

**هيئة التقييس لدول مجلس التعاون لدول الخليج العربية**  
**STANDARDIZATION ORGANIZATION FOR G.C.C (GSO)**

**Final Draft**

**GSO 05/FDS .... / 2013**

**الكاسافا الحلوة**  
**Sweet Cassava**

Prepared By  
GSO Technical Committee for standards of food and agriculture products

This document is a draft GSO Standard circulated for comments. It is, therefore, subject to alteration and modification and may not be referred to as a GSO Standard until approved by GSO Board Of Directors

## **SWEET CASSAVA**

**Date of GSO Board of Directors' Approval** : (H)- - ( - -  
**Issuing Status** : Technical Regulation

## **Foreword**

GCC Standardization Organization (GSO) is a regional Organization which consists of the National Standards Bodies of GCC member States. One of GSO main functions is to issue Gulf Standards /Technical regulations through specialized technical committees (TCs).

GSO through the technical program of committee TC No. 5 "Gulf technical committee for standards of food and agriculture products". The Draft Standard has been prepared by Sultanate of Oman. The draft Standard has been prepared based on relevant ADMO, International and National foreign Standards and references.

This standard has been approved as a Gulf (Standard / Technical Regulation) by GSO Board of Directors in its meeting No.(     ),held on     /     /     H ,     /     /     G. The approved standard will replace and supersede the GSO standard No. (     /     ).



## SWEET CASSAVA <sup>1</sup>

### 1. SCOPE AND FIELD OF APPLICATION

This GSO standard applies to commercial sweet<sup>2</sup> varieties of cassava roots grown from *Manihot esculenta* Crantz, of the *Euphorbiaceae* family, to be supplied fresh to the consumer, after preparation and packaging. Cassava for industrial processing is excluded.

### 2. COMPLIMENTARY REFERENCES

- 2.1 GSO 9 “Labelling of Prepackaged Foods”.
- 2.2 GSO 20 “Methods for the Determination of Contaminating Metallic Elements in Foodstuffs”.
- 2.3 GSO 21 “Hygienic Regulations for Food Plants and Their Personnel”.
- 2.4 GSO 125 “Methods of sampling fresh fruits and vegetables”.
- 2.5 GSO 150 “Expiration Periods of Food Products - Part 1 :Mandatory Expiration Date”.
- 2.6 GSO 299 “Methods of test for vegetables, fruits and their products - second part : determination of moisture, alcohol - insoluble solids, total ash, calcium, mineral oil and ascorbic acid”.
- 2.7 GSO 842 “Microbiology - general guidance for enumeration of yeast and molds - colony count technique at 25°C”.
- 2.8 GSO 1016 “Microbiological Criteria for Foodstuffs – Part 1”.
- 2.9 GSO ISO 762:2007 “Fruit and vegetable products – Determination of mineral impurities content”.
- 2.10 GSO ISO 2448:2008 “Fruit and vegetable products – Determination of ethanol content”.
- 2.11 GSO ISO 4832:2010 “Microbiology of food and animal feeding stuffs – horizontal method for the enumeration of coliforms – colony count technique”.
- 2.12 GSO ISO 6579:2007 “Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella* spp”.
- 2.13 GSO 244 “Methods of test for vegetables, fruits and their products, Part 1: Organoleptic examination, determination of net weight and drained weight, determination of apparent viscosity”.

---

<sup>1</sup>Commonly known in certain regions by: manioc, mandioca, tapioca, aipim, yucca, etc.

<sup>2</sup>Sweet varieties of cassava are those that contain less than 50 mg/kg hydrogen cyanide (fresh weight basis). In any case, cassava must be peeled and fully cooked before being consumed

2.14 GSO Standard ON (Testing for Pork Fat in Food Products).

2.15 GSO 1306 “Methods microbiological testing of plant baby foods.”

### 3. DEFINITIONS

**Sweet Cassava:** Cassava roots grown from *Manihot esculenta* Crantz, of the *Euphorbiaceae* family

### 4 REQUIREMENTS

#### 4.1 General Requirements

- 4.1.1 Production shall be carried out according to health requirements and shall be in accordance with the GSO standard mentioned in ( 2.3 ).
- 4.1.2 Sound, produce affected by rotting, mould or deterioration such as to make it unfit for Consumption is excluded;
- 4.1.3 Clean, practically free of any visible foreign matter, except permitted substances used to prolong its shelf life;
- 4.1.4 Practically free of pests affecting the general appearance of the produce;
- 4.1.5 Free from pork products and its derivatives.
- 4.1.6 Free from ethanol.
- 4.1.7 Free of any foreign smell and/or taste.
- 4.1.8 Practically free of mechanical damage and bruising;
- 4.1.9 Free of loss of color in the flesh.
- 4.1.10 The cut at the distal (narrow) end of the cassava should not exceed 2 cm in diameter.
- 4.1.11 The stalk end of the root should have a clean cut between 1 cm and 2.5 cm in length.
- 4.1.12 The cassava must have reached an appropriate degree of physiological development account being taken of the characteristics of the variety and the area in which they are grown.
- 4.1.13 The development and condition of the cassava must be such as to enable it to withstand transport and handling; and to arrive in satisfactory condition at the place of destination.

4.2 Contaminant metallic elements content shall not exceed the ratios mentioned against each (ppm):

Cadmium	0.1 ppm
Lead	0.1 ppm

#### 4.3 Microbiological Characteristics

The microbiological characteristics for sweet cassava shall be according GSO standard Which mention in item (2.8) .

#### 4.4 Requirement concerning sizing

Size is determined by the diameter at thickest cross-section of the produce, in accordance with the following table:

Size Code	Diameter (in centimeters)
A	3.5 – 6.0
B	6.1 – 8.0
C	> 8.0

In all cases, cassava must not be less than 300 g in weight nor less than 20 cm in length. Size tolerances For all classes, 10% by number or weight of cassava corresponding to the size immediately above and/or below that indicated on the package.

## 5. CLASSIFICATION:

Cassava is classified in three classes defined below:

### 5.1 “Extra” Class

Cassava in this class must be of superior quality. It must be characteristic of the variety and/or commercial type. It must be free of defects, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

### 5.2 Class I

Cassava in this class must be of good quality. It must be characteristic of the variety and/or commercial type. The following slight defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- 5.2.1 slight defects in shape;
- 5.2.2 scarring or healed damage, not exceeding 5% of the surface area;
- 5.2.3 scraped areas, not exceeding 10% of the surface area.

The defects must not, in any case, affect the pulp of the produce.

### 5.3 Class II

This class includes cassava which does not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Section 4.1 above. The following defects, however, may be allowed, provided the cassava retains its essential characteristics as regards the quality, the keeping quality and presentation:

- 5.3.1 defects in shape;
- 5.3.2 scarring or healed damage, not exceeding 10% of the surface area;
- 5.3.3 scraped areas, not exceeding 20% of the surface area.

The defects must not, in any case, affect the pulp of the produce.

## 6. SAMPLING

Samples shall be taken according to the GSO Standard mentioned in Item (2.4).

## **7. METHODS OF EXAMINATION AND TEST**

### **7.1 Examination:**

#### **7.1.1 Sensory Test:**

Sensory test shall be taken according to the GSO Standard mentioned in item (2.13).

#### **7.1.2 Detection of foreign materials:**

Foreign materials shall be detect according to the GSO standard mentioned in item (2.13).

#### **7.1.3 Determination of Moisture**

Moisture shall be determine according to the GSO standard mentioned in item (2.6).

#### **7.1.4 Determination of contaminated metallic elements**

Contaminated metallic elements shall be determine according to the GSO standard mentioned in item (2.2).

#### **7.1.5 Detect of rancidity**

Rancidity shall be detected according to GSO mentioned in item (2.2).

#### **7.1.6 Detection of pork fat**

Pork fat shall be detected according to GSO standard mentioned in item (2.14).

#### **7.1.7 Detection of Ethanol**

Ethanol shall be detected according to GSO standard mentioned in item (2.10).

#### **7.1.8 Detection of salmonella**

Salmonella shall be detected according to GSO standard mentioned in item (2.12).

#### **7.1.9 Yeast and molds**

Yeast and molds shall be detected according to GSO standard mentioned in item (2.7).

#### **7.1.10 Determination of total count bacteria**

Total count bacteria shall be determined according to GSO standard mentioned in item (2 . 15 ).

#### **7.1.11 Detect of coliform bacteria**

Coliform bacteria shall be detected according to GSO standard mention in item (2.11).



**7.1.12 Detect of mineral impurities content.**

Mineral impurities content shall be detected according to GSO standard mention in item (2.9).

- 7.2 Tests shall be carried out on the representative sample taken according to item ( 5 )to determine its compliance with all the items of this standard.

**8. PACKAGING, STORAGE AND TRANSPORTATION**

- 8.1 Packaging : Cassava must be packed in such a way as to protect the produce properly. The materials used inside the package must be new<sup>4</sup>, clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, \_ particularly of paper or stamps\_ provided the printing or labelling has been done with non-toxic ink or glue. The product shall be packed in clean, suitable, sound, moisture proof, and well sealed containers that have no effect on product properties.
- 8.2 Storage : The product shall be stored under suitable conditions in ventilated stores.
- 8.3 Transportation: shall be carried out in such a way as to protect the product from mechanical damage and contamination.

**9. LABELING**

Without prejudice to what is stated in the GSO standard mentioned Items (2.1) and (2.6) must indicate the following on the cover of the product:

- 9.1 Name of the produce and type (sweet)
- 9.2 The name of the variety (optional)