codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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TO: Codex Contact Points
Interested International Organizations

FROM: Secretary, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, FAO, Viale delle Terme di Caracalla, 00100 Rome

SUBJECT: **Draft Revised Standard for Olive Oils and Olive Pomace Oils**

DEADLINE: **10 December 2000**

COMMENTS:

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The Draft Revised Standard for Olive Oils and Olive Pomace Oils was considered by the 15th session of the Committee on Fats and Oils (CCFO) in November 1996 and returned to Step 6 for redrafting in order to include the amendments introduced in the Olive Oil Standard of the International Olive Oil Council (IOOC). The draft was revised taking into account the amendments made to the IOOC standard and the written comments presented to the 15th Session of the Committee, and was circulated for comments in document CX/FO 99/3 in November 1998.

The 16th Session of the Committee on Fats and Oils (March 1999) did not consider the revised text in detail since there was no consensus on how to proceed with the revision of the Standard for Olive Oils and Olive Pomace Oils (ALINORM 99/17, paras 7-12). The Committee agreed to return the Draft Standard to Step 6 for redrafting in the light of the changes which might be introduced in the IOOC standard and possibly in the EC standard at a later date, in order to develop a harmonized text; the revised text would be circulated for comments and consideration by the next session.

Since no proposals for revision or amendments to the current draft have been received since March 1999, the latest version of the Draft Revised Standard for Olive Oils and Olive Pomace Oils is hereby circulated for comments at Step 6 and consideration by the 17th Session of the Committee.

Governments and international organizations wishing to submit comments should do so in writing (preferably by E-mail) to the above addresses **before 10 December 2000**.

DRAFT REVISED STANDARD FOR OLIVE OILS AND OLIVE POMACE OILS
(At Step 6 of the Procedure)

The Appendix to this standard contains provisions which are intended for voluntary application by commercial partners and not for application by governments.

1. SCOPE

This standard applies to olive oils, and olive-pomace oils but does not include olive oils and olive-pomace oils which must be subject to further processing to render them fit for human consumption.

2. DESCRIPTION

2.1 Olive oil is the oil obtained solely from the fruit of the olive tree (*Olea europaea sativa*, Hoffm & Link), 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 oil is the oil 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 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, 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 1 gram per 100 grams and the organoleptic characteristics corresponding 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 organoleptic characteristics corresponding 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 characteristics corresponding to those laid down for this category in section 3.8.

3.4 Refined olive oil is the 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.

3.5 Olive oil, marketed as such, is the oil consisting of a blend of refined olive oil and virgin olive oil fit for human consumption. It has a free acidity, expressed as oleic acid, of not more than 1.5 grams per 100 grams.

3.6 Refined olive-pomace 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 human consumption either as it is or else in blends with virgin olive oil. It has a free acidity, expressed as oleic acid, of not more than 0.3 grams per 100 grams.

3.7 Olive-pomace oil: blend of refined olive-pomace oil and virgin olive oil, fit for human consumption. It has a free acidity, expressed as oleic acid, of not more than 1.5 grams per 100 grams.

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	$0 < Me \leq 2.5$	$Me > 0$
Ordinary virgin olive oil	$2.5 < Me \leq 6.0$ *	

* 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 oil	Olive oil Refined olive oil	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	0.0 - 0.9	0.0 - 0.9
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 alcohol composition

3.10.1 Percentage total sterols

Cholesterol	≤ 0.5
Brassicasterol	≤ 0.2 for olive-pomace oil ≤ 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 oil 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 oil Refined olive oil Olive oil	)	≤ 4.5

3.11 Waxes

	Maximum level
Virgin olive oil	250 mg/kg
Refined olive oil	350 mg/kg

Olive oil	350 mg/kg

3.12 Detection of seed oils

	Maximum difference between the actual and theoretical ECN 42 triglyceride contents
Virgin olive oil	0.2
Refined olive oil	0.3
Olive oil	0.3
Olive-pomace oil	0.5

3.13 Detection of refined vegetable oils

	Maximum stigmastadiene content (mg/kg)	Minimum R1 sterene ratio
Virgin olive oil	0.15	
Refined olive oil	50	12
Olive oil	50	12
Olive-pomace oil	120	10

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 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 of individual halogenated solvents	0.1 mg/kg
Maximum 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. 2 - 1985), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to these products.

6.2 To the extent possible in good manufacturing practice, the products shall be free from objectionable matter.

6.3 When tested by appropriate methods of sampling and examination, the products shall:

- be free from micro-organisms in amounts which may represent a hazard to health;
- be free from parasites which represent a hazard to health; and
- not contain any substance originating from micro-organisms in amounts that may represent a hazard to health.

7. LABELLING

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

7.1 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 The Free Acidity of the Oil shall be declared on the label and expressed in terms of oleic acid.

7.3 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 2.201/1 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: 1978.

8.4 Determination of *trans* fatty acids content
According to COI/T.20/Doc no. 17.

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

8.6 Calculation of the difference between the real and theoretical ECN 42 triglyceride content
According to IUPAC 2.507 (for purification of oils prior to triglyceride analysis) and IUPAC 2.324 and COI/T.20/Doc. no. 9.

8.7 Determination of sterols composition and content
According to COI/T.20/Doc. no. 10.

8.8 Determination of erythrodiol content
According to IUPAC 2.431.

8.9 Detection of refined vegetable oils
According to COl/T.20/Doc. no. 11 and COl/T.20/Doc. no. 16.

8.10 Determination of alpha-tocopherol
According to IUPAC 2.432.

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 5555:1991

OTHER QUALITY AND COMPOSITION FACTORS

1. Quality Characteristics

1.1 Moisture and volatile matter:

	Maximum level
Virgin olive oil	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 oil	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 oil	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 oil: See Section 3 of Standard.

1.5.1 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

1.5.2 Appearance at 20°C for 24 hours: 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 oil	1.5 %
Refined olive oil	1.8 %
Olive oil	1.8 %

Refined olive-pomace oil	2.2 %
Olive-pomace oil	not specified

3. Chemical and Physical Characteristics

3.1 Relative density: 0.910-O.916 (20°C/water at 20°C)

3.2 Refractive index :

Virgin olive oil Refined olive oil Olive oil	1.4677-1.4705 (n_D 20°C)
Olive-pomace oil	1.4680-1.4707 (n_D 20°C)

3.3 Saponification value:

Virgin olive oil Refined olive oil Olive oil	184-196 mg KOH/kg
Olive-pomace oil	182-193 mg KOH/kg

3.4 Iodine value (Wijs):

Virgin olive oil Refined olive oil Olive oil	75-94
Olive-pomace oil	75-92

3.5 Unsaponifiable matter:

	Maximum level
Virgin olive oil Refined olive oil Olive oil	15 g/kg
Olive-pomace oil	30 g/kg

3.6 Absorbency in ultra-violet

	Absorbency in ultra-violet at 270 nm	Delta E
Extra virgin olive oil	≤ 0.25	≤ 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 oil	≤ 2.00	≤ 0.20
Olive-residue oil	≤ 1.70	≤ 0.18

* After passage of the sample through activated alumina, absorbency at 20 nm. shall be equal to or less than 0.11.

4. Methods of Analysis and Sampling

4.1 Determination of moisture and volatile matter
According to IUPAC 2.601 or ISO 662: 1980.

4.2 Determination of the insoluble impurities in light petroleum
According to IUPAC 2.604 or ISO 663: 1995.

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 3596-1: 1996.

4.6 Determination of the fatty acids in the 2-position of the triglycerides
According to IUPAC 2.210.

4.7 Determination of the peroxide value
According to IUPAC 2.501 or AOCS Cd 8b-90.

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

4.9 Determination of refractive index
According to IUPAC 2.102 or ISO 6320: 1995.

4.10 Determination of iodine value
According to IUPAC 2.205/1, ISO 3961: 1996, AOAC 993.20 or AOCS Cd Id-1992.

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.

4.13 Sampling
According to ISO 661:1989 and ISO 5555:1991