



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON SPICES AND CULINARY HERBS**

**Fifth Session**

*Virtual, 20-29 April 2021*

**DRAFT STANDARD FOR SAFFRON – (UPDATED)**

**(At Step 7)**

(Prepared by the Electronic Working Group chaired by Iran (Islamic Republic of) and co-chaired by India with assistance from Argentina, Chile, European Union, Greece, India, Japan, México, Poland, Republic of Korea, United Kingdom, and USA)

**INTRODUCTION**

1. The third Session of the Codex Committee on Spices and Culinary Herbs (CCSCH3), held in Chennai India (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”<sup>1</sup>. 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 (2019) discussed the proposed draft standard and agreed to forward the proposed draft standard for saffron to CAC42 for adoption at Step 5. CCSCH4 also agreed to re-establish an EWG, chaired by Iran to consider the outstanding issues taking into account the discussions at CCSCH4 and comments received at Step 6.
3. At a video conference Session held in 10th June 2020, by the Chairperson of CCSCH, Codex and CCSCH Secretariats briefed EWG chairs on the impact of the COVID-19 outbreak on the Codex work; and discussed the various approaches for maintaining the continuity for the work of CCSCH. During the conference, it was agreed CCSCH EWGs continue their work to address the comments submitted at Step 6 as well as matters referred by the Codex Committee on Food labelling (CCFL) and the Codex Committee on Methods of Analysis and Sampling (CCMAS).

**TERMS OF REFERENCE**

4. The tasks of the re-established EWG by CCSCH4 were to consider:
  - a) The outstanding issues (such as the values for “Water soluble extract cold on dry matter (% max)” in Table 2; tolerances for defects; classes etc.) taking into account the discussions at CCSCH4;
  - b) The comments received at Step 6 as contained in document CX/SCH 21/5/6 Add.1.
5. Following the rescheduling of the CCSCH5 session from 21-26 September 2020 to 26-30 April 2021, the timelines for the EWG on dried Saffron were also revised and the EWG continued its work to address comments received at Step 6 in reply to CL 2019/94/OCS-SCH.

**PARTICIPATION AND METHODOLOGY**

6. EWG on the draft standard for dried Saffron was established on 27 September 2019, and worked on the Codex EWG platform and three rounds of consultations were undertaken as follows:
  - i. The first draft was uploaded on 05 November 2019 and comments were received from six (6) members including: Argentina, Greece, India, Japan, Poland, and USA;
  - ii. The second draft that took into account the comments received during the first round, was uploaded on 28 February, 2019, and comments were received from Argentina, Chile, Japan and USA, and.
  - iii. The last draft was uploaded on 05 October 2020 and comments were received from Canada, Morocco, Japan and USA. and.

<sup>1</sup>REP17/SCH, para 82 (a) & (b).

## ANALYSIS OF RESPONSES

7. According to the comments received, the following main changes were proposed:

### Section 2.2 Styles

The Style “Whole Filaments” was changed to “Filaments” in order to better define the standardized parts of the flower.

### Section 3.2 Quality Criteria

#### Economic adulteration

8. A member recommended adding a new quality factor that reflect current trade practices and standards i.e. a new section on adulteration. EWG is consent if a text on adulteration is added due to increased incidences of economic adulteration in all types of Spices and Culinary Herbs. Another point, economic adulteration is usually made by mixing saffron with other plants, increasing the weight of saffron with foreign material such as small particle of sands, sugar, small particle of metal etc. that are under control with different analysis such as Determination of Soluble Extract in cold water, Total Ash, Acid insoluble Ash.

#### Section 3.2.3 Classification

9. Categories (Grades or Classes) I, II, and III were introduced into the draft standard. For consistency, editorial changes were also made to the Chemical and Physical Characteristics Tables in Annexes I and II respectively.

### Section 4 Food additives

The proposal for optional use of anticaking agents in saffron was not accepted due to the importance of saffron purity and its corresponding prices (Saffron is very expensive culinary herb). Saffron should be 100% Pure.

### Section 8 Labelling - Country of Origin/Country of Harvest

10. Regarding labelling, and in respect of the country origin/country of harvest, it was agreed that there was a need to clarify both the country of origin and country of harvest as requested by CCFL. One member proposed to make Country of Origin/Country of Harvest be optional noting that since spices are often cleaned, sorted, ground, repackaged, and re-exported and the country of harvest is often not shown on the label. This proposal was not accepted. EWG agreed to label both the “Country of Origin and Country of harvest”.

### Table 1: Chemical characteristics

#### Picrocrocin value

11. Two proposals were put forward on Picrocrocin value. One proposal recommended changing the Picrocrocin value to 40 in order to be in line with ISO Standard 3632-1:2011. The second proposal was to reduce the Picrocrocin and crocin value in category I, II.
12. CCSC4 strongly supported good quality for Saffron and the existing values were already agreed at the session. Therefore, the proposal was not acceptable.

### Table 2: Physical Characteristics

#### Defects

13. Various proposals were put forward in relation to the tolerances of defects. A member observed that very low allowances for incidental defects (i.e. insect fragments, mould damage, rodent filth, insect defiled in all classes/grade and for Whole Filaments – frayed styles, worn and pale stripes); as well as having zero tolerances (ND) for the most common physical defects is not practical. The EWG accepted to use (ND) - Not Detected as in ISO Standard 3632-1:2011.

### Alignment of Codex standard with ISO

14. The Draft standard was aligned with the ISO standard for saffron, except for the colour strength level (“colour as crocine”).

### Editorial Corrections

15. The characteristics for taste strength, aroma strength, colouring strength were added to Table 1.

**CONCLUSION**

16. The Chair and Co-chair of EWG on Saffron notes that the EWG has completed the assigned task and the updated Draft Standard for Saffron is attached as Appendix I.

**DRAFT STANDARD FOR SAFFRON – (UPDATED)  
(At Step 7)****1 SCOPE**

This Standard applies to saffron commonly sold in commerce as defined in section 2.1 below, offered for direct consumption as an ingredient in food processing or for repackaging if required. This Standard does not apply to products intended 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; and
- Other styles distinctly different for those three 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 CRITERIA****3.2.1 Odor, flavor and color**

The product shall have a characteristic odor, color and flavor, which may vary depending on geo-climatic factors/conditions/varieties, and shall be free from any foreign odor, flavor and color, 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 categories:

- Grade I/Class I;
- Grade II /Class II; and
- Grade III /Class III.

When saffron is traded as unclassified/ungraded, the provisions for category/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).

**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 for the Establishment and Application of Microbiological Criteria for 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 LABELING

**8.1** The products covered by the provisions of this Standard shall be labeled in accordance with the *General Standard for the Labeling 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 "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 and country of harvest shall be indicated and the region of production may be indicated.

**8.3.2** Year of harvest may be indicated.

### 8.4 Commercial Identification

Category, if applicable

### 8.5 Inspection mark (optional)

### 8.6 Labeling 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<sup>1, \*</sup>

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 picrocrocine) A <sup>1%</sup> 1 cm 257 nm	ISO 3632-2	Absorbance	IV
Aroma strength (expressed as safranal) A <sup>1%</sup> 1 cm 330 nm	ISO 3632-2	Absorbance	IV
Coloring strength (expressed as crocin) A <sup>1%</sup> 1 cm 440 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) <a href="http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm084394.htm#v-32">http://www.fda.gov/Food/FoodScienceResearch/LaboratoryMethods/ucm084394.htm#v-32</a>	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: Just for this table 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

<sup>1</sup> Latest edition or version of the approved method should be used

## Annex I

Table 1: Chemical characteristics of Dried Floral Parts- Saffron

General name	category	Moisture content %w/w (max)		Total ash % w/w(max)	Acid insoluble ash %w/w	Water soluble extract cold On dry matter % max	Artificial colorants	Taste strength	Aroma strength		Coloring strength
		Filament and cut filament style	Ground /powdered style						Picrocrocin	Safranalin	
		Min	Min					Max	Min		
Saffron	I	12.0	10.0	8.0	1.0	65	ND*	80	20	50	220
	II	12.0	10.0	8.0	1.0	65	ND	70	20	50	190
	III	12.0	10.0	8.0	1.0	65	ND	60	20	50	160

ND\*: Not Detected

## Annex II

Table 2: Physical Characteristics for Dried Floral Parts- Saffron

Product	Category	Extraneous Matter % w/w (max) <sup>1</sup>	Foreign Matter % w/w (max) <sup>2</sup>	Insect fragments max. / 10 gm	Rodent filth Max. number of hairs /10 gm	Mold damaged % w/w (max)	Dead Whole insects, Count/ 100gm (max)	Mammalian excreta mg/Kg (max)	Other Excreta mg/kg	Insect defiled/ infested % w/w (max)	Other defects/ Comments
Saffron	I	0.5	0.1	ND*	ND	ND	ND	ND	ND	ND	-----
	II	[1]	0.5	ND	ND	ND	ND	ND	ND	ND	
	III	[2]	[1]	ND	ND	ND	ND	ND	ND	ND	

ND\*: Not Detected

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.