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CODEX COMMITTEE ON SPICES AND HERBS

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DRAFT STANDARD FOR DRIED SAFFRON

(At Step 7)

(Prepared by the Electronic Working Group chaired by Iran (Islamic Republic of) and co-chaired by Greece)

Codex members and Observers wishing to submit comments at Step 3 on this draft standard should do so as instructed in CL 2022/25/OCS-SCH available on the Codex webpage/Circular Letters: <http://www.fao.org/fao-who-codexalimentarius/circular-letters/en/>

BACKGROUND

1. The third Session of the Codex Committee on Spices and Culinary Herbs (CCSCH3), held in Chennai India (February, 2017) agreed to establish an electronic working group (EWG) chaired by Iran and co-hosted by India, working in English, to elaborate the specific requirements for Saffron based on the concept of group standards i.e. category of "Dried Floral Parts"¹. In undertaking this work, this EWG (Saffron) will closely collaborate with the EWG on "Cloves" to develop the overall group standard for "Dried Floral Parts".
2. CCSCH4, held in Kerala India (January, 2019), discussed the proposed draft standard and agreed to forward the proposed draft standard for saffron to CAC42 for adoption at Step 5. The Committee also agreed to re-establish an EWG, chaired by the Islamic Republic of Iran in order to consider the outstanding issues, taking into account the discussions held at CCSCH4 and comments received at Step 6.
3. CCSCH5 was held virtually (April 2021), but no consensus was reached on certain items. Therefore, it was decided to hold the draft standard for dried saffron at Step 7 and return for consideration at Step 6 the Sections: 3.2.2 (Annex I and Annex II); 3.2.3 and Section 8.3 only, taking into account the comments made at and/or submitted to CCSCH5.
4. CCSCH5 agreed that no further comments would be requested nor discussion on the standard would be held at its next session except for the sections highlighted in paragraph 98 of REP21/SCH that were returned to Step 6 for comments and further consideration at its next session.

TERMS OF REFERENCE

5. CCSCH5 agreed to re-establish an EWG, chaired by Iran and co-chaired by Greece, working in English to consider only:
 - a) The outstanding issues, namely sections "3.2.2 Chemical and physical characteristics", Annex I and Annex II, "3.2.3 Classification", and "8.3 Country of origin and country of harvest" based on the discussions held at CCSCH5, and
 - b) Comments received at Step 7 as contained in document CX/SCH 21/5/6Add.1.

ISSUES CONSIDERED BY THE EWG

6. EWG for dried Saffron was established in September 2021 and 13 countries registered to participate as indicated **Appendix II**. The EWG worked in English only through the Codex EWG platform. The draft standard

¹ REP17/SCH, para 82 a & b.

was uploaded on September 29, 2021 and comments were received from five (5) members including: Morocco, Japan, Canada, Greece and USA.

Section '3.2.2 Chemical and physical characteristics', Annexes I and II and Section '3.2.3 Classification'

7. One member requested the deletion of the sentence "There shall not be any form of adulteration in the product" from section 3.2.2. EWG is of the opinion that this has to remain in the Codex standard since it is a strong reminder that adulteration practices are possible in highly-valued products like saffron and should not be allowed by any means.
8. Two members commented that 'extra class' should be deleted arguing that the minimum value of 230 as colouring strength (crocin) is difficult to be achieved by the industry after the 2nd or 3rd year of storage of ground saffron. It was acknowledged that although the fresh cropped saffron has (indeed) a colour strength of around 220-230, this is not sustainable after a few months, as the colour degrades with time. It was pointed that by setting such rigid standards, there may be an issue with keeping the colour values throughout saffron's shelf life and might create opportunities for fraudulent practices in the supply chain. EWG didn't accept it because quality degradation is a common phenomenon for many non-processed categories of foods of plant origin depending on storage conditions and storage duration, as it is the case for olive oil. Indeed, olive oil has different quality classes, with extra virgin oil being of the highest quality while refined olive pomace oil being of the lowest quality. Despite its degradation to time, the top-quality category of extra virgin olive oil is declared on the label to protect its quality, which is directly linked to selling price and high quality requirements apply. Two members accepted the values for 'extra' class and one proposed to indicate the basis for setting the standard values.
9. EWG decided to keep the 'extra' class because it promotes the competitive advantages of the highest quality of marketed saffron and serves as a trade requirement for differentiation compared to the saffron classes I, II and III. 'Extra class' is achieved by applying good practices in the field and extra care by workers. The inclusion of 'extra class' is essential to ensure that good practices will continue to be effective, resulting in the commercialization of a top quality product worldwide. In this way, a range of different quality products are available to consumers, with the cost being proportional to the quality.
10. EWG propose to maintain 4 classes in the draft standard in line with the decision of CCSC5 to keep the three Grades/Classes, as these are described in the relevant ISO standard 3632-1 for saffron (for reasons of consistency) and to add one more class (extra class) to highlight the high quality characteristics of saffron

Annex I, Table 1: Chemical characteristics of Dried Floral Parts- Saffron

11. Three members commented that the values for Picrocrocin and Crocin in Table 1 should comply with ISO 3632-1 standard for saffron to facilitate trade. EWG re-checked the values for the three Grades/Classes (I, II and III) mentioned in the circulated draft standard and confirmed that these were consistent with ISO 3632-1. Therefore, no further changes were made to the values depicted at Table 1.
12. One member asked the replacement of 'ND' (Not Detected) to 'NP' (Not Permitted) because the wording is not scientifically correct. If colourants are actually not permitted (as adulterants) it should be clearly stated otherwise the word 'not detected' might be erroneously interpreted that they are permitted as long as they are not detected. This is accepted by EWG.

Annex II, Table 2: Physical Characteristics for Dried Floral Parts- Saffron

13. One member noted that entries for physical characteristics for saffron powder were either 'NA' (Not Applicable) or 'zero values' when the corresponding physical characteristics for saffron filament and cut filament had either numerical values or 'NA'. This was questioned since the whole and cut filaments with defects are ground into powder, so defects are not expected to disappear in the powder form. EWG accepted to delete 'NA' (Not Applicable) for powder form and either: to be replaced by N/A ('Not applicable, means that this form of the above product has not been evaluated for this provision, and currently we do not have values. N/A does not refer to zero') or to introduce numerical values (if these are available). The EWG accepted to use (NA) - Not Accepted as in ISO Standard 3632-1:2011

Section '8.3 Country of origin and country of harvest'

14. With respect to the country origin/country of harvest indications on product labels, it was agreed that there was a need to clarify both the country of origin and country of harvest as requested by CCFL. Two members proposed Country of Harvest to be optional and Country of Origin to be mandatory, as expressed at CCSC5 and in-line with REP21/SCH (paragraph 19) as to be in alignment with other standards adopted by CCSC

and the advice from CCFL in the General Standard for the Labelling of Prepackaged Food (GSLPF) and WTO Rules.

15. Two members commented that country of harvest shall be mandatory, and shall be applied exceptionally for saffron, since this may serve as the only means or easy way to prevent fraudulent, adulteration practices in international trade. It was pointed out that the terms country of harvest and country of origin on product labels for culinary herbs are often confused by consumers and may also be misinterpreted by food business operators. Therefore, consumers will receive accurate information regarding the nature (where it is harvested) and would be allowed to make informed choices regarding the particular (high quality) organoleptic characteristics of the product linked to a higher price.
16. EWG would like to note that CCSCH5 concluded that should the need arises, the use of country of origin and country of harvest (mandatory or optional) indications on product labels would be reconsidered in individual standards (see CCSCH5 report, para 19, II). Exceptionally for the case of saffron standard, indication of country (and region) of harvest shall be mandatory, as a strong need to protect this delicate product from fraud phenomena.
17. One member submitted comments on two sections of the draft standard that fell out of TOR of this EWG. More specifically, one comment referred to 2.1 'Product Definition' that it should only indicate the scientific and common name of the plant and the name of the plant/floral part being used, since the name confuses and is congested. EWG noted that the product definition is extensively discussed and closed at CCSCH5. Besides, this is not an open point for discussion according to the mandate of this electronic working group, as established at CCSCH5 (see CCSCH5 report, 98, II). The second comment referred to 2.2 Styles that definitions should accompany next to the names of the three different styles. EWG noted that this is not necessary since the definition of different styles for saffron is already provided at the end of 2.2.

Section 9 'methods of analysis and sampling'

18. Codex secretariat commented that CCSCH5 agreed to align methods of analysis and sampling with those provided in CRD6 Rev. EWG would like to note that Table 9.1 could be deleted and be replaced by the sentence, which reads: "For checking the compliance with this standard, the methods of analysis and sampling contained in the ISO 3632-2 - Spices – Saffron (Crocus sativus L) – Part 2 Test methods relevant to the provisions in this standard, shall be used".

CONCLUSIONS AND RECOMMENDATIONS

19. The chair and co-chair of EWG on Saffron noted that the EWG completed the assigned task and the updated Draft Standard is attached in **Appendix I**.

**DRAFT STANDARD FOR DRIED SAFFRON
(STEP 7)**

1 SCOPE

This Standard applies to plant products in their dried or dehydrated form as spices defined in section 2.1 below, offered for direct consumption as an ingredient in food processing or for repackaging if required. It excludes products for industrial processing.

2 DESCRIPTION**2.1 Product Definition**

Dried floral parts of saffron (*Crocus sativus* L.); saffron is obtained from portion of the pistils (i.e. stigmas with part of style) of the *Crocus sativus* L. flower belonging to the *Iridaceae* family.

The “stigma” is the upper section of the aerial part of the pistil. The “style” is the part of the pistil between stigma and the ovary. The stigma is trumpet shaped, serrated or indented at the top and joined to the style at the end.

2.2 Styles

Saffron may be offered in one of the following styles:

- Filaments
- Cut filaments
- Powdered
- Other styles distinctly different for the three above are allowed, provided they are labeled accordingly.

Filament is dried stigmas with a part of style of *Crocus sativus* L. flower; cut filament is dried stigmas of the *Crocus sativus* L. flower (with styles removed completely detached from each other); and powdered is particles obtained by crushing the filaments of the *Crocus sativus* L. flower.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS**3.1 Composition**

Dried floral parts as described in Section 2.

3.2 QUALITY FACTORS**3.2.1 Odour, flavour and colour**

The product shall have a characteristic odour, flavor and colour which may vary depending on geo-climatic factors/conditions, and shall be free from any foreign odour, flavour and colour, especially from rancidity and mustiness.

3.2.2 Chemical and physical characteristics

The product shall comply with the requirements specified in Annex I (Chemical Characteristics-Table 1) and Annex II (Physical Characteristics- Table 2). The defects allowed must not affect the general appearance of the product as regards to its quality, keeping quality and presentation in the package. There shall not be any form of adulteration in the product.

3.2.3 Classification

In accordance with the chemical and physical characteristics in Section 3.2.2, the product may be classified into the following:

- Extra Class;
- Grade I /Class I
- Grade II /Class II, and
- Grade III /Class III

When saffron is traded as unclassified/ungraded, the provisions for class/grade III apply as the minimum requirements.

4 FOOD ADDITIVES

No food additives are permitted in the products covered by this Standard.

5 CONTAMINANTS

5.1 The products covered by this Standard shall comply with the maximum levels of the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995) and any other relevant Codex texts.

5.2 The products covered by this Standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

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 *General Principles of Food Hygiene* (CXC 1-1969), *Code of Hygienic Practice for low moisture foods* (CXC 75-2015), Annex III, 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 and Guidelines for the Establishment and Application of Microbiological Criteria related to Foods* (CXG 21-1997)

7 WEIGHTS AND MEASURES

Containers should be as full as practicable without impairment of quality and shall be consistent with a proper declaration of contents for the product.

8 LABELLING

8.1 The products covered by the provisions of this Standard shall be labeled in accordance with the *General Standard for the Labelling of Pre-packaged Foods* (CXS 1-1985). In addition, the following specific provisions apply:

8.2 Name of the Product

8.2.1 The name of the product shall be "dried saffron" as described in Section 2.1

8.2.2 The name of the product may include an indication of the style as described in Section 2.2.

8.2.3 Variety or cultivar may be listed on the label.

8.3 Country of Origin and Country of Harvest

8.3.1 Country of origin shall be declared.

8.3.2 Country of harvest

Country of harvest shall be declared.

8.3.3 Region of harvest and Year of harvest (mandatory)

8.4 Commercial Identification

Grade/Class, if applicable

8.5 Labelling of non-retail Containers

Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, country of origin, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, country of origin, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9. METHODS OF ANALYSIS AND SAMPLING

9.1 Methods of Analysis^{1, *}

Parameter	Method	Principle	Type
Moisture	ISO 3632-1	Gravimetry	I
Total Ash	ISO928	Gravimetry	I
Acid Insoluble Ash	ISO930	Gravimetry	I
Soluble extract in cold water	ISO 941	Extraction	I
Taste strength (expressed as picrocrocin) $A^{1\%} 1 \text{ cm } 257 \text{ nm}$	ISO 3632-2	Absorbance	IV
Aroma strength (expressed as safranal) $A^{1\%} 1 \text{ cm } 330 \text{ nm}$	ISO 3632-2	Absorbance	IV
Coloring strength (expressed as crocin) $A^{1\%} 1 \text{ cm } 440 \text{ nm}$	ISO 3632-2	Absorbance	IV
Artificial colorants	ISO 3632-2	Chromatography	II
Extraneous Matter	ISO 3632-2	Visual Examination followed by Gravimetry	I
Foreign Matter	ISO 3632-2	Visual Examination followed by Gravimetry	I
Insect Damage	ISO 927	Visual Examination followed by Gravimetry	I
Insects /Insect Fragments	ISO 927	Visual Examination followed by Gravimetry	I
Mould visible	Method V-8 Spices, Condiments, Flavors and Crude Drugs (Macro analytical Procedure Manual, FDA Technical Bulletin Number 5) http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm084394.htm#v-32	Visual Examination followed by Gravimetry	IV
Excreta Mammalian	Macro analytical Procedure Manual, USFDA, Technical Bulletin V.39 B (For whole)	Visual Examination followed by Gravimetry	IV
Excreta Other	AOAC 993.27 (For Ground)	Enzymatic Detection Method	IV

***Note:** The minimum laboratory sample according to ISO 3632-2 (Table 1, 2) for duplicate analysis is:
 Filament and cut filament saffron: 11.5 g x 2 = 23 g powdered saffron: 6.75 g x 2 = 13.5 g

¹ Latest edition or version of the approved method should be used

9.2 Sampling Plan

To be developed

Table 1: Chemical characteristics of Dried Floral Parts- Saffron

General name	Class/ Grade	Moisture content %w/w (max)		Total ash on dry basis % w/w(max)	Acid insoluble ash on dry basis %w/w	Water soluble extract cold On dry matter % max	Artificial colorants	Taste strength	Aroma strength		Colouring strength
		Filament and cut filament style	powdered style					Picrocrocin	Safranal		Crocin
								Min	Min	Max	Min
Saffron	Extra Class	12.0	10.0	8.0	1.0	65	NP*	80	20	50	230
	I	12.0	10.0	8.0	1.0	65	NP	70	20	50	200
	II	12.0	10.0	8.0	1.0	65	NP	55	20	50	170
	III	12.0	10.0	8.0	1.0	65	NP	40	20	50	120

NP*: Not Permitted

Annex II

Table 2: Physical Characteristics for Dried Floral Parts- Saffron

Product	Class/ Grade	Extraneous Matter % w/w (max) ¹	Foreign Matter % w/w (max) ²	Insect fragments max. /10 g	Rodent filth Max. number of hairs /10 g	Mold damaged % w/w (max)	Dead Whole insects, Count/ 100g (max)	Mammalian excreta mg/Kg (max)	Other Excreta mg/kg	Insect defiled/ infested % w/w (max)
Saffron Filament and Cut Filament	Extra Class	0.1	0.1	NA*	0	0	0	0	0	0
	I	0.5	0.1	NA*	0	0	0	0	0	0
	II	3	0.5	NA*	0	0	0	0	0	0
	III	5	1.0	NA*	0	0	0	0	0	0
Saffron Powder	Extra Class	NA* or indicate values	NA* or indicate values	NA*	0	NA*	0	0	0	0
	I	NA* or indicate values	NA* or indicate values	NA*	0	NA*	0	0	0	0
	II	NA* or indicate values	NA* or indicate values	NA*	0	NA*	0	0	0	0
	III	NA* or indicate values	NA* or indicate values	NA*	0	NA*	0	0	0	0

NA*: Not applicable, means that this form of the above product has not been evaluated for this provision, and currently we do not have values. N/A does not refer to zero³

¹ Extraneous matter: Vegetative matter associated with the plant from which the product originates but not accepted as part of the final product (i.e. floral and plant waste)

² Foreign Matter: Any visible/detectable objectionable foreign matter or material not usually associated with the natural components of the spice plant, such as sticks, stones, burlap bagging, metal, etc.

COUNTRY	PARTICIPANT NAMES
1. USA	DORIAN LAFOND International Standards Coordinator Agriculture Marketing Service Specialty Crops Program Specialty Crops Inspection Division United States Department of Agriculture
	MS HEATHER SELIG Ms. Heather Selig (Codex Contact Point) International Issues Analyst U.S. Codex Office United States Department of Agriculture
2. Canada	SIMMER RANDHAWA Canadian Coordinator Acting Policy and Program Manager Canadian Food Inspection Agency
	AMELIE VEGA Senior Program Analyst on Codex Canadian Food Inspection Agency
3. Argentina	CODEX CONTACT POINT Ministry of Agriculture, Livestock and Fisheries
4. Republic of Korea	YOYE YU CODEX Researcher Ministry of Agriculture, Food and Rural Affairs
	JOOYEON KIM Researcher Food Safety Policy Division, Ministry of Food and Drug Safety (MFDS)
5. Uganda	DR MOSES MATOVU Senior Research Officer
	DR MARTIN MUTAMBUKA Lecturer
	MS MEEME HADIJAH Head of Fruits and Vegetables Technology
	MS PAMELA AKWAP Senior Standards Officer
	MS RUTH AWIO Standards Officer
6. Morocco	MS HADDAD KHADIJA Head of Plant Products and Plant Origin Control at the National Office of the Food Safety (ONSSA) (Head of Delegation)
	MS MESSAOUDI BOUCHRA

	<p>Engineer of Standardization and Codex Alimentarius at ONSSA</p> <p>MR KARRA YOUSSEF National Institute of Agronomic Research (INRA)</p> <p>MS MASSAD WAFAA Moroccan Interprofessional Association of Exporters and Importers of Cereals, Legumes and Spices (AIMEXICLE)</p>
7. Egypt	<p>AHMED MOHAMMED ELHELW Egyptian Organization for Standardization & Quality (EOS)Ministry of Trade and Industry</p>
8. Japan	<p>MR MASAKAZU KAWASHIMA Deputy Director, Food Manufacture Affairs Division, New Business and Food Industry Department, Minister's Secretariat Ministry of Agriculture, Forestry and Fisheries</p>
9. Indonesia	<p>SEKAR INSANI SUMUNARINGTYAS Sub Coordinator of Standardization</p>
10. Greece	<p>Hellenic Food Authority</p>
11. India	<p>KANNAN B Organisation: ITC Limited</p> <p>CODEX SECRETARIAT- FOOD SAFETY STANDARDS AND AUTHORITY OF INDIA CCP India</p> <p>PRIYAMVADA NILAYANGOD World Spice Organisation</p>
12. Iran	<p>ARASTEH ALIMARDANI Iran, Novin Saffron Co.</p>
13. Turkey	<p>AHMET GÜNGÖ TARIM VE ORMAN BAKANLIĞI</p>