ETHIOPIAN STANDARD

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Jams, Jellies and Marmalades – Specification

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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).

This code is aimed at providing requirements that will assist processors achieve safe and quality products based on international standards. The code is developed to complement the Ethiopian standards specifications on processed fruits and vegetable products.

In the preparation of this standard reference has been made to the following:

CXG 21, *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods.*

CAC/RM 46, Codex General Method for processed fruits and vegetables.

CAC/GL 66, Guidelines for the use of Flavourings.

Codex Stan 192, General Standard for Food Additives.

Codex Stan 193, General Standard for contaminants and toxins in food and feed.

Codex Stan 247, Codex General Standard for Fruit Juices and Nectars.

Codex Stan 296, Codex Standard for Jams, Jellies and Marmalades.

DKS 2752, Processed Fruits and Vegetables- Code of practice.

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

Jams, Jellies and Marmalades

1. Scope

1.1. This Ethiopian Standard specifies requirements, methods of sampling and test of jams, jellies and marmalades intended for direct consumption, including for catering purposes or for repacking if required. This standard does not apply to:

a) products when indicated as being intended for further processing such as those intended for use in the manufacture of fine bakery wares, pastries or biscuits;

b) products which are clearly intended or labelled as intended for special dietary uses;

c) reduced sugar products or those with a very low sugar content;

d) products where the foodstuffs with sweetening properties have been replaced wholly or partially by food additive sweeteners.

1.2. The terms, “preserve” or “conserve” are sometimes used to represent products covered by this Standard. The use of the terms “preserve” and “conserve” are thereby required to comply with the requirements for jam and/or extra jam as set out in this Standard.

2. Normative Reference

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**.**

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

ES 929, Code of practice-food hygiene management.

ES 1202, Honey-Specification.

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

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

ES ISO 7558, Guide to the prepacking of fruits and vegetables.

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

3. Terms and definition

For the purposes of this Standard the following definitions shall also apply:

3.1.

jam[1]

1 Citrus jam may be obtained from the whole fruit cut into strips and/or sliced.

is the product brought to a suitable consistency, made from the whole fruit, pieces of fruit, the unconcentrated and/or concentrated fruit pulp or fruit puree, of one or more kinds of fruit, which is mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.

3.2.

jellies

are the products brought to a semi solid gelled consistency and made from the juice and/or aqueous extracts of one or more fruits, mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.

3.3.

citrus marmalade

is the product obtained from a single or a mixture of citrus fruits and brought to a suitable consistency. It may be made from one or more of the following ingredients: whole fruit or fruit pieces, which may have all or part of the peel removed, fruit pulp, puree, juice, aqueous extracts and peel and is mixed with foodstuffs with sweetening properties as defined in Section 3.6 – 3.12, with or without the addition of water.

3.4.

non citrus marmalade

is the product prepared by cooking fruit, whole, in pieces, or crushed adding foodstuffs with sweetening properties as defined in Section 3.6 – 3.12 to obtain a semi- liquid or thick liquid.

3.5.

jelly marmalade

is the product described under citrus marmalade from which all the insoluble solids have been removed but which may or may not contain a small proportion of thinly cut peel.

3.6.

fruit

means all of the recognized fruits and vegetables that are used in making jams, including but not limited to those fruits mentioned in this Standard, either fresh, frozen, canned, concentrated, dried, or otherwise processed and/or preserved which shall be sound, wholesome and clean and of suitable ripeness but free from deterioration and containing all its essential characteristics except that it has been trimmed, sorted and otherwise treated to remove any blemishes, bruises, toppings, tailings, cores, pits (stones) and may or may not be peeled.

3.7.

fruit pulp

the edible part of the whole fruit, if appropriate less the peel, skin, seeds, pips, etc., which may have been sliced or crushed but which has not been reduced to a puree.

3.8.

fruit puree

the edible part of the whole fruit, if appropriate, less the peel, skin, seeds pips and similar which has been reduced to a puree by sieving or other processes.

3.9.

aqueous extracts

the aqueous extract of fruits which subject to losses necessarily occurring during proper manufacture, contains all the water-soluble constituents of the fruit concerned.

3.10.

fruit juices and concentrates

products as defined in the Codex General Standard for Fruit Juices and Nectars (Codex Stan 247-2005).

3.11.

citrus fruit

fruit of the Citrus L. family.

3.12.

foodstuffs with sweetening properties

- **a)** All sugars as defined in Ethiopian Standards.
- **b)** Sugars extracted from fruit (fruit sugars);
- **c)** Fructose syrup;
- **d)** Brown sugar;
- **e)** Honey as defined in ES 1202.

4. Essential Composition

4.1 Composition

4.1.1 Basic Ingredients

a) Fruit ingredient, as defined in Section 3.6 – 3.12, in quantities laid down in Sections 4.1.2 a) – d) below. In the case of jellies the quantities where appropriate shall be calculated after deduction of the weight of water used in preparing the aqueous extracts.

b) Foodstuffs with sweetening properties as defined in Section 3.6 - 3.12.

4.1.2 Fruit Content

The following percentage fruit content for jams and jellies specified at 4.1.2 a) or 4.1.2 b) below shall apply and labelled in accordance with Section 10.2:

a) The products, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of finished product shall be not less than 45% in general, with the exception of the following fruits:

- 35% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries and

sea-buckthorns;

- 30% for soursop and cranberry;
- 25% for banana, cempedak, ginger, guava, jackfruit and sappota;
- 23% for cashew apples;
- 20% for durian;
- 10% for tamarind;
- 8% for passion fruit and other strong flavoured or high acidity fruits[2].

When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used. Or

b) The products, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of finished product shall be not less than 35% in general, with the exception of the following fruits:

- 25% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries and sea-buckthorns;
- 20% for soursop and cranberry;
- 16% for cashew apples;
- 15% for banana, cempedak, guava, jackfruit and sappota;
- 11% - 15% for ginger;
- 10% for durian;
- 6% for passion fruit, tamarind or other strong flavoured or high acidity fruits[2].

When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used.

In the case of Labrusca grape jam, grape juice and grape juice concentrate when added as optional ingredients, this may constitute a part of the required fruit content.

c) Citrus Marmalade

The product, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of citrus fruit ingredients used in the manufacturing of 1000 g of finished product must not be less than 200 g of which at least 75 g must be obtained from the endocarp[3].

In addition the term “jelly marmalade” as defined in Section 3.1 – 3.5 may be used when the product contains no insoluble matter but may contain small quantities of thinly cut peel.

d) Non Citrus Marmalade

The product, as defined in Section 3.1 – 3.5, shall be produced such that the quantity of fruit ingredient used as a percentage of the finished product shall not be less than 30% in general, with the exception of the following fruits:

- 11% for ginger.

4.1.3 Other Permitted Ingredients

2 Fruits when used at higher percentages, could render the product unpalatable in accordance with consumers preferences in the country of retail sale.

3 In the case of citrus fruit the endocarp means the fruit pulp (or flesh) which is often subdivided into segments and vesicas containing the juices and the seeds

Any appropriate food ingredient of plant origin may be used in the products covered by this Standard. This includes fruit, herbs, spices, nuts, alcoholic drinks and essential oils and vegetable edible oils and fats (used as antifoaming agents), as long as they do not mask poor quality and mislead the consumer. For example, red fruit juice and red beetroot juice may only be added to jams as defined in points 4.1.2 a) and b) made from gooseberries, plums, raspberries, redcurrants, rhubarb, rosehips, roselle or strawberries.

4.2 Soluble Solids

The soluble solids content for the finished products defined in Sections 4.1.2 a) – c) shall in all cases be between 60 to 65% or greater[4]. In the case of the finished product defined in Section 4.1.2 d), the soluble solids content shall be 40 - 65% or less.

5. Requirements

5.1 General Requirements

The end product shall be of an appropriate gelled consistency, having normal colour and flavour appropriate to the type or kind of fruit ingredient used in the preparation of the mixture, while taking into account any flavour imparted by optional ingredients or any permitted colouring agents used. It shall be free from defective materials normally associated with fruits. Jelly and extra jelly shall be reasonably clear or transparent.

5.2 Defects and Allowances for Jams

The products covered by this Standard shall be largely free of defects such as plant material skins (if peeled), stones and pieces of stones and mineral matters. In the case of berry fruits, Dragon fruit and passion fruit, seeds shall be considered a natural fruit component and not a defect unless the product is presented as “seedless”.

5.3 Classification of “Defectives”

A container that fails to meet one or more of the applicable quality requirements as set out in Section 5.1 should be considered as a “defective”.

5.4 Lot Acceptance

A lot should be considered as meeting the applicable quality requirements referred to in Section 5.1 when the number of “defectives” as defined in Section 5.3 does not exceed the acceptance number of the appropriate sampling in ES 2834.

6. Food Additives

Only those food additive classes listed below are technologically justified and may be used in products covered by this Standard. Within each additive class only those food additives listed below, or referred to, may be used and only for the functions, and within limits, specified.

6.1. Acidity regulators, antifoaming agents, firming agents, preservatives and thickeners used in accordance with Table 3 of the Codex General Standard for Food Additives (Codex Stan 192-1995) are acceptable for use in foods conforming to this Standard.

4 In accordance with the legislation of the country of retail sale.

6.2. Acidity Regulators

INS No.	Name of the Food Additive	Maximum Level
334; 335(i), (ii); 336(i), (ii); 337	Tartrates	3,000 mg/kg

6.3. Antifoaming Agents

INS No.	Name of the Food Additive	Maximum Level
900a	Polydimethylsiloxane	10 mg/kg

6.4. Colours

INS No.	Name of the Food Additive	Maximum Level
100(i)	Curcumin	500 mg/kg
101(i), (ii)	Riboflavins	200 mg/kg
104	Quinoline Yellow	100 mg/kg
110	Sunset Yellow FCF	300 mg/kg
120	Carmines	200 mg/kg
124	Ponceau 4R (Cochineal Red A)	100 mg/kg
129	Allura Red AC	100 mg/kg
133	Brilliant Blue FCF	100 mg/kg
140	Chlorophylls	GMP
141(i), (ii)	Chlorophylls and Chlorophyllins, Copper Complexes	200 mg/kg
143	Fast Green FCF	400 mg/kg
150a	Caramel I – Plain Caramel	GMP
150b	Caramel II - Sulfite Caramel	80,000 mg/kg
150c	Caramel III - Ammonia Caramel	80,000 mg/kg
150d	Caramel IV - Sulfite Ammonia Caramel	1,500 mg/kg
160a(i)	Carotenes, *beta*-, synthetic	

160a(iii)	Carotenes, *beta*-, *Blakesleatrispora*	500 mg/kg singly or in combination
160e	Carotenal, *beta*-apo-8'-	
160f	Carotenoic acid, ethyl ester, *beta*-apo-8'-	
160a(ii)	Carotenes, *beta*-, vegetable	1,000 mg/kg
160d(i), 160d(iii)	Lycopenes	100 mg/kg
161b(i)	Lutein from *Tageteserecta*	100 mg/kg
162	Beet Red	GMP
163(ii)	Grape Skin Extract	500 mg/kg
172(i)-(iii)	Iron Oxides	200 mg/kg

6.5. Preservatives

INS No.	Name of the Food Additive	Maximum Level
200-203	Sorbates	1,000 mg/kg
210-213	Benzoates	1,000 mg/kg
220-225, 227, 228, 539	Sulfites	50 mg/kg as residual SO_2 in the end product, except when made with sulfited fruit when a maximum level of 100 mg/kg is permitted in the end product.

6.6. Flavourings

The following flavourings are acceptable for use in foods conforming to this Standard when used in accordance with good manufacturing practices and in compliance with the Codex Guidelines for the Use of Flavourings (CAC/GL 66-2008): natural flavouring substances that are extracted from the named fruits in the respective product; natural mint flavour; natural cinnamon flavour; vanillin, vanilla or vanilla extracts.

7. Contaminants

7.1. The products covered by this Standard shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (Codex Stan 193-1995).

7.2. The products covered by this Standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

8. Hygiene

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

8.2. The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

9. Weights and Measures

9.1. Fill of Container

9.1.1. Minimum Fill

The container should be well filled with the product which should occupy not less than 90% (minus any necessary head space according to good manufacturing practices).of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 ^{0}C which the sealed container will hold when completely filled.

9.1.2. Classification of "Defectives"

A container that fails to meet the requirement for minimum fill of Section 9.1.1 should be considered as a "defective".

9.1.3. Lot Acceptance

A lot should be considered as meeting the requirement of Section 9.1.1 when the number of "defectives", as defined in Section 9.1.2, does not exceed the acceptance number of the appropriate sampling plan in ES 2834.

10. Packaging and Labeling

10.1 Packaging

The packaging shall comply with the requirements of ES ISO 7558 and shall consider the following:

10.1.1 The product shall be packed which 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 1 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

i. The names of the products shall be:

In the case of Section 4.1.2 a):

- Jam (or preserve or conserve, if appropriate)[5];
- Extra Jam (preserve or conserve, if appropriate)[5];
- High Fruit Jam (preserve or conserve, if appropriate)[5];
- Jelly;
- Extra Jelly.

5 The provision in parenthesis applies only to the English version of the Standard.

In the case of Section 4.1.2 b):

- Jam (or preserve5 or conserve5 or fruit spread);
- Jelly (or fruit spread).

In the case of Section 4.1.2 c):

- Marmalade or Jelly Marmalade. In the case of Section 4.1.2 d):
- “X” marmalade (“X” is a non citrus fruit).

The name used should be in accordance with the legislation of the country of retail sale.

ii. The name of the product shall provide an indication of the fruit(s) used in descending order of weight of the raw material used. In the case of products made with three of more different fruits the alternative phrase “mixed fruit” or similar wording or by the number of fruits may be used.

iii. The name of the product may provide an indication of the variety of fruit e.g. “Victoria” plum and /or may include an adjective describing the character e.g. “seedless”, “shredless”.

iv. The name of the product shall be accompanied by the term “prepared with added alcohol” in accordance with the legislation of the country of retail sale.

b) Fruit Quantity and Sugar Declaration

Depending on the legislation or requirements of the country of retail sale, the products covered by this Standard may also give an indication of the fruit ingredient content in the form of “prepared with X g of fruit per 100 g” and the total sugar content with the phrase “total sugar content X g per 100 g”. If an indication of fruit content is given this should relate to the quantity and type of fruit ingredient used in the product as sold with a deduction for the weight of any water used in preparing the aqueous extracts.

11. Methods of Sampling

Sampling of Canned asparagus shall be done in accordance with ES 2834.

Determination of Water Capacity of Containers (CAC/RM 46-1972)

1. Scope

This method applies to glass containers.

2. Definition

The water capacity of a container is the volume of distilled water at 20 ^{0}C which the sealed container will hold when completely filled.

3. Procedure

3.1 Select a container which is undamaged in all respects.

3.2 Wash, dry and weigh the empty container.

3.3 Fill the container with distilled water at 20 ^{0}C to the level of the top thereof, and weigh the container thus filled.

4. Calculation and Expression of Results

Subtract the weight found in 3.2 from the weight found in 3.3. The difference shall be considered to be the weight of water required to fill the container. Results are expressed as ml of water.

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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 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 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 available 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 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).

<u>More Information</u>?
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