codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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Agenda Item 3

CX/FO 03/3-Add.5

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FATS AND OILS
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DRAFT REVISED STANDARD FOR OLIVE OILS AND OLIVE POMACE OILS

COMMENTS AT STEP 6

The following comments have been received from International Olive Oil Council (IOOC) in response to CL 2002/49-FO.

IOOC

PART I

Introduction: Amend the wording to make it compulsory for commercial partners to apply the analytical parameters concerning peroxide value (section 1.4) and absorbency in ultra-violet K 270 (section 3.6.1): *The Appendix to this standard contains provisions which are intended for voluntary application by commercial partners, **with the exception of section 1.4 peroxide value and section 3.6.1 absorbency in ultra-violet K 270**, and not for application by governments.*

2.2 Change the words *Virgin olive oil* to the plural since the generic description of virgin olive oil applies to the designations mentioned under sections 3.1, 3.2 and 3.3 of the draft standard: **Virgin olive oils are the oils obtained ….. and which have not undergone ….**

2.3 Amend the generic definition of *Olive-pomace oil* to take into account the use of other physical treatments besides that of solvents in its obtention. Amend by inserting the words **or other physical treatments** after the words *with solvents***.**

3.1 Replace the free acidity limit of *1 gram per 100 grams* by **0.8 grams per 100 grams** for extra virgin olive oil and amend the wording *and the organoleptic characteristics corresponding to those laid down for this category in section 3.8* to read and **whose other characteristics correspond to those laid down for this category**.

3.2 Replace the wording *and the organoleptic characteristics corresponding to those laid down for this category in section 3.8* by **and whose other characteristics correspond to those laid down for this category**.

3.3 Replace the wording *and the organoleptic characteristics corresponding to those laid down for this category in section 3.8* by **and whose other characteristics correspond to those laid down for this category**.

3.3 Correct the numbering of the reference to the footnote to read **1** instead of *6*.

3.4 Add the words **and its other characteristics correspond to those laid down for this category** at the end of the second sentence.

3.5 Delete the words ,*marketed as such,*. Replace the words *and virgin olive oil, as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3* by **and virgin olive oils suitable for**

human consumption. Replace the limit *1.5 grams per 100 grams* by **1 gram per 100 grams**. Add the words **and its other characteristics correspond to those laid down for this category.**

3.5 Insert footnote 2, reading: **The country of retail sale may require a more specific designation.** Delete the reference to footnote 1.

3.6 Delete the second sentence *It is intended for use … in section 3.1, 3.2 and 3.3.* Add the words **and its other characteristics correspond to those laid down for its category.** Insert a reference to footnote 1.

3.7 Start the definition with the words **oil consisting of a** blend. Change the words *virgin olive oil* to the plural: **virgin olive oils**. Delete the words *as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3.* Replace the limit *1.5 grams per 100 grams* by **1 gram per 100 grams**. Add the words **and its other characteristics correspond to those laid down for this category** at the end of the second sentence.

3.9 Correct the heading of the third column of the table to read:

Olive-pomace oil (the plural is deleted)
Refined olive-pomace oil (this designation is inserted)

3.9 Replace *gas liquid chromatography* by **gas chromatography** in the title.

3.9 Amend the maximum limit for linolenic acid content to read:

C18:3 0.0-***1.0*** for each oil grade

3.10 Correct the title to read: *Sterol and triterpene **dialcohol** composition*

3.11 Delete the word *Maximum* from the heading referring to limits. Specify the limit for each designation by the corresponding ≤ or > sign.

3.12 Replace the title *Detection of seed oils* by **Maximum difference between the actual and theoretical ECN 42 triglyceride content**

3.13.1 Amend the title to read: **Maximum stigmastadiene content.** Delete the words in brackets (*detection of refined vegetable oils).*

3.13 Delete the reference to *Refined olive oil 50*

4.2 Replace the word *should* by **shall** as regards the maximum authorised concentration of alpha-tocopherol in the final product.

5.3 Replace:
Maximum concentration of individual halogenated solvents by **Maximum content of each halogenated solvent**

Maximum concentration of all halogenated solvents by **Maximum content of the sum of all halogenated solvents**

7.2 Delete the compulsory labelling declaration of the free acidity: **Delete this section**

8. Delete the adoption dates of ISO standards since they are regularly updated and laboratories are obliged to use the latest edition (except if it is not appropriate or possible) according to the requirements of section 5.4.2 of ISO/CEI/17025.

8.3 Delete *IUPAC 2.302*, which does not provide for the use of capillary columns for gas chromatography Replace *ISO 5509:2000* by **COI/T.20/Doc. no. 24**, which is specific to olive oil and olive-pomace oil.

8.6 List **COI/T.20/Doc. no. 20 or IUPAC 2.507** first.

8.7 Delete the reference to ISO 1228:2000 since it is not applicable to olive oil.

8.9 Replace the title *Detection of refined vegetable oils* by **Determination of stigmastadienes**.

8.9 Delete the reference to COI/T.20/Doc. no. 16.

APPENDIX

1.1 Change the words *virgin olive oil* to the plural since they refer to the three grades of virgin olive oils: **Virgin olive oils.**

1.2 Change the words *virgin olive oil* to the plural since they refer to the three grades of virgin olive oils: **Virgin olive oils.**

1.4 Change the words *virgin olive oil* to the plural since they refer to the three grades of virgin olive oils: **Virgin olive oils.**

1.5.3 Specify the grades to which this section is applicable: **for refined olive oil, olive oil, refined olive-pomace oil, olive-pomace oil**.

2.1 Change the words *virgin olive oil* to the plural since they refer to the three grades of virgin olive oils: **Virgin olive oils.**

2.1 Specify the maximum level for *Olive-pomace oil*: **2.2%.**

3.2, 3.3, 3.4, 3.5 Change the words *virgin olive oil* to the plural since they refer to the three grades of virgin olive oils: **Virgin olive oils.** Change the word *olive-pomace oil* to the plural: **Olive-pomace oils.**

3.1, 3.2, 3.3 Correct the presentation of these three sections.

3.6 Replace *Delta E* by **Delta K** in line with the method applicable since the variation in the specific extinction is expressed as K. Delete the term *fine* from the **Virgin olive oil** designation.

3.6 Amend the maximum limit for the absorbency at 270 nm of extra virgin olive oil: £ **0.22** instead of £ *0.25.*

3.6. Insert two sub-sections to provide the specific extinction limits for absorbency at 270 nm and 232 nm: **3.6.1 K 270** and **3.6.2 K 232.**

Insert absorbency limits at 232 nm and insert a reference to footnote 3 for the following grades:

Extra virgin olive oil	£ **2.50** [3]
Virgin olive oil	£ **2.60** [3]

[3] **The country of retail sale may require compliance with these limits when the oil is made available to the end consumer**

4. Delete the adoption dates of ISO standards since they are regularly updated and laboratories are obliged to use the latest edition (except if it is not appropriate or possible) according to the requirements of section 5.4.2 of ISO/CEI/17025.

4.7 In the list of methods for the determination of the peroxide value first cite **ISO 3960,** which includes the precision data for olive oils

4.12 Insert a reference to **ISO 3656.**

PART II

The Appendix to this standard contains provisions which are intended for voluntary application by commercial partners, with the exception of section 1.4 Peroxide value and section 3.6.1 Absorbency in ultra-violet K270, and not for application by governments.

1. SCOPE

This standard applies to olive oils and olive-pomace oils described in Section 2 presented in a state for human consumption.

2. DESCRIPTION

2.1 ***Olive oil*** is the oil obtained solely from the fruit of the olive tree (*Olea europaea L.*), to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

2.2 ***Virgin olive oils are*** the oils obtained from the fruit of the olive tree solely by mechanical or other physical means under conditions, particularly thermal conditions, that do not lead to alterations in the oil, and which ~~has~~ have not undergone any treatment other than washing, decanting, centrifuging and filtration.

2.3 ***Olive-pomace oil*** is the oil obtained by treating olive pomace with solvents or other physical treatments, to the exclusion of oils obtained by re-esterification processes and of any mixture with oils of other kinds.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 ***Extra virgin olive oil***: virgin olive oil with a free acidity, expressed as oleic acid, of not more than 0.8 grams per 100 grams and ~~the organoleptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~.

3.2 ***Virgin olive oil***: virgin olive oil with a free acidity, expressed as oleic acid, of not more than 2.0 grams per 100 grams and ~~the organoeptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~.

3.3 ***Ordinary virgin olive oil***: virgin olive oil with a free acidity, expressed as oleic acid, of not more than 3.3 grams per 100 grams and ~~the organoleptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~. ~~6~~ [1]

3.4 ***Refined olive oil:*** olive oil obtained from virgin olive oils by refining methods which do not lead to alterations in the initial glyceridic structure. It has a free acidity, expressed as oleic acid, of not more than 0.3 grams per 100 grams and its other characteristics correspond to those laid down for this category.[1]

3.5 ***Olive oil***: ~~marketed as such, is the~~ oil consisting of a blend of refined olive oil and virgin olive oils suitable for human consumption, ~~as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3~~. It has a free acidity, expressed as oleic acid, of not more than ~~1.5~~ 1 gram per 100 grams and its other characteristics correspond to those laid down for this category [2].

3.6 ***Refined olive-pomace oil***: oil obtained from crude olive-pomace oil by refining methods which do not lead to alterations in the initial glyceridic structure. ~~It is intended for use either as it is or else in blends with virgin olive oil, as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3~~.It has a free acidity, expressed as oleic acid, of not more than 0.3 grams per 100 grams and its other characteristics correspond to those laid down for this category [1].

3.7 ***Olive-pomace oil***: oil consisting of a blend of refined olive-pomace oil and virgin olive oils, ~~as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3~~. It has a free acidity, expressed as oleic acid, of not more than ~~1.5~~ 1 gram per 100 grams and its other characteristics correspond to those laid down for this category [2].

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

[2] The country of retail sale may require a more specific designation

3.8 **Organoleptic characteristics (odour and taste) of virgin olive oils**

	Median of the defect	Median of the fruity attribute
Extra virgin olive oil	Me = 0	Me > 0
Virgin olive oil	0 < Me ≤2.5	Me > 0
Ordinary virgin olive oil	2.5 < Me £6.0*	

* or when the median of the defect is less than or equal to 2.5 and the median of the fruity attribute is equal to 0.

3.9 **Fatty acid composition as determined by gas ~~liquid~~ chromatography** (% total fatty acids)

	Virgin olive oils	Olive oil Refined olive oil	Olive-pomace oils Refined olive-pomace oil
Fatty acid			
C14:0	0.0 - 0.05	0.0 - 0.05	0.0 - 0.05
C16:0	7.5 - 20.0	7.5 - 20.0	7.5 - 20.0
C16:1	0.3 - 3.5	0.3 - 3.5	0.3 - 3.5
C17:0	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C17:1	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C18:0	0.5 - 5.0	0.5 - 5.0	0.5 - 5.0
C18:1	55.0 - 83.0	55.0 - 83.0	55.0 - 83.0
C18:2	3.5 - 21.0	3.5 - 21.0	3.5 - 21.0
C18:3	0.0 - ~~0.9~~ 1.0	0.0 - ~~0.9~~ 1.0	0.0 - ~~0.9~~ 1.0
C20:0	0.0 - 0.6	0.0 - 0.6	0.0 - 0.6
C20:1	0.0 - 0.4	0.0 - 0.4	0.0 - 0.4
C22:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.3
C24:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.2
Trans fatty acids			
C18:1 T	0.0 - 0.05	0.0 - 0.20	0.0 - 0.40
C18:2 T + C18:3 T	0.0 - 0.05	0.0 - 0.30	0.0 - 0.35

3.10 **Sterol and triterpene ~~alcohols~~ dialcohol composition**

3.10.1 **Desmethylsterol composition** (% total sterols**)**

Cholesterol	≤ 0.5
Brassicasterol	≤ 0.2 for olive-pomace oils ≤ 0.1 for other grades
Campesterol	≤ 4.0
Stigmasterol	< campesterol
Delta-7-stigmastenol	≤ 0.5
Beta-sitosterol + delta-5-avenasterol + delta-5-23-stigmastadienol + clerosterol + sitostanol + delta-5-24-stigmastadienol	≥ 93.0

3.10.2. **Minimum value for total sterols**

Virgin olive oils)

Refined olive oil Olive oil	)	1,000 mg/kg
Refined olive-pomace oil		1,800 mg/kg
Olive-pomace oil		1,600 mg/kg

3.10.3. **Maximum erythrodiol and uvaol content** (% total sterols)

Virgin olive oils Refined olive oil Olive oil	)	≤ 4.5

3.11 **Wax content**

	~~Maximum~~ Level
Virgin olive oils	≦250 mg/kg
Refined olive oil	≦350 mg/kg
Olive oil	≦350 mg/kg
Refined olive-pomace oil	>350 mg/kg
Olive-pomace oil	>350 mg/kg

3.12 ~~**Detection of seed oils**~~ **Maximum difference between the actual and theoretical ECN 42 triglyceride content**

Virgin olive oils	0.2
Refined olive oil	0.3
Olive oil	0.3
Olive-pomace oils	0.5

3.13 **Maximum stigmastadienes content**

Virgin olive oils		0.15 mg/kg
~~Refined olive oil~~	~~50~~	

4. FOOD ADDITIVES

4.1 Virgin olive oils

No additives are permitted in these products.

4.2 Refined olive oil, olive oil, refined olive-pomace oil and olive-pomace oil

The addition of alpha-tocopherol to the above products is permitted to restore natural tocopherol lost in the refining process. The concentration of alpha-tocopherol in the final product ~~should~~ shall not exceed 200 mg/kg.

5. CONTAMINANTS

5.1 Heavy metals

The products covered by the provisions of this standard shall comply with maximum limits being established by the Codex Alimentarius Commission but in the meantime the following limits will apply:

	maximum permissible concentration
Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

5.2 Pesticide residues

The products covered by the provisions of this standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

5.3 Halogenated solvents

Maximum ~~concentration~~ content of ~~individual~~ each halogenated solvent~~s~~	0.1 mg/kg
Maximum content of the sum of ~~concentration of~~ all halogenated solvents	0.2 mg/kg

6. HYGIENE

6.1 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. LABELLING

The products shall be labelled in accordance with the Codex General Standard for Labelling of Prepackaged Foods (CODEX STAN 1 - 1985, Rev. 1-1991).

7.1 Name of the food

The name of the product shall be consistent with the descriptions as shown in Section 3 of this standard. In no case shall the designation ‘olive oil’ be used to refer to olive-pomace oils.

~~**7.2 Free acidity**~~

~~The free acidity of the oil shall be declared on the label and expressed in terms of oleic acid.~~

~~7.3.~~ 7.2. Labelling of Non-Retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, lot identification and the name and address of the manufacturer or packer shall appear on the container.

However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

8.1 Determination of the organoleptic characteristics

According to COI/T.20/Doc. no. 15.

8.2 Determination of free acidity

According to IUPAC 2.201 or ISO 660~~: 1996~~.

8.3 Determination of the fatty acid composition

According to IUPAC 2.301 ~~2.302~~ and 2.304 or ISO 5508~~: 1990~~ and ~~5509: 2000~~ COI/T.20/Doc. no. 24 or AOCS Ce 2-66, Ch 2-91.

8.4 Determination of *trans* fatty acids content
According to COI/T.20/Doc no. 17 or IUPAC 2.304 or ISO 15304~~: 2001~~ or AOCS Ce 1f-96.

8.5 Determination of wax content
According to COI/T.20/Doc. no. 18.

8.6 Calculation of the difference between the actual and theoretical ECN 42 triglyceride content
According to COI/T.20/Doc. no. 20 or IUPAC 2.507 (for purification of oils prior to triglyceride analysis) and IUPAC 2.324.

8.7 Determination of sterol composition and content
According to COI/T.20/Doc. no. 10 or IUPAC 2.403 ~~or ISO 12228: 1999~~.

8.8 Determination of erythrodiol content
According to IUPAC 2.431.

8.9 ~~Detection of refined vegetable oils~~ Determination of stigmastadienes
According to COl/T.20/Doc. no. 11 ~~and COl/T.20/Doc. no. 16~~ or ISO 15788-1~~: 1999~~.

8.10 Determination of alpha-tocopherol
According to IUPAC 2.432 or ISO 9936~~: 1997~~.

8.11 Determination of arsenic
According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

8.12 Determination of lead
According to IUPAC 2.632, AOAC 994.02 or ISO 12193~~: 1994~~.

8.13 Detection of traces of halogenated solvents
According to COI/T.20/Doc. no. 8, ~~Corr.1, 1990~~.

8.14 Sampling
According to ISO 661~~: 1989~~ and ISO 5555~~: 2001~~.

APPENDIX

OTHER QUALITY AND COMPOSITION FACTORS

1. QUALITY CHARACTERISTICS

	Maximum level
1.1 Moisture and volatile matter:	
Virgin olive oils	0.2 %
Refined olive oil	0.1 %
Olive oil	0.1 %
Refined olive-pomace oil	0.1 %
Olive-pomace oil	0.1 %
1.2 Insoluble impurities:	
Virgin olive oils	0.1 %
Refined olive oil	0.05 %
Olive oil	0.05 %
Refined olive-pomace oil	0.05 %
Olive-pomace oil	0.05 %

1.3 Trace metals:

Iron (Fe)	3 mg/kg
Copper (Cu)	0.1 mg/kg

1.4 Peroxide value

Virgin olive oils	20 milliequivalents of active oxygen/kg oil
Refined olive oil	5 milliequivalents of active oxygen/kg oil
Olive oil	15 milliequivalents of active oxygen/kg oil
Refined olive-pomace oil	5 milliequivalents of active oxygen/kg oil
Olive-pomace oil	15 milliequivalents of active oxygen/kg oil

1.5 Organoleptic characteristics:

1.5.1 Virgin olive oils:

See Section 3 of Standard.

1.5.2 Others:

	Odour	Taste	Colour
Refined olive oil	acceptable	acceptable	light yellow
Olive oil	good	good	light, yellow to green
Refined olive-pomace oil	acceptable	acceptable	light, yellow to brownish yellow
Olive-pomace oil	acceptable	acceptable	light, yellow to green

1.5.3 Appearance at 20°C for 24 hours:

refined olive oil, olive oil, refined olive-pomace oil, olive-pomace oil:	Limpid

2. COMPOSITION CHARACTERISTICS

2.1 Saturated fatty acids at the 2-position in the triglyceride (sum of palmitic & stearic acids):

	Maximum level
Virgin olive oils	1.5%
Refined olive oil	1.8%
Olive oil	1.8%
Refined olive-pomace oil	2.2%
Olive-pomace oil	~~not specified~~ 2.2%

3. CHEMICAL AND PHYSICAL CHARACTERISTICS

3.1	Relative density (20°C/water at 20°C):	0.910-0.916
3.2	Refractive index (n_D^{20}):	
	Virgin olive oils Refined olive oil Olive oil	1.4677-1.4705 (nD 20°C)
	Olive-pomace oils	1.4680-1.4707 (nD 20°C)

3.3	Saponification value (mg KOH/g oil):	
	Virgin olive oils Refined olive oil Olive oil	184-196 ~~mg KOH/kg~~
	Olive-pomace oils	182-193 ~~mg KOH/kg~~
3.4	Iodine value (Wijs):	
	Virgin olive oils Refined olive oil Olive oil	75-94
	Olive-pomace oils	75-92

3.5	Unsaponifiable matter:	
		Maximum level
	Virgin olive oils Refined olive oil Olive oil	15 g/kg
	Olive-pomace oils	30 g/kg

3.6 Absorbency in ultra-violet

3.6.1. K270

	Absorbency in ultra-violet at 270 nm	Delta ~~E~~ K
Extra virgin olive oil	≤ ~~0.25~~ 0.22	≤ 0.01
~~Fine~~ Virgin olive oil	≤ 0.25	≤ 0.01
Ordinary virgin olive oil	≤ 0.30 (*)	≤ 0.01
Refined olive oil	≤ 1.10	≤ 0.16
Olive oil	≤ 0.90	≤ 0.15
Refined olive ~~residue~~ pomace oil	≤ 2.00	≤ 0.20
Olive ~~residue~~ pomace oil	≤ 1.70	≤ 0.18

* After passage of the sample through activated alumina, absorbency at 270 nm. shall be equal to or less than 0.11.

3.6.2. K232

	Absorbency in ultra-violet at 232 nm
Extra virgin olive oil	≤ 2.50 [3]
Virgin olive oil	≤ 2.60 [3]

4. METHODS OF ANALYSIS AND SAMPLING

4.1 Determination of moisture and volatile matter

According to IUPAC 2.601 or ISO 662~~: 1998~~.

[3] The country of retail sale may require compliance with these limits when the oil is made available to the end consumer

4.2 Determination of the insoluble impurities in light petroleum
According to IUPAC 2.604 or ISO 663~~: 2000~~.

4.3 Determination of trace metals
According to IUPAC 2.631 or ISO 8294~~: 1994~~ or AOAC 990.05.

4.4 Determination of saponification value
According to IUPAC 2.202 or ISO 3657~~: 1988~~.

4.5 Determination of unsaponifiable matter
According to IUPAC 2.401 (part 1-5) or ISO 3596~~: 2000~~ or ISO 18609~~: 2000~~.

4.6 Determination of the fatty acids in the 2-position of the triglycerides
According to IUPAC 2.210 or ISO 6800~~: 1997~~.

4.7 Determination of the peroxide value
According to ISO 3960: ~~1998~~ or IUPAC 2.501 or AOCS Cd 8b-90 (97).

4.8 Determination of relative density
According to IUPAC 2.101, with the appropriate conversion factor.

4.9 Determination of refractive index
According to IUPAC 2.102 or ISO 6320~~: 2000~~.

4.10 Determination of iodine value
According to IUPAC 2.205/1, ISO 3961~~: 1996~~, AOAC 993.20 or AOCS Cd 1d-92 (97).

4.11 Determination of the organoleptic characteristics
According to COl/T.20/Doc. no. 15.

4.12 Determination of the absorbency in ultra-violet
According to COI/T.20/Doc. no. 19 or ISO 3656

4.13 Sampling
According to ISO 661~~: 1989~~ and ISO 5555~~: 2001~~.