ETHIOPIAN STANDARD

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Banana flour - Specification

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Fruits and Vegetables (TC 13) and published by the Ethiopian Standards Agency (ESA).

The standard has been developed to address observed needs and to support the local industry in order to make progress through upraising competitiveness and maintain comparative market advantage both domestically and internationally.

In preparing this Ethiopian Standard references has been made to the following:

DUS 983, Banana (matooke) flour — Specification, Uganda National Bureau of Standards s (UNBS)

CODEXSTAN 192, General standard for food additives.

CODEXSTAN 193, Codex general standards for contaminants and toxins in food and feed.

Acknowledgment has been made for the use of information from the above publications.

Banana flour - Specification

1 Scope

This Ethiopian Standard specifies requirements and methods of sampling and test for banana flour for human consumption.

2 Normative references

The following referenced documents are indispensable for the application 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.

CES 73, General standard for prepackaged foods - Labeling**.**

CES 80, Bananas - Specification.

ES 577, Recommended code of practice - General principle of food hygiene.

ES ISO 712, Cereals and cereal products - Determination of moisture content - Reference method.

ES ISO 763, Fruit and vegetable products - Determination of ash insoluble in hydrochloric acid.

ES 929, Code of practice-food hygiene management.

ES ISO 2171, Cereals, pulses and by-products - Determination of ash yield by incineration.

ES ISO 4833-1, Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 1: Colony count at 30 ^{0}C by the pour plate technique.

ES ISO 5223, Test sieves for cereals.

ES ISO 5498, Agricultural and food products - Determination of crude fiber content (General method).

ES ISO 6888-1, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-p-staphylococci (*Staphylococcus aureus* and other species) - Part 1: Technique using Baird-Parker agar medium.

ES ISO 6888-2, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-p-staphylococci (*Staphylococcus aureus* and other species) - Part 2: Technique using rabbit plasma fibrinogen agar medium.

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

ES 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.

ES ISO 21527-1, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 1: Colony count technique in products with water activity greater than 0,95.

ES 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.

ES ISO 22002-1, Prerequisite programmes on food safety -Part 1 Food manufacturing.

ES ISO 24333, Cereals and cereal products Sampling.

3 Terms and definition

For the purpose of this standard the following definitions apply.

3.1

banana flour

gluten-free flour made from physiological mature fresh banana and is useful for its moisture absorbing and holding properties.

4 Raw material

The banana from which the flour shall be made from fresh banana that conforms to CES 80.

5 Requirements

5.1 General requirements

a) The product shall be free from rancidity, insect and fungal infestation and rodent contamination. It shall also be free from fermented, musts or other objectionable odor. It shall not have adulterants and any other extraneous matter.

b) Any added ingredient to banana flour shall be safe and suitable for human consumption.

c) The product shall be free from filth/Impurities of animal origin including dead insects.

d) The product shall not contain flour from other fruits, vegetables, cereals etc.

e) The product shall have colour characteristic to the variety.

5.2 Specific requirements

Banana flour shall comply with the chemical requirements specified in Table 1 below.

Table 1. Chemical requirements for banana flour.

S/N	Characteristics	Limits	Test Methods
1	Moisture, % by mass, Max.	11.00	ES ISO 712
2	Total Ash, % by mass, Max.	4.00	ES ISO 2171
3	Acid insoluble ash, % by mass, Max.	0.40	ES ISO 763
4	Fibre, % by mass, Max.	5.0	ES ISO 5498
5	Particle size of flour passing through 0.60 mm and 1.20 mm sieve for fine and coarse flour respectively, % by mass, Min.	90.0	ES ISO 5223

6 Food additives

Only the food additives permitted in Codex Stan 192 for food additives should be used.

7 Hygiene

7.1 The product shall be manufactured and handled in a hygienic manner in accordance with ES 577, ES 929 and ES ISO 22002-1.

7.2 Banana flour shall be free of pathogenic microorganisms and shall conform to the microbiological requirements in Table 2 below.

Table 2 – Microbiological requirements

S/N	Parameters	Requirements	Test Methods
1	Total plate count, cfu/g, Max.	10^3	ES ISO 4833-1
2	Staphylococces, cfu/g, Max.	10^3	ES ISO 6888-1 ES ISO 6888-2
3	E.coli, cfu/g.	Absent	ES ISO 7251
4	Yeasts and moulds, cfu/g, Max.	10^2	ES ISO 21527-1 ES ISO 21527-2

8 Contaminants

8.1 Pesticide residues

Banana flour shall comply with those maximum pesticide residue limits established by Codex Alimentarious commission for similar commodities.

8.2 Other contaminants

Banana flour shall conform to those maximum limits of contaminants stated established in Codex 193.

The maximum content of aflatoxins in banana flour when determined in accordance with the method described in ES ISO 16050 shall not exceed 10 ppb for total aflatoxins and 5 ppb for aflatoxin B1.

9 Packaging and labelling

9.1 Packaging

Banana flour shall be packaged in food grade materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product.

9.2 Labelling

The labeling shall comply with the requirements of CES 73, and shall be legibly and indelibly marked with the following:

a) The name of the product shall be “Banana flour **—** Specification”;

b) The name and physical address of the manufacturer;

c) Batch or code number;

d) Net weight in metric units;

e) A list of any additives used;

f) Date of manufacture;

g) “Best before date”

h) Country of origin;

i) The statement “Human Food”;

j) Storage conditions;

k) Flavor or spiced

10 Method of Sampling

Sampling of banana flour shall be carried out in accordance with ES ISO 24333.

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Ethiopian Standards Agency

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010.ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are incompliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government or ganizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/ or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.
Orders For all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also a vailable freely and can be accessed in from our website.

International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the in ternational Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM).It is a founding member of the African Regional Organization for standardization (ARSO).

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