



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

Sixth Session

Virtual

26-30 September and 3 October 2022

Report of the virtual Working Group on the draft standards for dried saffron

(Prepared by Iran (Islamic Republic of) and Greece)

At the request of CCSCH6, a virtual working group (vWG) meeting took place on 15th September 2022, 11:00 – 12:30 hours CEST in order to discuss the outstanding issues of the mandate of the established electronic working group (eWG) on saffron (i.e., 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”), and prepare recommendations for the Plenary CCSCH6 meeting. The working group was co-chaired by Iran and Greece. Representatives from Codex Secretariat, CCSCH Secretariat and delegates from the member countries attended the meeting.

The Chair of the eWG thanked all participants in the eWG who contributed to the preparation of the saffron standard and those (Canada, Colombia, Cuba, Egypt, India, Peru, Philippines, Saudi Arabia, Uganda, Japan and IOSTA) who responded to the CL 2022/25/SCH with written comments. Then, the Chair of eWG presented a justification paper, prepared by Iran and Greece, which rationalized the need to maintain extra class and the mandatory indication of country of harvest. Since the quality of saffron is primarily linked to its colouring strength which is measured by crocin, products of different quality should be clearly distinguished, thus respecting fair trade as well as the rights of consumers. The suggested value of crocin (i.e., 250) for extra class saffron is based on science and trade practices of saffron. Regarding the country of harvest, it was reminded that CCSCH5 agreed to “Country of Origin/Country of Harvest” as two independent and clear provisions and that these provisions would be reconsidered in individual standards, should the need arise. Since saffron is cultivated and harvested in few countries, the country of harvest is very important for consumers and importers. Furthermore, since for saffron the country of origin is also the country of harvest, the mandatory indication of country of harvest could further safeguard against mislabelling practices.

3.2.2 “Chemical and physical characteristics” (Annex I and Annex II) and “3.2.3 Classification”

Two members expressed their concerns on the inclusion of extra class, on account of the fact that a. extra class does not appear in the market, b. there are no national provisions for it and c. there are no other differences in physical and chemical characteristics between extra class and the other classes, other than the crocin levels. In addition, they argued that Codex standards should not promote economic values and that there are no four classes in other standards.

The Chair and five members supported “extra class” based on the following arguments: a. extra class is already marketed in Asian countries (e.g. China) and there is an increasing demand for it in recent years, b. Codex should cover all products that are traded internationally, c. “extra class” as a product category is also used in other Codex standards d. there are four classes (extra and three other) in the SMIIIC standard for saffron e. an indication “extra class” on the label gives an added value to the highest quality of saffron, f. extra class has different physical characteristics, e.g. on extraneous matter, compared to the other three classes, other than crocin values, g. extra class is based on both science and good agricultural practices. Since the main factor influencing the quality of saffron is the application of good agricultural practices from field to packaging and less on the soil-climatic-geographic conditions, production of high quality saffron is feasible in different parts of the world.

One member proposed the categorisation of saffron to be like the one for oregano (i.e., class/grade I to be re-named as extra and followed by classes/grades I and II). The co-chair explained that since saffron quality is mostly influenced by the application of good agricultural practices and since some producers have invested for the long term to meet extra class specifications, extra class will provide sustained incentive for producers to continue these practices. In addition, there is sufficient scientific evidence that samples taken from different regions around the world have shown crocin values above the proposed threshold of 230 for extra. Finally it was reminded (from discussions at the CCSCH5) that keeping extra and I, II classes could create confusion in the market, because there is already a different classification for saffron (I, II and III) in the existing ISO

standard.

Finally, another member proposed extra class to be optional. **No consensus could be reached on extra class, which is kept in square brackets for the Plenary.**

Table 1, Chemical characteristics

Two members suggested that the minimum value for saffranal is increased to 30 for extra class. The co-chair explained that the increase of saffranal to 30 is not feasible from an analytical point of view, since saffranal is a monoterpene and insoluble in water. The minimum value 20 was kept for saffranal.

It was proposed to use both “flavour/taste” for picrocrocin in accordance with the ISO standard, instead of “taste” only. There was also a discussion regarding the necessity of the column ‘artificial colourants’ in the standard, since colours are food additives which are not permitted in this product in any case. The Chair and a member said that this column needs to be kept to emphasise that colourants are not permitted. CCSC Chair commented that it could be deleted since it does not affect the standard and it is a technical point. Finally, the deletion of the column and the addition of a footnote next to the colouring strength, as reminder, that ‘no food additives are allowed in the products covered by this Standard ` (Section 4) ’ was agreed. Acid insoluble ash was increased to 1.5 (from 1.0) for class III, based on ESA information.

Table 2, Physical characteristics

One member asked for the increase of extraneous matter for extra class from 0.1 to 0.25. One member expressed concern on the ‘zeros’ entries for defects (e.g. mould, insects) because zeros make this standard difficult to apply. It was decided to replace ‘zeros’ with N/A for powder saffron for all parameters, since there are no analytical methods. One member proposed that column ‘foreign matter’ could be divided into two sub-columns, one for ‘foreign matters from other plants’ with values and the other ‘foreign matter other’ with zero for all classes, in accordance with the ISO standard for saffron. This was not accepted because this definition has already been agreed in CCSC3. In addition, ‘count/100g’ was accepted to be replaced with ‘count/10 g’ for dead whole insects in order to be consistent with ‘insect fragments’ and ‘rodent filth’. CCSC Chair clarified that N/A should be kept in all columns for saffron powder, since suitable analytical methods might appear in future. One member noted that there is a value 1 for extraneous matter for powder, class III.

8.3 Country of harvest

One member supported the country of origin and harvest as mandatory.

Three members supported that ‘Region of harvest and Year of harvest’ (8.3.3) should be optional according to the conclusions of CCSC5 and reminded that Codex standard does not cover geographical indications. In addition, they supported that country of harvest is optional, in line with the advice of CCFL, since the country of harvest is more difficult to be verified during controls compared to the country of origin. The Chair echoed that CCFL concluded on the division of country of origin and harvest for particular cases and supported that country of origin and country of harvest is the same and mandatory (since saffron undergoes treatments, like sorting, cleaning, drying, packaging, which do not alter substantially the nature of the product). One member said that since the country of origin and harvest are the same, the inclusion of both as mandatory might create confusion to consumers. Another member reminded that the CCSC5 concluded that should the need arises, the case of country of harvest as mandatory should be considered individually for a spice standard. Since spices move in different countries, there is a possibility that the provision of the country of origin being the same as the country of harvest won’t be respected by all food business operators, thus deceiving importers and consumers. **No consensus could be reached on the mandatory indication of country of harvest, which is kept in square brackets for the Plenary.**

**DRAFT STANDARD FOR DRIED SAFFRON
(STEP7)**

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, flavour 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* (CAC/RCP 75-2015), Annex III on spices and dried culinary herbs, 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 shall be declared

8.3.3 Region of harvest and Year of harvest [~~mandatory~~ optional]

8.4 Commercial Identification

Grade/Class, if applicable

8.5 Labelling of non-retail Containers

The labeling of non-retail containers should be in accordance with the *General Standard for the Labelling of Non-Retail Containers of Foods* (CXS 346-2021).

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 cm 257 nm	ISO 3632-2	Absorbance	IV
Aroma strength (expressed as safranal) A ^{1%} 1 cm 330 nm	ISO 3632-2	Absorbance	IV
Coloring strength (expressed as crocin) A ^{1%} 1 cm 440 nm	ISO 3632-2	Absorbance	IV
Artificial colourants	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/LaoratoryMethods/ucm084394.htm#v-32	Visual Examination followed by Gravimetry	IV
Mammalian Excreta	Macro analytical Procedure Manual, USFDA, Technical Bulletin V.39 B (For whole)	Visual Examination followed by Gravimetry	IV
Other Excreta	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 (max)	Soluble extract in cold water on dry matter % max	[Artificial colourants]	[Flavour / taste] strength	Aroma strength		Colouring strength*
		Filament and cut filament style	powdered style						Picrocrocin		Safranal
		Min	Max					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	1.0-1.5	65	[NP]	40	20	50	120

[NP*: Not Permitted]

* No food additives are permitted in the products covered by this Standard (Section 4).

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 fragment, count / 10 g (max)	Rodent filth Max. number of hairs /10 g	Mould visible % w/w (max)	Dead Whole insects, count/ 100g (max)	Mammalian excreta mg/kg (max)	Other Excreta mg/kg	Insect damage % w/w (max)
Saffron Filament and Cut Filament	Extra Class	0.4 0.25	0.1	N/A*	0	0	0	0	0	0
	I	0.5	0.1	N/A*	0	0	0	0	0	0
	II	3	0.5	N/A*	0	0	0	0	0	0
	III	5	1.0	N/A*	0	0	0	0	0	0
Saffron Powder	[Extra Class]	N/A* or indicate values	N/A* or indicate values	N/A*	0-N/A*	N/A*	0-N/A*	0-N/A*	0-N/A*	0-N/A*
	I	N/A* or indicate values	N/A* or indicate values	N/A*	0-N/A*	N/A*	0-N/A*	0-N/A*	0-N/A*	0-N/A*
	II	N/A* or indicate values	N/A* or indicate values	N/A*	0-N/A*	N/A*	0-N/A*	0-N/A*	0-N/A*	0-N/A*
	III	N/A* or indicate values 1	N/A* or indicate values	N/A*	0-N/A*	N/A*	0-N/A*	0-N/A*	0-N/A*	0-N/A*

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'

¹Extraneous 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