



## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX ALIMENTARIUS COMMISSION

#### 40<sup>th</sup> Session

CICG, Geneva, Switzerland, 17 - 22 July 2017

#### COMMUNICATION FROM IOC<sup>1</sup>

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, 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), Jordan, Libya, Morocco, Palestine and Tunisia. Following the entry into force of the International Agreement on Olive Oil and Table Olives, 2015, in January 2017, the following signatory countries are in the process of ratification: Argentina, Iran, Israel, Lebanon, Montenegro, Turkey and Uruguay. In addition, Egypt is currently completing the process for accession. These 42 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. Hence, 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>

---

<sup>1</sup> Document prepared by and under the responsibility of the IOC.

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 of involving experts from non-IOC Members is the work carried out in 2014 with experts from the Food & 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 eWG on different subjects;
- Harmonisation of olive oil testing methods issued by standards institutions;
- Harmonisation of the Codex olive oil and table olive standards with IOC standards and preparations for upcoming Codex sessions.

Progress or developments in several noteworthy areas are reported below:

• **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 chemists 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/Rev.1):**

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 an additional ring test was needed to validate each kind of extraneous oil.

- **Increase of the K270 limit for refined olive oil and olive oil:**

In July 2016, the IOC Council of Members adopted a new K270 limit of  $\leq 1.25$  mg/kg for refined olive oils and  $\leq 1.15$  for olive oils on the basis of a study carried out by IOC experts in recent years because the previous limit did not afford sufficient guarantees for overall world production.

- **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 and 2016.

- **Reduction of the linoleic acid limit and increase of the heptadecanoic, heptadecenoic and eicosanoic acid limit:**

In 2015, after a study carried out by the IOC, the linoleic acid limit was decreased to 2.5%.

At the 27th extraordinary session of the IOC Council of Members, the IOC Technical Committee adopted a proposal to increase the C17:0 acid limit to 0.40%, C17:1 to 0.60% and C20 to 0.50 % in order round the limits to two decimals and align them to world production.

- **A method for the determination of peroxides (COI/T.20/Doc. No 35) and a method for the determination of free acidity (COI/T.20/Doc. No 34) were recently adopted and included in the IOC trade standard in 2015 and 2016.**

- **The revision of the method for the determination of UV absorbance COI/T.20/Doc. No 19/Rev. 3 adopted in 2015.**

- **Definitive limit of ethyl esters (for extra virgin olive oil only) on the basis of the study of the evolution of this parameter:**

Several research projects are under way to determine how this parameter changes in extra virgin olive oils over time.

The decision of the IOC experts to maintain the limit at  $\leq 35$  mg/kg was adopted in July 2016.

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

A progressive study following a pre-established priority order will be conducted by the IOC. Tests are being carried out in the participatory test organised by the IOC in 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 makes advances. The most recent revision was adopted in 2015 to improve panel harmonisation. Four eWG are considering the areas of training, accreditation, reference materials and statistics, respectively.

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

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

In 2008, the IOC Council of Members decided to set up a restricted working group on olive oil composition and varietal identification to investigate the cases of authentic olive oils produced from 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 to prevent potential fraud.

The results and conclusions of this three-year survey, which concerns olive oils with off-limit campesterol or delta-7-stigmastenol 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 in order to strike a balance between the need to respect genuine virgin olive oils and the need to avoid facilitating fraud because the two parameters concerned – campesterol and delta-7-stigmastenol – are evidence of the addition of specific seed oils.

Composition of olive oils obtained from various varieties:

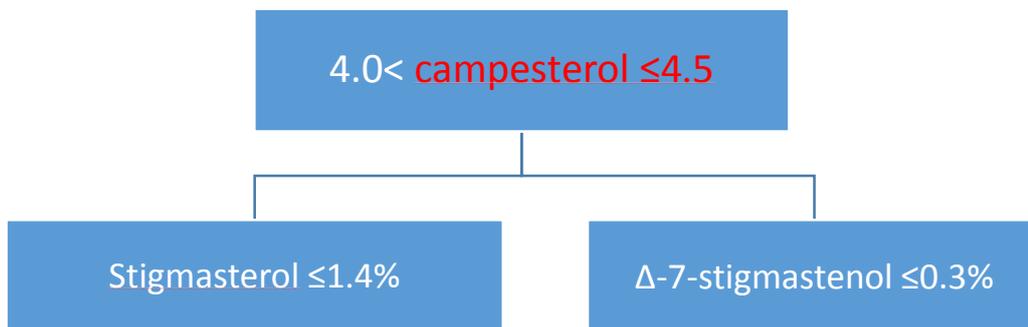
- Adoption of decision trees to guarantee oil purity while allowing trading of authentic products that do not fully comply with the standards.

In May 2013 it was decided to adopt three decision trees:

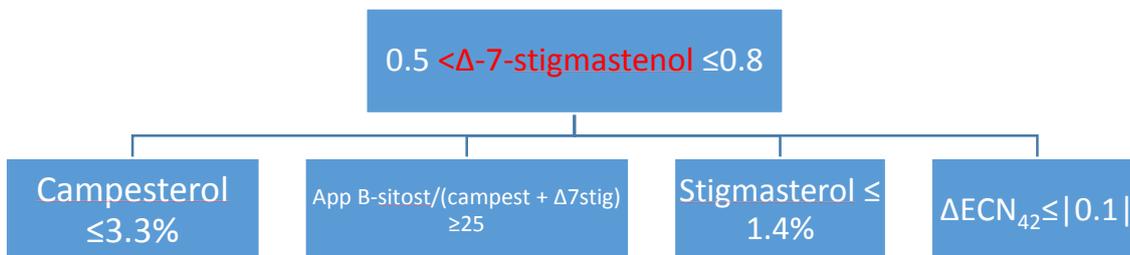
- One for virgin and extra virgin olive oils with campesterol values between 4.0 and 4.5%;
- One for virgin and extra virgin olive oils with delta-7-stigmastenol values between 0.5 and 0.8%; and
- One for olive pomace oils with delta-7-stigmastenol values between 0.5 and 0.7%.

The rest of the parameters must comply with the limits fixed in the IOC standard, particularly the new stigmastadiene limit (0.05mg/kg).

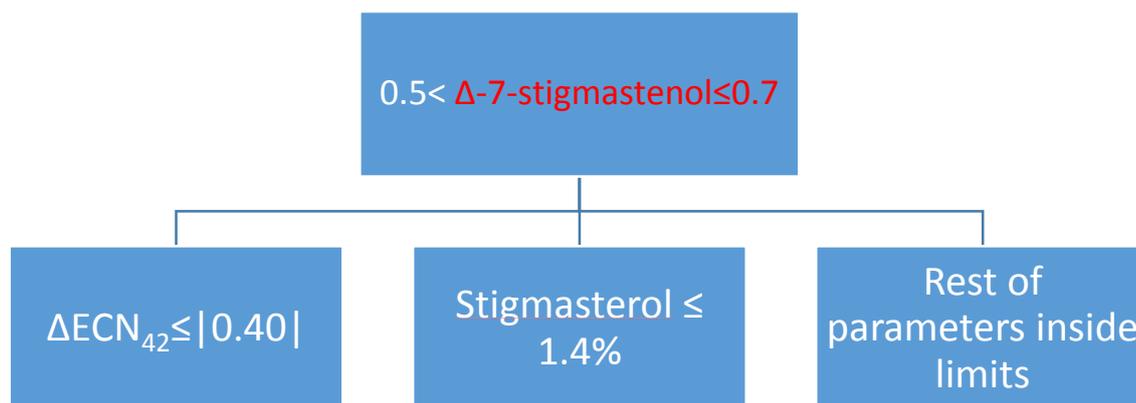
Campesterol decision tree for virgin and extra virgin olive oils:



Delta-7-stigmastenol decision tree for extra virgin and virgin olive oils:



Delta-7-stigmastenol decision tree for crude and refined olive-pomace oils:



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

- **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. 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 will participate in the electronic working group, which will be chaired by Spain and vice-chaired by Argentina and Canada. This proposal will be formally adopted during this session by the Codex Alimentarius Commission.

- **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 electronic working group set up especially for this purpose, 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.

- **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.

- **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, 104 chemical testing laboratories and 79 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 2017 to November 2018. The decisions regarding the conditions of the certificates of recognition were also revised in 2015 for organoleptic assessment and in 2016 and 2017 for laboratories in order to establish three different levels of recognition.