

KENYA STANDARD

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ICS

Sweetpotato Bread - specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

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Agriculture and Food Authority- Food Crops directorate
Kenya Agricultural & Livestock Research Organization
International Potato Center
Kenya Industrial Research & Development Institute
Food science and Technology platform of Kenya
National Potato Council of Kenya
Propack Ltd.
Graduate Africa Ltd
Kenya Bureau of Standards — Secretariat

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Sweetpotato Bread - specification

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Foreword

This Kenya Standard has been developed by the Tubers and Tuber Products Technical Committee under the guidance of the Standards Projects Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

The development of this standard is in response to the need to accommodate the emerging quality, innovation, technological and environmental issues in the sector. The implementation of the standard is aimed at creating harmony, quality, uniformity and fair trade in the sector, thereby creating value for the stakeholders.

In the development of this standard it was envisaged that the current paradigm of sustainable development shall be ensured in the context of social, economic and environmental concerns. The standard thus intends to safeguard the interests of the stakeholders in the entire value chain, guarantee product quality and enhanced safety of the consumers.

In the development of this standard, reference was made to the following documents:
Recommended International Code of Practice General Principles of Food Hygiene.
EAS 43- Bread - specification

Sweetpotato bread -Specification

1 Scope

This Standard specifies requirements and methods of sampling and test for Sweetpotato bread obtained from the processing of sweetpotato (*ipomea batatas*) intended 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. Adopt as the puree

KS EAS 12, *Potable water – Specification*

KS EAS 35, *Edible salt – Specification*

KS EAS 38, *General standard for the labelling of pre-packaged foods*

KS EAS 39, *Hygiene in the food and drink manufacturing industry – Code of practice*

KS EAS 321, *Edible fats and oils*

KS EAS 773, *Sweet potato flour — Specification*

KS EAS 803, *Nutrition labelling -Requirements*

KS EAS 804, *Claims — General requirements*

KS EAS 805, *Use of nutrition and health claims Requirements*

DKS 2860 *Sweet potato puree- specification*

KS EAS 771, *Fresh sweet potato — Specification*

KS CODEX Stan 192, *General standard for food additives*

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

KS ISO 1842, *Fruit and vegetable products — Determination of pH*

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

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 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 0.9*

ISO 24333, *Cereals and cereal products — Sampling*

3. Definitions

For the purpose of this standard the following definitions apply.

3.1

Sweetpotato bread

product obtained by baking fermented dough made from at least 20 % of sweetpotato puree or 10% sweetpotato flour

4. Essential quality and compositional requirements

4.1 Raw materials

The following materials shall be used in the processing of sweetpotato bread:

4.1.1 flour conforming to relevant Kenyan/ East African Standards;

4.1.2 sweet potato flour/ puree conforming to the relevant Kenyan/ East African Standards

4.1.3 baker's yeast conforming to relevant East African Standard;

4.1.4 edible oils and fats conforming EAS 321;

4.2.4 potable water complying with EAS 12

4.2 Optional ingredients

4.2.1 Food additives conforming to CODEX STAN 192

4.2.2 edible common salt EAS 35;

4.2.3 sugar conforming to EAS 5;

4.2.4 milk or milk products;

4.2.5 gluten;

4.2.6 oilseeds and oilseed products;

4.2.7 fruits and fruit products; and

4.2.8 any food products fit for human consumption.

4.3 General Quality requirements

4.3.1 Bread crust

The crust shall have a golden brown colour and shall be free from blisters. The crust shall be not burned and shall be free from soot or any other foreign matter. The bread shall be evenly baked on all sides including the bottom. The crust shall not be thin and break easily. It shall not be thick, tough, or rubbery.

4.3.2 Volume

The bread shall have volume to weight ratio of not more than 5.75 to 1 when tested according to Annex B

4.3.3 The crumb

The crumb shall be springy, with small pores uniformly distributed throughout and with thin cell walls. It shall be free from non-porous mass, lumps of flour or salt, or any other evidence of incomplete mixing.

There shall be no hollow between the crust and the crumb.

The crumb shall have colour characteristic of the ingredients used. When sliced, the surface of slices shall present a uniform shade without streaks or dark patches.

4.3.4 Flavour

The flavour shall be characteristic of fresh, well-baked bread, free from abnormal flavour or any other objectionable flavour.

4.3.5 Aroma

The aroma shall be fresh and shall not be musty, metallic or sour.

4.3.6 Mould or Rope

The bread shall be free from indications of rope or mould.

4.3.7 Internal texture

The structure shall be uniform with thin-walled cells. The texture is soft and velvety, without weakness, and shall not crumble.

4.3.8 Taste mastication

The bread shall have a pleasant and acceptable taste. The loaf shall be free from doughiness and not dry or tough.

4.3.9 Foreign matter

The bread shall be free from any foreign matter except for a small amount of added edible grains dusting bran, maize flour or rice flour from the baker's shovel which may adhere to the bottom of the loaf.

4.3.10 the premises, equipment and facilities for production of sweetpotato bread shall be located, designed and constructed to ensure that:

- a) contamination is minimized;
- b) it will permit appropriate maintenance, cleaning and sanitizing; and
- c) there is effective protection against pest access and harbourage.

4.3.11 sweetpotato bread shall be prepared and handled in accordance with the requirements of EAS39

4.4 Specific compositional requirements

Sweetpotato bread shall conform to the requirements specified in Table 1.

Table 1 — compositional Requirements for sweetpotato bread

S/N	Parameter	Requirements	Method of test
1	Moisture content, %, by mass, max.	40	ISO 712
4	Acid insoluble ash, %, by mass, max	0.20	Annex A-
5	pH of aqueous extract	5.3 – 6.0	ISO 1842

5 Hygiene

5.1 Sweetpotato bread shall be prepared and handled in a hygienic manner in accordance with EAS 39 and shall conform to microbiological limits specified in Table 2.

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

Table 2 — Microbiological limits for sweetpotato bread

S/N	Micro-organism(s)	Requirements	Method of test
1	<i>Escherichia coli</i> , cfu/g.	Absent	ISO 7251
2	<i>Salmonella</i> , 25g.	absent	ISO 6579
3	Yeasts and moulds, cfu/g, max.	10 ³	ISO 21527-2

6 Contaminants

6.1 Pesticide residues

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

6.2 Other contaminants

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

7 Packaging

Sweetpotato bread shall be packaged in food grade materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product. The packaging material used shall comply with the national regulations.

8 Weights and measures

Sweetpotato bread shall be packaged in accordance with the weights and measures requirements in the destination country.

9 Labelling

9.1 In addition to the requirements of EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

- a) common name of the product 'Sweetpotato Bread';
- b) name, and physical address of the manufacturer/ distributor and /or trade name/ brand name;
- c) date of manufacture;
- d) list of ingredients;
- e) lot identification;
- f) expiry date;
- g) the net weight in metric units;
- h) storage instructions;
- i) declaration of additives used
- 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.

9.3 Nutrition labelling

The amount of nutrients in the sweetpotato bread shall be declared on the label in accordance with KS EAS 803.

9.4 Nutrition and health claims

sweetpotato bread may have claims on the importance of the micronutrients in nutrition and health. Such claims when declared shall be in compliance with KS EAS 804 and KS EAS 805.

10 Sampling

Sampling 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 analyzed for quality requirements conform to the provisions of this standard.

Annex A
(normative)
Determination of acid insoluble ash

A.1 Reagents

Dilute hydrochloric acid, prepared by diluting concentrated hydrochloric acid with water in a ratio of 2:5.

A.2 Apparatus

A.2.1 Muffle furnace at $600^{\circ}\text{C} \pm 20^{\circ}\text{C}$

A.2.2 Water bath

A.3 Procedure

Weigh accurately 5 g -10 g of finely powdered bread in a porcelain or platinum dish. Ignite the material in the dish with a suitable flame until it chars. Place the ignited bread in the muffle furnace.

Heat at $600^{\circ}\text{C} \pm 20^{\circ}\text{C}$ for at least 1 h. Remove the dish from the furnace and cool.

Wet the ash with a suitable amount of hydrochloric acid, and place on a water bath for 10 min. Filter through a No. 1 sinter glass crucible. Wash the crucible with water until the washings are free from acid. Dry the crucible in an air-oven for 2 h. Cool in a desiccator and weigh. Repeat the process until the difference between two successive weighings is less than 1 mg. Take the lowest mass.

A.4 Calculation

Acid insoluble ash, percent by mass (on dry basis) = $M_2 \times 100/M_1$

where,

M_1 is the mass of sample, and

M_2 is the of insoluble matter.

Annex B**(normative)****Determination of volume/weight ratio****B1. Apparatus****B1.1 Rigid container****B1.2 Rape seeds****B1.3 Weighing scale****B1.4 Measuring cylinder****B1.5 Loaf volumeter****B1.6 Plate****B2 Determination of volume/weight ratio by displacement method****B2.1 Procedure**

Weigh the loaf after it is cooled to room temperature and record the weight. Fill the container with rape seeds and level the top of seeds with a plate. Empty out the seeds leaving a layer at the bottom of the container. Place the loaf on the layer of seeds. Fill the rest of the container with seeds and level the top surface with a plate. Pour the remaining rape seeds into the measuring cylinder and measure the volume.

B2.1.1 Volume (V) /weight ratio for the bread (W) = -----

where,

V is the volume in ml of the remaining seeds after displacement;

W is the weight in g of the loaf.

NOTES

1. Do not press the loaf while keeping in the box.
2. For sliced bread, test before bread is sliced.

B3 Determination of volume of loaf by loaf volumeter**B3.1 Procedure**

B3.1.1 Calibration of volumeter with dummy loaf

Open the container and place a dummy loaf into it. Close the container and open the gate. Remove the hopper lid and fill the calibrated column with rape seeds. Tap the column three times to ensure maximum use of seeds around the dummy loaf. Empty all excess seeds by closing the gate and swinging down the column. Return the column to upright position and secure the lid to the container. Open the gate and swing down the volumeter to allow rape seeds to empty from bottom pan. When it is completely empty, close the gate and swing the volumeter to upright position.

B3.1.2 Measurement of the volume of loaf

Weigh the loaf after it is cooled to room temperature and record the weight. Place the loaf in the volumeter and repeat the procedure as that for dummy loaf. The volume of the loaf will be indicated by the level of seeds in the calibrated column.

NOTE: The loaf must be larger than the dummy loaf.

B3.1.3 Volume (V) /weight ratio for the bread (W) = -----

where,

V is the volume in ml of the loaf;

W is the weight in g of the loaf.