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Amaranth grain— Specification

PUBLIC REVIEW DRAFT

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Amaranth grain — Specification

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Foreword

The grain Amaranth is a grain obtained from the genus *Amaranth*. Amaranth grows as short-lived herbs that occur in temperate and tropical regions. There are about 60 species, of which, mainly two are cultivated for grain purposes namely; *A. hypochondriacus*, *A. cruentus*. When cultivated, Amaranth produces a large amount of biomass in a short period of time and therefore has the potential to contribute to a substantial increase in the world's food production.

Grain Amaranth has various nutritional and health benefits due to its having high protein content and also having high quality proteins. Grain amaranth is also rich in unsaturated fatty acids especially linoleic acid and contain substantial levels of essential micronutrients. The grain is used for the vulnerable groups.

Because of this advantage, the grain Amaranth has been used to develop products such as the flour for porridge, meal flour, cookies and other snacks.

During the preparation of this standard, reference was made to the following documents:

Uganda Standard 952- Amaranth grain- Specification

Training manual by Kenya Agricultural and Livestock Research Organization

Introduction to grain amaranth by Dr. Davidson Mwangi

Acknowledgement is hereby made for the assistance derived from these sources.

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Amaranth grain — Specification

1 Scope

This Kenya Standard specifies the requirements and methods of sampling and test of whole grains of amaranthus obtained from *A. hypochondricus* and *A. cruentus* and any other variety duly approved and released by Kenya Agricultural and Livestock Research Organization, as a grain amaranthus variety intended for human consumption.

2 Normative references

The following referenced documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EAS 38, *Labelling of pre-packaged foods — Requirements*

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

EAS 900, *Cereals and pulses — Sampling*

EAS 901, *Cereals and pulses-Test methods*

ISO 16649-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of β -glucuronidase-positive Escherichia coli — Part 1: Colony-count technique at 44 °C using membranes and 5-bromo-4-chloro-3-indolyl β -D-glucuronide*

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 7954, *Microbiology — General guidance for enumeration of yeasts and moulds — Colony count technique at 25 °C*

ISO 1871, *Food and feed products — General guidelines for the determination of nitrogen by the Kjeldahl method*

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

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1

amaranth whole grains

grains obtained from species of *Amaranthus* (*A. hypochondaricus*, and *A. cruentus*)

3.2

extraneous matter

organic and inorganic materials other than the amaranth grains

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3.3**inorganic matter**

stones, glass, pieces of soil and other mineral matter

3.4**organic matter**

any animal or plant matter (seed coats, straws, weeds) other than the amaranthus grains , extraneous matter, harmful/toxic seeds and other inedible grains

3.5**filth**

impurities of animal origin, including dead insects

4 Quality requirements**4.1 General quality requirements**

Amaranth grain shall

- a) be free from filth
- b) be free from live infestation
- c) be free of off flavours and odours,
- d) have a colour characteristic of the variety

and shall not be discoloured

4.2 Specific quality requirements

Amaranth grain shall comply with the specific quality requirements specified in Table 1.

Table 1 — Specific quality requirements for amaranth grain

Characteristic	Level	Method of test
Protein content, %, min.	16	ISO 1871
Moisture content, % by mass, max	12	EAS 901
Filth, %, max	0.1	
extraneous matter, %, max	0.2	

5 Contaminants

5.1 Pesticide residues

Amaranth grain shall conform to those maximum residue limits for pesticides established by the Codex Alimentarius Commission for this commodity.

5.2 Other contaminants

5.2.1 Amaranth grain shall conform to those maximum levels in accordance CODEX STAN 193

5.2.2 Amaranth grain shall comply with limits for mycotoxins given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Mycotoxin limits for amaranth grain

S/N	Mycotoxin	Maximum limit	Test method EAS 901
i.	Total aflatoxins (AFB ₁ +AFB ₂ +AFG ₁ +AFG ₂), µg/kg	10	Clause 9 or 10

6 Hygiene

6.1 Amaranth grains shall be produced, prepared and handled in accordance with EAS 39

6.2 When tested by appropriate standards for sampling and examination in Clause 2, the product shall be free from microorganisms in amounts which may represent a hazard to health and shall not exceed the limits stipulated in Table 2.

Table 2 — Microbiological limits in Amaranth grain

S/No	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, per g, max.	10 ⁴	ISO 7954
ii)	<i>S. aureus</i> , per 25 g	Absent	ISO 6888-1
iii)	<i>E. coli</i> , per g, max	Absent	ISO 16649-1

7 Packaging

Amaranth grain shall be packaged in food grade materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product.

The packaging materials shall comply with the legislation requirements of the destination country.

8 Labelling

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

- a) common name of the food to be declared on the label shall be 'Amaranth grain';
- b) net contents by weight in metric ('System International') units;
- c) name and physical address of the manufacturer / distributor;
- d) country of origin;
- e) lot identification;
- f) statement "Food for Human Consumption" shall appear on the package;
- g) storage conditions as "Store in a cool dry place away from contaminants";
- i) instructions on disposal of used package;
- ii) crop year; and
- iii) packing date.

9 Methods of sampling

Sampling shall be carried out in accordance with EAS 900

10 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.

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