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## DRAFT EAST AFRICAN STANDARD

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Nutmeg and mace — Specification

EAST AFRICAN COMMUNITY

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## Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 006, *Spices, condiments and culinary herbs*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

# Nutmeg and mace — Specification

## 1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for nutmeg, whole or broken, and for mace, whole or in pieces, obtained from the nutmeg tree (*Myristica fragrans* Houtt.) for human consumption

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

*CXS 193, General standard for contaminants and toxins in food and feed*

*EAS 38, Labelling of pre-packaged foods — Specification*

*EAS 39, Hygiene in the food and drink industry — Code of practice*

*EAS 803, Nutrition labelling — Requirements*

*EAS 804, Claims on foods — General requirements*

*ISO 927, Spices and condiments — Determination of extraneous matter and foreign matter content*

*ISO 928, Spices and condiments — Determination of total ash*

*ISO 930, Spices and condiments — Determination of acid-insoluble ash*

*ISO 939, Spices and condiments — Determination of moisture content Entrainment method*

*ISO 948, Spices and condiments — Sampling*

*ISO 1003, Spices and condiments — Whole/pieces and ground dried ginger (*Zingiber officinale* Roscoe) — Specification*

*ISO 4833-1, Microbiology of the food chain — Horizontal method for the enumeration of micro-organisms — Part 1: Colony-count at 30 °C — Pour plate technique*

*ISO 6571, Spices and condiments — Determination of volatile oil content (Hydrodistillation method)*

*ISO 6579, Microbiology of food and animal feeding stuffs — Part 6: Horizontal method for the detection of *Salmonella* spp.*

*ISO 7251, Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive *Escherichia coli* — Most probable number technique*

*ISO 16050, Foodstuffs — Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products*

*ISO 21527-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **fruit of the nutmeg tree**

fruit comprising a green to pale yellow pericarp (depending on its ripeness), a woody shell, an aril (mace) and a kernel (nutmeg)

#### 3.2

##### **nutmeg, whole or broken**

kernel of the dried ripe fruit of the nutmeg tree (*Myristica fragrans* Houtt.)

#### 3.3

##### **mace, whole or in pieces**

dried aril of the ripe fruit of the nutmeg tree (*Myristica fragrans* Houtt.)

#### 3.4

##### **aril**

fleshy or membraneous tissue surrounding certain seeds and attached to the seeds at one point only, i.e. the hilum

## 4 Requirements

### 4.1 General requirements

#### 4.1.1 Odour and flavour

The odour of nutmeg and mace shall be characteristic and aromatic, that of mace being more pronounced, however. Their flavour is bitter, acrid and hot.

#### 4.1.2 Freedom from insects, moulds, etc.

Nutmeg and mace shall be free from living insects and moulds, and shall be practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision) or with such magnification as may be necessary in any particular case.

#### 4.1.3 Extraneous matter

The following are considered to be extraneous matter:

- all vegetable matter other than the kernel and the aril, in particular pieces of shell;
- all other extraneous animal, vegetable or mineral matter.

### 4.2 Specific requirements

4.2.1 The total content of this extraneous matter, determined using the method specified in ISO 927, shall not exceed 0.5 % (by mass).

4.2.2 Nutmeg in mace and, inversely, mace in nutmeg is not considered as extraneous matter but, in both cases, their content shall not be greater than 3% (by mass) when determined using ISO 927.

#### 4.2.3 Nutmeg

Whole or broken nutmeg shall comply with the requirements given in Table 4.

#### 4.2.4 Mace

Mace, whole or in pieces, shall comply with the requirements given in Table 5.

**Table 4 — Specific requirements for nutmeg, whole or broken**

Characteristic	Requirement	Test method
Moisture content, % (by mass), max.	10	ISO 939
Total ash, % (by mass), max., on dry basis	3	ISO 928
Acid-insoluble ash, % (by mass), max., on dry basis	0.5	ISO 930
Volatile oils content (ml/100 g) min., on dry basis	6.5	ISO 6571
Calcium content expressed as CaO, % (by mass), max., on dry basis	0.35	ISO 1003 annex A

**Table 5 — Specific requirements for mace, whole or in pieces**

Characteristic	Requirement	Test method
Moisture content, % (by mass), max.	10	ISO 939
Total ash, % (by mass), max., on dry basis	4	ISO 928
Acid-insoluble ash, % (by mass), max., on dry basis	0.5	ISO 930
Volatile oils content ((ml/100 g) min., on dry basis		
Categories 1 and 2	7.5	ISO 6571
Category 3	5	

## 5. Contaminants

### 5.1 Pesticide residues

Pesticide residues in nutmeg and mace shall not exceed maximum residue limit as established by the Codex Online Guideline for pesticide residue in food.

### 5.2 Heavy metals

Heavy metals in nutmeg and mace shall not exceed maximum residue limits as stipulated in CXS 193.

### 5.3 Aflatoxin limits

Total aflatoxin shall not exceed 10 µg/kg and aflatoxin B<sub>1</sub> shall not exceed 5 µg/kg when tested in accordance with ISO 16050.

## 6. Hygiene

Nutmeg and mace shall be prepared and handled in a hygienic manner in accordance with EAS 39 and shall comply with the microbiological limits stipulated in Table 6 when tested in accordance with the methods specified therein.

**Table 6 — Microbiological limits for nutmeg and mace**

S/No.	Microorganism	Limit	Test method
i.	Total plate count, cfu/ml, max.	10 <sup>4</sup>	ISO 4833-1
ii.	Yeast and moulds cfu/g, max.	10 <sup>2</sup>	ISO 21527-2
iii.	<i>Salmonella spp</i> per 25 g, max.	Absent	ISO 6579
iv.	<i>Escherichia coli</i> , MPN/g, max.	Absent	ISO 7251

## 7. Packaging

Nutmeg and mace shall be packaged in food grade packaging material that secures the integrity and the safety of the product.

## 8. Labelling

In addition to the requirements of EAS 38, EAS 803 and EAS 804 each container shall be legibly and indelibly labelled with the following information:

- a) name of the product “nutmeg” or “mace”;
- b) form of presentations;
- c) brand name or trade name if any;
- d) name and address of the producer or packer;
- e) batch or code number;
- f) net mass;
- g) country of origin;
- h) storage conditions; and
- i) any other information required by the purchaser.

## 9. Sampling

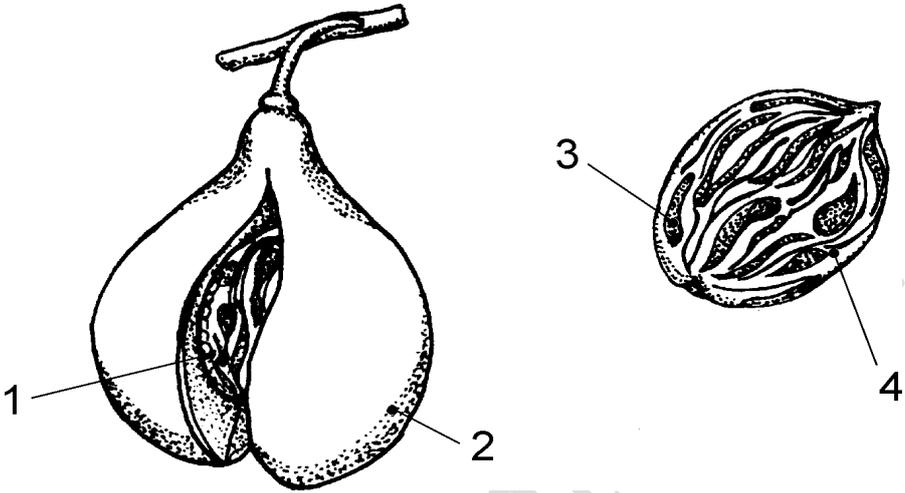
- j) Sampling of cloves shall be done in accordance with ISO 948.

**Annex A  
(informative)**

**Nutmeg tree — Twig with fruit** (about half life-size)

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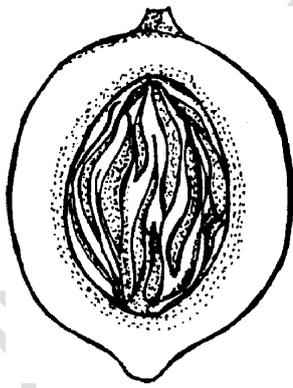




**Key**

- 1 Woody shell
- 2 Pericarp
- 3 Kernel
- 4 Aril (mace)

**Nutmeg — Schematic detail of various parts of the fruit**



**a) Longitudinal section of the fruit kernel**



**b) Kernel and transverse section of the kernel**

**Figure 3 — Nutmeg sections**

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## Bibliography

- [1] ISO 6577:2002, *Nutmeg, whole or broken, and mace, whole or in pieces (Myristica fragrans Houtt.) — Specification*

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