Recent Updates on the Codex Standard for Named Vegetable Oils (CXS 210-1999) in Relation to Palm Oil and Palm Kernel Oil

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INTRODUCTION

Malaysia, as one of the leading producers and exporters of palm oil, palm kernel oil and its derivatives, is committed to providing the world with high quality palm oil products which conform to global food safety standards. Over the last five decades, Malaysia has played a vital role in the development of Codex standards under the Codex Committee on Fats and Oils (CCFO) by providing scientific, production and trade data on the specifications of oils and fats produced to ensure that these important information are taken into account in the development of Codex standards. This also guarantees the harmonisation of our national legislation with international standards to avoid any potential impediment to the global trade of Malaysian-produced oils and fats.

Codex Committee on Fats and Oils (CCFO)

The Codex Committee on Fats and Oils (CCFO) is one of the subsidiary bodies under the purview of the Codex Alimentarius Commission (CAC) which develops a collection of international food standards, guidelines and codes of practice to ensure safety, quality and fairness in international food trade. The aims of these food standards and related texts are to safeguard consumer health, ensure fair practices and remove trade barriers in global food trade. CCFO's scope covers the elaboration of worldwide standards for fats and oils of vegetable, animal and marine origin, including margarine and olive oil. Among the CCFO standards are the Codex Standard for Named Vegetable Oils (CXS 210-1999), the Codex Standard for Olive Oils and Olive Pomace Oils (CXS 33-1981), the Codex Standard for Fish Oils (CXS 329-2017) and the Codex Standard for Named Animal Fats (CXS 211-1999). Other CCFO standards which are also deliberated upon include the Codex Standard for Edible Fats and Oils not Covered by Individual Standards (CXS 19-1981) and the Codex Standard for Fat Spreads and Blended Spreads (CXS 256-2007).

The CCFO sessions are held biennially and have been hosted by Malaysia with the Ministry of Health Malaysia serving as the CCFO Secretariat since 2009, after having been held in the United Kingdom since 1964. The meetings are typically attended by more than 100 representatives from 40 member countries as well as member and observer organisations such as the American Oil Chemists' Society (AOCS), the Federation of Oils, Seeds and Fats Associations International (FOSFA), the European Food Emulsifier Manufacturers' Association (EFEMA), the International Olive Oil Council (IOOC) and the United States Pharmacopeial Convention (USP). The Malaysian delegation to the CCFO meetings typically consists of representatives from the Malaysian Palm Oil Board (MPOB), the Ministry of Health Malaysia, the National Pharmaceutical Control Bureau, the Federation of Malaysian Manufacturers, the Department of Fisheries Malaysia and several members of the oil palm industry such as the Palm Oil Refiners' Association of Malaysia, the Malaysian Palm Oil Council and the Malaysian Palm Oil Association. Prior to convening the CCFO plenary sessions, electronic and physical working groups are established to discuss the elaboration of revisions, amendments, inclusions and other technical matters relating to the various issues brought up during the previous CCFO session.

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The CCFO sessions provide member countries with a platform to deliberate on issues arising in relation to the quality specifications of edible oils and fats commodities which require the proposal and introduction of new specifications, as well as revisions or amendments to the existing texts of current versions of the standards. Vegetable oil-producing countries are able to gather and present production, consumption and trade data as well as quality specifications of oils and fats for inclusion into the development of the standards. This procedure ensures that countries are able to overcome any trade barrier resulting from the specifications of oils and fats commodities which are not contained within the standards.

Replacement of Acid Value with Free Fatty Acids for Virgin Palm Oil and Inclusion of Free Fatty Acids for Crude Palm Kernel Oil in CXS 210-1999

In 2019, Malaysia produced 19.86 million tonnes of crude palm oil (CPO) which resulted in about 16.88 million tonnes of palm oil exports worldwide (Parveez *et al.*, 2020). Crude palm kernel oil (CPKO) production reached nearly 2.32 million tonnes and more than 1 million tonnes were exported worldwide in the same year (MPOB, 2020a). Acidity is one of the main important quality characteristics used in the trade of crude or virgin palm oil and CPKO. It is defined as the free fatty acids (FFA) content in an oil or fat expressed as a percentage by mass of FFA. The expression of acidity varies according to the type of oil and its major fatty acid. For example, the acidity for palm oil is expressed as palmitic acid while for palm kernel oil and coconut oil, the acidity is expressed as lauric acid (ISO, 2009). According to the AOCS Official Method Cd 3d-63, the acid value is defined as the number of milligrams of potassium hydroxide required to neutralise FFA in one gram of test sample, and is expressed in milligrams per gram. The acid value may be directly converted to percent FFA by means of a suitable factor. For example, to express the acid value in terms of FFA as a percentage of lauric, oleic or palmitic acids, the value is divided by 2.81, 1.99 or 2.19, respectively (AOCS, 2009).

In 2012, a few trade challenges specifically concerning crude palm oil had arisen as a result of inconsistencies in the quality specifications for acidity referred to by palm oil- and palm kernel oil-importing countries. In the current global trade practice for palm oil, acidity of virgin palm oil is expressed as FFA with a maximum value of 5% (as palmitic acid), with palmitic acid as the major fatty acid. However, acidity for virgin palm oil in CXS 210-1999 (Amended 2011) fell under the provisions for cold pressed and virgin oils, expressed as an acid value of 10.0 mg KOH g^{-1} oil. This acid value is equivalent to FFA 5% as oleic acid but not equivalent to FFA 5% as palmitic acid. Due to this discrepancy, Malaysia proposed that an amendment be made to CXS 210-1999 to replace the acid value with FFA for virgin palm oil at the 24th Session of CCFO held in 2015 (Codex Alimentarius, 2015). The amendment was not intended to modify the current acid value but to change the way acidity was expressed in CXS 210-1999. During the discussions at the 24th Session of CCFO, it was proposed to also include FFA for CPKO as there were no acid values specified for CPKO in CXS 210-1999.

At the 25th Session of CCFO in 2017, Malaysia submitted a discussion paper and project document on the replacement of the acid value with FFA for virgin palm oil and inclusion of FFA for CPKO into CXS 210-1999 (Codex Alimentarius, 2017). After taking into account comments and inputs from member countries, the 26th Session of CCFO established the FFA values for virgin palm oil and crude palm kernel oil at 5.0% (as palmitic acid) and 4.0% (as lauric acid), respectively. The AOCS method Ca 5a-40 was included in CXS 210-1999 for the determination of FFA and the acid value. The provision for cold pressed and virgin oils in CXS 210-1999 would exclude virgin palm oil and crude palm kernel oil. The 42nd Session of CAC subsequently adopted the proposed draft revision into CXS 210-1999 (Amended 2019) (Codex Alimentarius, 2019a; 2019b), as tabulated in *Table 1*. The revision appears in the Appendix to CXS 210-1999 on Other Quality and Composition Factors under Section 1 - Quality Characteristics, and under Section 5 - Methods of Analysis and Sampling, respectively.

Amendment to the Refractive Index and Apparent Density of Palm Superolein at 40°C in CXS 210-1999

Palm superolein is the liquid fraction derived from palm oil, and is produced by a specially controlled crystallisation process to achieve an iodine value of 60 or higher. It is characterised by a set of distinctive fatty acid composition and physico-chemical properties that differentiate this oil from palm olein. Malaysia is one of the main producers and exporters of palm olein, with more than 283 000 t of palm superolein produced in 2019 (MPOB, 2020b). Palm superolein is exported to the major importing countries of Japan, the Netherlands, Singapore, Canada and Australia, as well as to other parts of the world. Given the volume of palm superolein

TABLE 1. REPLACEMENT OF ACID VALUE WITH FFA FOR VIRGIN PALM OIL AND INCLUSION OF FFA FOR CPKO IN CXS 210-1999

Codex Standard for Named Vegetable Oils (CXS 210-1999)	
Previous version	**Current version (as of 2019)**
Appendix	**Appendix**
Other Quality and Composition Factors	**Other Quality and Composition Factors**
1. Quality characteristics	**1. Quality characteristics**
Maximum level	Maximum level
Acid value	**Acid value**
Refined oils: 0.6 mg KOH g^{-1} oil	Refined oils: 0.6 mg KOH g^{-1} oil
Cold pressed and virgin oils: 4.0 mg KOH g^{-1} oil	Cold pressed and virgin oils (except crude palm kernel oil and virgin palm oil): 4.0 mg KOH g^{-1} oil
Virgin palm oils: 10.0 mg KOH g^{-1} oil	**Free fatty acid**
	Virgin palm oil: 5.0% (as palmitic acid)
	Crude palm kernel oil: 4.0% (as lauric acid)
	Refined rice bran oil: 0.3% (as oleic acid)
5. Methods of analysis and sampling	**5. Methods of analysis and sampling**
Determination of acidity According to ISO 660:1996, amended 2003; or AOCS Cd 3d-63(03)	**Determination of acidity** According to ISO 660:1996, amended 2003; or AOCS Cd 3d-63(03), or AOCS Ca 5a-40
	Determination of free fatty acids According to ISO 660:1996, amended 2003; or AOCS Ca 5a-40

Source: Codex Standard for Named Vegetable Oils (CXS 210-1999) Amended 2019.

traded globally, it is imperative that the quality parameters of palm superolein are reflected accurately in Codex Standards to remove any barriers to the international trade of this oil.

Refractive index (RI) and apparent density are two main physical characteristics inherent to oils and fats which are frequently used in global vegetable oil trade. According to ISO 6320:2017, RI of a medium is defined as the ratio of the velocity of light of a definite wavelength in a vacuum to its velocity in the medium. RI is measured when the sample is in a completely liquid form at a specified temperature, using a suitable refractometer such as modern digital refractometers. The notation used for expressing RI is η^t_d where t is the measurement temperature in degrees Celcius (°C) (ISO, 2017).

As for apparent density, it is often referred to as conventional density or mass per volume, and is defined as the mass of a substance divided by its volume measured in air and determined at a reference temperature (ISO, 2014). It is an important parameter for the shipping of oils and fats to convert dipped volume of oil in a tank into the mass of oil in the tank, and is usually measured at loading or discharge of a ship. Apparent density can be measured automatically using an oscillating U-tube, or manually using a calibrated pyknometer (ISO, 2017). It is expressed as kg per litre or grams per millilitre at the reference temperature. Similar to RI, apparent density is only applicable to oils and fats when they are in a liquid state.

The issue on non-compliance of exported palm superolein from Malaysia with the quality specifications of RI and apparent density as outlined in CXS 210-1999 had first arisen in 2015. Recent interruptions to the global trade of palm superolein revealed that the RI values of palm superolein determined at 40°C did not fall within the range of 1.463 to 1.465 as specified in CXS 210-1999. A comprehensive assessment of RI was consequently conducted on Malaysian palm superolein samples obtained from local manufacturers, and the results showed that the determination of RI of palm superolein fell within the values as specified in CXS 210-1999 only when analysed at a temperature of 30°C instead of 40°C. Similarly, the apparent density values of palm superolein also fell within the range of 0.897 to 0.920 g ml^{-1} as specified in CXS 210-1999 only

when the samples were analysed at 30°C. The inclusion of the chemical and physical characteristics of palm superolein into CXS 210-1999 was agreed upon at the 18th Session of CCFO (Codex Alimentarius, 2003a), and was subsequently adopted at the 26th Session of CAC in 2003 (Codex Alimentarius, 2003b).

Due to trade difficulties caused by the incorrect temperature specified for the determination of both RI and apparent density of palm superolein in CXS 210-1999, Malaysia proposed an amendment to change the temperature for the determination of these parameters from 40°C to 30°C at the 25th Session of CCFO in 2017. It was important to specify the correct temperature for the analyses of both parameters to ensure compliance with the stated ranges in CXS 210-1999 and to avoid any trade disruptions. The 26th Session of CCFO in 2019 agreed to maintain the temperature for analysis of RI and apparent density at 40°C and instead to revise the RI and apparent density ranges for palm superolein. The revised ranges for palm superolein were subsequently adopted into CXS 210-1999 at the 42nd Session of CAC. *Table 2* shows the new RI and apparent density ranges for palm superolein which appear in the Appendix of CXS 210-1999 under Section 3 - Chemical and physical characteristics in *Table 2*: Chemical and physical characteristics of crude vegetable oils.

Addition of Palm Oil with a Higher Content of Oleic Acid

The emergence of a new palm oil variety containing higher levels of oleic acid than natural palm oil was first highlighted by Colombia at the 22nd Session of CCFO in 2011. Colombia proposed that provisions be developed for the high oleic palm oil produced by the hybrid OxG (*Elaeis oleifera* x *Elaeis guineensis*) in CXS 210-1999. The oil features a high content of unsaturated fatty acids, having oleic acid values of more than 50%, linoleic acid values of more than 12% and an iodine value greater than 60. Besides these features, the oil contains high levels of carotene of more than 1050 ppm and tocopherols of more than 1175 ppm. The new hybrid variety also possesses high resistance to pests and diseases such as bud rot and yellowing disease which commonly affect the African species, *E. guineensis*.

The proposal was revised further and presented for consideration at the 23rd Session of CCFO in 2013, 24th Session in 2015 and at the 25th Session in 2017. In the interim periods between these CCFO sessions, electronic working groups chaired by Colombia were held to enable the revision of the proposal and preparation of a discussion paper, including a project document. At the 26th Session of CCFO in 2019, several parts of the proposal were discussed, namely product definition, ranges of fatty acid composition (expressed as percentage) and other quality and composition factors which include chemical and physical characteristics, specific desmethysterols levels and specific tocopherols and tocotrienols levels. The proposal was adopted into CXS 210-1999 at the 42nd Session of CAC. The specifications for palm oil with a higher content of oleic acid (OxG) are shown in *Table 3*.

Applicability of the Fatty Acid Composition of Other Oils as Listed in *Table 1* of CXS 210-1999 in Relation to Their Corresponding Crude Forms

In 2017 during the 25th Session of CCFO, work to consider the applicability of the fatty acid composition (FAC) of other oils in Table 1 of the CXS 210-1999 in relation to their corresponding crude forms was established and led by USA. This work arose after India proposed the introduction of a note to indicate that FAC of rice bran oil is also applicable to crude rice bran oil. It was noted that

TABLE 2. AMENDMENT OF REFRACTIVE INDEX AND APPARENT DENSITY VALUES OF PALM SUPEROLEIN AT 40°C IN CXS 210-1999

Codex standard for named vegetable oils (CXS 210-1999)	
Previous version	**Current version (as of 2019)**
***Table 2.* Chemical and physical characteristics of crude vegetable oils**	***Table 2.* Chemical and physical characteristics of crude vegetable oils**
Palm superolein	**Palm superolein**
Refractive index (ND 40°C) 1.463 - 1.465	Refractive index (ND 40°C) 1.459 - 1.460
Apparent density (g ml^{-1}) 0.897 - 0.920	Apparent density (g ml^{-1}) 0.886 - 0.900 at 40°C

Source: Codex Standard for Named Vegetable Oils (CXS 210-1999) Amended 2019.

TABLE 3. ADDITION OF PALM OIL WITH A HIGHER CONTENT OF OLEIC ACID (OxG) INTO CXS 210-1999

Codex Standard for Named Vegetable Oils (CXS 210-1999) (as of 2019)

2. Description

2.1 Product definitions
Palm oil with a higher content of oleic acid is derived from the fleshy mesocarp of hybrid palm fruit OxG (*Elaeis oleifera* x *Elaeis guineensis*)

3. Essential composition and quality factors

3.1 GLC ranges of fatty acid composition (expressed as percentages)
Palm oil with a higher content of oleic acid must contain not less than 48% oleic acid (as % of total fatty acids)

Table 1. Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples[1] (expressed as percentage of total fatty acids)

Fatty acid	Palm oil with a higher content of oleic acid
C6:0	ND
C8:0	ND
C10:0	ND
C12:0	ND - 0.6
C14:0	ND - 0.8
C16:0	23.0 - 38.0
C16:1	ND - 0.8
C17:0	ND - 0.2
C17:1	ND
C18:0	1.5 - 4.5
C18:1	48.0 - 60.0
C18:2	9.0 - 17.0
C18:3	ND - 0.6
C20:0	ND - 0.4
C20:1	ND - 0.2
C20:2	ND - 0.5
C22:0	ND - 0.3
C22:1	ND
C22:2	ND
C24:0	ND - 0.2
C24:1	ND

ND = non-detectable, defined as 0.05%
[1]Data taken from species listed in Section 2.

Other Quality and Composition Factors

Table 2. Chemical and physical characteristics of crude vegetable oils

	Palm oil with a higher content of oleic acid
Relative density (x °C/ water at 20°C)	0.896 - 0.910 (50°C/ water at 20°C)
Apparent density (g ml^{-1})	ND
Refractive index (ND 40°C)	1.459 - 1.462
Saponification value (mg KOH g^{-1} oil)	189 - 199
Iodine value	58 - 75
Unsaponifiable matter (g kg^{-1})	≤12
Stable carbon isotope ratio	-

Table 3. Levels of desmethylsterols in crude vegetable oils from authentic samples as a percentage of total sterols

	Palm oil with a higher content of oleic acid
Cholesterol	1.7 - 4.7
Brassicasterol	ND - 0.4
Campesterol	16.6 - 21.9
Stigmasterol	11.2 - 15.5
Beta-sitosterol	57.2 - 67.0
Delta-5-avenasterol	ND - 1.9
Delta-7-stigmastenol	ND - 0.2
Delta-7-avenasterol	ND - 1.0
Others	ND - 3.8
Total sterols (mg kg^{-1})	519 - 1723

ND = non-detectable, defined as ≤0.05%
[1]Data taken from species listed in Section 2.

Table 4. Levels of tocopherols and tocotrienols in crude vegetable oils from authentic samples (mg kg^{-1})	
	Palm oil with a higher content of oleic acid
Alpha-tocopherol	49 - 188
Beta-tocopherol	ND
Gamma-tocopherol	4 - 138
Delta-tocopherol	ND - 31
Alpha-tocotrienol	74 - 256
Gamma-tocotrienol	406 - 887
Delta-tocotrienol	33 - 86
Total (mg kg^{-1})	562 - 1417

ND = non-detectable.
[1]Data taken from species listed in Section 2.

Source: Codex Standard for Named Vegetable Oils (CXS 210-1999) Amended 2019.

inclusion of the note was intended to provide clarity in the trade of crude rice bran oil, and not intended to broaden the scope of CXS 210-1999. Also, this new work served as a continuation of the discussion at the 16th Session of CCFO on gas liquid chromatography (GLC) ranges of crude and refined oils which noted that there was no significant difference between FAC ranges of crude and refined oils, and the agreement to revisit this matter at a later date (Codex Alimentarius Commission, 1999). The 26th Session of CCFO proposed a new footnote 2 for *Table 1* in CXS 210-1999 which was adopted at the 42nd Session of CAC as follows (*Table 4*):

Alignment of Food Additives between the Standards for Fats and Oils and the Codex General Standard for Food Additives (GSFA)

The 25th Session of CCFO established work (by electronic means) to review food additive provisions in the Standards for Fats and Oils (not including the Standard for Fish Oils) and to align them with GSFA, or propose modifications to the current entries in GSFA, if necessary. This involved comparing food additive provisions of the relevant fats and oils standards (CXS 210-1999, CXS 211-1999, CXS 19-1981, CXS 33-1981 and CXS 256-2007) with the provisions of the corresponding food categories of GSFA, and recommending necessary modifications to GSFA to replace the food additive provisions of the fats and oils standards with general references to GSFA. At the 26th Session of CCFO, an in-session working group considered the following topics: (i) revocation and updating of certain food additive provisions in the fats and oils standards; (ii) alignment of food additive provisions in the fats and oils standards (except for fish oils), and (iii) technological justification for the use of emulsifiers in Food Category 02.1.2 of GSFA.

Table 5 details the amendments to the food additive provisions in the Standards for Fats and Oils made by the 26th Session of CCFO which were adopted at the 42nd Session of CAC. The comprehensive review on the alignment of food additive provisions in the fats and oils standards with GSFA and technological justification for the use of emulsifiers in Food Category 0.2.1.2 can be referred to in Part C and Part D of Appendix III of the Report of the 26th Session of CCFO, respectively (Codex Alimentarius, 2019a).

TABLE 4. AMENDMENT TO CXS 210-1999 TO CONSIDER THE APPLICABILITY OF FAC OF OTHER OILS LISTED IN Table 1 IN RELATION TO THEIR CORRESPONDING CRUDE FORMS

Codex Standard for Named Vegetable Oils (CXS 210-1999) (as of 2019)
Table 1. Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples[1,2] (expressed as percentage of total fatty acids) (see Section 3.1 of the Standard)
Footnote [2]The fatty acid values in this table apply to the vegetable oils described in Section 2.1 presented in a state for human consumption. However, in order to provide clarity in trade of crude oils, the values of the table may also be applied for the corresponding crude forms of the vegetable oils described in Section 2.1.

Source: Codex Standard for Named Vegetable Oils (CXS 210-1999) Amended 2019.

TABLE 5. AMENDMENTS TO THE FOOD ADDITIVES PROVISIONS IN THE STANDARDS OF FATS AND OILS

Codex Standard for Named Vegetable Oils (CXS 210-1999) (as of 2019)
Update of food additive provisions in fats and oils standards
1. The following food additive provisions should be added to the Standard for Edible Fats and Oils Not covered by Individual Standards (CXS 19-1981): Section 3.3 Antioxidants and Section 3.4 Antioxidant synergists: Lecithin (INS 322(i)) with a maximum use level (ML) of good manufacturing practice (GMP) Section 3.4 Antioxidant synergists: Tricalcium citrate (INS 333(iii)) with ML of GMP Tripotassium citrate (INS 332(ii)) with ML of GMP Section 3.5 Antifoaming agents (for oils and fats for deep frying): Mono- and di-glycerides of fatty acids (INS 471) with ML of GMP
2. The following food additive provisions should be added to the Standard for Named Vegetable Oils (CXS 210-1999): Section 4.2 Antioxidants and Section 4.3 Antioxidant synergists: Lecithin (INS 322(i)) with a maximum use level (ML) of good manufacturing practice (GMP) Section 4.3 Antioxidant synergists: Tricalcium citrate (INS 333(iii)) with ML of GMP Tripotassium citrate (INS 332(ii)) with ML of GMP
3. The following food additive provisions should be added to the Standard for Named Animal Fats (CXS 211-1999): Section 4.2 Antioxidants and Section 4.3 Antioxidant synergists: Lecithin (INS 322(i)) with a maximum use level (ML) of good manufacturing practice (GMP) New Section 4.4 Antifoaming agents (for oils and fats for deep frying): Mono- and di-glycerides of fatty acids (INS 471) with ML of GMP
Revocation of food additive provisions in fats and oils standards
1. The following provisions should be revoked in Section 4.1 Acidity regulators in the Standard for Fat Spreads and Blended Spreads (CXS 256-2007): Monosodium tartrate (INS 335(i)) Monopotassium tartrate (INS 336(i)) Dipotassium tartrate (INS 336(ii))
2. The following provision should be revoked in Section 4.7 Preservatives in the Standard for Fat Spreads and Blended Spreads (CXS 256-2007): Sodium sorbate (INS 201)

Source: Codex Standard for Named Vegetable Oils (CXS 210-1999) Amended 2019.

Updates on the revisions to other oils and fats in CXS 210-1999

In addition to the revisions to palm oil, palm kernel oil, palm superolein and other related amendments, the following are inclusions for other oils and fats which were adopted into CXS 210-1999 at the 42nd Session of CAC:

- Inclusion of FFA as a quality characteristic criterion for refined rice bran oil; and
- Inclusion of description, essential composition and quality factors as well as other quality and composition factors for almond, hazelnut, pistachio, flaxseed and walnut oils.

Work on the following revisions are still in progress and at different stages of the Codex Step Procedure:

- Revision of Codex Standard for Olive Oils and Olive Pomace Oils (CXS 33-1981) – Step 2;
- Revision of Essential Composition of Sunflowerseed Oils in CXS 210-1999 – Step 4;
- Inclusion of Avocado Oil in CXS 210-1999 – Step 2; and
- Review of the List of Acceptable Previous Cargoes (Appendix II to RCP 36-1987).

The step procedure for elaborating on Codex Standards at Step 2 involves the preparation of a proposed draft standard, while Step 4 involves amendment of the proposed draft standard based on comments received from member countries.

CONCLUSION

The role of MPOB as Chair of the Malaysian National Codex Sub-Committee on Fats and Oils, together with members of the Malaysian delegation, has contributed significantly to the development of the CCFO standards in the past. This has ensured that the oils and fats which are produced, traded and consumed worldwide continue to meet international food safety and quality standards which are globally recognised and accepted. With the growing demand for healthier oils by consumers, increasing trade and consumption of oils and fats worldwide, the introduction of new varieties of oil-producing crops, and enhanced scientific and technological innovations, it is imperative that CCFO develops and updates existing standards for fats and oils to meet each prevailing situation. It is recommended that Malaysia continues to participate actively at the CCFO sessions to effectively monitor the developments in global oil quality standards and matters concerning international trade of oils and fats.

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