 1j-07 methods for fatty acid composition as Type II, ISO 12966-2 and ISO 12966-4 method as Type III.)
 - named animal fats (ISO 935 for Titre as Type I, AOCS Cc 12-59 as Type IV.)
 - named Vegetable Oils (ISO 18609 for unsaponifiable matter as Type IV)
16. CCFO27 noted that no trade implications on retyping of methods had been reported by any Codex member and agreed with the proposed revisions to the Typing of the methods outlined above in paragraph 15.
17. In reply to the question as to whether the Crismer value and Halphen test in the *Standard for Named Vegetable Oils (CXS 210-1999)* were still in use or not, one member confirmed the usage of those methods in trade. Based on this response, CCFO27 agreed to inform CCMAS that the two methods be retained in CXS 234-1999.

Method of analysis of arsenic in Edible Oils and Fish Oil

18. Concerning the proposal by CCMAS that the method(s) for the analysis of total arsenic in fats and oil(s) and inorganic arsenic in fish oil be based on a criteria approach, CCFO27 noted that adoption of the performance criteria approach would give laboratories more flexibility in the choice of methods; and that the Codex Procedural Manual recommended that numeric criteria be used when appropriate.

⁴ CX/FO 21/27/2 Annex II 4.3 FOR Referral to CCFO

⁵ CX/FO 21/27/2 Annex II 4.4 FOR Referral to CCFO

19. CCFO 27 agreed to the use of the performance criteria for inorganic arsenic in fish oils and total arsenic in edible fats and oils respectively, including examples of applicable methods, and to forward the proposed performance criteria for both total arsenic and inorganic arsenic to CCMAS (see paragraph 22).

New methods

20. One member highlighted that the provisions on methods in CCFO standards and CXS 234-1999 should be aligned. CCFO27 noted that the relevant information should be submitted to CCMAS for their consideration. Regarding the request by an observer to consider new methods of analysis for Fats and Oils (i.e. methods for the quantification of the omega-3 fatty acids, EPA, DHA and the Total Omega-3 Fatty Acids in fish oils); CCFO27 noted that the review of the fats and oils packages in CXS 234-1999 focused on checking the 'fitness for purpose' of methods in the standard and consideration of their typing. New methods of analysis were not considered at that point and that such methods could go through the normal endorsement process on recommendation of the relevant commodity committee, e.g. CCFO.
21. The Codex secretariat clarified that proposals for any new method of analysis should be done through a new work proposal and in accordance with the internal procedures of CCFO. CCFO27 further noted that the information document 'Comprehensive guidance for the process of submission, consideration and endorsement of methods for inclusion in CXS 234-1999', developed by CCMAS, should be taken into account when CCFO developed methods of analysis and that the document was available on the Codex website.

Conclusion

22. CCFO27 agreed:
- i. to the proposed editorial amendments to the methods of analysis (including changes to typing of methods) for fats and oils as proposed by CCMAS and contained in CXS 234-1999 and to inform CCMAS that there were no trade implications related to retyping of methods;
 - ii. to forward the proposed performance criteria for total arsenic in edible fats and oils and inorganic arsenic in fish oils to CCMAS for consideration (Appendix II)
 - iii. to inform CCMAS that the Crismer value and Halphen test in the *Standard for Named Vegetable Oils* (CXS 210-1999) were still in use and request CCMAS to retain those methods.

Matters for action – CCFA52

Use of mono- and diglycerides of fatty acids (INS 471)

23. CCFO27 agreed to inform the Codex Committee on Food Additives (CCFA) that mono- and diglycerides of fatty acids (INS 471) were technologically justified for use as antifoaming agents at a maximum level of 10,000 mg/kg in oils for deep frying, conforming to the *Standard for Named Vegetable Oils* (CXS 210-1999) excluding virgin and cold-pressed oils.
24. CCFO27 also noted that CCFA52 had completed the process for the alignment of CXS 210-1999. Hence, the proposed amendments to the food additives section of CXS 210-1999 to include mono- and diglycerides of fatty acids (INS 471) would be incorporated directly into the *General Standard for Food Additives* (GSFA) (CXS 192-1995) by CCFA.

MATTERS OF INTEREST ARISING FROM FAO/WHO AND FROM THE 90TH AND 91ST MEETING OF THE JOINT FAO/WHO EXPERT COMMITTEE ON FOOD ADDITIVES (JECFA) (Agenda Item 3)⁶

25. The Chairperson of CCFO recalled the request to FAO/WHO to undertake a safety evaluation of 23 substances that were being considered for inclusion in the list of acceptable previous cargoes, noting that this request dated back to CCFO24 and that CCFO26 had highlighted the urgency of receiving a response.
26. Noting that the evaluation had since been undertaken by the 90th and 91st sessions of JECFA, the Chairperson expressed appreciation to FAO and WHO for completing this work despite the challenging circumstances posed by the pandemic.
27. The Representative of WHO presented the outcome of the JECFA evaluation noting that the JECFA recommendations covered two aspects for CCFO consideration:
- revising Criterion no. 2 in the *Code of Practice for the Storage and Transport of Edible Fats and Oils in Bulk* (CXC 36-1987) as adopted by CAC 34 (2011); and
 - the outcome of the JECFA safety evaluation of 23 substances that may occur as previous cargoes.

⁶ CX/FO 21/27/3 (Rev)

Revision to Criterion no. 2 of CXC 36-1987

28. With regard to the recommendation to revise criterion number 2, the Representative highlighted that based on the consumption data of fats and oils by infants and young children, there was no health concern for the general population from dietary exposure to previous cargo chemical substances if the ADI or TDI was sufficiently protective, for example, the ADI or TDI was greater than, or equal to 0.3 mg/kg bw per day. The criterion currently indicated that ADI or TDI of the substance should be greater than or equal to 0.1 mg/kg bw per day. When considering substances for which there was no numerical ADI or TDI, the criterion indicates these should be evaluated on a case-by-case basis. In these cases, JECFA recommended that where there were additional sources of dietary exposure to the previous cargo chemical substances, they should be considered in the exposure assessment.

JECFA safety evaluation of 23 substances

29. The WHO Representative informed CCFO27 that for 19 out of the 23 substances, JECFA concluded that they met the criteria for acceptability as previous cargoes (ref. CX/FO 21/27/3 Rev). However, for 4 substances, JECFA concluded that they did not meet the criteria for acceptability as a previous cargo for edible fats and oils, namely montan wax, non-food-grade calcium lignosulfonate, cyclohexane and acetic anhydride.
30. The WHO Representative elaborated on the following reasons why the four substances did not meet the criteria for acceptability as previous cargoes:
- For montan wax, - there was not sufficient chemical and toxicological information to allow the evaluation of montan wax as shipped.
 - For non-food-grade calcium lignosulfonate - there was insufficient chemical and toxicological information that allowed the evaluation of non-food-grade calcium lignosulfonate liquid as shipped.
 - For acetic anhydride and cyclohexane – there was insufficient chemical information that allowed the evaluation of non-food grade acetic anhydride and cyclohexane respectively, transported as previous cargoes.
31. The CCFO chairperson expressed appreciation for the presentation and following a request for more information, the WHO Representative clarified that the complete reports of JECFA and the monographs would all be published within the next 12-15 months. Following the proposal by a member delegation for more time to review the results including the complete report of JECFA 90 and 91, it was agreed to postpone further consideration of the evaluation and the JECFA recommendations to CCFO28.

Conclusion

32. CCFO agreed
- i. to defer discussions on this item to CCFO28 at which time it would fully deliberate on the outcome of the JECFA evaluation; and
 - ii. to request the Codex secretariat to advise all members when the JECFA reports became available and to issue a Circular Letter requesting comments on the recommendations of JECFA 90 and 91 in order to facilitate discussions at CCFO28.

PROPOSED DRAFT REVISION TO THE STANDARD FOR NAMED VEGETABLE OILS (CXs 210-1999):**Sunflowerseed oil - Revision of composition: Section 3.1 - GLC ranges of fatty acid composition - ranges of oleic and linoleic acid (Agenda Item 4.1)⁷**

33. The Chairperson recalled that CCFO26 (2019) considered the proposed draft revision to Section 3.1 GLC ranges of fatty acid composition - ranges of oleic and linoleic acid for sunflowerseed oil and agreed to: i) retain the original product definition; ii) endorsed the proposed ranges of oleic and linoleic acid for sunflowerseed oil (i.e. Oleic acid C18:1 14.0 - 43.0 Linoleic acid C18:2 45.4 - 74.0) and held the GLC ranges at Step 4 pending finalisation of the revision of the physical and chemical parameters (refractive index, saponification value, iodine values and relative density) – see Agenda Item 4.2 (physical and chemical parameters).
34. Based on this consideration, she noted there would be no discussion on Agenda Item 4.1 and that the recommendation on next steps would be considered together with Agenda Item 4.2 (physical and chemical parameters).

⁷ REP19/FO, Para 76 (b) and (e)

Sunflowerseed oil - Revision to composition - Physical and chemical parameters (refractive index, saponification value, iodine values and relative density) (Agenda Item 4.2)⁸

35. Argentina, as Chair of the electronic working group (EWG), speaking also on behalf of Brazil as Co-chair of the EWG, introduced the item and outlined the process followed by the EWG including data collection using a CL; data analysis methodology; discussions and decisions. The values for the proposed revised parameters took into account both the upper and lower limits.

36. CCFO27 considered the values for each parameter as indicated below.

Refractive index

37. CCFO27 considered the proposed revision to the maximum value for the refractive index to 1.475 and, noted the broad support for this revision. Some delegations supported maintenance of the current value of 1.468.

Conclusion

38. CCFO27 agreed to the proposed revision of the maximum value to 1.475 for the refractive index, noting the reservation of the Russian Federation and Uganda to this decision.

Saponification value

39. CCFO27 considered the proposed revision of the current minimum value for saponification to 187 from 188. There was general support to change the minimum value to 187.

40. One delegation while supporting the minimum value of 187 expressed the view that the type of fraction, whether high or mid oleic and linoleic sunflowerseed oil should be specified for fair trade and economic purposes. Specifying the type of oil fraction in addition to the ranges would give an indication of the sunflowerseed oil quality to the industry or buyer and protect the consumer as well.

Conclusion

41. CCFO27 agreed to the proposal to lower the minimum saponification value from 188 to 187, noting the reservation of the Russian Federation to this decision.

Iodine values

42. CCFO27 noted that there were no proposed revisions and agreed to maintain the existing values in the standard.

Relative density

43. CCFO27 noted the broad support to decrease the minimum value for relative density from 0.918 to 0.916.

Conclusion

44. The Committee agreed to the proposed minimum value of 0.916 noting the reservation expressed by the Russian Federation to the decision.

Conclusion to Agenda Items 4.1 and 4.2

45. The Committee agreed to forward the following proposed draft revision to the *Standard for Named Vegetable Oils* (CXS 210-1999) – Sunflowerseed oil, for adoption at Step 5/8 by CAC45:

- i. Revision to the composition: Section 3.1 - GLC ranges of fatty acid composition (ranges of oleic and linoleic acid) (Appendix III Part A); and
- ii. The revision to the Appendix – Other quality and composition factors; Section 3 - Chemical and Physical Characteristics (Table 2 - Chemical and physical characteristics of crude vegetable oils - refractive index, saponification value, iodine values and relative density) (Appendix III Part B).

PROPOSED DRAFT REVISION TO THE STANDARD FOR NAMED VEGETABLE OILS (CXS 210-1999): Inclusion of avocado oil (Agenda Item 4.3)⁹

46. Mexico, as the Chair of the EWG, speaking also on behalf of the USA as Co-chairs the EWG, introduced the item and outlined the process followed by the EWG including background, methodology and analysis of the data submitted. He informed CCFO that the EWG had focused on proposing parameters to define 100% pure avocado oil, while promoting an inclusive approach to encompass the characteristics of avocado oil from the various regions of the world, and for which certain fatty acid profiles and respective fatty acid values were critical to define the essential composition and quality factors of avocado oils.

⁸ CX/FO 21/27/4; CRD09 (Ghana); CRD23 (East African Community)

⁹ CX/FO 21/27/5, CX/FO 21/27/5 Add.1, CRD 20 Rev; CRD23 (EAC).

47. CCFO27 agreed to use CRD20 Rev, prepared by the EWG Chair, as the basis for discussions.

2. DESCRIPTION

2.1 Product Definitions

48. In considering the proposed definition there was a discussion around the part of the fruit from which the oil was derived, the mesocarp or the whole fruit. There was general agreement that the oil was derived from the mesocarp, although it was noted that low levels of oil may also be present in the seed. Some delegations were of the view therefore that the definition should only refer to the mesocarp. However, others highlighted that for the purposes of clarity, it was important to also make reference to avocado oil being extracted by processing the whole fruit as the quality of the oil would vary depending on the extraction process with the higher quality oils (extra virgin, virgin) being extracted from the mesocarp only. The EWG chair also noted that even when the whole fruit was processed, the mechanism was such that the oil was only extracted from the mesocarp and not from the seed.
49. Referring to the definitions for different oils under Section 2.1 Product definition of CXS 210-1999; the Codex Secretariat noted that in some instances several definitions had been provided to differentiate the source or type of the oil e.g. palm oil, palm kernel oil, palm stearin etc. It was suggested that differentiation could also be considered for the avocado oil derived from mesocarp, and avocado oil derived from whole fruits.
50. A simplification of the definition to just refer to avocado oils being derived from the avocado fruit was proposed but delegations considered it was not sufficiently specific. Rather, the definition proposed by the EWG was edited to enhance clarity.

Conclusion

51. CCFO27 agreed the definition of - 'avocado oil may be derived from either the mesocarp of avocado fruit (*Persea americana*) or obtained by processing the whole avocado fruit'. Chile expressed their reservation to this definition since it included reference to the whole fruit and in their view avocado oil comes only from mesocarp, and the available data was based on extraction of oil from the mesocarp.

Note to clarify the terms extra virgin and virgin oils:

52. CCFO27 further considered the proposed Note (Extra virgin and Virgin oils are derived using the mesocarp only) related to the definition for extra virgin and virgin oils noting that some delegations were in favour of retaining the note, while others were not in favour of retaining the note.
53. It was observed that under Section 2.2 Other definitions of CXS 210-1999, virgin oils were already defined; and that any new definition should not be in conflict with the existing CCFO definition. It was also noted that the proposed provision for the fatty acid composition did not differentiate between the different sources of oils (mesocarp or whole fruit).
54. In order to avoid any misunderstanding and for clarity, CCFO27 agreed to delete the note (referring to the source of extra virgin and virgin oil) from the definition and from the different parts of the proposed draft standard.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

Table 1: Fatty acid composition of avocado oil as determined by gas liquid chromatography from authentic samples

55. CCFO27 considered the values for the fatty acid composition of avocado oil as listed in Table 1 and agreed that the values for fatty acid composition should be expressed to one decimal place; and further agreed to the following proposed fatty acids and their respective percentage values as put forward by the EWG:

Fatty acid	Fatty acid composition of vegetable oils
C14:0	ND-0.3
C16:0	11.0-26.0
C17:0	ND-0.3
C17:1	ND-0.1

<i>C18:0</i>	0.1–1.3
<i>C18:2</i>	7.8–19.0
<i>C18:3</i>	0.5–2.1
<i>C20:1</i>	ND–0.3
<i>C22:0</i>	ND–0.5
<i>C24:0</i>	ND–0.2
<i>C24:1</i>	ND–0.2

56. CCFO27 further considered and agreed to the changes to the values for the following fatty acid ranges:

C16:1

One observer noted that an avocado oil with *C16:1* fatty acid composition of 17.05% could result in undetectable adulteration of the product and suggested reducing the value to 12%. However, some members noted that maximum value as low as 12% would exclude some varieties of authentic avocado oil and therefore the maximum value of 17.1 was more inclusive of avocado oil from different geographic regions. Taking into account that the values are expressed to one decimal place, CCFO27 agreed the range of percentage values of 4.0–17.1 for *C16:1*.

C18:1

57. For fatty acid composition *C18:1*; CCFO27 agreed the range of percentage values of 42.0–75.0 instead of the proposed range of 42.0–70.0.

C20:0

58. CCFO27 agreed the range of percentage values of ND–0.7 instead of ND–0.3

APPENDIX - OTHER QUALITY AND COMPOSITION FACTORS

SECTION 3. CHEMICAL AND PHYSICAL CHARACTERISTICS

Table 2: Chemical and physical characteristics of crude avocado oil

59. In reply to a concern that the values provided in Table 2 were similar to other oils such as olive oil, and that there could be a possibility of undetected adulteration; the EWG chairperson clarified that when it comes to confirming the authenticity or adulteration of a given oil, the parameters for fatty acid composition and sterols were more critical than the chemical and physical characteristics.

Relative density

60. CCFO27 agreed with the range of values of 0.910–0.920

Apparent density

61. CCFO 27 agreed to the deletion of apparent density, since avocado oil is liquid at room temperature and the parameter does not apply to this product.

Refractive Index

62. CCFO 27 agreed to the proposed range of values of 1.458–1.470 based on data from members.

Saponification Value

63. CCFO 27 agreed to the proposed range of values of 170–202 for the Saponification value.

Iodine Value

64. CCFO 27 agreed with the range of values of 78–95 based on data provided by members.

Unsaponifiable matter

65. CCFO 27 agreed with the value of 19.0 maximum.

SECTION 4. IDENTITY CHARACTERISTICS

Table 3. Levels of desmethylsterols in crude avocado oil from authentic samples as a percentage of total sterols

Cholesterol

66. CCFO 27 agreed with the range of values of ND–0.5.

Brassicasterol

67. CCFO 27 agreed with the range of values of ND–0.5 based on data from a member.

Campesterol

68. CCFO 27 agreed with the range of values of 4.0–8.3.

Stigmasterol

69. CCFO 27 agreed with the range of values of 0.3–2.0 based on data from a member.

Beta-sitosterol

70. Following a proposal by one delegation to reduce the minimum value to 71.0, the EWG chair, clarified that the typical range of values of *beta*-sitosterol in avocado oil was 82–83 although there may be some seasonal variation, which was encompassed by the current proposed minimum value. He reiterated that based on the data available to the EWG, the minimum value of 71.0 seemed far too low and outside of the normal range for avocado oil and could present a risk in terms of the quality of the avocado oil. CCFO27 agreed to put both values 71.0 and 79.0 in square brackets for further consideration as the minimum values of the range.

71. It was also mentioned that the methods used for the measurement of *beta*-sitosterol should measure *beta*-sitosterol only and not the sum of *beta*-sitosterol and some minor components, which could give a value of about four percent higher.

Delta-5-avenasterol

72. CCFO 27 agreed with the range values of 2.0–8.0.

Delta-7-stigmastenol

73. In reply to the proposal to increase the maximum value to 3.5, the EWG chairperson suggested retaining the proposed value 1.0 based on the existing data. He further noted that there was a close linkage between the values for *delta* 7-stigmastenol and *delta*-7-avenastrol and that they go hand in hand, thus cannot differ greatly. While acknowledging that it could be possible to increase the maximum value of both to 1.5, in his view the available data did not support a maximum value as high as 3.5. CCFO 27 agreed to put both 1.0 and 3.5 in the square brackets for further consideration.

Delta-7-avenasterol

74. CCFO 27 agreed with the range of values of ND–1.5 based on the data that had been gathered by USPC.

Total sterols (mg/kg)

75. In reply to the question on whether the sterol ranges in Table 3 were representative of refined oils or crude oils as many crude avocado oils would not be considered suitable for human consumption, the CCFO Chairperson clarified that CXS 210-1999 applies to oils for human consumption. The Codex Secretariat further clarified that the appendix is supplementary information to the essential composition and quality factors.

76. Following a proposal to reduce the minimum value to 3000, CCFO27 agreed to place the two proposed minimum values i.e. 3000 and 3500 in square brackets for further consideration while agreeing with the maximum value of 6500.

Clerosterol and 'Others'

77. CCFO27 considered the most appropriate way for presenting clerosterol in Table 3 of CXS 210-1999 noting that this applied only to avocado oil; it was proposed that the information on clerosterol could be added as a note to Table 3 in order not to disrupt the Table 3 of CXS 210-1999. CCFO27 agreed to include the provision for clerosterol as a note to the 'Others' category in the table but put it in square brackets for further consideration of its appropriate content/placement.

78. One member noted that clerosterol did not exist in the other oils except avocado oil and if clerosterol was taken out from the Table, the value of 'Others' should be adjusted. The EWG Chairperson clarified that there were

strong linkages between clerosterol and 'Others', hence the Chairperson suggested taking account of this linkage when CCFO discussed those values.

79. Based on the diverse data from members, CCFO agreed to further discuss the levels of both clerosterol and 'Others'.

Table 4: Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples

80. In reply to the Chairperson's observation that no values had been proposed for both tocopherols and tocotrienols, one member recommended that data on tocopherol content and composition should be collected, reviewed and considered by CCFO in order to complete the avocado oil standard, since tocopherols were an important identification characteristic. CCFO27 agreed to include the levels for tocopherols and tocotrienols for avocado oils as proposed in CX/FO 19/26/8 and placed them in square brackets for further consideration.

Conclusion

81. The Committee noted that good progress had been made on the proposed draft standard but some items remained in square brackets.
82. CCFO27 agreed;
- i. to forward the proposed draft revision to the Standard for Named Vegetable Oils (CXS 210-1999) – inclusion of avocado oil, for adoption at Step 5 by CAC45 (Appendix IV);
 - ii. to establish an EWG, chaired by Mexico, and co-chaired by the USA, working in English and Spanish;
 - a. to consider proposed values/texts in square brackets;
 - b. to consider the comments submitted at Step 5/6 in reply to CLs; and
 - c. to prepare a report of the EWG to be submitted to the Codex Secretariat, at least 3 months in advance of CCFO28.
 - iii. to request the Codex Secretariat to issue a CL calling for submission of data on Table 4 for levels of tocopherols and tocotrienols in avocado oil; and
 - iv. to request CCEXEC/CAC to extend the timeline for completion of the work to CCFO28.

PROPOSED DRAFT REVISION TO THE STANDARD FOR OLIVE OILS AND OLIVE POMACE OILS (CXS 33-1981): REVISION OF SECTIONS 3, 8 AND APPENDIX (Agenda Item 5)¹⁰

83. Spain, as Chair of the EWG, introduced the agenda item on behalf of the co-Chairs Argentina and Canada, highlighting the process of the EWG that included 11 rounds of consultations; the 16 key issues discussed; and the alignment of the layout of CXS 33-1981 with that of CXS 210-1999. He noted that a number of issues were still pending including; deletion of the definition of Ordinary Virgin Olive Oil, related parameters and a footnote related to sale (Section 3.1); GLC ranges of fatty acids composition and sterols (Section 3.2); how uncertainty measurements should be taken into account; and typing of methods of analysis. He proposed that the Committee should focus on the conclusions with the view to reach a final agreement
84. The CCFO Chairperson proposed that the Committee should consider the proposed draft revision of the standard (CXS 33-1981) section-by-section focusing first on those issues that were still in square brackets as detailed in Annex I of CX/FO 21/27/06, before embarking on other technical issues where delegates had raised concerns.

Discussion

85. CCFO27 agreed with the Chairperson's proposal to consider issues in square brackets and then held a brief general discussion noting the following views.
86. A member delegation acknowledged that a lot of progress had been made by the EWG and underscored the need to focus on key outstanding parameters and to reach balanced solutions, towards protecting both the producers that want to trade internationally, and the risk and benefits so that authenticity is safeguarded.
87. An observer thanked the EWG for the work done during the last four years and stressed the importance of focusing on the scientific studies carried out by organisations such as IOC that take into account the objective data provided by all the producing countries.

¹⁰ CX/FO 21/27/06; CX/FO 21/27/06 Add.1; CRD3 (EWG Chair comments); CRD10 (Ghana, Yemen and Morocco); CRD17 (Egypt); CRD21 (Jordan); CRD23 (EAC); CRD24 (USP); CRD25 (Libya); CRD27 (Peru)

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

Footnote 1 - This product may only be sold direct to the consumer if permitted in the country of retail sale

88. CCFO27 exchanged views on whether to retain footnote 1 (associated to refined olive oil and refined olive-pomace oil) or expunge it from the standard and noted the following views expressed by delegations in support of retaining the note:
- The footnote was neither a barrier to trade, nor a technical specification but it acknowledged the fact that different countries have different ways of dealing with refined olive oil, and it provided clarity for international trade by acknowledging the differences within countries in regulating the product.
 - The footnote did not carry any health risk and those countries that want to sell that oil can choose to do so with or without it.
89. Delegations in favour of deletion of footnote 1 explained that both refined olive oil and refined olive-pomace oil were fit for human consumption, but some producing countries did not allow the direct sale of these oils to consumers unless these were blended with virgin olive oils. Those countries could continue to restrict the sale within their jurisdiction and their decision was not dependent on the existence of a footnote in an International Standard. National standards could still restrict the retail sale of these products within their jurisdiction.
90. The EWG Chairperson explained the rationale behind the recommendation to delete the footnote noting that retention of the footnote indicated, that within the same standard, there were statements that considered refined oil as an edible oil for human consumption while, in parallel, made reference to the prohibition of the sale of the same edible products, and this was against the Codex principle of ensuring fair practices in the food trade. In his view such restrictions on sale should be left to the discretion of national authorities rather than being included in an international standard, noting it did not give a positive image to Codex.

Conclusion

91. CCFO27 agreed to retain the footnote in the standard and to delete the square brackets.
Ordinary virgin olive oil
92. Several delegations requested reconsideration of the recommendation to remove the category of ordinary virgin olive oil (OVOO), although its deletion had been agreed at CCFO26.
93. CCFO27 noted the following views on this matter:
- Deletion of this category would lead to de-harmonisation of the standard with other international standards for olive oil and would have a negative impact on international trade in addition to the wellbeing of farmers, small producers and retailers in developing countries.
 - To mitigate the likely negative impacts, and in the spirit of compromise, options should be availed to countries by providing an adaptation period to enable their producers to accommodate to such a removal. OVOO should be put in square brackets for up to five years to allow for more scientific data to be provided and allow producer nations to adjust their production and processing practices.
 - There was lack of available scientific data on the safety of OVOO, and a scientific study should be undertaken for OVOO with respect to assessing their fitness for human consumption. Parameters such as organoleptic characteristics; acidity limits should be included in the study.
 - Any decisions which would have an impact on the economies of several countries needed to be firstly informed by an economic impact study.
 - In the spirit of compromise, CCFO27 could agree to consider retaining the category in square brackets for a short period so that concerned countries could actually adapt and modernize their processes and then the removal/retention of OVOO could be reviewed again at completion of the stated period.
94. The CCFO Chairperson noted that several delegations including developing countries had raised concerns and submitted written comments with particular reference to the economic impact resulting from this deletion. She further explained that the Codex Procedural Manual makes reference to taking into account the needs of developing countries in the standard setting process and also the possible implications to the economic interests of countries. She informed the Committee that discussions were on revision of a published Codex Standard and that the text in the current standard would remain until there was a final agreement to remove or amend it. In view of this consideration, she proposed to retain the definition of ordinary olive oil and its associated footnote until CCFO30 with a view to conduct the necessary scientific studies that would support the removal/retention, noting that IOC was interested in providing data.

Conclusion

95. The Committee agreed to retain the definition for OVOO and its associated footnote as well as related parameters in the standard until CCFO30, when final discussions would be held to decide as to whether to retain/remove the provision in the standard.

3.2.1 GLC ranges of fatty acid composition (expressed as percentages of total fatty acids)

96. CCFO27 considered the proposed text on “supplementary criteria” for inclusion in Section 3.2.1 i.e.
[Samples falling within the appropriate fatty acid ranges specified below are in compliance with this Standard. Supplementary criteria, for example national geographical and/or climatic variations, may be considered, as necessary, to confirm that a sample is in compliance with the Standard.]
97. There were divergent views on the proposed inclusion of the above text on “supplementary criteria”, with delegations in favour of its inclusion in the standard noting that its inclusion would be consistent with the *Codex Standard for Named Vegetable Oil* (CXS 210-1999) and that olive oil should be treated like other vegetable oils. It was also mentioned that the observed variation in fatty acid composition due to climatic and geographical factors, in particular in the southern hemisphere, and thousands of hectares of olive oil production, would be taken into account by such supplementary criteria.
98. Delegations opposed to the inclusion of statement into the standard explained that the fatty acid composition of olive oil was well known and was a very important criteria for the detection of adulteration of olive oil. The inclusion of the above-mentioned text would lead to a non-harmonised way of dealing with all these parameters, contrary to the aim of this standard and thus would create uncontrolled flexibility in the oil trade. Such a requirement would be difficult to apply in practice as geographical or climatic variations are difficult to prove scientifically and this would increase the risk of fraud.

Conclusion

99. CCFO27 noted that there was no general agreement to include the proposed new statement (supplementary criteria) for Section 3.2.1 and agreed to delete it from the proposed revised standard.

The limits for oleic acid as a percentage of total fatty acids (C18:1)

100. CCFO27 noted the divergent views on the minimum values for oleic acid (C18:1) - with delegations supporting maintaining the current value of 55.0% emphasizing that oleic acid was the most important parameter when it came to the composition, quality and identification of olive oil. It was further stated that a scientific report on fatty acids presented to the EWG in June 2020 supported an increase in the maximum limit of C18:1 from 83.0 to 85.0%; but that there was no scientific evidence to support the proposed decrease of the minimum limit from 55.0% to 53.0%.
101. Delegations supporting a decrease of the minimum limit to 53.0% noted that the proposed new value took into account the observed variation of the fatty acid due to different environmental conditions and different varieties. This would be more inclusive of authentic oils from other producing countries especially the non-Mediterranean regions who sometimes have oleic acid percentages, lower than 55.0%.

Conclusion

102. CCFO27 agreed to maintain the two proposed minimum values in square brackets for further consideration, noting that there was no consensus on them.

C18:3 and its footnote 2

103. CCFO27 considered the value for C18:3 and the associated footnote 2: [Pending the results of IOC (International Olive Council) survey and further considerations by the Committee on Fats and Oils. National limits may remain in place.].
104. The observer from IOC updated CCFO27 on the outcome of their survey on fatty acids including C18:3. She explained that the survey considered samples and data from all the producing countries from both hemispheres. The subsequent decision tree proposed by the IOC was based on all the data provided.
105. CCFO27 considered the proposed value for C18:3 of ≤ 1.0 together with the two proposals that had been put forward as a replacement to footnote 2:

IOC proposal

“In cases where an edible virgin olive oil exhibits $1.0 < \text{linolenic acid \%} \leq 1.4$, then this oil is authentic provided that apparent beta-sitosterol/campesterol ≥ 24 and all other composition factors lie within the official limits.”

Proposal by the EWG Chair

"In cases where an edible virgin olive oil exhibits $1.0 < \text{linolenic acid \%} \leq 1.4$, then this oil is authentic if all other composition factors lie within the official limits."

106. CCFO27 briefly discussed the two proposals and noted the following views:

- Linolenic acid was critical for detecting adulteration with other vegetable oils (e.g. rapeseed oil). The deviations in parameters critical for detecting adulteration, must be treated by adopting decision trees. The proposal in the IOC decision tree for linolenic acid is easy to use since it includes a condition that must be met by virgin olive oils which deviate from the linolenic acid limit and it is effective both for detecting fraud and in the deviant authentic virgin olive oils.
- It was important to develop a value that would accommodate all authentic olive oil from all producing countries.
- The presence or inclusion of a decision trees in Codex standards could promote discrimination against authentic products with off limit values and would create more issues than they solve since all possible samples have not been included in their development. Moreover, the actual limits are less important if the above statement regarding fatty acid composition is approved.

Conclusion

107. CCFO27 agreed to the proposed value of $\leq 1.0\%$ with a link to the following footnote:

"In cases where an edible virgin olive oil exhibits $1.0 < \text{linolenic acid \%} \leq 1.4$, then this oil is authentic provided that apparent beta-sitosterol/campesterol ≥ 24 and all other composition factors lie within the official limits."

108. The delegations of Australia, Canada, Peru and the United States expressed their reservation to the decision noting that in their view more time was needed to discuss this important issue and that the options should be retained in square brackets so as to allow more time to carefully consider the inclusion of such decision trees to ensure they did not exclude authentic olive oils.

3.2.1 Trans fatty acids

Uncertainty measurements

109. Delegations supported maintaining the current values in CXS 33-1981 (i.e. status quo) noting that there was no need to change two decimal places to one. It was pointed out that during the determination of trans fatty acids, that one decimal place is not enough to allow accurate quantification; and that experience in the analysis of the fatty acid composition of olive oil has demonstrated that this kind of precision (two decimal places) can be achieved very easily with the normal instrumentation. These delegations called for maintaining the expression of the results to two decimal places.

110. The EWG Chairperson explained that the detection limit was a minimum quantity that a particular method is able to detect, and in case of trans-fatty acids the current limit as per CXS 210-1999 is the detection limit and not the quantification limit. It was not possible to put limits to extremely small measurements beyond one decimal place. He further noted that according to the data provided by IOC, the observed variation between laboratories was 96% for trans-oleic acids, and 123% for trans-linoleic acids. Based on this, he reiterated that CCFO should maintain one decimal place.

Conclusion

111. CCFO27 noted the lack of consensus as to whether the proposed values be expressed to one or two decimal places and agreed to place them in square brackets for further deliberation.

3.2.3 Footnote (b) associated with $\Delta 7$ -stigmastenol

112. CCFO27 considered footnote (b) associated with the provision of delta-7-stigmastenol (i.e. (Δ)7-stigmastenol):

(b) For virgin olive oils If the value is >0.5 y $\leq 0.8\%$, campesterol must be ≤ 3.3 , apparent β -sitosterol/(campesterol+ $\Delta 7$ -stigmastenol) ≥ 25 , stigmasterol ≤ 1.4 and $\Delta ECN_{42} \leq [0, 1]$. For refined olive pomace oils values >0.5 and $\leq 0.7\%$ then stigmasterol $\leq 1.4\%$ and $\Delta ECN_{42} \leq 0.4$.)

113. CCFO27 noted the following views:

- One delegation noted that they do not generally support the use of decision trees in the Codex standard as decision trees create more issues than they solve, and that all possible authentic samples were not included in their development. The delegation stated that in the spirit of compromise and in order to accommodate virgin olive oils with off limit values for *delta-7* stigmastenol up to 0.8 percent, they were willing to accept the inclusion of IOC decision tree in the footnote.

- Some delegations supported endorsing footnote (b) noting that it provided the required solution to problems related to specification of olive oil in some countries in accessing both domestic and international trade.

114. A delegation not supporting the decision tree noted the problematic nature of decision trees, and that this one did not work because the parameters were related as explained in CRD 3 by the Chair of the EWG. The delegation supported footnotes such as that proposed under 3.2.3 “Footnote on a general statement on sterols in Virgin Olive Oil” which would make the decision tree proposed in footnote (b) associated with *delta 7* stigmasterol, and the decision tree currently in the draft of CXS 33-1981 as footnote (a) associated with campesterol, both redundant. Considerations of these notes were related, and the analysis of data discussed in the EWG (also referred to in CRD 3) noted significant global varieties of olive oil would fail the campesterol decision tree in footnote (a), and be excluded despite being authentic olive oil.

Conclusion

115. In view of the general agreement to the proposal, CCFO27 agreed to maintain the footnote in the proposed draft revised standard and to delete the square brackets noting the reservation of Australia to the decision, as in their view authentic olive oils could fail this decision tree as it was not inclusive of all varieties of authentic olive oil.

3.2.3 Footnote on a general statement on sterols in Virgin Olive Oil

[Virgin olive oil's authenticity is not compromised if one sterol, or their minimum content, does not fall within the ranges provided for if all other sterols and parameters tested referred to in this standard fall within the stated ranges.]

116. In respect of the above mentioned footnote; CCFO27 noted the following views:

- Some delegations mentioned that there was no single sterol that can be replaced by another because the limit for each sterol is set to detect fraud with a different kind of external oil and that the decision tree is the best tool to accommodate a wider range of authentic olive oils.
- The analysis of Sterols is essential for checking the authenticity of olive oils, they are generally associated with the purity criteria, and they should be mandatory in order to verify authenticity of olive oil. The only solution to address the item of deviation without delta-7 stigmasterol was the adoption of the decision tree.
- The general statement in the footnote was not acceptable as it allowed any limit for individual sterol in this formulation, and this could potentially pave the way to the marketing of fake olive oil tailored to mark the Sterol composition.

Conclusion

117. CCFO27 noted the divergent views on the proposed inclusion of the general statement for sterol and agreed to put the general statement for sterols in square brackets for the further deliberation.

Transfer of delta K (ΔK) from quality factors (Section 3.3.5) to the composition factor (Section 3.2.9)

118. CCFO27 agreed to the transfer delta K and its footnotes for extra virgin olive oil and virgin olive oil from the quality factors (Section 3.3.5) to the composition factors (Section 3.2.9).

3.3.1 Organoleptic characteristics of virgin olive oils

Median value of the most perceived defect for virgin olive oil

119. Delegations supporting the limit of 3.5, noted that this limit was the same as the limit set in the IOC standard, and it included uncertainty measurements, while the limit of 2.5 is the limit currently set in the CXS 33-1981. They further proposed that the limit of 3.5 should be associated with a footnote reading “*it includes the uncertainty of measurement as provided by the IOC method*”
120. The EWG Chairperson explained that no proposed limit value contains uncertainty and that the limit of 3.5 would open the door for the uncertainty measurements to be used and limit values could reach 4 or 4.5 or even 5. He suggested that the limit value should be maintained at 2.5 as it currently stands in CXS 33-1981.
121. There was also support for the limit of 3.

Conclusion

122. CCFO27 noted the divergent views on the proposed median values and agreed to retain the values in square brackets for further consideration.

3.3.6 Fatty acid ethyl esters for extra virgin olive oil

123. CCFO27 agreed to include fatty acid ethyl esters for extra virgin olive oil under Section 3.3.6 with the proposed value of ≤ 35 mg per kg.

8. METHODS OF ANALYSIS AND SAMPLING

124. The Chairperson of CCFO noted that there were no square brackets under this section, and called for additional comments.
125. One observer called the attention of CCFO to CRD24 containing updated methods with proposed typing assignment and that the review took into account ISO, and IOC methods, and - the requirements of CCMAS.
126. The Codex Secretariat clarified that method selection and typing was the responsibility of the commodity committee; and that CCFO should take into account CRD24 but some methods may need further clarification, before recommending them to CCMAS for updating.

Conclusion

127. CCFO27 agreed on the proposed Section 8 Methods of Analysis and Sampling and to take into account the comments raised in CRD24.

APPENDIX**1.5. 1, 2-diglycerides (% total diglycerides)**

128. CCFO27 agreed to keep the provision for 1,2-diglycerides (% total diglycerides) for extra virgin oil and its corresponding analytical methods should also be put in square brackets for further discussion; and noted the views expressed by some delegations that there was not enough technical data on the parameter.

1.6 Pyropheophytin "a" (% total chlorophyll pigments)

129. CCFO27 agreed to keep the provision for pyropheophytin "a" (% total chlorophyll pigments) for extra virgin oil in square brackets for further discussion and noted the suggestion by a delegation that the corresponding analytical methods should also be put in square brackets in order to be consistent.

Total 4 α -desmethylsterols content

130. CCFO27 considered the proposal to move the provision for total 4 α -desmethylsterols content of the virgin olive oils from Section 3.2.4, in the main body of the standard to the appendix and noted the following views expressed by delegations:
- This parameter was used to detect palm and palm kernel oils and desterolised seed oils. Moving it from the main body of the standard would imply having one parameter less for testing for those oils. This should not be the case as all of the parameters are important and therefore the transfer could not be supported.
 - Sterols are very important to prove the authenticity of olive oil and detect fraudulent practices, therefore the move could not be supported.
131. The EWG Chair explained that this parameter hinged to a great extent on the variety of the olives and the degree of maturity of the olives and was dependent on the extraction method for virgin olive oil. The parameter was not very specific when it came to discriminating between types of oils i.e. refined olive oil, virgin olive oil or any other olive oil and while it can be used for detecting oils with low sterol contents, there were more exact and more specific parameters that could be used for this. He noted that in CXS 210-1999 the total sterol content was not essential, and recalled the need to ensure consistency between the two standards.

Conclusion

132. CCFO27 agreed to retain the provision for total 4 α -desmethylsterols content of the virgin olive oils in the main body under Section 3.2.4.

3. METHODS OF ANALYSIS AND SAMPLING

133. CCFO27 agreed to take into account CRD24 and the need to delete the method for 4 α -desmethylsterols (see paragraph 132) when finalizing Section 3 of the Appendix-methods of analysis and sampling (see paragraph 128).

Status of work

134. The Chairperson of CCFO expressed appreciation to Spain, Argentina and Canada for the tremendous work done on the proposed revision of CXS 33-1981. Noting that the standard was not ready to progress, she urged delegations to work together between now and the next session to come to an agreement on all the pending issues so that the draft revision could be finalised at CCFO28. She further underlined that at next session the Committee would focus on those provisions that can be agreed upon with a view to having them forwarded for adoption by the Commission.

Conclusion

135. CCFO27 agreed:
- i. To retain all provisions in Sections 3, 8 and Appendix at Step 4, for which CCFO and the EWG had reached consensus for consideration at CCFO28;
 - ii. To re-establish the EWG chaired by Spain and co-chaired by Argentina and working in English to:
 - a. review and revise the items in square brackets in Section 3 and the Appendix and taking into account comments made and written comments received at this session;
 - b. revise Section 8 of the main body and Section 3 of the Appendix, taking into consideration CRD 24; and
 - c. provide a report to be submitted to the Codex Secretariat at least three months before CCFO28.
 - iii. To convene a working group(s) between now and CCFO28 to facilitate progress on reaching consensus on the outstanding issues;
 - iv. To request CCEXEC for an extension to the deadline for completion of work to CCFO28.
136. The Committee also agreed that to the extent possible, members should refrain from opening up discussion in the EWG on items for which there has been clear agreement.

REVIEW OF THE LIST OF ACCEPTABLE PREVIOUS CARGOES IN THE CODE OF PRACTICE FOR THE STORAGE AND TRANSPORT OF EDIBLE FATS AND OILS IN BULK (CXC 36-1987): APPENDIX 2 (Agenda Item 6)¹¹

137. The item was introduced by Malaysia as Chairperson of the EWG, who recalled that CCFO26 had agreed to retain the Review of the List of Acceptable Previous Cargoes as a standing item on its agenda and established an EWG to consider proposals for both inclusion to and removal from the list of acceptable previous cargoes and to prioritize substances to be submitted to FAO and WHO for evaluation. The Chairperson of the EWG noted that a Circular Letter (CL 2019/51/OCS-FO) had been issued inviting interested members and observers to propose further amendments to Appendix 2: List of Acceptable Previous Cargoes of CXC 36-1987 to which the following replies were received from four members and one observer.

Editorial amendments

138. Two of the replies confirmed support for the list while another two focused on editorial issues as indicated in Annex 1 of the agenda Item paper. The EWG chairperson noted that all editorial proposals had been reviewed and that in their view some were not appropriate or relevant, while others could be considered to provide clarity. CCFO27 agreed to the list of editorial amendments as proposed by the EWG chair.

Restrictions in addition to the previous cargo: Leaded products

139. The EWG chair noted that among the comments was a suggestion that the list of acceptable cargoes should be accompanied by an addition at the end of the list to indicate "Restrictions in addition to the last cargo: Leaded products will not be carried as the three previous cargoes." The comments had indicated that this would be in alignment with the recommendations of the Federation of Oils, Seeds and Fats Associations (FOSFA).
140. One observer highlighted their support for the change noting that in their view the acceptable list currently allows leaded products as the second or third previous cargo whereas the banned list does not allow leaded products as second or third previous cargo.
141. The EWG Chairperson clarified that the statement "Leaded products will not be carried as the three previous cargoes" was already included in the Codex list of banned immediate previous cargoes. The Codex list of acceptable previous cargoes and the Codex list of banned immediate previous cargoes, which appear as Appendix 2 and Appendix 3, respectively, to *Code of Practice for the Storage and Transport of Edible Fats and*

¹¹ CX/FO 21/27/07; CRD11 (Ghana; Uganda and FOSFA); CRD23 (EAC)

Oils in Bulk (CXC 36-1987), were mutually exclusive, hence, leaded products which were already listed under the banned list in Appendix 3, need not be referred to again in Appendix 2.

142. CCFO agreed that no further change was needed to the Appendices to the Code of Practice.

Ethylene dichloride and styrene monomer as previous cargoes

143. There was a proposal in the cases of ethylene dichloride and styrene monomer as previous cargoes, that there should be a restriction beyond the immediate previous cargoes in the acceptable list in cases where these were transported in organic coated tanks, as these substances can easily be absorbed into such coatings. It was noted that consideration of this did not fall within the mandate of the EWG and in order to further consider this issue a discussion paper should be prepared for consideration by the next session of CCFO. FOSFA indicated their willingness to prepare such a paper.

Conclusion

144. CCFO agreed to:

- i. Request the Codex Secretariat to issue a Circular Letter inviting interested members and observers to propose further amendments to Appendix 2 : List of Acceptable Previous Cargoes of CXC 36-1987;
- ii. Establish an EWG, led by Malaysia and working in English only, with the following Terms of Reference:
 - a. consider proposals on new substances to be added to the list, provided that such proposals are supported by adequate and relevant information;
 - b. prioritize substances to be submitted to FAO and WHO for evaluation;
 - c. consider proposals to remove substances from the list in light of new data; and
 - d. prepare a report for consideration by CCFO28 to be submitted to the Codex Secretariat at least 3 months before CCFO28, only in cases where proposals for evaluation of new substances or deletions to the lists of acceptable previous cargoes have been received in response to the CL.
- iii. Request the Codex Secretariat to make the editorial amendments to CXC 36-1987 based on the proposal in working document CX 21/27/07 Annex I pages 3 and 4 and (Appendix IX).

CONSIDERATION OF THE PROPOSALS FOR NEW WORK AND/OR AMENDMENTS TO EXISTING CODEX STANDARDS (Agenda Item 7)¹²

145. The Chairperson recalled that CCFO 26 had established a new work management mechanism. Due to the pandemic she noted that some modifications had to be made to adapt to the circumstances and that it had not been possible to convene an in-session working group meeting. Nevertheless, all new work proposals had been screened for completeness against criteria in the Procedural Manual and taking into consideration written comments.
146. The CCFO Secretariat outlined the review conducted for each new work proposal based on the comments submitted by Members and Observers as well as additional findings from the CCFO Secretariat in terms of completeness of and support for each new work proposal.
147. She further drew attention of the Committee to the proposed checklist for new work proposals that had been developed, which listed the criteria for the establishment of work priorities from the Procedural Manual, CCFO16 decisions related to requirements for Proposals for New Standard or Inclusion of New Oils/Fats, and CCFO26 decisions on better management of the work of CCFO.
148. In response to the request for clarification on the procedure to consider new work proposals, it was clarified that once the Committee had agreed on the proposal, the details of the project documents would be reviewed to ensure consistency and compliance with the Procedural Manual.

¹² CX/FO 21/27/8 Rev; CX/FO 21/27/8 Part I, Part II, Part III, Part IV, Part V, Part VI; CX/FO 21/27/8 Add.1; CRD4 (IMACE); CRD5 (Norway); CRD6 (USA); CRD12 (Ghana); CRD13 (Ghana); CRD14 (Ghana, Republic of Korea); CRD16 (South Africa); CRD19 (CCFO Secretariat); CRD22 (International Dairy Federation); CRD23 (East African Community); CRD26 (China); CRD28 (Peru)

Amendment/revision to the *Standard for Named Vegetable Oils* (CXS 210-1999) - Inclusion of Camellia seed oil - (Part I)

149. China presented this new work proposal, providing information on the characteristics of camellia seed oil and the volume and pattern of the international trade of camellia seed oil, highlighting the additional information that had been included in response to written comments provided and presented in CRD26.
150. In response to the proposal to include tea seed oil together with camellia seed oil in the title, China noted that camellia seed oil was extracted from *Camellia oleifera* while the product known as tea seed oil could be extracted from both *Camellia sasanqua* and *Camellia oleifera* thereby leading to differences in the fatty acid content, hence tea seed oil could not be regarded as the same product as camellia seed oil. Rather than expand the proposal to cover two products, CCFO27 agreed that the proposed new work should focus on camellia seed oil only.
151. Regarding the project document, Brazil requested removal of Brazil from the countries which had produced camellia seed oil, stating that camellia seed oil was not an edible oil in the country and it would be considered as a novel food according to the current regulations in Brazil.

Conclusion

152. CCFO27 agreed;
- i. To submit for approval by CAC45 the proposal for new work on the inclusion of camellia seed oil in the *Standard for Named Vegetable Oils* (CXS 210-1999) (Appendix V).
 - ii. To establish an EWG chaired by China, working in English only, 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 EWG should be made available to the Codex Secretariat at least three months before CCFO28.

Amendment/revision to the *Standard for Named Vegetable Oils* (CXS 210-1999) - Inclusion of mahua oil - (Part II)

153. India presented this new work proposal, explaining the history of use of mahua oil and its nutrient profile including unsaturated fatty acids.
154. The Committee noted that there was limited support for the new work proposal and further information on the level of production and consumption, volume and pattern of trades and availability of toxicological data was needed.
155. India expressed its willingness to submit the revised document with the required information at the next session. He further sought feedback on whether a Circular Letter could be issued to collect information on global trade. The Codex Secretariat clarified that, at the stage of new work proposal, it was the responsibility of those proposing the new work to collect the necessary information for inclusion in the proposal.

Conclusion

156. CCFO27 agreed to request India to revise/update the proposal for new work and resubmit it in response to the Circular Letter for consideration at the next session.

Amendment/revision to the *Standard for Named Vegetable Oils* (CXS 210-1999) - inclusion of sachai oil- (Part III)

157. Peru presented this proposal, referring to the fatty acid profile and trends in international production and trade and highlighting the updated information provided in CRD28 in response to written comments.
158. There was general support for the proposal.
159. The Codex Secretariat stated that the information under Section 7 and Section 8 should be deleted as no specific request for scientific information had been identified, which was the purpose of these sections.

Conclusion

160. CCFO27 agreed;
- i. To submit for approval by CAC45 the proposal for new work on the inclusion of sachai oil in the *Standard for Named Vegetable Oils* (CXS 210-1999) (Appendix VI).
 - ii. To establish an 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.

Amendment/revision to the *Standard for fat spreads and blended spreads (CXS 256-2007)* – (Part IV)

161. IMACE introduced this proposal, noting that it covered three issues i) removal of the term “plastic” as a descriptor in CXS 256-2007 as it was inconsistent with descriptors in other standards and it could cause confusion and misinterpretation; ii) amendment of the fat content to address both quality and quantity of the fat noting the importance of this in the context of the WHO target to eliminate trans-fats; and iii) the need for a term to adequately describe plant-derived fats such as “plant butter” referring to growing demand for these products. The Observer also highlighted that in their view the revision of CX 256-2007 was long overdue.
162. The discussions primarily focused on the use of the term “plant butter” where there was opposition from a large number of delegations to the proposed use of this term in addition to margarine, noting it could mislead consumers and that the term “plant butter” contravened the *General Standard for the Use of Dairy Terms* (CXS 206-1999). Some delegations were in favour of the proposed new work, in particular the need to address plant-based spreads and address any confusion regarding the term ‘plastic’. One delegation noted that the term “plastic” did not appear in the French version of the standard and so it may be a translation or editorial issue with the English version. A suggestion was also made to request the Codex Committee on Milk and Milk Products (CCMMP) for guidance on the use of the term “plant butter”.

Conclusion

163. CCFO27 noted that there was no consensus to support to the proposal for new work on amendment/revision to the *Standard for fat spreads and blended spreads* due to general concerns on the proposed revision to the terms.

Amendment/revision to the *Standard for fish oils (CXS 329-2017)* - Inclusion of Calanus oil – (Part V)

164. Norway presented the proposal, highlighting the chemical characteristics and the need to ensure fair international trade of Calanus oil as its production developed and increased and highlighted the revisions made to the project document in response to written comments as presented in CRD5.
165. While one delegation expressed its concern on potential damage to marine ecosystem due to increased production of this oil noting the key role that the source species played in Arctic seawater ecosystems, the Committee noted general support for the proposal.

Conclusion

166. CCFO27 agreed;
 - i. To submit for approval by CAC45 the proposal for new work on the inclusion of Calanus oil as a named fish oil in the *Standard for fish oils (CXS 329-2017)* (Appendix VII).
 - ii. To establish an EWG chaired by Norway, working in English only, 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 to the Codex Secretariat at least three months before CCFO28.

Amendment/revision to the *Standard for Named Vegetable Oils (CXS 210-1999)* – Inclusion of high oleic acid soya bean oil – (Part VI)

167. The United States of America presented this proposal, emphasizing the nutritional benefits as well as increasing trend of production and trade and highlighting the revisions made to the project document, to address written comments on these aspects in particular.
168. The Committee noted general support for the new work.

Conclusion

169. CCFO27 agreed;
 - i. To submit for approval by CAC45 the proposals for new work on the inclusion of high oleic acid soya bean oil in the *Standard for Named Vegetable Oils (CXS 210-1999)* (Appendix VIII);
 - ii. To establish an EWG chaired by the United States, working in English only, 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 to the Codex Secretariat at least three months before CCFO28.

Proposed information document for CCFO new work proposals

170. CCFO27 agreed on the checklist for new work proposals as prepared by CCFO Secretariat and for it to be published as an information document, which would be made available on the Codex website (Appendix X).

CCFO work management

171. The Chairperson recalled the decisions taken at CCFO26 on better work management:
- i. that CCFO will have a standing agenda item in every session of the CCFO to consider new work proposals;
 - ii. that the Codex Secretariat will issue a CL to call for proposals for new work well in advance of each session of CCFO and with a specific deadline within which proposals should be submitted;
 - iii. that submissions received after the deadline would not be considered by that session but by the following session of the Committee;
 - iv. an in-session working group will be established at each session of the CCFO to screen all new work proposals and related project documents for completeness against the criteria in the Codex Procedural Manual regarding proposals for new work and the decision of CCFO16, taking into account written comments received from members in relation to the proposals, to assess whether the information provided fulfils the requirements for the new work proposed and make recommendations to the plenary to enable CCFO to make informed decisions on the work proposals; and
 - v. that CCFO will appoint a Chairperson of the in-session working group at each session of the committee.
172. The Chairperson noted that many agenda items were already in the step procedure to be deliberated at the next session and though four items of new work have been agreed upon, priority will be given to agenda items that are already in the step procedure at this session.

OTHER BUSINESS (Agenda Item 8)¹³Discussion paper on the metal content CXS 280-1973

173. Iran introduced the discussion paper (CRD 18) on the need to align the maximum levels for copper and iron in ghee (butter oil) in the *Standard for Milk Fat Products* (CXS 280-1973) and CXS 210-1999. He noted that published and laboratory data from different countries showed that the average amount of copper and iron obtained in butter oils from animal sources was higher than the maximum allowed in the CXS 280-1973, and the amounts of these elements were influenced by factors such as type of livestock and environment. He suggested revising the limits for copper and iron in CXS 280-1973 to align with those in CXS 210-1999; or to deleting copper and iron content from the "Other contaminants" listed in the Appendix-additional information to CXS 280-1973 for ghee as in other milk products. He noted that CCFO was the best placed committee to take up this work as CCMMP had been adjourned *sine die*.
174. Noting that CXS 280-1973 is under the mandate of CCMMP, which had been adjourned *sine die*, while CXS 210-1999 is within the mandate of CCFO, the Codex Secretariat clarified that revision of standards under the purview of the inactive committee, was the responsibility of CAC on the advice of CCEXEC. He further suggested forwarding this matter to CCEXEC for their advice as to how best it could be handled.

Conclusion

175. CCFO27 agreed to forward a request to CCEXEC for their consideration and advice on which mechanisms could be used to consider the proposal to revise the *Standard for Milk Fat Products* (CXS 280-1973) in order to address the concerns raised with the maximum levels for copper and iron.

DATE AND PLACE OF THE NEXT SESSION (Agenda Item 9)

176. The Committee was informed that its 28th Session would be held in approximately 24 months. The exact date and venue would be decided between the Malaysian and Codex Secretariats.

¹³ CRD18 (Iran)

APPENDIX I

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APPENDIX II

**MATTERS RELATED TO CCMAS
(For information and action by CCMAS)**

Performance criteria for total arsenic in fats and oil(s) and inorganic arsenic in fish oil

Table 1: Method performance criteria for arsenic

Commodity: Edible fats and oils						
Provision: Arsenic						
ML (mg/kg): 0.1 mg/kg						
Min. Appl. Range (mg/kg)	LOD (mg/kg)	LOQ (mg/kg)	Precision (%) No more than	Recovery (%)	Examples of applicable* methods	Principle
0.032–0.17	0.01	0.02	44	80-110	AOAC 963.21 and AOAC 942.17	Kjeldahl flask digestion and Colorimetry (molybdenum blue)
					AOAC 963.21 and AOAC 952.13	Kjeldahl flask digestion and Colorimetry (diethyldithiocarbamate)
					AOAC 986.15	Atomic absorption spectrophotometry
					NMKL 186 / AOAC 2013.06 / EN 15763	ICP-MS

* The applicability of the methods has to be verified by the standard developing organisations

Table 2: Method performance criteria for inorganic arsenic

Commodity: Fish oil						
Provision: Inorganic arsenic						
ML (mg/kg): 0.1 mg/kg						
Min. Appl. Range (mg/kg)	LOD (mg/kg)	LOQ (mg/kg)	Precision (%) No more than	Recovery (%)	Examples of applicable methods*	Principle
0.032–0.17	0.01	0.02	44	80-110	EN 15517	Hydride generation atomic absorption spectrometry (HGAAS) after acid extraction
					EN 16802	Anion-exchange HPLC-ICP-MS

* The applicability of the methods has to be verified by the standard developing organisations

APPENDIX III

**PROPOSED DRAFT REVISION TO THE STANDARD FOR NAMED VEGETABLE OILS (CXS210-1999):
REVISION OF THE ESSENTIAL COMPOSITION OF SUNFLOWERSEED OILS
(Adoption at Step 5/8)**

Part A: Section 3.1 - GLC ranges of fatty acid composition - ranges of oleic and linoleic acid

Proposed changes to relevant sections are indicated in **bold** and underline, and deletions in ~~strike through~~

3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 GLC ranges of fatty acid composition (expressed as percentages)

Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples^{1,2} (expressed as percentage of total fatty acids) (see Section 3.1 of the Standard)

Fatty acid	Sunflowerseed oil
C18:1	14.0 - 39.4 <u>43.0</u>
C18:2	<u>45.4</u> 48.3 - 74.0

Part B: Appendix: Section 3 - Physical and chemical parameters

OTHER QUALITY AND COMPOSITION FACTORS

3. CHEMICAL AND PHYSICAL CHARACTERISTICS

Chemical and Physical Characteristics are given in Table 2.

Table 2: Chemical and physical characteristics of crude vegetable oils (see Appendix of the Standard)

Parameter	Proposed values
Refractive index (ND 40°C)	1.461 – 1.468 <u>1.475</u>
Saponification value (mg KOH/g oil)	<u>187</u> 188 - 194
Iodine value	118 -141
Relative density (x°C/water at 20°C)	<u>0.916</u> 0.918 - 0.923

APPENDIX IV

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

(Adoption at Step 5)

2. DESCRIPTION

2.1 Product definitions

Avocado oil may be derived from either the mesocarp of avocado fruit (*Persea americana*) or obtained by processing the whole avocado fruit.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 GLC ranges of fatty acid composition (expressed as percentages)

Samples falling within the appropriate ranges specified in Table 1 are in compliance with this Standard. Supplementary criteria, for example national geographical and/or climatic variations, may be considered, as necessary, to confirm that a sample is in compliance with the Standard.

Table 1: Fatty acid composition of avocado oil as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids)

Fatty acid	Avocado Oil
C6:0	-
C8:0	-
C10:0	-
C12:0	-
C14:0	ND - 0.3
C16:0	11.0 - 26.0
C16:1	4.0 – 17.1
C17:0	ND – 0.3
C17:1	ND - 0.1
C18:0	0.1 - 1.3
C18:1	42.0 - 75.0
C18:2	7.8 - 19.0
C18:3	0.5 - 2.1
C20:0	ND - 0.7
C20:1	ND - 0.3
C20:2	-
C22:0	ND - 0.5
C22:1	-
C22:2	-
C24:0	ND - 0.2
C24:1	ND – 0.2

OTHER QUALITY AND COMPOSITION FACTORS

3. CHEMICAL AND PHYSICAL CHARACTERISTICS

Chemical and Physical Characteristics are given in Table 2.

Table 2: Chemical and physical characteristics of crude avocado oil

Parameter	Avocado Oil
Relative density (x°C/water at 20°C)	0.910 – 0.920
Refractive Index (ND 40°C)	1.458 – 1.470
Saponification Value (mg KOH/g oil)	170 – 202
Iodine Value	78 – 95
Unsaponifiable matter (g/Kg)	19.0 max

4. IDENTITY CHARACTERISTICS

Levels of desmethylsterols in vegetable oils as a percentage of total sterols are given in Table 3.

Table 3. Levels of desmethylsterols in crude avocado oil from authentic samples as a percentage of total sterols.

	Avocado Oil
Cholesterol	ND - 0.5
Brassicasterol	ND - 0.5
Campesterol	4.0 - 8.3
Stigmasterol	0.3 - 2.0
Beta-sitosterol	[71.0] [79.0] - 93.4
Delta-5-avenasterol	2.0 - 8.0
Delta-7-stigmasterol	ND – [1.0] [3.5]
Delta-7-avenasterol	ND – 1.5
[Others	[ND] [0.0] - 2.0]
Total sterols (mg/kg)	[3000] [3500] - 6500

[Note: Avocado oil also contains **[0.6] [1.0] - 2.0% clerosterol]**

[Table 4: Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples (mg/kg) (see Appendix of the Standard)]

	Avocado oil
[Alpha-tocopherol	[50 – 450]
Beta-tocopherol	[ND]
Gamma-tocopherol	[10 – 20]
Delta-tocopherol	[ND – 10]
Alpha-tocotrienol	[ND]
Gamma-tocotrienol	[ND]
Delta-tocotrienol	[ND]
Total (mg/kg)	[50 – 450]

APPENDIX V

PROJECT DOCUMENT

PROPOSAL FOR NEW WORK ON AMENDMENT/REVISION TO THE CODEX STANDARD FOR NAMED VEGETABLE OILS (CXS 210-1999) - INCLUSION OF CAMELLIA SEED OIL

(For approval)

1. PURPOSE AND SCOPE

The purpose of this new work is to amend the *Codex Standard for Named Vegetable Oils* (CXS 210-1999) to include camellia seed oil derived from the seed of camellia (*Camellia oleifera* Abel), which has been scientifically proven to enhance functionality and benefit health due to its high oleic acid content (68–87%) and abundant natural antioxidants^{i,ii,iii}. The amendment would enable Codex member countries and the food industry to appropriately characterize, name, and market camellia seed oil developed for nutritional benefits for consumers and diverse uses for the food processing industry.

The scope of this work is the addition of camellia seed oil in the *Codex Standard for Named Vegetable Oils* (CXS 210-1999). The compositional characteristics will be provided for associated tables in the Standard.

2. RELEVANCE AND TIMELINESS

Camellia seed oil is derived from the seeds of camellia (*Camellia oleifera* Abel). Camellia has a long cultivation history, spanning over 2300 years, and has been cultivated extensively as an oil crop in many countries, including China, the Philippines, India, and South Koreaⁱⁱⁱ. Unlike other seed-oil plants that are grown on arable land, camellia normally grow on mountain slopes, which allows new crops to make full use of marginal land. Today, Camellia seed oil serves as the main cooking oil in China's southern provinces. Camellia seed oil is rich in oleic acid (68–87%) and contains a multitude of natural antioxidants, such as squalene, phytosterol (β -sitosterol, campesterol and stigmasterol), polyphenols, fat-soluble vitamins (Vitamins A, E), sasanquasaponin, and other functional substancesⁱ⁻ⁱⁱⁱ. These components with various biological activities are useful for lowering triglycerides and cholesterol, thus preventing hypertension, heart disease, arteriosclerosis, and other diseases. Also, it could be used as a base oil for high-level skin care oil through further intensive processing.



The flower and fruits of Camellia



The Camellia fruits



Camellia seed oil

Figure 1 The Camellia plant and Camellia seed oil

To facilitate international trade in food products and ingredients, Codex standards often are used as the basis for names and specifications for such products to ensure fair trade practices. With its health benefits, Camellia seed oil usage is expected to experience rapid growth over the next several years^{iv}. Therefore, it is important to have consistent naming and specifications to ensure the product quality and fairness for international trade.

3. MAIN ASPECTS TO BE COVERED

The proposed new work to amend the *Codex Standard for Named Vegetable Oils* (CXS 210-1999) to include camellia seed oil will include the following aspects :

- Description
- Essential composition and quality factors
- Establishment of general requirements for camellia seed oil derived from the seed of camellia (*Camellia oleifera* Abel)

ⁱ Yang Ruinan, et al. A review of chemical composition and nutritional properties of minor vegetable oils in China, *Trends in Food Science & Technology*, Volume 74, 2018, Pages 26-32.

ⁱⁱ Xiaoqin Wang, et al. Profiling and quantification of phenolic compounds in Camellia seed oils: Natural tea polyphenols in vegetable oil, *Food Research International*, Volume 102, 2017, Pages 184-194.

ⁱⁱⁱ Fei Luan, et al. Recent advances in *Camellia oleifera* Abel: A review of nutritional constituents, biofunctional properties, and potential industrial applications, *Journal of Functional Foods*, Volume 75, 2020, 104242.

^{iv} Liang, H., et al. Camellia as an Oilseed Crop, *HortScience horts*, 2017,52(4), 488-497.

- Establishment of specific requirements for camellia seed oil
- 2.1 Product definition. Include the description camellia seed oil
- 3.0 Composition and quality factors
- Table 1. Include the fatty acid composition of camellia seed oil
- Table 2 Quality characteristics of camellia seed oils
- Other quality and compositional factors
- Table 3, and Table 4 the content of sterol and tocopherol will be proposed.

4. ASSESSMENT AGAINST THE CRITERIA FOR THE ESTABLISHMENT OF WORK PRIORITIES

This proposal is consistent with the Criteria for the Establishment of Work Priorities applicable to both commodities and general subjects.

(a) Volume of production and consumption in individual countries and volume and pattern of trade between countries.

Camellia is a kind of evergreen tree cultivated in subtropical region. It is one of the four largest woody oil plants (others are oil palm, olive, coconut) in the world. Affected by geographical and climatic conditions, Camellia is mainly grown in East Asia and Southeast Asia, such as China, Japan, Vietnam, Thailand, etc. In China, the area under Camellia cultivation has increased each year, from 45 million mu in 2008 to 68 million mu in 2019 (1mu = 666.667m²)^v. Around 700 kilo tons of camellia seed oil were produced in 2019, and 600 kilo tons of camellia seed oil is estimated to be consumed in food market.

According to the data from the General Administration of Customs of China, in 2018 and 2019, a total of 171 and 262 tons of camellia seed oil was exported, of which worth \$2.05 million (USD) and \$3.24 million (USD). These numbers went up to 338 tons and \$4.17 million (USD) in 2020, almost doubled compared to 2018. More than 15 countries import camellia oil from China, the top trading partners are Japan, USA, Republic of Korea, Canada, France, and Australia.

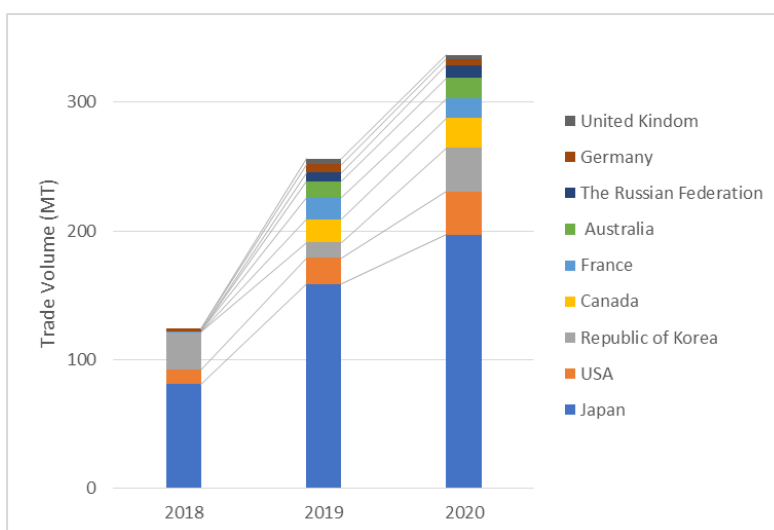


Figure 1 Camellia seed oil exports in Metric ton by main destinations from 2018 year to 2020 year. (Data from the General Administration of Customs of China)

^v Source: the website of China State Administration of Forestry and Grassland, <http://www.forestry.gov.cn/>

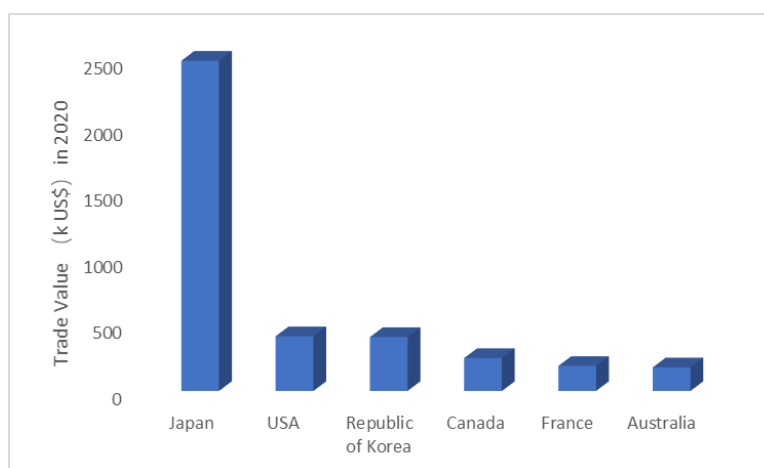


Figure 2. The trade value of Camellia seed oil by top trading partners in 2020.

(Data from the General Administration of Customs of China)

b) Diversification of national legislation and apparent resultant or potential impediments to international trade

The voluntary National Standard for camellia seed oil (GB/T 11765) in China was first published in 2003 and revised in 2018, which establishes the general specifications of camellia seed oil for domestic market. Food Chemicals Codex (FCC) responsible by United States Pharmacopeia published the standard of Camellia Seed (*Camellia oleifera*) Oil in 2018.

According to feedback from main camellia seed oil export companies, the current international market has different requirements for Camellia Seed specifications. With the potential increased demand in international market, the proposed amendment for camellia seed oil to the Codex *Standard for Named Vegetable Oils* (CXS 210-1999) will help to promote the wide-recognized, science-based standards, assure product quality, protect consumer's health, and facilitate global trade in camellia seed oil. Without such a standard, it is expected that national legislations or standards will differ, which may affect international trade in this product. In addition, it is expected that the lack of a Codex standard might trigger proliferation of private standards for this oil and contribute to the confusion and deceptive practices in trade in oils that are unsuitable for their intended uses.

(c) International or regional market potential

As indicated above, a significant international and regional market potential exists, especially as global health authorities call for the use of nutritionally preferred alternatives to edible oils that are high in saturated fatty acids. A report published by ABSOLUTE REPORTS in 2019 showed that in the coming years there will be an increasing demand for Camellia Oil in the regions of USA, Europe and China, the worldwide market for Camellia Oil is expected to grow at a CAGR of roughly 5.6% over the next five year^{vi}.

(d) Amenability of the commodity to standardization

This is a proposed amendment to the Codex *Standard for Named Vegetable Oils* (CXS 210-1999) to include camellia seed oil. The addition of this oil including essential factors related to composition, health and quality would enable the standardization of oils of this type and contribute to consumer protection.

(e) Coverage of the main consumer protection and trade issues by existing or proposed general standards

As indicated above, development of a Codex standard for camellia seed oil will enhance consumer protection by discouraging food fraud practices and the development of private standards.

(f) Number of commodities which would need separate standard indicating whether raw, semi-processed or processed

Not relevant.

(g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)

None known.

^{vi} Source: <https://www.absolutereports.com/global-camellia-oil-market-13837567>

5. RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES

As the focus and needs of establishing a Codex standard for camellia seed oil is observed in international trade, this proposed amendment is in accordance with the Goal 1 of Codex Strategic Plan 2020-2025: Address current, emerging and critical issues in a timely manner.

Specifically, regarding objective 1.1, “Identify needs and emerging issues”, this proposed amendment serves as a proper respond to the need of promoting fair trade of camellia seed oil.

Further, regarding objective 1.2, “Prioritize needs and emerging issues”, with current time manner, the proposed amendment will become the essential standard for Codex members with camellia seed oil trade, meanwhile the potential of camellia seed oil trade will be observed by all Codex members.

6. INFORMATION ON THE RELATION BETWEEN THE PROPOSAL AND OTHER EXISTING CODEX DOCUMENTS

None.

7. IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

If expert scientific advice is required, we’re committed to provide the contact of experts who are responsible for the proposed text and the research papers.

8. IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT TO THE GUIDELINES FROM EXTERNAL BODIES THAT CAN BE PLANNED

Relevant SDOs, such as ISO, AOCS, are expected to participate in the review of the Codex standard.

9. PROPOSED TIMELINE FOR COMPLETION OF THE NEW WORK, INCLUDING THE START DATE, THE PROPOSED DATE FOR ADOPTION AT STEP 5/8, AND THE PROPOSED DATE FOR ADOPTION BY THE COMMISSION

It is expected that the development of this standard would be conducted in two CCFO sessions or less (effective CCFO28), depending on the agreement reached by the Committee.

APPENDIX VI

PROJECT DOCUMENT

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

(For approval)

1. PURPOSE AND SCOPE

The purpose of the work proposal is:

- To develop a framework for amending the *Standard for named vegetable oils* (CXS 210-1999) by adding the definition of sacha inchi oil to Section 2 and including its fatty acid profile in the standard, in order to establish quality, purity and food safety criteria for this edible oil and facilitate trade in this product.
- Sacha inchi (*Plukenetia Volubilis* L.) is also known as *maní del monte* ("forest peanut"), *maní estrella* ("star-shaped peanut") (Colombia), *maní del inka* ("Inca peanut") and "supua" (Bolivia).

Consumption of this oil can be included in the same food categories and at the same use levels at which flaxseed oil is currently marketed. This includes its use as a dressing, for example, on salads, and its incorporation into a range of foods and food supplements, as well as in lightly fried food (smoke point: 255°C).

The scope of this Draft Technical Standard is international.

2. RELEVANCE AND TIMELINESS

The work proposed falls within the remit of the Codex Committee on Fats and Oils (CCFO), i.e., "to elaborate world wide standards for fats and oils of animal, vegetable and marine origin including margarine and olive oil

The new work will include the quality and composition characteristics of sacha inchi oil to enable the quality control of the product, facilitate international trade, improve consumer protection and prevent adulteration as well as deceptive and fraudulent practices. To reach these goals, the quality and authenticity of sacha inchi oil will be verified on the basis of the latest scientific developments.

Sacha inchi is a native plant of Peruvian Amazonia which was first described as a species by naturalist Linnaeus in 1753. References to its existence have been made over time in historical documents, such as the "Royal Commentaries of the Incas" (by Inca Garcilaso de la Vega), which mentions that indigenous people used the word "inchic" to name the fruit that Spaniards called "peanut" (*maní*), as well as the way it was consumed and used.

3. MAIN ASPECTS TO BE COVERED

The main aspect to be covered is the inclusion of the product in Section 2.1 Product definition, as well as in Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids) of CXS 210. The new work proposed will follow the CODEX structure and will include the quality requirements for sacha inchi oil:

- a. Scope.
- b. The definition of cold pressed oils.
- c. Quality and composition characteristics.
- d. Contaminants and food safety related issues.
- e. Organoleptic characteristics.
- f. Purity criteria.
- g. Food additives.
- h. Labelling.
- i. Methods of analysis

4. ASSESSMENT AGAINST THE CRITERIA FOR THE ESTABLISHMENT OF WORK PRIORITIES

This new work meets the following criteria applicable to the product:

General criteria

Consumer protection from the point of view of health, food safety, ensuring fair practices in the food trade and taking into account the identified needs of developing countries.

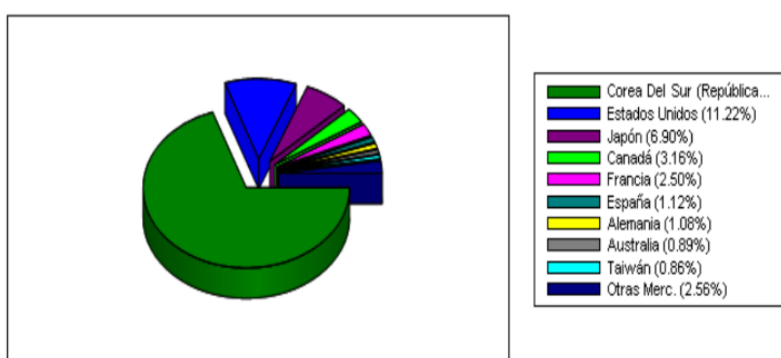
- a) Consumption of sacha inchi oil has increased due to its beneficial components and it might be considered as a functional food for consumer protection, so the amendment to CXS 210-1999 might be considered in order to provide related information to ensure safety issues for the production and trade of this edible oil.
- b) Promoting consumer protection and the prevention of fraudulent practices by determining authenticity specifications.
- c) Providing greater assurance of the quality of the product to meet consumer needs and the minimum requirements for food safety.
- d) Establishing levels of standardization based on the properties of the product to meet industrial and consumer needs with exactness and credibility.

Criteria applicable to general subjects

4.1 Volume of production and consumption in individual countries and pattern of trade between countries:

Sacha inchi oil exports in kg by main destination countries in 2017

EXPORTACIONES DEL PRODUCTO SACHA INCHI SEGUN SUS PRINCIPALES MERCADOS EN EL 2017



Source: SUNAT, compiled by PROMPERU

FIGURE 1 – Sacha inchi exports, main destination markets - 2017

Below are the exports of sacha Inchi (in all presentation forms) to its different destination markets during 2018, and from January to June 2019 (see Figures 2 and 3). In 2018, the Republic of Korea continued to rank first among export destinations.

Exportaciones Sacha Inchi en 2018. Valores FOB en Miles US\$

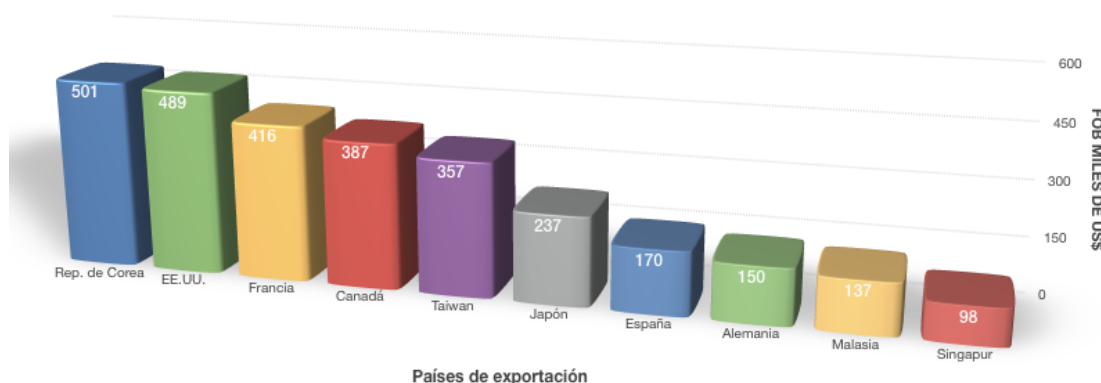


Figure 2. Exports of sacha inchi in all presentation forms to its main destination markets during 2018 (Source: Own elaboration based on data from MINCETUR).

Exportaciones Sacha Inchi desde enero hasta junio 2019. Valores FOB en Miles US\$

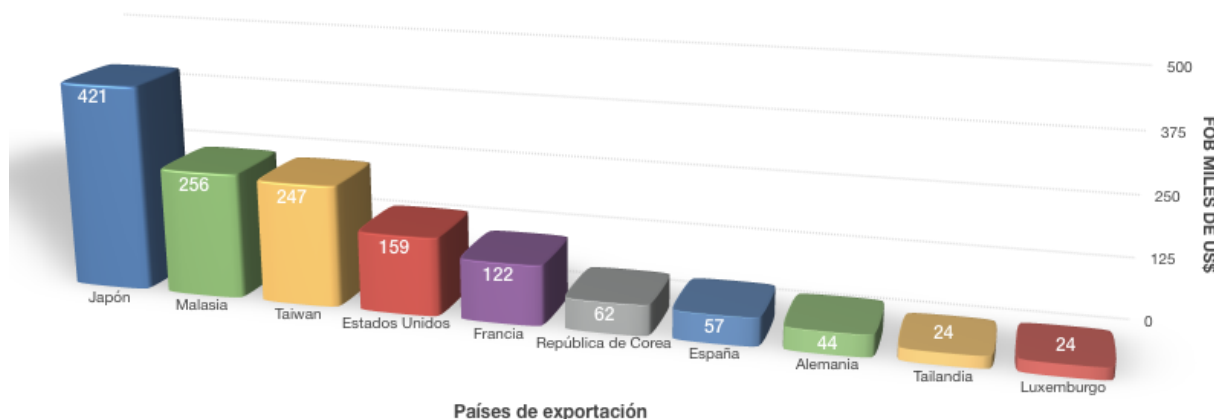


Figure 3: Exports of sachu inchi in all presentation forms to its main destination markets from January to June 2019 (Source: based on data from MINCETUR).

Sachu inchi in other countries:

In Ecuador, the Ministry for Agriculture, Livestock, Aquaculture and Fisheries (MAGAP) promoted a project to grow sachu inchi, through the Second Kennedy Round or 2KR programme (assistance to low-income farmers) within the Ecuador-Japan cooperation framework (MAGAP, 2014).

Currently, 3.5 tons per hectare are obtained per year, which means that the total production of sachu inchi in the country amounts to 2 845.5 tons. In percentage terms, it is estimated that the province of Manabí consolidates 30.75 % of production, with 813 ha (Burbano, 2015). The largest production area is Manabí, with 250 ha. In the northwest of the Pichincha area, land cultivated with this crop extends over 150 ha.

In Bolivia, the National Alternative Development Fund (FONADAL, by its Spanish acronym) used resources from the European Union (250,000 bolivars) to finance the production of sachu inchi in 50 hectares of the Palos Blancos municipality. This benefits over 50 families in the region. The director for projects stated that, since this is an extremely valuable food product, the government will prioritize its production for the nursing allowance due to its nutritional and medicinal properties. The surplus will be exported to Korea and England [La Razón newspaper, November 10th, 2013]. [La Sociedad de BOLIVIA newspaper, December 12th, 2014]

In Colombia, since 2012, Green M & A Solutions has been working to replace illegal crops, so that farmers who plant coca may grow sachu inchi instead, a dry fruit that is considered to be a superfood. In 2015, Green was acquired by the American company QED Connect Inc. and created Inca Snacks, a business that already exports sachu inchi and Colombian nuts (seeds) to the United States, where they are roasted and packed for retail. Companies help farmers grow the Inca seeds (sachu inchi) in projects located in Choco, Antioquia and Nariño, very important states of Colombia. The agreement is a key element to secure financing and a guarantee from USAID. Their plan is to use 35,000 hectares for production in the country. To reach this goal, they work with USAID, which is the United States cooperation agency, and the Colombian government. The sachu inchi harvested area has expanded in Colombia since 2007 (see Figure 4).

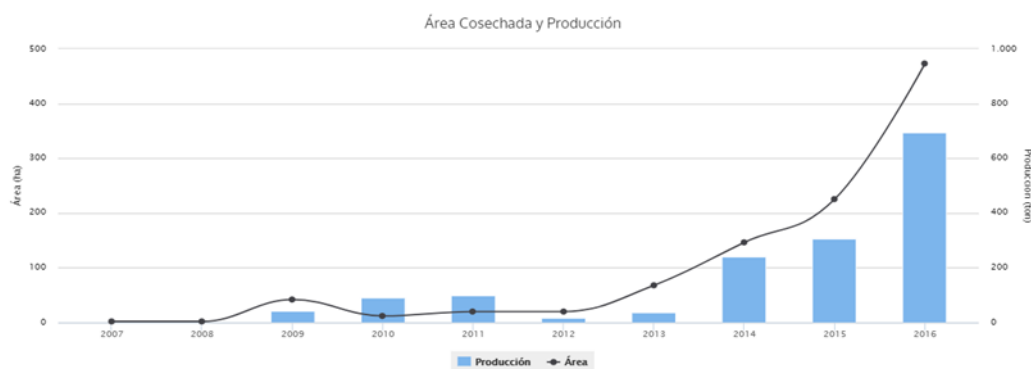


Figure 4: Colombia: Sachu inchi, harvested area and production between 2008 and 2016 [Source: Agronet - Colombian Government]

4.2 Diversification of national legislation and apparent resultant or potential impediments to international trade

Member countries could use the Codex standard as a reference to establish their national regulations.

At present, producing and consuming countries often apply national regulations which are different in important aspects related to the quality and authenticity parameters and the methods of analysis.

4.3 International or regional market potential

Sacha inchi production is expected to increase considerably, with a number of other countries becoming producers, such as some in Asia.

4.4 Amenability of the commodity to standardisation

There are two national standards (NTE INEN 2688:2014 ACEITE DE SACHA INCHI (sacha inchi oil) from Ecuador and NTP 151.400:2018 SACHA INCHI. Oil. Requirements. 3rd edition from Peru).

This means that sacha inchi oil has been standardized for over 10 years, and demonstrates by the amenability of sacha inchi to international standardization.

5. RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES

The new work proposed would help ensure fair and equitable practices in international trade of sacha inchi oil by considering the special needs and concerns of all countries, since it will meet the following strategic goals and priorities of the 2020-2025 Codex Alimentarius Commission Strategic Plan.

Goal 1: Address current, emerging and critical issues in a timely manner

1.1 Identify needs and emerging issues.

This amendment to the Codex standard to make it more globally representative will help ensure its wide adoption by member countries and minimize the potential negative effects of technical regulations in international trade, preventing these from becoming unnecessary technical barriers to trade.

1.2 Prioritize needs and emerging issues.

In this way, Codex will address this emerging issue in a timely manner, in addition to meeting the needs of members such as Peru, Ecuador and Colombia, which are interested in the international standardization of sacha inchi oil.

Goal 2: Develop standards based on science and Codex risk-analysis principles

2.1 Use scientific advice consistently in line with Codex risk-analysis principles.

The study of sacha inchi oil is firmly based on scientific data, which has already been reviewed in the dossier submitted in connection with the Novel Food reports and the GRASS report.

2.2 Promote the submission and use of globally representative data in developing and reviewing Codex standards.

The development of a standard for sacha inchi oil, a biodiversity-related product, results in the protection of human health and the environment, because it considers aspects that, if not complied with, have negative effects on consumers. In addition, inadequate growing or exploitation affects the environment. However, the technical standard does not include these practices specifically. The standard can have a positive effect on trade, making it more equitable among countries, since it includes requirements for sacha inchi oil which constitute a point of reference for making agreements, regardless of the countries involved in its trade.

It is important to point out that sacha inchi must be grown using sustainable, environmentally friendly agriculture that ensures contaminant-free production. Good practices aimed at crop conservation help to maintain biodiversity. The essential ecologic characteristics of those ecosystems where sacha inchi occurs naturally must be kept and preserved, without performing any activities that pose a threat to their conservation. In this way, the genetic base will be kept, and then improvements will be made to obtain high-productivity varieties (good yields and oil content) able to resist pest and disease.

6. INFORMATION ON THE RELATION BETWEEN THE PROPOSAL AND OTHER EXISTING CODEX DOCUMENTS AS WELL AS OTHER ONGOING WORK

The *Standard for named vegetable oils* (CXS 210-1999) is connected with this subject, so an amendment to this standard is proposed in order to include sacha inchi oil in it.

7. IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

None identified at the moment.

8. IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT TO THE TECHNICAL STANDARD FROM EXTERNAL BODIES SO THAT THIS CAN BE PLANNED FOR

Relevant organizations, such as AOCS, are expected to participate in the review of the Codex standard.

9. PROPOSED TIMELINE FOR COMPLETION OF THE NEW WORK

It is expected that the development of this standard would be conducted in two CCFO sessions or less (effective CCFO28), depending on the agreement reached by the Committee.

PROJECT DOCUMENT
PROPOSAL FOR NEW WORK ON AMENDMENT/REVISION TO THE CODEX STANDARD FOR FISH OILS (CXS 329-2017) - INCLUSION OF CALANUS OIL

(For approval)

1. Purpose and scope of the proposed amendment

The purpose and scope of the proposed amendment to the *Standard for Fish Oils (CXS 329-2017)* is to include calanus oil derived from the species *Calanus finmarchicus* as a named fish oil, and where relevant amend other sections of the standard to accommodate for this inclusion.

2. Relevance and timeliness

Calanus oil for human consumption has been marketed in Norway and the USA since 2012. Today, Calanus oil is exported to EU countries, USA and Canada. There is an interest for calanus oil in several countries worldwide, as for example in Asia. But exporters experience problems due to the lack of a Codex standard accommodating for calanus oil and uncertainty in importing countries on how to perform quality control and authentication of calanus oil.

The Codex standard for fish oils (CXS 329-2017) was adopted in 2017. The following named fish oils are included: anchovy oil, tuna oil, krill oil, menhaden oil and salmon oil. During the discussion on CXS 329-2017 it was agreed that additional named oils may be added at a later stage as trade becomes significant and fatty acid profiles are robustly documented. Based on new commercial harvesting quotas there is a potential to produce 15,000 tonnes of calanus oil annually. Due to specific properties of calanus oil, where the main lipid class is wax ester, not all essential quality criteria for unnamed fish oils are applicable to calanus oil. Thus, there is a need to accommodate for calanus oil in CXS 329-2017 to avoid trade impediments. The distinct properties of calanus oil makes it amenable for standardisation.

Calanus oil is according to the definition for fish oils (unnamed) in CXS 329-2017 section 2.2 already covered by the standard. But this constitutes a problem for calanus oil, where the main lipid class is wax ester. Whereas the main lipid class in fish body oils and cod liver oil is triglyceride. Due to the high amount of wax esters in calanus oil, not all essential quality factors for fish oils (unnamed) in the fish oil standard are applicable to calanus oil. Thus, there is a need to accommodate for calanus oil in CXS 329-2017 to avoid trade impediments. The distinct properties of calanus oil makes it amenable for standardization.

The high amount of wax esters is specific for calanus oil and clearly distinguishes it from other fish oils. There is a need to include calanus oil as a named fish oil, and to specify specific essential composition and quality factors for calanus oil, when that is justified. Wax esters can be analysed using method AOCS Ch 8-02. As the method is applicable for calanus oil, but not included in the current validation data, it is recommended that AOCS Ch 8-02 is listed as a Type IV method for calanus oil for the determination of wax esters in *Recommended Methods of Analysis and Sampling (CXS 234-1999)*.

Including calanus oil as a named fish oil will reduce trade impediments and help governments in assessing the quality and the barriers and/or rejection of the product at the trade borders, and help manufacturers and traders documenting product authenticity and traceability.

Today's supply of EPA/DHA for human consumption may be as low as 30% of global demand, based on a recommended daily intake of 500 mg, according to a recent estimate (Hamilton *et al.* 2020). This gap is unlikely to be filled by traditional capture fisheries, due to a majority of stocks being considered fully exploited or overexploited. The gap may be filled by other resources, including such as krill (*Euphasia superba*) and *Calanus finmarchicus*.

The current annual trading volume of calanus oil is limited, estimated at around 25,000 kg. However, the value of calanus oil is high. The volume has been limited due to smaller R&D harvesting quotas and restricted market access. Based on the new commercial harvesting quotas issued in 2019, a potential output of 15,000 tonnes of calanus oil from may be produced. Even if only 50% of this volume is destined for human consumption, this is a high volume compared to many other fish oils already listed as named fish oils.

3. Main aspects to be covered

The proposed amendments to CXS 329-2017 include the following:

- include calanus oil as a named fish oil in section 2.1. Description Named fish oils;
- include the GLC ranges of fatty acid composition for calanus Oil in section 3.1., Table 1;
- specify additional essential compositional criteria for calanus oil in section 3.2.;
- include calanus oil in the section 3.3.2 Quality parameters; recommend that method AOCS Ch 8-02 is included for calanus oil as a Type IV method in *Recommended Methods of Analysis and Sampling (CXS 234-1999)*, section 8, for the analysis of wax esters.

4. Assessment against the Criteria for the establishment of work priorities

General criterion

The proposed amendment of the Codex *Standard for Fish Oils* (CXS 329-2017) for inclusion of *calanus oil* as a named fish oil in the list of species under Section. 2.1 could support governments and traders in assuring product authenticity, traceability, and sustainability of resources, ensuring fair practices in the food trade and taking into account the identified needs for listing of calanus oil in the standard as experienced in several countries.

Criteria applicable to commodities

a) Volume and production and value of trade

According to GOED market report the total volume of fish oils, omega-3 ingredients for human consumption was 111,210 tonnes in 2018. Both the production and global trade of fish oil is increasing. In general fish oil production is taking place in some countries and regions with specialized processing and refining industry. Finished fish oil is then traded globally to countries in all regions. The global demand is increasing, the fastest growth is especially in Asian countries.

According to GOED the volume of calanus oil is limited, 17.000 kg in 2018. In 2019 the production was approximately 25.000 kg. But the value of calanus oil is very high, compared to many other fish oils. This is due to the amount of research and development necessary at the early stages of product development. As the volume increases, pricing is expected to develop accordingly.

Both volume and value for several fish oils are listed in the table below.

Annual production and value of fish oils in 2018 (GOED market report 2019)

	Volume (tonnes)	Value (millions USD)
Common refined oils	40,754	188
Concentrated oils	20,711	485
Menhaden oil	9,405	19
Cod liver oil	8,490	45
Salmon oil	5,285	34
Tuna oil	4,531	196
Krill oil	856	102
Calanus oil	17	5

By the end of 2021, the production of calanus oil will be approximately 52. 000 kg, doubling the volume from 2019. Of this volume, on average 50 % is sold in Europe (EU and Norway) and 50 % in the United States of America.

Based on the annual commercial harvesting quotas, there is a potential to produce 15,000 tonnes of calanus oil annually.

Consumption of calanus oil has been mainly as dietary supplements. Between 2008 and 2021 223.800 kg of calanus oil was manufactured and traded, resulting in the consumption of about 500 million capsules.

b) Diversification of national legislation and apparent resultant impediments to international trade

National legislation for fish oil for human consumption which accommodates for market access also for calanus oil is in place in some countries. In other regions, as for example Asia there is a lack of national legislation for calanus oil with their specific properties. Due to the high amount of wax esters, the quality parameters established in CXS 329-2017 for named fish oils and unnamed fish oils primarily composed of glycerides of fatty acids, are not all applicable for calanus oil. Trade impediments are experienced, especially in the Asian market, due to the lack of a Codex standard accommodating for calanus oil and the uncertainty on how to control the quality and the authentication of calanus oil. Response from trading partners indicate that competent authorities in importing countries would welcome an international standard for calanus oil.

c) International or regional market potential

Based on the annual commercial harvesting quotas issued in 2019 for *Calanus finmarchicus*, the potential annual production may be 15,000 tonnes of calanus oil.

Norway exports calanus oil to EU countries, USA and Canada. There is an interest for calanus oil in several countries worldwide as for example in Asia. But market access is hindered to the lack of standardisation.

d) Amenability of the commodity to standardisation.

Calanus oils is derived from the crustacean *Calanus finmarchicus*, and according to the definition for fish oils (unnamed) in CXS 329-2017 section 2.2 already covered by the standard. But this constitutes a problem for calanus oil, where the main lipid class is wax ester. Whereas the main lipid class in fish body oils and cod liver oil is triglyceride. Due to the high amount of wax esters in calanus oil, not all essential quality factors in the fish oil standard are applicable calanus oil. Thus, there is a need to accommodate for calanus oil in CXS 329-2017 to avoid trade impediments. The distinct properties of calanus oil makes it very amenable for standardisation.

e) Coverage of the main consumer protection and trade issues by existing or proposed general standards

Not applicable.

f) Number of commodities which would need separate standards indicating whether raw, semi processed or processed.

Not applicable.

g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)

So far, no similar work by other international organizations has been encountered.

5) Relevance to the Codex strategic objectives

Goal 1: Address current, emerging and critical issues in a timely manner

The proposed amendment of the Codex *Standard for Fish Oils* (CXS 329-2017) responds to the need for having an updated and relevant standard for this commodity

6. Information on the relation between the proposal and other existing Codex documents as well as other ongoing work

The proposed amendment will simply update the existing Codex *Standard for Fish Oils* (CXS 329-2017) to include calanus oil as a named fish oil.

7. Identification of any requirement for and availability of expert scientific advice

None.

8. Identification of any need for technical input to the standard so that this could be planned for

None

9. Proposed timeline for completion of the amendment.

It is expected that two sessions or less are required for the completion of the proposed amendment to the Codex *Standard for Fish Oils* (CXS 329-2017) starting from CCFO28.

APPENDIX VIII

PROJECT DOCUMENT

PROPOSAL FOR NEW WORK ON AMENDMENT/REVISION TO THE CODEX STANDARD FOR NAMED VEGETABLE OILS (CXS 210-1999), - INCLUSION OF HIGH OLEIC ACID SOYA BEAN OIL**(For approval)**

This project document has been developed according to the Codex Alimentarius Commission Procedural Manual 27th Edition, 2019 Section II, Procedures for the Elaboration of Codex Standards and Related Texts, part 2. Critical review, proposals to undertake new work or to revise a standard (page 31).

PURPOSE AND SCOPE OF THE REVISION TO THE CODEX STANDARD

The purpose of this new work is to revise the *Codex Standard for Named Vegetable Oils* [CXS 210-1999, Adopted 1999. Revisions 2001, 2003, 2009, 2017, 2019. Amendment 2005, 2011, 2013, 2015, 2019] to include high oleic acid soya bean oil (also called high oleic acid soybean oil or high oleic soybean oil), which has enhanced functionality due to its relatively high oleic acid content. The revision would enable Codex member countries and the food industry to characterize, name, and market appropriately high oleic acid soya bean oil developed for improved functional and nutritional benefits for consumers and the food processing industry. Another purpose is to facilitate fair trade practices and to provide a new standard that is consistent with the two current Codex Standards for high oleic acid sunflower oil and high oleic acid safflower oil.

Functional benefits for high oleic acid soya bean oil include improved oil stability performance where high heat applications are involved (deep frying), longer shelf life for foods in which it is an ingredient (snack foods), and “neutral flavor” for foods prepared using the oil. Nutritional benefits include an increase in monounsaturated fatty acids and a decrease in both saturated fatty acids and undesirable trans-fats.

The scope of work is an assessment of the changes in the named fatty acids when compared with the soya bean oil currently listed in the *Codex Standard for Named Vegetable Oils* [CXS 210-1999]. Other compositional characteristics for high oleic acid soya bean oil will be provided for in the Standard, including new columns in the tables of fatty acid composition (Table 1), chemical and physical characteristics (Table 2), desmethylsterol composition (Table 3), and tocopherol and tocotrienols (Table 4).

RELEVANCE AND TIMELINESS

To facilitate international trade in food products and ingredients, Codex standards are often used as the basis for names and specifications for such products to ensure fair trade practices. Since high oleic acid soya bean oil will be utilized in increasing amounts due to its favorable characteristics, it is important for it to have consistent naming and specifications to ensure fair trade domestically and internationally. Consideration to revise CXS 210-1999 to include high oleic acid soya bean oil would require relatively little time and would make efficient use of limited CCFO resources since the major factor affected is fatty acid composition.

It is important that Codex consider new work to include high oleic acid soya bean oil in CXS 210-1999. Codex has already developed standards for oils from other enhanced oleic acid oilseed varieties (e.g., high oleic acid sunflower seed, mid-oleic acid sunflower seed, high oleic acid safflower seed), thus recognizing the need for individual standards to distinguish the oils in the marketplace. High oleic acid vegetable oils have significantly improved oxidative stability providing favorable functionality in a variety of foods as ingredients or cooking mediums. High oleic acid soya bean oil contributes significant stability to foods in which it is used as well as avoids the development of undesirable components such as trans fats by eliminating the need for chemical hydrogenation. High oleic acid soya bean oil also has lower levels of saturated fat, which many countries have identified as a food component that should be reduced in the diet. High oleic acid soya bean oil has a distinctive fatty acid profile and other characteristics that are significantly different than the soya bean oil currently listed in the standard and should be appropriately reflected as a separate commodity in the Codex standard.

MAIN ASPECTS TO BE COVERED

The proposed new work to add high oleic acid soya bean oil to CXS 210-199 will be developed according to existing procedures for Codex standards and will include, but not be limited to, the following:

- Scope
- Description
- Essential composition and quality factors
- Food additives
- Contaminants
- Hygiene

- Labeling
- Methods of analysis and sampling
- Other quality and compositional factors

ASSESSMENT AGAINST THE CRITERIA FOR THE ESTABLISHMENT OF WORK PRIORITIES

This proposal is consistent with the Criteria for the Establishment of Work Priorities applicable to both commodities and general subjects.

a) Volume of production and consumption in individual countries and volume and pattern of trade between countries.

Data of the U.S. Department of Agriculture (USDA) indicate that:

- In 2019-20, world production of total oilseeds was 580.6 million metric tons.
- In 2019-20, world production of soya beans was 339.42 million metric tons.
- In 2019-20, global production of soya bean oil was 56.78 million metric tons

These data are provided to indicate the large market share of soya beans in the total global marketplace of oilseeds. New soya bean varieties whose oil contains new traits to improve health and functionality in foods are expected to gain significant market share of that currently held by traditional soya beans. High oleic acid soya bean oil is currently being favorably received in the United States and its trading partners and will likely experience considerable growth within the next several years.

Mid-oleic acid sunflower oil became commercially available in 1998. By 2005, it gradually captured a majority of the sunflower oil market in North America. High oleic acid sunflower oil similarly became available in the mid-2000s. Codex Standards for both were adopted. Because the improved functionality of mid- and high oleic acid oils is now more widely recognized than it was in the 1990s and 2000s, especially for use in frying and processed foods, it is anticipated that demand for high oleic acid soya bean oil will increase rapidly as it did for mid- and high-oleic sunflower oils.

The production and use of high oleic acid soya bean oil in the US is presented in Table 1. In 2020, high oleic acid soya beans were cultivated in 141,643 hectares and 93,375 metric tons of oil was produced (\$ 82.36 million using an average price of \$ 0.40 per pound of oil). The international trade in 2020 was 300 metric tons. In addition to the US, the high oleic acid soya beans are also cultivated in Canada, Ukraine and India. The demand for high oleic acid soya bean oil is currently greater than the supply and continues to grow in domestic and international market because of its favorable functional properties. The soya bean industry is trying to increase the supply by planting more acres of high oleic acid soya beans and it is anticipated to reach 560,000 hectares by 2023. The production and export of high oleic acid soya bean oil in 2023 is anticipated to be 364,000 metric tons and 30,000 metric tons, respectively. The international trade volume can be affected by market conditions, acreage planted, climate, demand, government programs, etc. It is estimated that 150,000 metric tons of high oleic acid soya bean oil will be produced in 2021. In 2021, at least 7,325 metric tons of high oleic acid soya beans or the extracted oil have been traded in various countries including Canada, Costa Rica, Dominican Republic, Japan (export whole beans), Mexico and South Korea. In addition, Malaysia may also be involved in its trade later this year.

Table 1. Production and use of high oleic acid soya bean oil in the United States.

Crop year	Area of cultivation (hectares)	Amount of oil produced (metric tons)	International trade (metric tons)
2019	113,314	74,700	NA ²
2020	141,463	93,375	300
2021	242,900 ¹	150,000 ¹	7,325 ³

¹Estimate; ²NA – not available due to small volume; ³Includes export of high oleic acid soya beans.

b) Diversification of national legislations and apparent resultant or potential impediments to international trade.

The proposed revision to the Codex Standard for Named Vegetable Oils (CXS 210-1999) will facilitate global trade in high oleic acid soya bean oil. Without such a standard, it is expected that national legislations will differ, which will adversely affect international trade in this product. In addition, it is expected that the lack of a Codex standard might trigger proliferation of private standards for this oil and contribute to the confusion and deceptive practices in trade in oils that are unsuitable for their intended uses.

c) International or regional market potential.

As indicated above, a significant international and regional market potential exists, especially as global health authorities call for the use of nutritionally preferred alternatives to edible oils that are high in saturated fatty acids and also those that contain trans fats.

d) Amenability of the commodity to standardization.

This is a proposed revision to the Codex Standard for Named Vegetable Oils (CXS 210-1999) to include high oleic acid soya bean oil. High oleic acid soya bean oil is readily amenable to inclusion in that standard; many of its characteristics are the same as high oleic acid safflower and sunflower oils, which are already in the standard. High oleic acid soya bean oil is a well characterized material and, other than oleic acid and linolenic acid, most of its characteristics are identical to soya bean oil, a material that is already listed in the standard.

e) Coverage of the main consumer protection and trade issues by existing or proposed general standards.

As indicated above, development of a Codex standard that includes high oleic acid soya bean oil will enhance consumer protection by discouraging deceptive practices and the development of private standards.

f) Number of commodities which would need separate standard indicating whether raw, semi-processed or processed.

Not relevant.

g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies).

None known.

RELEVANCE TO THE CODEX STRATEGIC OBJECTIVES

The proposed revision to the Codex *Standard for Named Vegetable Oils* (CXS 210-1999) is appropriate to Goal 1 (Address current, emerging and critical issues in a timely manner) of the Codex Strategic Plan 2020-2025.

As indicated in Goal 1, "Codex will need to be proactive and flexible and to respond in a timely manner to the opportunities and challenges that result."

There are two objectives within Goal 1:

- (i) The outcome for objective 1.1 (Identify needs and emerging issues) is "Improved ability of Codex to develop standards relevant to the needs of its members," and the indicator is "The number of emerging issues identified by subsidiary bodies".
- (ii) The outcome for objective 1.2 (Prioritize needs and emerging issues) is "Timely Codex response to emerging issues and the needs of members," and one of the indicators is "Proportion of identified, prioritized emerging issues that lead to proposals for new work".

The proposed revision to CXS 210-1999 will facilitate fair trade in high oleic acid soya bean oil that otherwise, according to the commodity oil, would be inaccurately termed "soya bean oil".

The work would also focus on essential characteristics, taking into consideration the technical and economic implications for all Codex members and in particular for developing countries, many of which are net edible oil importers.

INFORMATION ON THE RELATION BETWEEN THE PROPOSAL AND OTHER EXISTING CODEX DOCUMENTS

Codex has developed standards for many other edible fats and oils found in the following Codex standards:

- *Standard for Named Vegetable Oils* (CXS 210-1999, Adopted 1999. Revisions 2001, 2003, 2009, 2017, 2019. Amendment 2005, 2011, 2013, 2015, 2019), including products defined as high oleic acid safflower seed oil, high oleic acid sunflower seed oil, mid oleic acid sunflower seed oil.
- *Standard for Named Animal Fats* (CXS 211-1999, Adopted 1999. Amendment 2009, 2013 and 2015, 2019).
- *Standard for Olive Oils and Olive Pomace Oils* (CXS 33-1981, Adopted 1981. Revisions 1989, 2003, 2015, 2017. Amendment 2009, 2013)]
- *Standard for Edible Fats and Oils not covered by Individual Standards* (CXS 19-1981, Adopted 1981. Revisions 1987, 1999. Amendment 2009, 2013, 2015, 2017, 2019).
- *Standard for Fish Oils* (CXS 329-2017, Adopted 2017).

IDENTIFICATION OF ANY REQUIREMENT FOR AND AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

None identified.

IDENTIFICATION OF ANY NEED FOR TECHNICAL INPUT TO THE GUIDELINES FROM EXTERNAL BODIES THAT CAN BE PLANNED

None identified.

PROPOSED TIMELINE FOR COMPLETION OF THE NEW WORK, INCLUDING THE START DATE, THE PROPOSED DATE FOR ADOPTION AT STEP 5/8, AND THE PROPOSED DATE FOR ADOPTION BY THE COMMISSION

It is expected that the development of this standard would be conducted in one CCFO session (effective CCFO28), depending on the agreement reached by the Committee.

APPENDIX IX

EDITORIAL CHANGES TO CODE OF PRACTICE FOR THE STORAGE AND TRANSPORT OF EDIBLE FATS AND OILS IN BULK (CXC 36 – 1987)

(For action by Codex Secretariat)

Proposed changes to relevant provisions are indicated in **bold** and underline, and deletions in ~~strikethrough~~

APPENDIX 2 - CODEX LIST OF ACCEPTABLE PREVIOUS CARGOES

Specific comments on notes
<p>Note</p> <p>(3) The list below is not necessary <u>necessarily</u> a final list but is subject to review and possible amendment to take account of scientific or technical developments. Additional substances are being considered for inclusion in the list and may be included as acceptable following an appropriate risk assessment. This should include consideration of:</p>

List of acceptable previous cargoes

Substances (synonyms)
Ácido acético (ácido etanoico; ácido de vinagre; ácido carbocílico <u>carboxílico</u> de metano)
Butyric acid (n-butyric acid; butanoic acid; ethyl acetic acid; propyl forinic Comment by CCTA: Propyl formic ?? This is unknown, must be an errata (correct the error in para 9 fatty acids, third entry under fatty acids to Propyl formic)
Fats (to be inserted at the end of last entry under fatty acids)—from natural oils and fats Comment by CCTA: should go with previous sentence
alcohol; n-primary n-primary hexadecyl alcohol)
Glicerina (glicerol; glicerina)
Glycerine (glycerol; glycerin)
Alcohol propílico (propano-1-ol; l-propanol) 1-propanol)
Mineral oil, medium and low viscosity viscosity , class II
Mineral oil, medium and low viscosity viscosity , class III
Silicato sódico (crystal de agua) (vidrio soluble)
Sorbitol (D-sorbitol; alcohol hexahídrico; D-sorbite) D-sorbita)
Aceite de soja hipoxidizado epoxidado
Petroleum wax (parafin) (paraffin wax)
Sodium hydroxide solution (caustic soda _r ; lye; sodium hydrate; white caustic)

APPENDIX X

INFORMATION DOCUMENT FOR CCFO NEW WORK PROPOSALS

(For information)

This information document is to assist sponsors in preparing new work proposals for CCFO consideration, based on the following requirements:

- a. Section II: Elaboration of Codex Texts of the Procedural Manual of the Codex Alimentarius Commission.
 - i. Part 2 of the Procedures for the Elaboration of Codex Standards and Related Texts pertaining to critical review of Proposals to Undertake New Work or to revise a standard.
 - ii. Criteria for the Establishment of Work Priorities and details in Guideline on the Application of the Criteria for the Establishment of Work Priorities (Criteria Applicable to Commodities).
- b. Requirements established by CCFO16 for Proposal of New Standard or Inclusion of New Oils/Fats.
- c. CCFO26 decision that submission of new work proposals should include both a discussion paper and project document.

CHECKLIST FOR NEW WORK PROPOSALS

Items required	Note
CCFO26 decision on submission of new work proposal should include both a discussion paper and project document	
Availability of a discussion paper	
Procedures for the Elaboration of Codex Standards and Related Texts: Project Document	
Information should be provided on:	
a. the purpose and the scope of the standard	
b. its relevance and timeliness	
c. the main aspects to be covered	
d. relevance to the Codex strategic objectives	
e. information on the relation between the proposal and other existing codex documents as well as other ongoing work	
f. Identification of any requirement for and availability of expert scientific advice	
g. Identification of any need for technical input to the standard from external bodies so that this can be planned for	
h. The proposed time-line for completion of the new work, including the start date, the proposed date for adoption at step 5, and the proposed date for adoption by the commission; the time frame for developing a standard should not normally exceed five years	
Criteria for the Establishment of Work Priorities: Criteria Applicable to Commodities	
a. Volume of production and consumption in individual countries and volume and pattern of trade between countries. Information should be provided on:	
<ul style="list-style-type: none"> ▪ Volume of production, expressed in monetary terms, tons, proportion of GDP, etc. 	
<ul style="list-style-type: none"> ▪ Volume of consumption, expressed in 	

Items required	Note
monetary terms, tons, proportion of GDP, etc.	
<ul style="list-style-type: none"> ▪ Volume and patterns of trade, including trends in trade volume and patterns, expressed in monetary terms, tons, proportion of GDP, etc. 	
<ul style="list-style-type: none"> - between countries 	
<ul style="list-style-type: none"> - in intra-regional trade, i.e., between or among countries of a region 	
<ul style="list-style-type: none"> - In inter-regional trade, i.e., between or among regions 	
<ul style="list-style-type: none"> ▪ Credible sources or citations of information and/or references 	
b. Diversification of national legislation and apparent resultant or potential impediments to international trade;	
c. International or regional market potential. Information should be provided on:	
<ul style="list-style-type: none"> ▪ International and/or regional market potential; and, where necessary; 	
<ul style="list-style-type: none"> ▪ Potential of regional products to enter international trade including an analysis of current production trends as well as market potential in the foreseeable future. 	
d. Amenability of the commodity to standardization. Information should be provided on:	
<ul style="list-style-type: none"> ▪ Which quality factors are essential for the identity of the product e.g. definition, composition, etc.; 	
<ul style="list-style-type: none"> ▪ Characteristics of the commodity (e.g. differences in definition, composition, and other quality factors that may vary across countries and regions) that would have to be accommodated in the standard 	
e. Coverage of the main consumer protection and trade issues by existing or proposed general standards.	
f. Number of commodities which would need separate standards indicating whether raw, semi-processed or processed, including information on the rationale for such needs	
g. Information on work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies), including an analysis of areas of potential complementarities, gaps, duplication, or conflict with the above activities	
Requirements Established by CCCFO16 (for Proposal of New Standard or Inclusion of New Oils/Fats)	
a. Level of international trade - volume, value and pattern of current or expected/potential trade.	
b. Scope - justification for inclusion within the scope of the Standard and evidence that the oil is to be presented in a state for human consumption.	
c. Taxonomic information - full details of all species of plant from which the oil is derived.	
d. Where appropriate, extent of difference - the extent to which the proposed new oil differs from those included in the current [Draft] Standard for	

Items required	Note
Named Vegetable Oils, including for example such factors as variations in the chemical composition and/or the physical properties and/or the nutritional aspects or properties, of the oil.	
e. In addition to the above, submissions should include any other relevant information, together with details of the proposed 'Essential Composition and Quality Factors'.	