

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
Organization of the
United Nations



World Health
Organization

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INFORMATION SUBMITTED THE INTERNATIONAL OLIVE COUNCIL

The **International Olive Council (IOC)** is a Madrid-based, intergovernmental organisation created in 1959 to administer the International Agreement on Olive Oil and Table Olives. This legal instrument was set up under the auspices of the United Nations to safeguard and develop olive cultivation and olive products. Its chief objectives are:

- To ensure regular international trading in olive products;
- To develop international cooperation and to improve olive production;
- To champion the quality of olive products;
- To encourage consumption of olive oil and table olives.

At the time of drawing up this report the following are Members of the Council: Algeria, Argentina, Egypt, the European Union (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom), I.R.Iran, Israel, Jordan, Lebanon, Libya, Morocco, Montenegro, Palestine, Tunisia, Turkey and Uruguay. Following the entry into force of the International Agreement on Olive Oil and Table Olives, 2015, in January 2017, the following signatory country is in the process of ratification: Iran. These countries (average last five crop years) account for 93% of world production, 71% of global consumption, 96% of exports to the world market (excluding intra-EU trade) and 19% of world imports (again excluding intra-EU trade).

The new International Agreement, which came into force on 1 January 2017, unlike the previous Agreement, encourages the participation of importing countries as Members of the Organisation.

One of the activities assigned to the IOC in expanding international trade is to draw up and adopt trade standards for olive oil and olive-pomace oil, and for table olives, and to devise methods for testing their physico-chemical and organoleptic characteristics. The crucial point is that these international trade standards are mandatory for IOC Members. Accordingly, given the share of the world market held by IOC Members, they carry a great deal of weight.

When developing its testing methods and standards, the IOC draws on the cooperation of international bodies, both intergovernmental, like the Codex Alimentarius and non-governmental like the International Organization for Standardization (ISO), the American Oil Chemists' Society (AOCS) and the International Union of Pure and Applied Chemistry (IUPAC). Methods of analysis that are specific to olive oil are assigned a special COI/T.20 reference and are recommended in the IOC trade standard. All this information about the IOC can be accessed on the IOC website at <http://www.internationaloliveoil.org/estaticos/view/157-structure-of-chemistry>

The team of chemists who collaborate with the IOC are all experts nominated by their respective governments. They conduct research and inter-laboratory tests to develop or finalise methods for IOC approval, aimed at preventing fraud and promoting olive oil quality. Some experts from non-IOC Members or from industry organisations also attend as observers or for very specific subjects. Since 2014, the agenda of the chemistry expert meetings has been made public in order to facilitate written input from expert-stakeholders who would not usually be invited to the meetings. The aim of doing so is to reinforce the remit of the IOC as a global forum for olive oil matters. Another example of this international role, involving experts from non-IOC Members is the work carried out in 2014 with experts from the Food and Drug Administration of Taiwan on methods for the identification of copper pyropheophytin in olive-pomace oils. Ongoing and completed work covers a range of subjects:

- Revision of IOC-referenced methods;

- Drafting of new IOC-referenced methods;
- Coordination of research on testing methods to find solutions to problems generated on the international market;
- Organisation of annual check tests for IOC recognition of physico– chemical and sensory testing laboratories;
- Detection of extraneous oils in olive oils;
- Organisation of ring tests for the validation of testing methods;
- Organisation of ring tests for the determination of contaminant residues and pesticides;
- Evaluation of the oxidative status of olive oil;
- Detection of the addition of deodorised olive oil to extra virgin olive oil;
- Study of volatile compounds and reference materials;
- Organoleptic assessment of virgin olive oils (COI/T.20/Doc. No 15);
- Organoleptic assessment of table olives (OT/WG 1-01/Doc. No 4-2);
- Methods for testing oil-olives;
- Labelling;
- Organisation and participation in electronic working groups (eWG) on different subjects;
- Harmonisation of olive oil testing methods issued by standards institutions;
- Harmonisation of the Codex table olive standards with IOC standards
- Revision of Codex olive oil and olive-pomace oil standard, participation in eWG and preparation for upcoming Codex sessions of CCFO.

Since the last CCFO meeting held in 2017:

DECISION No DEC-III-1/106-VI/2017 concerning the method for the determination of stigmastadienes in vegetable oils

DECISION No DEC-III-2/106-VI/2017 concerning the method for the determination of sterenes in refined vegetable oils

DECISION No DEC-III-3/106-VI/2017 concerning the method for spectrophotometric investigation in the ultraviolet

DECISION No DEC-III-4/106-VI/2017 concerning the method for the determination of the difference between actual and theoretical content of triacylglycerols with ECN 42

DECISION No DEC-III-5/106-VI/2017 concerning the method for the determination of the percentage of 2-glyceryl monopalmitate

DECISION No DEC-III-6/106-VI/2017 concerning the method for the determination of the content of waxes, fatty acid methyl esters and fatty acid ethyl esters by capillary gas chromatography

DECISION No DEC-III-7/106-VI/2017 concerning the method for the determination of the composition and content of sterols and triterpene dialcohols by capillary column gas chromatography

DECISION No DEC-III-8/106-VI/2017 concerning the method for the determination of free fatty acids, cold method

DECISION No DEC-III-9/106-VI/2017 concerning the method for the determination of aliphatic and triterpenic alcohol content by capillary gas chromatography

DECISION No DEC-III-10/106-VI/2017 concerning the method for the determination of biophenols in olive oils by HPLC

DECISION No DEC-III-11/106-VI/2017 concerning the method for the determination of fatty acid methyl esters by gas chromatography

DECISION No DEC-III-12/106-VI/2017 concerning the method for the determination of peroxide value

DECISION No DEC-III-13/106-VI/2017 adopting the rules of the institutional IOC patronage of national extra virgin olive oil quality competitions organised by countries' competent authorities

DECISION No DEC-III-14/106-VI/2017 adopting the guidelines for the accreditation of laboratories undertaking the sensory analysis of virgin olive oils

DECISION No DEC-III-15/106-VI/2017 concerning the method for the organoleptic assessment of virgin olive oil

DECISION No DEC-III.1/107-VI/2018 adopting the method COI/T.20/Doc. No 25/Rev. 1 "Global method for the detection of extraneous oils in olive oils" for the evaluation of the coherence of TAG composition and fatty acid composition

DECISION No DEC-III.2/107-VI/2018 concerning the trade standard COI/T.15/NC No 3/Rev. 11, to introduce the revision of method COI/T.20/Doc.No.25/Rev. 1

DECISION No DEC-III.3/107-VI/2018 adopting the method for the determination of the content of sterols and alcohol compounds

DECISION No DEC-III.4/107-VI/2018 adopting the Best practice guidelines for the storage of olive oils and olive-pomace oils for human consumption

DECISION No DEC-III.5/107-VI/2018 concerning the Guidelines for the accreditation of sensory testing laboratories

DECISION No DEC-III.6/107-VI/2018 concerning the method COI/T.20/Doc No 15 Rev. 10 and the method COI/T. 20/Doc No 14

DECISION No DEC-III.7/107-VI/2018 concerning the IOC certificate of recognition of physico-chemical testing laboratories for olive oils

Progress or developments have been made in several noteworthy areas. Some of these are reported on below:

• **Method for the determination of sterols and alcoholic compounds by capillary column gas chromatography and HPLC (COI/T.20/Doc. No 26)**

At its 17th extraordinary session held in Istanbul in June 2011, the IOC Council of Members agreed to make this method applicable to olive oils as of 1 January 2012, and to olive pomace oils as of 1 January 2013. In December 2013, the method was revised and recommended for definitive application by Members to both these products. It was included in the Codex standard in July 2013. This method fused with the method COI/T.20/Doc. No 26 is being revised and presented for adoption at the 107th session of the IOC in June 2018.

• **Method for the determination of diacylglycerols and triacylglycerols (COI/T.20/Doc. No 32):**

The IOC adopted a Decision recommending its Members to apply this method provisionally until the IOC chemistry experts take a stance on the limits for triacylglycerols.

A ring test was organised to validate this determination. The IOC experts do not consider it advisable to fix a limit for diacylglycerols because extra virgin olive oil reaches thermodynamic equilibrium after a year, in which case this parameter would be of no use. Triglyceride determination enables detection of certain types of oils (palm, high oleic, etc.) but only when added individually; it is not effective if more than one extraneous oil is added.

• **Global method for the determination of extraneous oils (COI/T.20/Doc. No 25):**

This method was provisionally adopted by the IOC in 2006 for the detection of potential adulterations. Work continued with a view to its definitive adoption and countries were requested to forward relevant data (obtained using propionitrile).

It was definitively adopted in May 2013 for entry into force on 1 January 2014. However, due to difficulties in its application, the chemistry experts decided, at their meeting in February 2017, to review some sections of the method, which has not been included as a compulsory method in the IOC standard. The work on this method, with new samples from different countries, confirmed that it is a very useful method. A revision of this method was proposed to the 107th session of the IOC in June 2018.

• **Method for the determination of methanol and ethanol.**

A ring test will be carried out in 2018. No limit will be established for this parameter in the IOC trade standard.

• **Direct method for the determination of stigmastadienes:**

Research is currently under way to validate a direct method for the determination of stigmastadienes. Ring tests were organised for this purpose at the beginning of 2015, 2016, 2017 and 2018.

• **Studies on the revision of the method for the determination of phenolic compounds.**

A seminar devoted to this issue was organised by the IOC in March 2018 with the main worldwide researchers in the field, who met at the laboratory of the *Instituto de la Grasa* in Seville (Spain). The various methods were discussed there and at the meeting of experts held at the IOC headquarter over the following days.

• **Study of the environmental and health security of the solvents used in IOC methods:**

A progressive study following a pre-established priority order is being conducted by the IOC. Tests were carried out through five ring tests in 2017 and the methods were revised and adopted in November 2017.

• **Method for the organoleptic assessment of virgin olive oil:**

This method underwent extensive revision in 2007, in particular to amend the median of the defect predominantly perceived between the extra virgin and virgin categories of olive oil, which was raised to 3.5 on taking into account the uncertainty of the method. The method and accompanying standards are reviewed on an ongoing basis as research progresses. The most recent revisions were adopted in 2017 and 2018 to improve panel harmonisation and training. Four electronic working groups are respectively considering the areas of training, accreditation, reference materials and statistics.

The Guidelines for the accomplishment of the requirements of Norm ISO: 17025 by the laboratories for the sensory analysis of virgin olive oil were adopted in May 2017 and revised in November 2017 and June 2018.

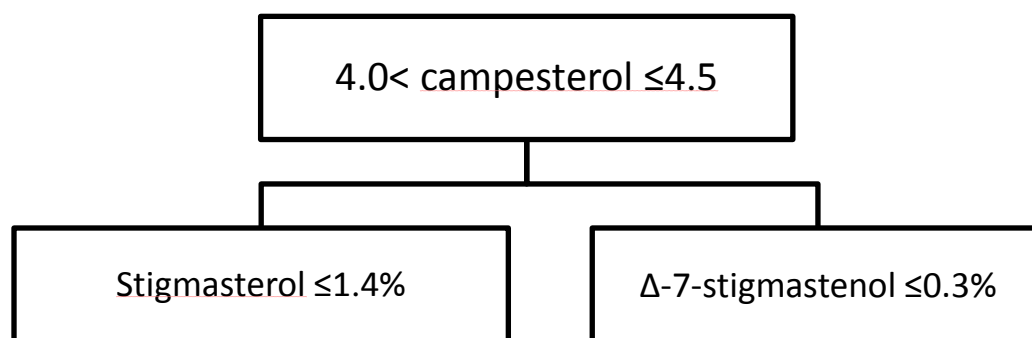
• **Compositional survey of olive oils with anomalous parameters:**

In 2008, the Council of Members of the IOC decided to set up a restricted working group on olive oil composition and varietal identification to investigate the cases of authentic olive oils produced using autochthonous varieties for which certain parameters did not comply with the limits fixed in the IOC trade standard.

Producer countries were requested to complete a questionnaire and to ship samples of off-standard oils for a survey designed to gain an insight into such cases and to propose the application of decision trees as a solution, while maintaining the existing limits in order to guarantee product authenticity and prevent potential fraud.

The results and conclusions of this three-year survey, which concerns olive oils with off-limit campesterol values, were presented at the session of the Codex Committee on Fats and Oils (Malaysia, February 2017). Decision trees for such oils have been included in the IOC trade standard and were also harmonised in the Codex Standard in order to strike a balance between the need to respect genuine virgin olive oils and the need to avoid facilitating fraud, given that campesterol levels provide evidence of the addition of specific seed oils.

Campesterol decision tree for virgin and extra virgin olive oils:



These oils have to meet the rest of parameters of the IOC standard, in particular, stigmastadiene levels of up to 0.05mg/kg.

Anomalies will be studied by the Working Group on Varieties, and the order of work priority will be: Delta-7-estigmastenol in lampante virgin olive oil, followed by other anomalies.

• **Survey on MRL of pesticides.**

A study is being carried out in this regard and a questionnaire was sent to producer and importer countries. The Executive Secretariat of the IOC is still waiting to receive answers.

• **Harmonisation of IOC methods with ISO standards**

Cooperative ties between the two institutions have been strengthened in recent years with a view to harmonising ISO standards with the testing methods cited in the trade standard of the IOC, which is the specialist international intergovernmental agency for olive products.

- **Preparatory work and participation by the Executive Secretariat in the CCFO meeting**

The Executive Secretariat participated in the 25th meeting of the Codex Committee on Fats and Oils (CCFO), held in Kuala Lumpur (Malaysia) from 27 February to 3 March 2017. The CCFO agreed to include the decision tree for campesterol up to 4.5% in the CODEX standard, with the same parameters as established in the IOC standard and other standards.

The revision of the CODEX standard applying to olive oil and olive-pomace oil proposed by the EU was also accepted. The IOC is participating in the electronic working group, which is being chaired by Spain and vice-chaired by Argentina and Canada. The proposal will be presented during next CCFO meeting in February 2019. A previous physical meeting of the eWG will probably be organised by the IOC if necessary and agreed by the Codex Secretariat as per the meeting of the eWG on campesterol in 2016.

- **Harmonisation of the Codex standard for table olives with the IOC standard:**

The Executive Secretariat submitted a proposed revision of the Codex standard in 2008, in order to bring it into line with the IOC trade standard for table olives. This revision was included in the Codex list of priorities. After the work carried out by the dedicated electronic working group, the revision was approved at the session of the Codex Committee on Processed Fruits and Vegetables (CCPFV) on 15–19 October 2012 and definitively adopted by the Codex Alimentarius Commission in July 2013.

- **IOC recognition of chemical and sensory testing laboratories:**

The IOC runs annual collaborative tests to check the proficiency of olive oil chemical and sensory testing laboratories. Laboratories that obtain satisfactory test results and prove that they have been awarded accreditation by a national laboratory or accreditation body are granted IOC recognition for the relevant one-year period (from 1 December of one year to 30 November of the next).

In all, 126 chemical testing laboratories and 87 olive oil tasting panels from a spectrum of IOC Member and non-Member countries participated in the ring tests to earn entitlement to IOC recognition for the period from December 2018 to November 2019. The decisions regarding the conditions of the certificates of recognition were also revised in 2015 for organoleptic assessment, and in 2017 and 2018 for chemical testing laboratories, in order to establish three different levels of recognition.

Madrid, December 2018