

FINAL DRAFT UGANDA STANDARD

FDUS 953

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Amaranth flour — Specification



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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT/SPS Agreements of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

Committee membership

The following organisations were represented under the Cereals and cereal products sub-committee (SC 3) of the Food and Agriculture Standards Technical Committee, UNBS/TC 2, during the development of this standard:

- East Africa Basic Foods (U) Limited
- Hortexa
- Maganjo millers
- Makerere University
- Ministry of Trade, Industry and Cooperatives
- NARO- NARL
- Seba foods (U) Ltd
- Smart foods Ltd
- Uganda Consumer Protection Association (UCPA)

Introduction

The Amaranth grain 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 three are cultivated for grain purposes namely; *A.hypocodriacus*, *A. cruentus* and *A.caudatus*. 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.

Amaranth grain has various nutritional and health benefits due to its having high protein content and also having high quality proteins. Amaranth grain are 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 conforming to FDUS 982 has to be used to produce the flour for the development of products such as the flour for porridge, meal flour, cookies and snacks.

Following this, FDUS 953, Amaranth grain flour has been developed to specify the minimum requirements.

Amaranth flour— Specification

1 Scope

This Final Draft Uganda Standard specifies the requirements and methods of sampling and test for flour prepared from dried amaranth grain obtained from (*Amaranthus caudatus*, *A.hypochondaricus*, *A.cruentus*) 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.

ISO 605, *Pulses — Determination of impurities, size, foreign odour, insects, and species and variety — Test methods*

US 7, *General standard for labelling of pre-packaged foods*

US 28, *Code of Practice for hygiene in the food and drink manufacturing industry*

US 97 (ISO 13690), *Cereals, pulses and milled products — Sampling of static batches*

US 217-2, *Methods for microbiological examination of foods — Part 2: General guidance for the enumeration of micro-organisms — General guidance for the enumeration of micro-organisms — Colony Count Technique at 30 °C*

US 217-5, *Methods for microbiological examination of foods — Part 5: Enumeration of coagulase-positive Staphylococci*

US 217-8, *Methods for microbiological examination of foods — Part 8: Enumeration of yeast and moulds in foods*

US 246, *Specification for woven bags made from natural fibres for cereals and pulses*

US 343/ISO 1871, *Agricultural food products — General directions for the determination of nitrogen by the Kjeldahl method*

US 345/ISO 5498, *Agricultural food products — Determination of crude fibre content — General Method*

US 738, *General standard for contaminants and toxins in food and feed*

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

FDUS 952, *Amaranth grain specification*

3 Terms and definitions

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

3.1 amaranth flour
product in powder form prepared from dried amaranth grain (*A. caudatus*, *A. hypochondaricus* or *A. cruentus*) by grinding or milling processes

3.2 food grade material
one that will not transfer non-food chemicals into the food and contains no chemicals which would be hazardous to human health

4 Essential composition and quality factors

4.1 Raw material

The Amaranth grain from which the flour is milled shall be clean, sound, mature, dry seeds essentially free from other seeds and foreign matter in accordance with FDUS 952.

4.2 Essential composition factors

Amaranth flour shall conform to the compositional requirements in Table 1.

Table 1 — Compositional requirements for amaranth flour

Characteristic	Limit	Method of test
Ash content, % by mass, max.	5.0	US ISO 2171
Protein content, % by mass, min.	12	US 343
Moisture content, % by mass, max.	10	US 98
Crude fibre content, % by mass on a dry matter basis, max.	1.8	US 345

4.3 General quality factors

Amaranth flour shall:

- a) be practically free from filth in amounts that may represent a hazard to human health;
- b) be free of off flavours and odours;
- c) be practically free from any living insects and foreign matter;
- d) be safe and suitable for human consumption; and
- e) have a colour characteristic of the variety.

4.4 Particle size

Not less than 90 % shall pass through a 0.60 mm sieve for fine flour and not less than 90 % shall pass through a 1.20 mm sieve for coarse flour.

5 Food additives

The product shall contain only permitted additives in accordance with US 45.

6 Contaminants

Amaranth flour shall conform to those maximum levels of the US 738.

7 Hygiene

Amaranth flour shall be prepared and handled in accordance with US 28.

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 specified in Table 2.

Table 2 — Microbiological limits for amaranth flour

S/No	Type of micro-organism	Limits	Test method
i)	Yeasts and moulds, per g, max.	10 ³	US EAS 217-8
ii)	<i>S.aureus</i> per 25 g	Not detectable	US EAS 217-5
iii)	<i>E. coli</i> , per g, max.	Not detectable	US/EAS 217-4
iv)	Total aerobic count, per g	10 ⁵	US EAS 217-2

8 Packaging

Amaranth flour shall be packaged in food grade materials that will safeguard the hygienic, nutritional and organoleptic quality of the product. The packaging materials shall comply with the legislation of the destination country.

9 Weights and measures

Amaranth flour shall be packaged in accordance with the Weights and Measures requirements of the destination country.

10 Labelling

In addition to the requirements of US 7, the following labeling 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 flour';
- b) net contents by weight in metric ('Système International') units;
- c) name and physical address of the manufacturer/distributor;
- d) country of origin;
- e) lot identification;
- f) date of manufacture and best before date;

- g) the statement "Human Food' shall appear on the package";
- h) storage conditions as "Store in a cool dry place away from contaminants"; and
- i) instructions on disposal of used package.

11 Method of sampling

Sampling shall be done in accordance with US 97.

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The use of the UNBS Certification Mark is governed by the Standards Act, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

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