
Banana Juice - Specification

Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for fruit and vegetable (TC-13) and published by Ethiopian Standard Agency (ESA).

In preparing this Ethiopian Standard reference have been made to the following:

CODEX Stan 192, General standard for food additives.

CODEX STAN 193-1997, Codex general standard for contaminants and toxins in food and feed.

CODEX 247-2005, Codex general standard for fruit juices and nectars.

KS EAS 77-1:2000, Soft fruit juices – Specification Part 1: Soft drinks and fruit juices, Kenyan Standard.

US 818:2018 - Fruit juices and nectars – Specification, Uganda Standard.

SI 1071, Non alcohol drinks - United States Department of Agriculture (USDA), Commodity Specification Bottled juices, Israel Standard.

United States Department of Agriculture (USDA), Commodity Specification Bottled juices.

Acknowledgement is made for the use of information from the above publications.

Banana juice – Specification

1. Scope

This Ethiopian Standard specifies the requirements for Banana juice intended for direct human consumption. For the purpose of this Ethiopian standard preservation by physical means does not include ionizing radiation.

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 58, Drinking water – Specification.

CES 73, General standard for prepackaged foods - Labelling.

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

ES ISO 750, Fruits and vegetables products — Determination of titratable acidity.

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

ES 929, Code of practice-food hygiene management.

ES 1202, Honey – Specification.

ES ISO 1842, Fruits and vegetables products - Determination of PH.

ES ISO 2172, Fruit juice - Determination of soluble solids content - Pycnometric method.

ES ISO 2173, Fruit and vegetable products - Determination of soluble solids content - Refractometric method.

ES ISO 2447, Fruit and vegetable products - Determination of tin content.

ES ISO 2448, Fruits and vegetable products - Determination of ethanol content.

ES 2834, Sampling plans for prepackaged foods (AQL6.5).

ES ISO 4832, Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of Coliforms - Colony-count technique.

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

ES ISO 6633, Fruits, vegetables and derived products - Determination of lead content - Flameless atomic absorption spectrometric method.

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

ES ISO 7251, Microbiology - General guidance for enumeration of presumptive Escherichia coli – Most probable number technique.

ES ISO 9526, Fruits, vegetable and derived products - Determination of iron content by flame atomic absorption spectroscopy.

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.

3. Terms and definitions

For the purpose of this Standard, the following definitions shall apply.

3.1

brix

percent of soluble solids content of a liquid as determined by a refractometer calibrated at 20 °C and read as degrees Brix' on the International Sucrose Scale.

3.2

banana juice

is the unfermented but fermentable liquid obtained from the edible part of sound, appropriately mature and fresh fruit or of fruit maintained in sound condition by suitable means.

4. Product description

Banana juice obtained by blending the total edible sieved or ground or homogenized product of sound, ripe bananas (musa species) concentrated or unconcentrated, with water and sweeteners and preserved by suitable means.

The juice is prepared by suitable processes, which maintain the essential physical, chemical, organoleptic and nutritional characteristics of the juices of the fruit from which it comes. The juice may be cloudy or clear (no suspended particles) and may have restored aromatic substances and volatile flavor components, all of which must be obtained by suitable means, and all of which should be recovered from the same kind of fruit.

5. Essential composition

5.1 Basic ingredient

5.1.1 Minimum content of fruit ingredient

The Minimum content of single strength fruit ingredient or the equivalent from concentrated fruit ingredient shall not be less than 25% v/v.

5.1.2 Water

The potable water used in shall, at a minimum, meet the requirements of CES 58.

5.2 Other permitted ingredient

5.2.1 Sugars and honey

One or more of the sugars as defined in Ethiopian Standards shall be added. Sugar, in the form of sugar, honey or both sugar and honey, may be added to a product. Honey, as defined in ES 1202, may be used if it is the sole added sweetening agent.

Sugars with less than 2% moisture as defined in the standard for Sugar: Sucrose, dextrose anhydrous, glucose, fructose, may be added. Syrups, liquid sucrose, invert sugar solution, invert sugar syrup, fructose syrup, liquid cane sugar and high fructose syrup may be added.

6. Requirements

6.1 General requirement

6.1.1 Banana juice shall be free from contaminants such as dirt, extraneous or suspended matter.

6.1.2 The product shall have the characteristic color, aroma and flavor of Bananas, taking into consideration the addition of sweeteners and additives.

6.2 Specific requirement

Banana juice shall conform to the compositional requirement in Table 1 below.

Table 1 - Compositional requirement of Banana juice

Characteristic	Requirement	Test method
Brix value at 20 °C, Max.	12	ES ISO 2172 ES ISO 2173
pH	3.2 - 4	ES ISO 1842
Ethanol, mg/kg, Max.	3	ES ISO 2448
Titrateable Acidity	0.2 - 0.5	ES ISO 750
Acid insoluble ash, mg/kg, Max.	20	ES ISO 763
Soluble solids content, m/m, %, Max.	20.0	ES ISO 2172 ES ISO 2173

7. Food additives

Means any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for maintaining or improving nutritional qualities.

Food grade citric acid and malic acid approved by the responsible authority may be added based on Good Manufacturing Practices (GMP). Other food additives listed in Tables 1 and 2 of the Codex General Standard for Food Additives (Codex Stan 192) in Food Categories can be added.

8. Contaminants

The products covered by this Standard shall comply with the maximum levels of the General Standard for Contaminants and Toxins in Food and Feed (Codex Stan 193).

8.1 Pesticide residue

The product covered by this standard shall comply with the codex maximum residue limits for pesticides specified in Codex Pesticide Residues in Food and Feed.

8.2 Metal contaminants

Fruit juice drinks shall not exceed levels of metals specified in Table 2 below.

Table 2: Metal contaminants

Characteristic	Maximum level (mg/kg)	Test methods
Tin(as Sn)	150	ES ISO 2447
Lead (as Pb)	0.1	ES ISO 6633
Iron (as Fe)	15	ES ISO 9526
Mercury (as Hg)	0.01	ES ISO 6637

9. Hygiene

9.1 Banana juice shall be manufactured and handled in a hygienic manner in accordance with ES 577, ES 929 and ES ISO 22002-1.

9.2 Banana juice shall be free of pathogenic microorganisms and shall conform to the microbiological

requirements in Table 3 below.

Table 3: Microbiological limit

Characteristic	Limits	Test Method
Total plate count, cfu/ml, Max.	10 cfu/ml	ES ISO 4833-1
Coliform count	Nil/ml	ES ISO 4832
Yeast and mould count, cfu/ml, Max.	5 cfu/ml	ES ISO 21527-1 ES ISO 21527-2
Eschericia coli	Not detected	ES ISO 7251

10. Packaging and Labeling

10.1 Packaging

10.1.1 Shall be clean, sound, free from insects and fungi infection and the packing material shall be of food grade quality.

10.1.2 The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odor or flavor to the product.

NOTE: Packaging materials may be required to meet different regulations in Ethiopia.

10.2 Labelling

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

- a) Name of the product
- b) Name and physical and postal address of manufacturer, exporter/importer;
- c) Batch or identification code;
- d) Net weight in liter;
- e) Expiry date;
- f) List of ingredients;
- g) Storage instruction;
- h) Country of origin;
- i) Date of manufacture;
- j) Any other information required by the purchaser.

The following designations shall be used where applicable:

- No fruit or fruit nectar may be represented pictorially on the label except guavas or guava juice.
- When the product contains honey, the declaration "contains honey" shall be in close proximity to the name of the product.
- Where Banana product is required to be kept under frozen conditions there shall be information for thawing of the product.

11. Method of sampling

Sampling of fruit juice drinks shall be done in accordance with ES 2834.

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 in compliance 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 organizations, 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.

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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 international 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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