



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

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**REPORT OF THE ELECTRONIC WORKING GROUP ON THE PROPOSED DRAFT STANDARD FOR
NUTMEG**

(Prepared by the Electronic Working Group chaired by Indonesia)

BACKGROUND

1. The proposal for new work of standard for nutmeg; was first considered at the 2nd Session of the Codex Committee on Spices and Culinary Herbs (CCSCH2) that was held from 4 – 18 September 2015 in Goa India, and; was provided a conditional approval (in order of priority), as it required some minimal changes to be made.
2. At the CCSCH3 held from 6 - 10 February 2017 in Chennai, India, the proposal was recommended for approval as new work on nutmeg, and was further categorized under “Dried Seeds”.

TERMS OF REFERENCE

3. CCSCH3 also agreed to establish an electronic working group (EWG) chaired by Indonesia, and working in English only, to prepare a standard for nutmeg under the Spices and Culinary Herbs (SCH) group category on dried seeds; and based on the general concept of group standards for comments at Step 3 and consideration at CCSCH4.

PARTICIPATION AND METHODOLOGY

4. The kick-off message was issued in May 2017, to which eighteen Codex members and three observer organisations expressed interest to participate in the EWG i.e. Argentina, Brazil, Chile, Egypt, European Union, Grenada, India, Iran, Japan, Kenya, Korea, Malaysia, Mexico, Poland, Srilanka, Switzerland, Turkey, USA, European Spice Association (ESA), Food Drink Europe, and the International Organization of Spice Trade Associations (IOSTA). The detailed list of EWG members is presented in Appendix II.
5. The EWG also agreed to undertake its work through the Codex EWG platform.
6. Indonesia circulated the first draft standard for nutmeg in 15 September 2017 and the latest of comments were received by 30 November 2017 from Mexico, Poland, India, Japan and IOSTA.
7. Second draft had circulated in 30 January 2018 with the deadline of comments in 15 March 2018 and four (4) countries submitted comments, i.e. Argentina, Japan, USA and India.

ANALYSIS

8. In general, there were no objections to the changes made on the proposed draft based on both the comments received and chair’s recommendations. Proposals for which there was no consensus, have been put in square brackets, for further consideration by the Committee.
9. Some changes were made on the scope to include the following words :
 - To replace “*Myristica sp.*” with “*Myristica fragrans*”, since there are some varieties of nutmeg and it is consistent with the proposal of standard for nutmeg.
 - To replace “production” with “processing”, since the word “processing” is more suitable to food manufacturing.

Therefore, the proposed scope of the standard is :

“This standard applies to dried seed of nutmeg of *Myristica fragrans* of the *Myristicaceae* family offered for industrial food processing and direct human consumption or for repackaging if required”

10. The EWG also considered Product Definitions, and agreed that the definition should include “*Myristica fragrans*” instead of “*Myristica sp.*” due to consistency with the scope. Therefore the product definitions is as follow:

“Nutmeg is the product prepared from “seeds” of *Myristica fragrans* of the *Myristicaceae* family having reached appropriate degree of development, harvested and post-harvest treated properly, by undergoing operations such as stripping, drying, sorting, cracking, grading, and/or grinding before the final packaging and storage”.

11. For Essential Compositions And Quality Factors, some parameters need further discussion, and these are indicated in square brackets i.e.: mace in nutmeg (Table 1) and crude fiber (Tabel 2)

ISSUES REQUIRING FURTHER CONSIDERATION

12. The EWG could not reach a conclusion on the issue related to the proposal from USA and Argentina regarding the mechanism of writting the draft standard. It was suggested that this draft should be written following Grouping format layout that was presented at CCSCH3 session. On this issue, Chair need consideration from CCSCH, since the “Dried Seed” working group deal with single comodity, i.e. Nutmeg

RECOMMENDATION

13. The Committee is invited to consider the draft proposed standard for nutmeg presented in Appendix I.

DRAFT PROPOSED DRAFT STANDARD FOR NUTMEG

1. SCOPE

This standard applies to dried seed of nutmeg of *Myristica fragrans* of the *Myristicaceae* family offered for industrial food processing and direct human consumption or for repackaging if required.

2. DESCRIPTION

2.1. Product definitions

- (i) Nutmeg is the product prepared from “seeds” of *Myristica fragrans* of the *Myristicaceae* family having reached appropriate degree of development, harvested and post-harvest treated properly, by undergoing operations such as stripping, drying, sorting, cracking, grading, and/or grinding before the final packaging and storage.
- (ii) Nutmeg has variety of shapes from ovoid to broadly ovoid, with variety of sizes about 2 – 3 cm long and 1.5 – 2 cm broad.

2.2. Styles

Nutmeg may be offered in one of the following styles:

- a) Whole with shell
- b) Whole without shell
- c) Broken
- d) Powder

3. ESSENTIAL COMPOSITIONS AND QUALITY FACTORS

3.1. Compositions

Product as defined in Section 2.

3.2. Quality Factors

3.2.1. Flavour and Colour

Nutmeg shall have a flavour characteristic which can vary, depending on geo-climatic factors/conditions. Nutmeg shall be free from any foreign flavour and especially from mustiness. The flavour is bitter, acrid and hot. Nutmeg shall have a characteristic colour varying from light grey to dark brown.

3.2.2. Physical Characteristics

Nutmeg shall comply with the physical requirements specified in Table 1.

Table 1. General physical requirements for nutmeg

Parameters	Requirement
Extraneous vegetable matter ¹ content, % mass fraction, max.	0.5
Foreign matter ² content, % mass, max.	0.5
Mould visible ³ , % mass fraction, max.	Nil
Dead insect, insect fragments, rodent contamination, % mass fraction, max.	Nil
Live insect, max.	Nil
Mammalian and or other excreta (mg/kg)	Nil
[Mace in nutmeg, %, max]	[3.0]
¹ Vegetative matter associated with the plant from which the product originates - but is not accepted as part of the final product” ² Any visible objectionable foreign detectable matter or material not usually associated with the natural components of the spice plant; such as sticks, stones, burlap bagging, metal etc. ³ Seen by naked eyes	

3.2.3. Chemical Characteristics

Whole, broken and powder nutmeg shall comply with the chemical requirements specified in Table 2.

Table 2. Chemical Requirements for Whole, Broken and Powder Nutmeg

Description	Specification		
	Whole	Broken	Powder
Moisture content, % mass fraction, max.	10.0	10.0	10.0
Total ash, % mass fraction (dry basis), max.	3.0	3.0	3.0
Acid-insoluble ash, % mass fraction (dry basis), max.	0.5	0.5	0.5
Water-insoluble ash, % mass fraction (dry basis), max.	1.5	1.5	1.5
Volatile oils content, % mass fraction (dry basis), min.	6.5	6.0	6.0
[Crude fibre, %, max]	[NA]	[NA]	[10.0]
¹ It is applicable for some regions			

3.2.4. Classification

Nutmeg may be classified in four styles; each has 2 classes/grades according to the Specific Requirements specified in Table 3, 4, 5, and 6.

Table 3. Quality criteria of nutmeg seed with shell

Physical Characteristics	Quality Criteria	
	I ¹	II ²
Qualitative		
Colour	Light to dark brown, glossy	Pale brown
Seed condition	Dense, sounds when shaken	Dense, sounds when shaken
Kernel weight	Kernel weight \geq 63% of whole seed with shell	Kernel weight \leq 63% of whole seed with shell
Shell condition	Whole intact	cracked/broken/shrivel
I ¹ = Quality class A		
II ² = Quality class B		

Table 4. Quality criteria of nutmeg seed without shell

Parameter	Quality Criteria	
	I ¹	II ²
Quantitative		
Well-formed seed (%), min.	98	0
Shriveled seed (%), max.	2	100
Number of seed per kg, max.	120	150
Damaged seed ³ (%), max.	5	10
Broken seed ⁴ (%), max.	2	5
Qualitative		
Condition of seed surface	Smooth	Shrivel
Seed Condition	Intact, dense	Intact, dense
I ¹ = Quality class ABCD		
II ² = Quality class SS		
³ Damaged seed : nutmeg seeds that are broken, discoloured or showing signs of bores as a result of infestation of insects so as to affect the quality of the materials \leq 5% of the whole seed surface		
⁴ Broken seed : cracked or broken seed > 5% whole seed surface		

Table 5. Quality criteria of broken nutmeg seed

Parameter	Quality Class	
	I ¹	II ²
Quantitative		
Half cut (%)	Min.100	Max.5
Broken into 3 – 4 pieces (%), max.	0	90
Broken into 6 – 8 (%), max.	0	5
Damaged particle	5	10
I ¹ = half cut; II ² = broken		

Table 6. Quality criteria of nutmeg seed powder

Parameter	Quality Class	
	I	II
Quantitative		
Impurities ¹ , max.	2	5
Particle size (mesh), min.	20	20
¹ Impurities are derived from nutmeg seed shell, not applicable to other impurities, seen with naked eyes		

3.3. Classification of “Defectives”

A lot sample that fails to meet one or more of the applicable quality requirements, as set out in Section 3.2 (except those based on sample averages), should be considered as a “defective”.

3.4. Lot Acceptance

A lot should be considered as meeting the applicable quality requirements referred to in Section 3.2 when the number of “defectives”, as defined in Section 3.3, does not exceed the acceptance number of the appropriate sampling plan. For factors evaluated on a sample average, a lot will be considered acceptable if the average meets the specified tolerance, and no individual sample is excessively out of tolerance.

4. FOOD ADDITIVES

No food additive is 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. FOOD 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 *Code of Hygienic Practice for low moisture foods* (CXP 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 shall 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 labelled 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 Products

- 8.2.1. The name of the product shall be Nutmeg, in dried or dehydrated forms.
- 8.2.2. The nature of the product may include an indication of the style as described in Section 2.2.
- 8.2.3. Origin of produce: country of origin and optionally name of regional, local place of production/trade.
- 8.2.4. Commercial Identification
- Class/ Grade
 - Net weight
- 8.2.5. Inspection mark (optional)
- 8.2.6. Expiry date (optional)

9. 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, 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, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

10. METHODS OF ANALYSIS AND SAMPLING

10.1. Methods of Analysis

Table 7. Methods of Analysis

Provision	Method	Principle	Type
Moisture content	ISO 939:1980 AOAC 986.21 ASTA Method 2.0	Distillation	I
Total ash	ISO 928:1997 AOAC 941.12 A ASTA Method 3.0	Gravimetry	I
Acid-insoluble ash	ISO 930:1997 AOAC 941.12 B ASTA Method 4.0	Gravimetry	I
Water-insoluble ash	ISO 929:1980	Gravimetry	I
Volatile oils content	ISO 6571:2008 AOAC 962.17 ASTA Method 5.2	Distillation	I
Calcium content expressed as CaO	ISO 1003:2008 AOAC 941.12 C	Titration	I
Non-volatile ether extract	ISO 1108:1992 AOAC 940.29	Gravimetry	I
Extraneous matter	ISO 927:2009 AOAC 960.51 ASTA Method 14.1	Visual examination/ Gravimetry	I
Foreign matter	ISO 927:2009 AOAC 960.51	Visual examination/ Gravimetry	I

Mould visible	ISO 927:2009 AOAC 960.51	Visual examination	IV
Dead insect, insect fragments, rodent contamination	ISO 927:2009 AOAC 960.51	Visual examination	IV
Live insect	ISO 927:2009 AOAC 960.51	Visual examination	IV
Mammalian and or other excreta	Macroanalytical Procedure Manual (MPM) USFDA technical bulletin V.41 AOAC 960.51	Visual examination	IV

10.2. Sampling Plan

10.2.1. Sampling plans are developed depending on the appropriate inspection level

10.2.2. Separate sampling plan for different levels of inspection (1 and 2) are given under Table 8 and 9

Sampling Plans

The appropriate inspection level is selected as follows:

Inspection level I - Normal Sampling

Inspection level II - Disputes, (Codex referee purposes sample size), enforcement
or need for better lot estimate

SAMPLING PLAN 1

(Inspection Level I, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1KG (2.2LB)

Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4.800 or less	6	1
4.801 – 24.000	13	2
24.001 – 48.000	21	3
48.001 – 84.000	29	4
84.001 – 144.000	38	5
144.001 – 240.000	48	6
More than 240.000	60	7

NET WEIGHT IS GREATER THAN 1KG (2.2LB) BUT NOT MORE THAN 4.5 KG (10LB)

Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2.400 or less	6	1
2.401 – 15.000	13	2
15.001 – 24.000	21	3
24.001 – 42.000	29	4
42.001 – 72.000	38	5
72.001 – 120.000	48	6
More than 120.000	60	7

NET WEIGHT GREATER THAN 4.5 KG (10LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	6	1
601 – 2.000	13	2
2.001 – 7.200	21	3
7.201 – 15.000	29	4
15.001 – 24.000	38	5
24.001 – 42.000	48	6
More than 42.000	60	7

SAMPLING PLAN 2
(Inspection Level II, AQL = 2.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1KG (2.2LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
4.800 or less	6	1
4.801 – 24.000	13	2
24.001 – 48.000	21	3
48.001 – 84.000	29	4
84.001 – 144.000	38	5
144.001 – 240.000	48	6
More than 240.000	60	7
NET WEIGHT IS GREATER THAN 1KG (2.2LB) BUT NOT MORE THAN 4.5 KG (10LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
2.400 or less	6	1
2.401 – 15.000	13	2
15.001 – 24.000	21	3
24.001 – 42.000	29	4
42.001 – 72.000	38	5
72.001 – 120.000	48	6
More than 120.000	60	7
NET WEIGHT GREATER THAN 4.5 KG (10LB)		
Lot Size (N)	Sample Size (n)	Acceptance Number (c)
600 or less	6	1
601 – 2.000	13	2
2.001 – 7.200	21	3
7.201 – 15.000	29	4
15.001 – 24.000	38	5
24.001 – 42.000	48	6
More than 42.000	60	7

APPENDIX II

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