



Food and Agriculture  
Organization of the  
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World Health  
Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: [codex@fao.org](mailto:codex@fao.org) - [www.codexalimentarius.org](http://www.codexalimentarius.org)

Agenda Item 5.4

CX/FO 19/26/8 Add.1

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX COMMITTEE ON FATS AND OILS

26<sup>th</sup> Session

Kuala Lumpur, Malaysia, 25 February - 1 March 2019

#### PROPOSED DRAFT REVISION TO THE STANDARD FOR NAMED VEGETABLE OILS(CXS 210-1999)

**Inclusion of walnut oil, almond oil, hazelnut oil, pistachio oil, flaxseed oil and avocado oil-  
Comments at Step 3 (Replies to CL 2018/79/OCS-FO)**

Comments of Brazil, Canada, Cuba, Ecuador, Egypt, Iraq, Mexico, USA, Fediol and IUFOST

#### **Background**

1. This document compiles comments received, in response to CL 2018/79/OCS-FO issued in November 2018 with a deadline of 15 January 2019. Annex I contains the comments received through Codex Online Commenting System (OCS).

#### **Explanatory notes on the appendix**

2. The comments submitted are, hereby attached as **Annex I** and are presented in table format.

**Comments on the Proposed draft revision to the Standard for Named Vegetable Oils(Cxs 210-1999)  
-inclusion of walnut oil, almond oil, hazelnut oil, pistachio oil, flaxseed oil and avocado oil-**

Comment	Member/Observer
<b>GENERAL COMMENTS</b>	
<p>Brazil thanks for the opportunity to present comments on the draft revision to the standard for named vegetable oils (inclusion of walnut, almond, halzenut, pistachio, flaxseed and avocado oil) and congratulates Iran and India for the excellent work developed in the EWG.</p> <p>Brazil agrees with the proposed parameters for walnut, almond, halzenut, pistachio, flaxseed and avocado oil. Brazil would like to suggest that some clarification about the part of the avocado used to extract the oil included in the standard should be included in the text because avocado oil can be extracted from seed or pulp (mesocarp).</p>	<b>Brazil</b>
<p>Canada appreciates the efforts of the Chair and Co-chair, and all members of the electronic working group (eWG) to develop the draft document for discussion at the CCFO26 plenary session. We appreciate the opportunity to provide comments on the proposed draft revision to the Standard for Named Vegetable Oils (CODEX STAN 210-1999): Inclusion of Walnut oil, Almond oil, Hazelnut oil, Pistachio oil, Flaxseed oil and Avocado oil</p> <p>Canada agrees with the proposed draft revisions to the standard as presented in Annex I.</p>	<b>Canada</b>
Cuba supports in principle the document for the Proposed Draft Revision of the Standard for Named Vegetable Oils in Step 3.	<b>Cuba</b>
Egypt agrees with Inclusion of Walnut oil, Almond oil, Hazelnut oil, Pistachio oil, Flaxseed oil and Avocado oil in Standard for Named Vegetable Oils (CXS 210-1999)	<b>Egypt</b>
We agree with PROPOSED DRAFT REVISION of standard	<b>Iraq</b>
<p>The United States would like to thank Iran, chair of the EWG, and India, co-chair of the eWG, for drafting the proposed draft revisions to the Standard for Named Vegetable Oils (CXS 210-1999) as presented in ANNEX I of CX/FO 19/26/8. The United States supports revising the Standard for Named Vegetable Oils (CXS 210-1999) to include Walnut Oil, Almond Oil, Hazelnut Oil, Pistachio Oil, Flaxseed Oil, and Avocado Oil. Specific comments are found below. The United States appreciates the opportunity to provide comments on this document and has submitted a number of comments with regard to Almond oil for the Committee's consideration.</p>	<b>USA</b>
<p>FEDIOL, as a Codex observer member within the electronic working group, actively participated to the preparation of the present report. Data were collected from different sources and in the process of analysis and collection, part of FEDIOL input was not taken into account.</p> <p>For this reason FEDIOL did not support the final report and proposes further comments in the present review.</p>	<b>Fediol</b>
<p>IUFoST supports the CCFO work to better define various crude vegetable oils.</p> <p>IUFoST finds the data of interest and supports the adoption of this amenment at Step 3.</p>	<b>IUFOST</b>
<b>SPECIFIC COMMENTS</b>	
<b>Almond oil</b> is derived from kernel of almond fruit ( <i>Amygdalus communis L.</i> ).	

Comment	Member/Observer
<p>The <b>almond oil</b> is obtained from the dried almond fruit from the almond tree (<i>Amygdalus communis</i>L.).</p> <p>With reference to the Discussion Document, through which “Members of Codex and observers are invited to present their comments at Step 3 of the Proposed Draft Revision of the Standard for Named Vegetable Oils (CODEX STAN 210-1999): Inclusion of walnut oil, almond oil, hazelnut oil, pistachio oil, linseed oil and avocado oil (...):”:</p> <p>Ecuador wishes to thank all countries that work and contribute to the amendments carried out to the Codex Standard for Named Vegetable Oils (CXS 210-1999); nevertheless, we wish to advise that at the present moment does not produce named vegetable oils of walnut, hazelnut and pistachio, therefore it has no data thereof. Additionally and after carrying out a corresponding technical analysis regarding oils of almond, linseed and avocado, our country is in agreement with the proposed document and supports the advancement of the proposed draft revision to the next step.</p>	<p><b>Ecuador</b></p>
<p><b>Avocado oil is</b> derived from avocado fruit (<i>Persea americana</i>).</p>	
<p>The <b>avocado oil</b> is obtained from the edible mesocarp of the avocado (<i>Persea americana</i>).</p> <p>According to figures for 2018, Mexico is the largest producer of avocado oil in the world.</p> <p>In the last three years (2016-2018), Mexican exports for avocado oil show a mean of 17 thousand tons annually, its principal destination markets being: United States, Italy, Spain, France, South Korea, Germany, Netherlands, China and Japan.</p> <p>*source: For México, Panjiva/Penta.Transaction; for Oceania and Africa, QYR Food &amp; Beverage Research Center</p> <p>Taking into account this situation, we consider important that, as producers and leaders in the avocado oil market, the basis of parameters whereby Codex Alimentarius identifies the avocado oil has to be clarified, given that, the analysis by Mexico shows that the values do not correspond to those shown in the draft proposed by the Codex Alimentarius.</p> <p>The parameters suggested by Mexico are shown in the comments appearing throughout the document.</p>	<p><b>Mexico</b></p>
<p><b>3.1 ESSENTIAL COMPOSITION AND QUALITY FACTORS</b></p>	
<p><b>3.1 ESSENTIAL COMPOSITION AND <u>QUALITY FACTORS</u></b></p> <p>México proposes to include a table with the specific sensorial properties of the avocado oil.</p> <p><b><u>1. Sensorial Properties</u></b></p> <p><u>Table 1</u></p> <p><u>Specifications</u></p> <p><b><u>Crude avocado oil</u></b></p> <p><u>Odour: Characteristic of the product, without strange or rancid odours</u></p> <p><u>Flavour: Characteristic of the product, without strange or rancid flavours</u></p> <p><u>Appearance: Dark green with possible presence of sediment</u></p> <p><b><u>Refined Avocado Oil</u></b></p> <p><u>Odour: Characteristic of the product, without strange or rancid odours</u></p>	<p><b>Mexico</b></p>

Comment	Member/Observer
<p>Flavour: Characteristic of the product, without strange or rancid flavours</p> <p>Appearance: Transparent liquid and free from foreign bodies</p>	
<p><b>3.1 ESSENTIAL COMPOSITION AND <u>QUALITY FACTORS</u></b></p> <p>México proposes the following minimum and maximum values for fatty acids in the avocado oil.</p> <p><b><u>Table 1: Composition of fatty acids in vegetable oils, determined by gas-liquid chromatography in authentic samples (expressed as percentage of total fatty acids)</u></b></p> <p><b><u>MIN-MAX</u></b></p> <p><b><u>Caproic acid C6:0: 0-0</u></b></p> <p><b><u>Caprilic acid C8:0: 0-0</u></b></p> <p><b><u>Ácido cáprico C10:0: 0-0</u></b></p> <p><b><u>Lauric acid C12:0: 0-0</u></b></p> <p><b><u>Miristic acid C14:0, 0-0,1</u></b></p> <p><b><u>Palmitic acid C16:0 13,0-22,0</u></b></p> <p><b><u>Palmitoleic acid C16:1: 4,0-10,0</u></b></p> <p><b><u>Margaric acid C17:0: 0-0</u></b></p> <p><b><u>Margaroleic acid C17:1: 0-0,1</u></b></p> <p><b><u>Estearic acid C18:0: 0,35-1,0</u></b></p> <p><b><u>Oleic acid C18:1: 55,0-68,0</u></b></p> <p><b><u>Linoleic acid C18:2: 9,0-15,0</u></b></p> <p><b><u>Linolenic acid C18:3: 0-2,0</u></b></p> <p><b><u>Araquidic acid C20:0: 0-0,2</u></b></p> <p><b><u>Gadoleic acid C20:1: 0-0,2</u></b></p> <p><b><u>Behenic acid C22:0: 0-0,4</u></b></p> <p><b><u>Erucic acid C22:1: 0-0</u></b></p> <p><b><u>Lignoceric acid C24:0: 0-0,1</u></b></p> <p><b><u>Nervonic acid C24:1: 0-0</u></b></p> <p><b><u>Elaidic acid C18:1t: 0-0</u></b></p> <p><b><u>Linoelaidic acid C18:2t: 0-0</u></b></p>	<p><b>Mexico</b></p>

Comment	Member/Observer
<b>Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples (expressed as percentage of total fatty acids)</b>	
*Avocado oil (extracted from the pulp or mesocarp) Brazil is of the opinion that it has to be clear from which part of the avocado the fatty acid profile refers to.	<b>Brazil</b>
<u>Almond oil</u> C16:0 5.3 - 6.5 C18:0 1.0 - 2.3 C18:1 63.6 - 75.5 C18:2 16.5 - 27.3	<b>Fediol</b>
<u>Hazelnut oil</u> C18:1 66.0 - 84.0 C18:2 5.7 - 25.0	<b>Fediol</b>
<u>Pistachio oil</u> C14:0 ND - 0.1 C18:0 0.7 - 1.6 C18:1 54.1 - 58.6 C18:2 28.4 - 34.1	<b>Fediol</b>
<u>Flax/linseed oil</u> C16:0 4.0 - 7.5 C18:0 2.0 - 6.0 C18:1 9.8 - 28.8 C18:2 10.4 - 20.8 C20:0 ND - 0.4 C20:1 ND - 0.4 C22:0 ND - 0.2 C22:1 ND - 0.1	<b>Fediol</b>
<u>Avocado oil</u> C16:0 8.2 - 20.1	<b>Fediol</b>

Comment	Member/Observer
<p><u>C16:1 ND - 9.4</u></p> <p><u>C18:1 56.8 - 72.2</u></p> <p><u>C18:2 10.7 - 12.8</u></p> <p><u>C18:3 ND - 0.9</u></p>	
<p><u>-The United States suggests the following changes to Almond Oil 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)</u></p> <p><u><b>C16:0</b> - The United States proposes a new range of 4.0-9.0; the range in the report of the EWG of 4.0-13.0 is too wide and may allow for substitution with other vegetable oil.</u></p> <p><u>C18:0 -The United States proposes a new range of ≤ 3.0; the range in the report of the EWG of 1.0-10.0 is too wide and may allow for substitution with other vegetable oil.</u></p> <p><u>C18:1-The United States proposes a new range of 62.0-76.0; the range in the report of the EWG of 43.0-75.5 is too wide and may allow for substitution with other vegetable oil.</u></p> <p><u>C18:2- The United States proposes a new range of 20.0-30.0; the range in the report of the EWG of 16.5-34.0 is too wide and may allow for substitution with other vegetable oil.</u></p>	<b>USA</b>
<b>3. CHEMICAL AND PHYSICAL CHARACTERISTICS</b>	
<p><b>3. <u>CHEMICAL AND PHYSICAL CHARACTERISTICS</u></b></p> <p><b>1. <u>Physical and chemical</u></b></p> <p><u>Table 2 Physical and chemical specifications for avocado oil.(MIN-MAX)</u></p> <p><u>Crude avocado oil:</u></p> <p><u>Free fatty acids (as oleic acid), in %: MAX 5,0</u></p> <p><u>Humidity and volatile matter, in %: MAX 0,5</u></p> <p><u>Colour (Lovibond scale): MAX 3,5 R (cell 1")</u></p> <p><u>Relative density 25°C (g/ml): MIN 0,910 MAX 0,920</u></p> <p><u>Peroxide index, in meq.O2/Kg: MAX 10,0</u></p> <p><u>Refraction index 25°C: -</u></p> <p><u>Saponification index in mgKOH/g:-</u></p> <p><u>Iodine index: MIN 82,0 MAX 90,0</u></p> <p><u>Insaponifiable matter g/Kg: -</u></p> <p><u>Cold test at 0 °C (273 °K) hours: NA</u></p>	<p><b>Mexico</b></p> <p>Mexico suggests</p> <p>2. Physical and chemical</p> <p>Table 2 Physical and chemical specifications of avocado oil</p>

Comment	Member/Observer
<p><u>Refined avocado oil :</u></p> <p><u>Free fatty acids (as oleic acid), in %: MAX 0,1</u></p> <p><u>Humidity and volatile matter, in %: MAX 0,1</u></p> <p><u>Colour (Lovibond scale): MAX 2,0 R (cell 5 ¼")</u></p> <p><u>Relative density 25°C (g/ml): MIN: 0,908 MAX: 0,921</u></p> <p><u>Peroxide index, in meq.O2/Kg: MAX 2,0</u></p> <p><u>Refraction index 25°C: MIN 1,462 MAX 1,470</u></p> <p><u>Saponification index in mgKOH/g: MIN 170,0 MAX 198,0</u></p> <p><u>Iodine index: MIN 82,0 MAX 90,0</u></p> <p><u>Insaponifiable matter g/Kg: MAX 19,0</u></p> <p><u>Cold test at 0 °C (273 °K) hours: MIN 5,5</u></p>	
<b>Table 2: Chemical and physical characteristics of crude vegetable oils</b>	
<p>The United States suggests the following changes to Almond Oil in Table 2: Chemical and physical characteristics of crude vegetable oils:</p> <p><u>Refractive index (ND 40°C)</u></p> <p><u>1.468-1.475 at 20 °C (instead of the proposed 1.468-1.475 at 25 °C; and 1.462-1.466 at 40 °C)</u></p> <p><u>Justification:</u> Certain US samples do not meet the proposed range when measured at 25 or 40 °C. The current almond oil industry routinely uses 20 °C and therefore no data is available for samples tested at 25 or 40 °C, as they are not standard temperatures used.</p> <p><u>Unsaponifiable Matter (g/kg) ≤20, (instead of the proposed 10-20)</u></p> <p><u>Justification:</u> Certain US samples do not meet the proposed range</p>	<b>USA</b>
<b>Table 3: Levels of desmethylsterols in crude vegetable oils from authentic samples as a percentage of total sterols</b>	
<p>The entry in the table shows "Delta-7-stigmasterol". Canada notes this should actually be "Delta-7-stigmastenol" (note "n" instead of "r") as currently shown in the Standard for Named Vegetable Oils (CODEX STAN 210-1999).</p>	<b>Canada</b>
<p>In this Table, upper level of beta-sitosterol for hazelnut oil is too high. Turkey suggest the level 86.8. It is science based data that has already submitted to the codex Forum.</p> <p>In addition, lower level of campesterol for hazelnut oil should be 3.0 instead of 4.0. It is more science based level.</p>	<b>Turkey</b>
<p>The United States suggests the following changes to Almond Oil in Table 3. Levels of desmethylsterols in crude vegetable oils from authentic samples as percentage of total sterols</p> <p><b><u>Brassicasterol</u></b></p>	<b>USA</b>

Comment	Member/Observer
<p><u>Almond Oil – value in report of EWG: ND</u></p> <p>➤ <u>US proposal: &lt;0.3</u></p> <p>Justification: Certain US samples do not meet the proposed ND (levels up to 0.3%)</p> <p><b><u>Campesterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 2.0-4.0</u></p> <p>➤ <u>US proposal: 2.0-5.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels up to 5.0%)</p> <p><b><u>Stigmasterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 1.0-2.0</u></p> <p>➤ <u>US proposal: 1.0-4.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels up to 4.0%)</p> <p><b><u>Beta-sitosterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 80.0-86.0</u></p> <p>➤ <u>US proposal: 73.0-86.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels as low as 73.0%)</p> <p><b><u>Delta-5-avenasterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 10.0-12.0</u></p> <p>➤ <u>US proposal: 5.0-12.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels as low as 5.0%)</p> <p><b><u>Delta-7-stigmasterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 1.0-2.0</u></p> <p>➤ <u>US proposal: &lt;3.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels between 1.0 and 3.0%)</p> <p><b><u>Delta-7-avenasterol</u></b></p> <p><u>Almond Oil – value in report of EWG: 1.0-2.0</u></p> <p>➤ <u>US proposal: &lt;3.0</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels between 1.0 and 3.0%)</p> <p><b><u>Total Sterols (mg/kg)</u></b></p>	



Comment	Member/Observer
<p>Almond Oil – value in report of EWG: 2660-2800</p> <p>➤ <u>US proposal: 2500-3600</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels between 2500 and 3600 mg/kg)</p>	
<p><u>Avocado oil</u></p> <p>Total sterols (mg/kg) 2437 - 6200</p>	<b>Fediol</b>
<b>Table 4: Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples</b>	
<p><b>Table 4: Levels of tocoferols and tocotrienols in crude vegetable oils from <u>authentic</u> samples <u>MIN-MAX</u></b></p> <p><b><u>Cholesterol: 0-0,5</u></b></p> <p><b><u>Brassicaesterol: 0-0,2</u></b></p> <p><b><u>Campesterol: 5,0-8,0</u></b></p> <p><b><u>Estigmaesterol: 0-2,0</u></b></p> <p><b><u>β-Sitosterol:82,0-90,0</u></b></p> <p><b><u>5-Avenaesterol: 3,0-6,0</u></b></p> <p><b><u>7-Estigmaestenol:0-0,6</u></b></p> <p><b><u>7-Avenasterol:0-0,5</u></b></p> <p><b><u>Cleroesterol:1,0-2,0</u></b></p> <p><b><u>Others:0-2,0</u></b></p> <p><b><u>Total Esterols mg/kg: 3800-5500</u></b></p>	<p><b>Mexico</b></p> <p>México proposes the following parameters for: 4 Sterol Content</p> <p>Table 4 Composition of sterols from avocado oil (mg/kg)</p>
<p>The United States suggests the following changes to Almond Oil in Table 4: Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples</p> <p><u>Almond Oil – Gamma-tocopherol</u></p> <p>Value in report of EWG: 5-104</p> <p>➤ <u>US proposal: ND-104</u></p> <p>Justification: Certain US samples do not meet the proposed range (levels less than 5 mg/kg)</p>	<b>USA</b>