

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

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Agenda Item 7<sup>1</sup>

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**ORIGINAL LANGUAGE ONLY**

## JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FRESH FRUITS AND VEGETABLES

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### DISCUSSION PAPER ON DEVELOPMENT OF CODEX STANDARD FOR FRESH TURMERIC

(Prepared by Fiji)

#### 1. Background

Curcuma is an important genus in the family *Zingiberaceae*. Various species have been, used as spices for flavouring, colouring food, juice and other health benefit uses since time immemorial. Its generic name originated from the Arabic word kurkum meaning “yellow,” and most likely refers to the deep yellow rhizome colour of the true turmeric (*Curcuma longa* L.). Besides *C. longa*, there are several species of economic importance, such as *Curcuma aromatica* Salisb., *Curcuma amada* Roxb., *Curcuma caesia* Roxb., *Curcuma aeruginosa* Roxb., and *Curcuma zanthorrhiza* Roxb.

There are 93 species belong to *Curcuma* genus is available in the world now (WFO 2020). It is found throughout south and south-east Asia with a few species extending to China, Australia and the South Pacific.

All of these areas have traditional culinary and health benefit uses going back to pre-history. True turmeric is acquired from *Curcuma longa* L., a tuberous herbaceous perennial plant with yellow flowers and wide leaves, which is a member of ginger family and grows in tropical climate.

Turmeric, a spice that has long been recognized for its life giving properties, has received interest from both culinary enthusiasts and from the scientific world, as it is the major source of the most active component orange yellow coloured polyphenol curcumin.

#### 2. Rationale for the development of a Standard for fresh turmeric.

Fresh Turmeric is an important aromatic plant considered as one of the golden resources with massive exports prospective as cooking spice, beverage, health drink and other potential benefits.

*Curcuma longa* L. syn. *Curcuma domestica* Val., true or common turmeric, is the most economically valuable member of the genus. Rhizome is used which is ovate or pear shaped and resembles the bulb known as round turmeric measuring 2.5 - 7.0 cm in length and 2.5 cm in diameter with finger like projection branching off. It is yellowish brown with a dull orange from interior section that looks bright yellow or when powdered.

Developing a worldwide standard for fresh turmeric will set a platform for the supply of good graded fresh turmeric, facilitating market access opportunities and fair trade for developing countries. This helps to protect consumer health from consumption of contaminated and low graded product, and also minimizes food fraud risks along the supply chain.

#### 3. Recommendation

Fiji invites CCFFV23 to review the attached project document (Appendix 1) and to consider supporting the proposal for the development of a Standard for Fresh Turmeric (Annex 1).

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<sup>1</sup> Subject to the agreement of the Committee and time availability.

**PROJECT DOCUMENT****NEW WORK PROPOSAL ON A STANDARD FOR FRESH TURMERIC****1. Introduction**

Curcuma is an important genus in the family *Zingiberaceae*. Various species have been used as spices for flavouring, colouring food, and drink for a long time. Its generic name originated from the Arabic word *kurkum*, meaning “yellow,” and most likely refers to the deep yellow rhizome color of the true turmeric (*Curcuma longa* L.). Besides *C. longa*, there are several species of economic importance, such as *Curcuma aromatica* Salisb., *Curcuma amada* Roxb., *Curcuma caesia* Roxb., *Curcuma aeruginosa* Roxb., and *Curcuma zanthorrhiza* Roxb.

There are 93 species belong to *Curcuma* genus is available in the world now (WFO 2020). It is found throughout Southeast Asia with a few species extending to China, Australia and the South Pacific. All of these areas have traditional culinary and medicinal uses going back to pre-history.

True turmeric is obtained from *Curcuma longa* L., a tuberous herbaceous perennial plant with yellow flowers and wide leaves. It is a member of the ginger family and grows in tropical climates.

Turmeric, a spice long recognized for its health benefits and life giving properties, has received interest from both culinary enthusiasts and the scientific world. The orange-yellow polyphenol curcumin is the major source of the most active component.

**2. The purpose and the scope of the standard**

The scope of the work is to establish a worldwide standard for fresh turmeric rhizomes to be presented to support the trade of good quality fresh turmeric for direct consumption and or for further food processing, as required.

The objective is to develop a Codex standard for fresh turmeric based on measurable characteristics, specifically quality criteria and any other factors for developing an international document to protect consumer's health and facilitate international trade good quality fresh turmeric.

Turmeric is an important aromatic plant considered a golden resource with massive export potential as a cooking spice, beverage, health drink, and other potential benefits. *Curcuma longa* L. *syn.* *Curcuma domestica* Val., true or common turmeric, is the most economically valuable member of the genus.

The rhizome is used, which is ovate or pear-shaped and resembles the bulb known round turmeric, measuring 2.5 - 7.0 cm in length and 2.5 cm in diameter with finger-like projection branching off. It is yellowish brown with a dull orange from the interior section that looks bright yellow when powdered.

Developing a worldwide standard for fresh turmeric will set a platform for the supply of good-graded turmeric, facilitating market access opportunities and fair trade for developing countries. This will help protect consumer health from consuming contaminated low-graded products and minimize food fraud risks along the supply chain.

**3. Main Aspects to be covered**

The standard will cover characteristics related to identification and quality in all aspects as well as safety requirements:

- Product definition: Defining the product as fresh turmeric, including the common, trade, and scientific name.
- Provisions concerning Quality: including minimum requirements with special provisions for tolerance and class; listing the different forms of fresh turmeric (whole); including provisions for colour, odour...etc.
- Provisions concerning size, which shall be determined by the weight of the turmeric; Tolerance with respect to quality and size allowed for packaging.
- Provisions concerning presentation: Including uniformity of the contents of the package and quality of packaging.
- Provisions for the labelling and marking of the product in accordance with the CODEX standard for the labelling of pre-packaged foods.
- Provisions for contaminants, pesticide residues, and hygiene with reference to pre-existing Codex documents.

- References to Methods of Analysis and Sampling.

#### 4. Assessment against the Criteria for the Establishment of Work priorities

**General Criterion** Ensuring consumer health protection under food safety guidelines and practices, promoting good quality food products, and enhancing fair trade in foods from developing countries. The proposed new standard will meet this criterion:

- Maintaining the quality of the fresh turmeric with greater assurance to meet consumer satisfaction.
- Minimise fraudulent activities along the fresh turmeric supply chain.

##### (a) Criteria applicable to commodities

Overview of Global Turmeric Market Top Exporting and Importing Countries 2022: the top 10 exporting countries of Turmeric 2022 were India, Myanmar, Netherlands, Fiji, Indonesia, Germany, Vietnam, UAE, Bangladesh, and the United States of America respectively, table (1). The top 10 importing countries of Turmeric in 2022 were the United States of America, Iran, Bangladesh, India, China, Morocco, Germany, Netherlands, Malaysia, and Saudi Arabia, respectively (table 2).

**(a) Table 1 - Top 10 exporting countries of Turmeric with a summary of price and seasonality data for each market (2022)**

Exporters	Value exported in 2022 (USD thousand)	Quantity exported in 2022 (Tons)	Quantity exported in 2022 (Tons)	Annual growth in value between 2018-2022 (%)	Annual growth in quantity between 2018-2022 (%)	Annual growth in value between 2021-2022 (%)	Share in world exports (%)
India	214816	160744	160744	-1	7	-5	62.7
Myanmar	17265	29386	29386	3	9	71	5
Netherlands	14369	4519	4519	17	16	-8	4.2
Fiji	9947	2540	2540	54	28	-6	2.9
Indonesia	9244	10126	10126	-5	4	3	2.7
Germany	7564	1950	1950	14	16	-3	2.2
Viet Nam	7353	5005	5005	-22	6	-40	2.1
UAE	5808	6110	6110	27	35	48	1.7
Bangladesh	5797	2077	2077	10	7	-6	1.7
United States	4693	825	825	10	6	1	1.4

**Table 2 - Top 10 Importing countries of Turmeric with a summary of price and seasonality data for each market (2022).**

Importers	Value imported in 2022 (USD thousand)	Quantity imported in 2022 (Tons)	Annual growth in value between 2018-2022 (%)	Annual growth in quantity between 2018-2022 (%)	Annual growth in value between 2021-2022 (%)	Share in world imports (%)
United States	49821	10756	12	5	-20	13.4
Iran	29805	25748	7	8	11	8
Bangladesh	28663	28807	60	56	-2	7.7

Importers	Value imported in 2022 (USD thousand)	Quantity imported in 2022 (Tons)	Annual growth in value between 2018-2022 (%)	Annual growth in quantity between 2018-2022 (%)	Annual growth in value between 2021-2022 (%)	Share in world imports (%)
India	27419	19202	-10	-11	-12	7.4
China	16163	21022	111	99	171	4.3
Morocco	15491	10739	5	2	54	4.2
Germany	14842	5343	6	6	-11	4
Netherlands	13839	6273	18	18	-5	3.7
Malaysia	12011	9276	2	3	-2	3.2
Saudi Arabia	11404	6620	12	4	9	3.1

(Source: UNSD - COMTRADE & ITC Statistics)

**(b) Diversification of national legislations and apparent resultant or potential impediments to international trade:**

Exports and imports of fresh turmeric under various market criteria is a challenge to most countries regarding supply and demand context, thus, signifies the need for developing a harmonized international criterion based on the Codex standard. Therefore, the new work would provide internationally recognized standards to enhance international trade and accommodate the importer's requirements. The ISO has developed a standard for turmeric (ISO-5562-1983) with ISO Management System and ISO Harmonized Structure, and other associations like the American Spice Trade Association (ASTA) and USDA NOP certification have dealt with some turmeric specifications. To overcome the resultant or potential impediments to international trade, it is essential to integrate all existing standards in a single improved comprehensive standard acceptable internationally. This warrants the establishment of a Codex standard as per the Procedural Manual.

**(c) International or regional market potential**

Global demand for fresh turmeric continues to rise, driven by its increasing demands for application in foods, and other potential benefits. Lately, fresh turmeric has been touted as a super food, and the market is likely to gain attraction in the coming years. In 2022, Fiji was listed as the fourth largest fresh turmeric supplier in the global market, and there are huge opportunities to tap into promising markets such as Europe. Fiji exports the commodity to the following countries: the USA, New Zealand, Japan, Australia, China, and Germany.

**(d) Amenability of commodity to standardization**

The standard will include the characteristics of fresh turmeric composition, quality, and packaging criteria.

**(e) Coverage of the main consumer protection and trade issues by existing or proposed general standards**

There is no general commodity standard covering fresh turmeric. The new work will enhance consumer protection and facilitate trade by establishing an internationally agreed-upon and recognized quality standard. .

**(f) Number of commodities that would need separate standards, including whether raw, semi-processed, or processed.**

The proposed standard will cover the fresh turmeric in its fresh rhizomes and fingers (whole).

**(g) Work already undertaken by other organizations in this field**

- i. ISO Standard for Turmeric - Specification (ISO-5562-1983),
- ii. Guidance from the American Spice Trade Association 2017(Clean Safe Spices),
- iii. USDA NOP Organic Certification.

## 5. Relevance to Codex Strategic Objectives

The elaboration of a Codex standard for fresh turmeric is according to Codex strategic objectives to promote the maximum application of Codex standards by countries in their national legislation and to facilitate fair international trade by protecting the health of the consumers. This standard is important to guarantee the quality, as well as providing new opportunities for producing this healthy and beneficial product and promoting new opportunities for producing healthy and beneficial products and promoting them to the international market.

This proposal is consistent with the Codex Strategic Plan for 2020-2025, particularly strategic Goal 2—Objective 2.2 and Goal 3—Objectives 3.1, 3.2, and 3.3.

## 6. Information on the Relation between the Proposal and Other Existing Codex Documents As Well As Other Ongoing Work

This proposal is a new Codex Standard for Fresh Turmeric complementing the Standard for dried turmeric. This standard will include references to relevant pre-existing Codex texts developed by general subject committees, as follows:

- *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995)
- *General Principles of Food Hygiene* (CXC 1-1969)
- *Code of Hygienic Practice for Fresh Fruits and Vegetables* (CXC 53-2003)
- *Principles and guidelines for the Establishment and Application of Microbiological Criteria for Foods* (CXG 21-1997)
- Databases related to the maximum limits for pesticide maximum limits for pesticide residues issued by the Codex Committee on Pesticides Residues in Food (CCPR).
- *General Standard for the Labelling of Pre-packaged Foods* (CXS 1-1985)

## 7. IDENTIFICATION OF REQUIREMENT FOR AVAILABILITY OF EXPERT SCIENTIFIC ADVICE

No expert scientific advice is foreseen at this stage. However, published research documents by international bodies will be consulted in preparing the standard.

## 8. IDENTIFICATION OF NEED FOR TECHNICAL INPUT TO THE STANDARD FROM EXTERNAL BODIES

Technical input from the International Standards Organization (ISO), American Spice Trade Association (ASTA), USDA NOP, European Spice Association (ESA), and other relevant bodies may be sought when developing this standard.

## 9. PROPOSED TIMELINE FOR COMPLETION OF NEW WORK

STEP PROCEDURE	SESSION
Consideration of Project document/new work and establishment of EWG	*CCFFV23...
Critical review of proposal by CCEXEC; Approval of new work proposals CAC (2024)	*CAC 48...
Consideration of comments at Step 4	*CCFFV24...
Adoption of amendments at step 5/8	*CAC51...

**ANNEX 1****VERNACULAR NAMES OF TURMERIC**

Country	Common Name
Arabic	kurkum
Assamese	halodhi
Bengali	holud (হলুদ)†
Brunei Darussalam	kunyit
Burmese	tanum
Cambodia	lmeat, ro miet
Chinese	jiang huang (姜黄), huang si yu jin (黄丝郁金),‡ jianghuang
Danish	gurkemeje
Dutch	geelwortel
English	common turmeric, curcuma, yellow ginger
Fiji	rerega
French	curcuma, safran des Indes
German	kurkuma, Gelbwurz
Hindi	haldi, haldee (हल्दी)
Indonesia	kunyit, Koneng
Italian	curcuma, zafferano delle Indie
Japanese	ukon
Lao PDR	khe Min
Laotian	khi min
Malaysia	kunyit
Marathi	halad (हळद)
Nepali	besar, besaar (बेसार)†
Norwegian	gurkemeie
Papua New Guinea	kawawara
Philippines	luyang Dilaw, rega
Portuguese	açafrão-da-Índia
Russian	yellow ginger – жёлтый имбирь (zholyj imbir), curcuma – куркума
Samoa	ago, lega
Sanskrit	haridra
Solomon Is	rega
Spanish	curcuma
Swedish	gurkmeja
Tamil	manjal (மஞ்சள்)
Telugu	pasupu (పసుపు)
Thailand	ka-min
Tonga	ago, rega, ega
Urdu	haldi (ہلدی)
Vanuatu	rerega
Vietnam	cu nghe, nghê, uất kim

**APPENDIX II****PROPOSED DRAFT STANDARD FOR FRESH TURMERIC***(Prepared by the Electronic Working Group Chaired by Fiji)***1. DEFINITION OF PRODUCE**

This Standard applies to the commercial variety of turmeric defined in Table 1, to be supplied fresh to the consumer, after preparation and packaging, offered for direct consumption, or as an ingredient in food processing, or for repackaging if required. It excludes the product for industrial processing.

Fresh turmeric is the product obtained from the rhizomes of plants *Curcuma longa* L. of the *Zingiberaceae* family, as described in Table 1.

**Table 1: Common and scientific name of Turmeric**

Common Name	Scientific Name
Turmeric	<i>Curcuma longa</i> L. of Zingiberaceae family

**2. PROVISIONS CONCERNING QUALITY****2.1 MINIMUM REQUIREMENTS**

In all classes, subject to the special provisions for each class and the tolerances allowed, the fresh turmeric must display the following characteristics, deviations from which shall be observed by the naked eye when appropriate:

- whole, including main and secondary rhizomes;
- sound; produce affected by rotting or deterioration, such as to make it unfit for consumption is excluded;
- fresh in appearance;
- firm;
- clean, practically free of any visible foreign matter;
- practically free from pests and free of damage caused by pests affecting the general appearance of the produce;
- free of abnormal external moisture, and properly dried if washed, excluding condensation following removal from cold storage;
- free of any foreign smell and/or taste;
- free of abrasions, provided light abrasions that have been properly dried are not regarded as a defect;
- sufficiently dry for the intended use; skin, stems, and cuts due to harvesting must be fully dried; and
- free of damage caused by low and/or high temperatures.

The fresh turmeric should be harvested and have reached an appropriate degree of development and maturity in accordance with the characteristics proper to the area in which they are grown.

The development and condition of the fresh turmeric must be such as to enable them:

- To withstand transportation and handling; and
- To arrive in satisfactory condition at the place of destination.

**2.2 CLASSIFICATION**

Fresh turmeric is classified into three classes defined below:

**2.2.1 "Extra" Class**

Fresh turmeric in this class must be of superior quality. It must be characteristic of the variety or commercial type. The rhizomes must be cleaned, well-shaped, and free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

### 2.2.2 Class I

Fresh turmeric in this class must be of good quality. It must be characteristic of the variety and/or commercial type. The rhizomes must be firm, without evidence of shriveling or dehydration or sprouting. The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the storage quality, and the presentation of the package:

- Slight skin defects due to rubbing provided they are healed and dry, and the total surface area affected not exceeding 10%.

### 2.2.3 Class II

This class includes fresh turmeric which does not qualify for inclusion in the higher classes, but meets the minimum requirements specified in Section 2.2.2 above. Fresh turmeric in this class must be of good quality and should be reasonably firm. Skin defects may be allowed provided these do not affect the general appearance of the produce, its quality, the storage quality, or its presentation in the package.

The following defects, however, may be allowed, provided the fresh turmeric retains their essential characteristics as regards the quality:

- skin defects due to rubbing, provided they are healed and dry and the total surface area affected not exceeding 15%;
- early signs of sprouting (not more than 10% by weight by unit of presentation);
- slight markings caused by pests;
- healed suberized cracks, provided they are completely dry;
- slight traces of soil; and
- bruises.

## 3. PROVISIONS CONCERNING SIZING

Size may vary according to geographical zones, soil types, and climate. Fresh turmeric used should be ovate or pear shaped and resembles the bulb known as round turmeric with finger like projection or small tubers branching off.

Size is determined by weight in accordance with the following table:

Size Code	Weight (g)
1	>200
2	>125 - 200
3	>75 - 125
4	>25 - 75
5	≤ 25

## 4. PROVISIONS CONCERNING TOLERANCES

### 4.1 QUALITY TOLERANCES

Tolerances with respect to quality and size shall be allowed in each lot for produce presented in bulk or each package not satisfying the requirements of the class indicated.

#### 4.1.1 "Extra" Class

Five percent (5.0%), by number or weight of fresh turmeric does not meet the requirements of the class, but meets those of Class I.

#### 4.1.2 Class I

Ten percent (10.0%) by number or weight of fresh turmeric does not meet the requirements of the class, but meets those of Class II. Included therein, is one percent (1%) tolerance for decay, soft rot, and/or internal breakdown.



#### 4.1.3 Class II

Ten percent, 10.0% by number or weight, of fresh turmeric does not meet the requirements of the class. Included therein, is a two percent (2%) tolerance for decay, soft rot, and/or internal breakdown.

#### 4.2 SIZE TOLERANCES

For all classes if sized: Ten percent (10.0%) by number or weight of {name of produce} not satisfying the requirements as regards to sizing, but falling within the size immediately above or below those indicated in Section 3.

### 5. PROVISIONS CONCERNING PRESENTATION

#### 5.1 UNIFORMITY

The contents of each package (or lot for produce presented in bulk) must be uniform and contain only fresh turmeric of the same variety, origin, quality, maturity, and size. The visible part of the contents of the package (or lot for produce presented in bulk) must be representative of the entire contents.

#### 5.2 PACKAGING

Fresh turmeric must be properly packed and stacked in such a way as to protect the produce. The materials used inside the package must be of food-grade quality, new, clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

Fresh turmeric shall be packed in each container in compliance with the *Recommended International Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables (CAC/RCP 44-1995, Amended. 1-2004)*.

##### 5.2.1 Description of Containers

The container shall meet the quality, hygiene, ventilation, and resistance characteristics to ensure suitable handling, shipping, and preservation of the fresh turmeric. Packages (or lots for produce presented in bulk) must be practically free of all foreign matter and smell.

#### 5.3 PRESENTATION

Fresh turmeric may be presented under one of the following forms:

##### 5.3.1 Whole;

##### 5.3.2 Main and/or secondary rhizome.

### 6. PROVISIONS CONCERNING MARKING OR LABELLING

#### 6.1 CONSUMER PACKAGES

In addition to the requirement of the General Standard for the Labelling of Pre-packaged Foods (CXS STAN 1- 1985, Rev.1 -1991), the following specific provisions apply:

##### 6.1.1 Name of Produce

Each package shall be labelled as to the name of the produce, and it may be labelled with the name of the variety and or commercial type.

#### 6.2 NON-RETAIL CONTAINERS

The labelling of non-retail containers should be in accordance with the General Standard for the Labelling of Non-Retail Containers of Foods (CXS 346-2021). In addition, the following specific requirements shall apply: Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside or in the document accompanying the shipment. These particulars must appear on a document accompanying the goods for produce transported in bulk.

##### 6.2.1 Identification

Name and address of Exporter, Packer, and/or Dispatcher. Identification code (optional).

##### 6.2.2 Nature of Produce

Name of produce, variety, and/or commercial type.

##### 6.2.3 Origin of Produce

Country of origin and, optionally, district where grown, or national, regional, or local place name. The indication of each country of origin shall appear next to the name of the variety concerned.

## 6.2.2 Commercial Specifications

- Produce name;
- Variety name;
- Class;
- Size;
- Number of units (optional);
- Net weight (optional).

## 6.2.3 Official control mark (optional)

## 7. CONTAMINANTS

### 7.1 Pesticides Residue

Fresh turmeric shall comply with the maximum residue limits (MRLs) for pesticides established by the Codex Alimentarius Commission.

### 7.2 Other Contaminants

Fresh turmeric shall comply with the maximum levels for heavy metals established by the Codex Alimentarius Commission, or other contaminants established by the General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995).

## 8. HYGIENE

**8.1** It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CXC 1-1969, Rev. 3 – 1997), Code of Hygienic Practice for Fresh Fruits and Vegetables (CXC 53- 2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

**8.2** The product 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 (CXC/GL 21-1997).

## 9. METHODS OF ANALYSIS AND SAMPLING

Analytical and sampling methods to be used for ascertaining conformance to the requirements of this specification shall be in accordance with the relevant text in Codex Methods of Analysis and Sampling.