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DRAFT EAST AFRICAN STANDARD

Natural coffee extract — Specification

DRAFT FOR PUBLIC REVIEW

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 005, *Food additives*.

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.

Introduction

Natural Coffee Extract is produced from the cured and roasted mature beans of *Coffea arabica* and *C. robusta* by alcohol extraction. Natural coffee extract is used in flavouring various food products such as ice creams, syrups, baked goods, mulled ciders and tea and coffee. Natural coffee extracts contain ethyl alcohol, water and coffee extractives.

This draft East African standard has been developed to keep up with advancements of the natural coffee extract and to ensure the safety and quality of the product traded in the markets in order to safeguard the health of the consumers.

Natural coffee extract — Specification

1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for natural coffee extract obtained from *Coffea arabica* and *Coffea robusta* for use as a flavouring agent in food products.

This standard does not apply to liquid coffee concentrates.

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.

AOAC 999.11, *Determination of Lead, Cadmium, Copper, Iron, and Zinc in Foods, Atomic Absorption Spectrophotometry after Dry Ashing*

AOAC 2015.01, *Heavy Metals in Food Inductively Coupled Plasma–Mass Spectrometry*

AOAC 2000.09 *Ochratoxin A in Roasted Coffee Immunoaffinity column HPLC method*

EAS 104, *Alcoholic beverages — Methods of sampling and test*

ISO 17240

CAC/GL 50, *General guidelines on sampling*

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

EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

CODEX STAN 107, *General standard for the labelling of food additives when sold as such*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms – Colony-count technique at 30°C*

ISO 3509, *Coffee and coffee products - Vocabulary*

ISO 6579, *Microbiology of food and feeding stuffs — Horizontal method for the detection of salmonella spp*

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*

EAS 38, *Labelling of pre-packaged foods — General requirements*

ISO 16649-1, *Microbiology of the food chain — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

ISO 7952, *Fruits, vegetables and derived products — Determination of copper content — Method using flame atomic absorption spectrometry.*

ISO 6637, *Fruits, vegetables and derived products -- Determination of mercury content -- Flameless atomic absorption method*

ISO 15141, *Cereals and cereal products — Determination of ochratoxin A — High performance liquid chromatographic method with immunoaffinity column cleanup and fluorescence detection*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3509 and the following 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 natural coffee extract
the solution in aqueous ethyl alcohol of the sapid and odorous principles extractable from roasted ground coffee beans

3.2 food grade material
material made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

4 Ingredients

4.1 Essential ingredients

Roasted coffee extractives, ethyl alcohol and water complying with the relevant East African standards

4.2 Optional ingredients

Natural coffee extract may contain one or more of the following optional ingredients and shall comply to the relevant standard:

- a) glycerine;
- b) propylene glycol;

5 Requirements

5.1 General requirements

Natural coffee extract shall:

- a) have the characteristic aroma, flavour and colour; and
- b) not be mixed with any synthetic flavour material.

5.2 Specific requirements

Natural coffee extract shall comply with the physicochemical requirements in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Physicochemical requirements for natural coffee extract

S/N	Characteristic	Requirement	Test method
i	Alcohol % (v/v), min.	35	EAS 104
ii	pH	4 - 6.5	ISO 10523
iii	Specific gravity, min.	0.83	Annex A

6 Hygiene

6.1 Natural coffee extract shall be prepared and packaged in premises built and maintained under hygienic condition in accordance with EAS 39.

6.2 The product shall comply with microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits for natural coffee extract

S/N	Microorganism	Maximum limit	Test method
i.	Total viable count, cfu/ml	10 ⁴	ISO 4833-1
ii.	Yeast and moulds, cfu/ml	10 ²	ISO 21527-1
iii.	<i>Salmonella spp</i> in 25 ml	Absent	ISO 6579-1
iv.	<i>E. coli</i> , cfu/ml	Absent	ISO 16649-2

7 Contaminants

7.1 Pesticide residues

Natural coffee extract shall comply with pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

7.2 Heavy metals

Natural coffee extract shall comply with the maximum levels for the heavy metals given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Permitted maximum level of heavy metals in natural coffee extract

S/N	Heavy metal	Maximum limit mg/kg	Test method
i. i.	Lead (Pb)	0.3	AOAC 999.11
ii.	Tin (Sn)	250	AOAC2015.01
iii.	Arsenic (As)	0.05	AOAC 999.11
iv.	Cadmium (Cd)	0.01	AOAC 999.11

v.	Mercury (Hg)	0.01	ISO 6637
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7.3 Mycotoxin

When tested in accordance with ISO 15141, Ochratoxin A in natural coffee extract shall not exceed 10 ug/kg.

7.4 Other contaminants

Natural Coffee Extract shall comply with the contaminant limits specified in the latest edition of CODEX STAN 193.

8 Packaging

Natural Coffee Extract shall be packaged in food grade material to safeguard the safety, hygienic, nutritional and organoleptic qualities of the product.

9 Labelling

9.1 In addition to the requirements in CODEX STAN 107, each package shall be legibly and indelibly labelled with the name of the product as “Natural coffee extract”.

9.2 The labelling shall be in English or any other official language used in the importing East African Partner State.

10 Sampling

Sampling shall be done in accordance with CAC/GL 50.

Annex A (normative)

Determination of specific gravity

A.1 Apparatus

A.1.1 **Pyknometer**, 50ml capacity.

A.1.2 **Constant-Temperature Bath** provided with suitable pycnometer holders or clips and means for maintaining temperatures constant in the desired range.

A.1.3 **Thermometer**- graduated in 0.1 °C with the range of 0 to 50°C with sub-divisions at every 0.5°C

A.1.4 **Hypodermic Syringe**, 30 mL capacity, of chemically resistant glass, equipped with a 152 mm needle made of stainless steel tubing.

A.1.5 **Balance**, capable of reproducing weighing within 0.1 mg.

A.2 Reagents

A.2.1 **Acetone**— (Warning—Extremely flammable. Use adequate ventilation.)

A.2.2 **Isopentane**— (Warning—Extremely flammable. Avoid buildup of vapors and remove all sources of ignition)

A.3 Preparation of equipment

Pyknometer shall be sufficiently cleaned with a suitable solvent, rinsing with pure, dry acetone, followed by isopentane, and vacuum dried.

A.2 Procedure

A.4.1 Weigh the empty pyknometer and record the weight, (W_0)

A.4.2 By means of a hypodermic syringe, fill the pyknometer with the extract/ alcoholic liquid sample brought to room temperature $20 \pm 0.1^\circ\text{C}$.

A.4.3 Weigh the pyknometer with the alcoholic liquid thus filled at Pyknometer. (W_1)

A.4.4 Calculate the net mass of alcoholic liquid in the pyknometer by subtracting the mass of the empty pyknometer. ($W_1 - W_0$)

A.4.5 Divide the mass so obtained by the mass in air of 50 ml of distilled water in the pyknometer. W_2

A.4.6 This gives the apparent specific gravity of the alcoholic liquid in the air.

$$\text{Specific gravity} = \frac{\text{Mass of sample at } 20 \pm 0.1^\circ\text{C in 50 ml pyknometer (} W_1 - W_0 \text{)}}{\text{Mass of water at } 20 \pm 0.1^\circ\text{C in 50 ml pyknometer (} W_2 \text{)}}$$

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Bibliography

IS 3506:1989, *Tables for alcoholometry (Pyknometer Method)*

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