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DRIED BANANA – SPECIFICATION

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Dried banana — Specification



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Introduction

Banana (*Musa spp*) is one of the important crops in Africa. Bananas mainly fall in two categories; namely sweet banana and plantain. The former are normally consumed as dessert (sweet) banana, while the later are primarily consumed after cooking.

Sweet banana can in addition used for preparation of desserts, purees and puddings; they can also be dried and eaten as a snack. Plantains can be dried and ground into flour.

This standard provides guidance to processors and traders of dried banana in ensuring its quality and safety to consumers.

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Dried banana — Specification

1 Scope

This standard prescribes requirements and methods of sampling and tests for dried banana from *Musa spp* of the family Musaceae; intended for direct human consumption or for other use in the food industry.

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.

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Prepackaged foods — Labelling*

ARS 471, *Food grade salt — Specification*

ARS 831, *Fresh bananas — Specification*

CODEX Stan 192, *General standard for food additives*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

ISO 712, *Cereals and cereal products — Determination of moisture content — Reference method*

ISO 2171, *Cereals, pulses and by-products — Determination of ash yield by incineration*

ISO 3960, *Animal and vegetable fats and oils — Determination of peroxide value — Iodometric (visual) endpoint determination*

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

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

ISO 5498, *Agricultural food products — Determination of crude fibre content — General method*

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

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

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

ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

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 B₁, and the total content of aflatoxin B₁, B₂, G₁ and G₂ in cereals, nuts and derived products — High performance liquid chromatographic method*

ISO 21527-2, *Microbiology of food and animal feedstuffs — 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*

ISO/TS 21872-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholerae*

ISO/TS 21872-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholerae*

ISO 24333, *Cereals and cereal products — Sampling*

3 Definitions

For the purpose of this standard the following definitions apply.

3.1

dried banana

dried banana fruit of the species scientifically known as *Musa spp* of Musaceae family

3.2

immature dried banana

dried banana obtained from an unripe green banana, having poor flavour, hard tissue and undesirable appearance

3.3

overripe dried banana

dried banana obtained from a banana at a stage of ripeness where the fruit is extensively soft or discoloured and passed its commercial utility because of poor flavour and undesirable appearance

3.4

broken dried banana

a piece of dried banana smaller than a normal slice or ring

3.5

spoiled dried banana

dried banana that is darkened in colour or showing the presence of mushy tissue visible decomposition caused by bacteria, fungi, visible mould hyphae or any other indication of spoilage or diseased

3.6

pest infested dried banana

dried banana damaged by insect or mite infestation

3.1.7

extraneous matter

dirt, pieces of skin, bits of wood, soil or any other foreign matter among or on the dried banana

3.8

fermented dried banana

a dried banana damaged by fermentation to the extent that the characteristic appearance and/or flavour is substantially affected

3.9

mineral impurities

acid insoluble ash content

4 Requirements**4.1 Description****4.1.1 Dried banana**

Dried banana are the sun/solar dried or artificially dried mature, sound, clean firm fruits of *Musa spp.* of the family Musaceae; prepared from fruits ripe or unripe that have been peeled and cut into segments, slices or rings.

4.1.2 The moisture content of non-chemically preserved dried banana shall not exceed 15% (m/m) and for chemically preserved dried banana shall not exceed 25% (m/m).

4.1.3 Odour and taste

Dried banana shall have an odour and taste characteristic of the variety. They shall be free from foreign odour and traces of odour coming from abnormal or fermented banana.

4.1.4 Freedom from insects, mould, mites and other parasites

Dried banana shall be free from living insects, mites or other parasites and moulds; and shall be practically free from live insects, dead insects, insects fragments and rodent contamination visible to the naked eye or upon magnification. If the magnification exceeds $\times 10^1$, this fact shall be stated in the test report.

4.1.5 Extraneous matter

The proportion of extraneous matter shall not exceed the values given in Table 1, according to class.

4.1.6 Pest infested dried banana

The proportion of pest infested and spoiled dried banana shall not exceed the values given in Table 1 according to class.

4.1.7 Immature dried banana

The proportion of immature dried banana shall not exceed the values given in Table 1, according to class.

4.1.8 Spoiled dried banana

The proportion of spoiled dried banana shall not exceed the values given in Table 1, according to class.

4.1.9 Colour

The colour of dried banana shall be characteristic of the variety; and shall range from cream white to light yellow, devoid of excessive browning discolouration.

4.1.10 Mineral impurities

The acid insoluble ash content of dried banana shall not exceed 0.1% (m/m).

4.2 Sizing

Sizing of dried banana is determined by the minimum diameter of each class as given in Table 2.

ARS 834:2017(E)

4.3 Classes

Dried banana shall fall into three classes as follows:

4.3.1 Extra class

Dried banana in this class shall have uniform colour. They shall not exceed the allowance percentage for the various defects given in Table 1.

4.3.2 Class I

Dried banana in this class shall satisfy the requirements given in Table 1. They shall possess the characteristic of the variety.

4.3.2.1 Allowable defects

The following slight defects are allowed, provided that these do not affect the general appearance of the product, the keeping quality or presentation of the package:

- a) Slight defect in shape
- b) Slight defect in colour
- c) Slight defect on the surface

4.3.3 Class II

Dried banana in this class shall satisfy the requirements specified in Table 1.

4.3.3.1 The following defects are allowed, provided that the dried banana retains the essential characteristics as regards general appearance and presentation.

Table 1 — Requirements of dried banana by class

Class	Pest infested dried banana, % (m/m), max	Spoiled dried banana, % (m/m), max	Broken dried banana, % (m/m), max	Immature banana, % (m/m), max	Extraneous matter% (m/m), max
Extra	1	2	5	1	0.1
Class I	2	3	10	2	1.0
Class II	3	4	15	4	1.5

Table 2 — Minimum diameter of dried banana

Class	Minimum diameter (mm)		Thickness for all shapes (mm)
	Slices	Rings	
Extra	30	30	3 – 5
Class I	22	22	3 – 5
Class II	15	15	3 – 5

5 Food additives

The following additives may be used as preservatives of dried banana at levels specified in CODEX Stan 192.

- a) Benzoates
- b) Hydroxybenzoate

- c) Sorbate
- d) Sulphur dioxide
- e) Citric acid

6 Contaminants

6.1 Pesticide residues

Dried banana shall conform to maximum residue limits for pesticide residues established by the Codex Alimentarius Commission for this commodity.

6.2 Other contaminants

6.2.1 Dried banana shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

6.2.2 The product shall be free from objectionable extraneous matter.

6.2.3 The dried banana shall contain not more than 10 microgram per kilogram aflatoxin of which not more than 5 micrograms per kilogram may be aflatoxin B1 when tested in accordance with ISO 16050.

6.2.4 The product shall be free from parasites which represent a hazard to health (see Table 3).

7 Hygiene

7.1 The product covered by the provisions of this standard shall be prepared and handled in accordance with ARS 53 and the relevant public health regulations and shall conform to microbiological limits specified in Table 3.

Table 3 — Microbiological limits for dried banana

S/N	Micro-organism(s)	Requirements	Method of test
1	Total plate count, cfu/g	10^5	ISO 4833
2	<i>Vibrio cholera</i> , cfu/g	absent	ISO/TS 21872
3	<i>Escherichia coli</i> , cfu/g, max.	absent	ISO 7251
4	<i>Salmonella</i> , 25g, max.	absent	ISO 6579
5	Yeasts and moulds, cfu/g, max.	10^3	ISO 21527-1
6	<i>Staphylococcus aureus</i> cfu/g max	10^2	ISO 6888
7	<i>Coliforms</i> g (per 100 g)	absent	ISO 4832

7.2 During handling, storage and transportation, effective measures must be taken to prevent cross contamination with chemicals, microbial or physical contaminants.

8 Packaging

8.1 Dried banana shall be packaged in food grade material which will safeguard the hygienic, nutritional and organoleptic qualities of the product.

8.2 The net weight of the packages for dried banana may be required to meet the relevant regulations of the destination country.

9 Labelling

9.1 In addition to the requirements of ARS 56, the following specific labelling requirements shall apply and shall be **legibly** and **indelibly** marked:

- a) Common name of the product 'Dried Banana';
- b) Name, and physical address of the manufacturer/ distributor and /or trade name/ brand name;
- c) Declaration of preservative by common name or international number if any;
- d) Date of manufacture;
- e) Storage instructions;
- f) Lot / batch identification in code or clear;
- g) Expiry date;
- h) Country of origin;
- i) The net weight in metric units; and
- j) Instructions on disposal of used package.

9.2 When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the packages.

10 Sampling

Sampling of dried banana shall be done in accordance with ISO 24333.

11 Criteria for conformity

A lot shall be declared as conforming to this standard if samples inspected or analysed for quality requirements conform to the provisions of this standard.

Bibliography

TZS 1189:2009, *Dried banana — Specification*

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