

DRAFT UGANDA STANDARD

Second Edition
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Dried vegetables and herbs for use — Specification



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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate 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 Agreement of the World Trade Organisation (WTO).

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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.

The committee responsible for this document is Technical Committee UNBS/TC 2, *Food and Agriculture*, Subcommittee SC 4, *Fruits, vegetables, spices and related products and processes*.

This second edition cancels and replaces the first edition (US 889:2011), which has been technically revised.

Dried vegetables and herbs for use — Specification

1 Scope

This Uganda standard specifies requirements, sampling and test methods for dried vegetables and herbs offered for direct consumption or further processing, including for catering purposes or for repackaging if required.

This standard does not apply to dried vegetables and herbs for which specific standards have been declared.

2 Normative references

The following referenced documents 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.

US 45, *General standard for food additives*

US 640, *Code of practice for the production, handling and processing of solar dried fruits*

US 738, *General standard for contaminants and toxins in foods*

AOAC 934.06, *Determination of the moisture content for dried fruits*

US EAS 38, *Labelling of pre-packaged foods — General requirements*

US EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

US ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

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

US EAS 803, *Nutrition labelling — Requirements*

US EAS 804, *Claims on food — Requirements*

US EAS 805, *Use of nutrition and health claims — Requirements*

US ISO 763, *Fruit and vegetable products — Determination of ash insoluble in hydrochloric acid*

US ISO 6561-1, *Fruits, vegetables and derived products - Determination of cadmium content - Part 1: Method using graphite furnace atomic absorption spectrometry*

US ISO 6561-2, *Fruits, vegetables and derived products - Determination of cadmium content - Part 2: Method using flame atomic absorption spectrometry*

US ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

US 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 0.95*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

vegetable

parts of edible plants including roots, corns and tubers (carrots, garlic and potatoes), stems and shoots (e.g., spinach, cauliflower) and legumes for example, peas. Pumpkins, pumpkin leaves and rhubarb are also considered as being vegetables for the purpose of this standard.

3.2

dried vegetable

product prepared from fresh vegetables of varieties characteristic of the named vegetable; and processed by drying either by the sun or by other recognized methods of dehydration with or without added food additives, into a form of marketable dried product

3.3

dried herbs

product prepared from herbs of varieties characteristic of the named species; and processed by drying either by the sun or by other recognized methods of dehydration with or without added food additives, into a form of marketable dried product.

4 Product description

Dried vegetables and herbs are products:

- a) prepared from edible portion of clean, fresh, sound, mature vegetables or herbs and dried under natural or artificially induced conditions and they can undergo operations such as washing, peeling, grading, cutting, blanching or dipping etc., depending on the type of product.
- b) obtained by drying pieces of one or more of named vegetables

4.1 presentation

Dried vegetables and herbs may be presented in one the following presentations

- a) Crumbs
- b) Granules
- c) Powder

4.2 Other presentations

Any other presentation of the product may be used provided the product is

- a) is sufficiently distinctive from other forms of presentation laid down in the standard and;
- b) is adequately described on the label to avoid confusing or misleading the consumer

5 Requirements

5.1 Ingredients

5.1.1 Essential ingredients

Vegetables and herbs as defined in Section 4, (part (a and b))

Examples of the edible vegetables and herbs suitable for drying are but not limited to those listed in Annex A

5.1.2 Optional ingredients

Spices and condiments as desired may be used to stuff the product, provided it is suitable for consumption

5.2 General requirements

Dried vegetables and herbs shall:

- a) have their characteristics taste, colour, flavour and odour corresponding to the vegetable or herb involved, the type of treatment and added optional ingredients.
- b) possess texture characteristic of the product
- c) be clean and free from foreign odour and traces of odour coming from abnormal fermented vegetable or herb
- d) be free from mouldy filaments visible to the naked eye
- e) be practically free from extraneous matter.
- f) be free from living and dead insects, insect fragments, rodents, mites or other parasites and moulds contamination

5.3 Specific requirements

Dried vegetables and herbs shall comply with the specific requirements in Table 1 when tested in accordance with the methods specified therein

Table 1 — Specific requirement for dried vegetables and herbs

Characteristic	Requirement	Test method
Moisture, % (m/m), max	8	AOAC 934.06
Acid insoluble ash, % (m/m), (on dry basis), max.	0.1	US ISO 763

6 Food additives

Dried vegetables and herbs may contain food additives in accordance with US 45.

7 Contaminants

7.1 Heavy metal contaminants

Dried vegetables and herbs shall comply with those maximum levels for contaminants and toxins given in US 738 and shall comply with the limits for heavy metals given in Table 2 when tested in accordance with the test methods specified therein

Table 2 — Heavy metal contaminants limits for dried vegetables and herbs

S/N	Heavy metal	Maximum limits, mg/kg	Test method
i.	Lead	0.2	US ISO 6633
ii.	Cadmium	0.3	US ISO 6561-1 US ISO 6561-2

7.2 Pesticide residues

Dried vegetables and herbs shall comply with those maximum residue limits for pesticides established by the Codex Alimentarius Commission

8 Hygiene

Dried vegetables and herbs shall be produced and handled in accordance with US 640 and US EAS 39. The products shall comply with the microbiological limits given in Table 3 when tested in accordance with the methods specified therein

Table 3 — microbiological limits for dried vegetables and herbs

Microorganism	limit	Test method
Total plate count, cfu/g, max.	5×10^4	US ISO 4833-1
<i>Escherichia coli</i> , cfu/g, max.	Absent	ISO 16649-2
Yeast and moulds, cfu/g, max	2000	US ISO 21527-2

9 Packaging

Dried vegetables and herbs shall be packaged in a food grade packaging material that will safeguard the hygienic, safety, nutritional, technological and organoleptic qualities of the product which comply with US 1659.

10 Weights and measures

Dried vegetables and herbs shall be packaged in accordance with the Weights and Measures regulations of Uganda.

11 Labelling

11.1 General labelling

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

- a) name of the product as Dried "X" vegetables or Dried "X" where X is the name of the dried vegetable or herbs
- b) There shall appear on the label as part of the name or in close proximity to the name, the form of presentation as indicated in section 4.1 and 4.2

11.2 Nutritional and health claims

Any nutritional labelling, nutrition and health claims with these products shall be in accordance with US EAS 803, US EAS 804 and US EAS 805

12 Sampling

Representative samples of the material shall be drawn and tested for conformity to this specification as prescribed in Annex B.

Annex A
(informative)

Scientific and common names of common edible vegetables and herbs used for food

Scientific name	Common English name	(Part eaten)	Traditional names in Uganda
<i>Amaranthus dubius</i>	Amaranthus spinach	Leaves	Doodo (Lug/Bar/Ank/Kg/Tr/Yr); Eboga (Ts); Sokoo/Sokusaku (A&J); Bedegbele (Kk).
<i>A. gracecizane</i>	Amaranthus spinach	Leaves	Embooge (Lug); Imbog(k)a (Gis); Ekiliton (Ts); Onvuga (A&J); Enje (Md); Obuga (Ach); Obug (Lag); Nyabutongo (Ank).
<i>A. hybridus</i>	Amaranthus spinach	Leaves	Goyi/goi (A&J).
<i>A. hybridus subsp. hybridus</i> [†]	Amaranthus spinach	Leaves	Goyi/goi (A&J); Omuriri (Ank).
<i>A. hybridus subsp. incurvatus</i> [†]	Amaranthus spinach	Leaves	Ebbuga ezuungu (Lug); Namutonto (Gis).
<i>A. lividus</i>	Amaranthus spinach	Leaves	Ebbuga enjanamusayi (Lug); Chesicheyet (Seb); Liwoola (Gis); Omuriri (Ank, Kg).
<i>A. spinosus</i>	Amaranthus spinach	Leaves	Doodo ow'maggwa (Lug); Losigiria (Kmj); Obuga-okuta (Ach).
<i>Basella alba</i> [†]	Vine spinach	Young shoot Leaves	Enderema (Lug, Ank, Yr, Kg, Tr); Inderema (Gis); Kurakura/Ndera (A&J).
<i>Bidens pilosa</i> [†]	Black jack (L)	Leaves	Sere (Lug, Bk); Anyengomon (A&J); Bilodra (Md/RI); Abulesega (Kk); Nyabarashana (Ank).
<i>Brassica oleracea</i>	kale	leaves	Sukumawiki (Swah), ekabit (Ts)
<i>Cajanus cajan</i>	Pigeon peas (S)	Seeds	Lapena (Ach, Lag); Ekilimite (Ts); Apena (Lag); Enkuuku (Ank, Yr, Tr).

<i>Lagenovia siceraria</i>	Calabash gourd	Leaves	Amugit (Ts)
<i>Capsicum annum</i>	Chillies	Leaves	Kamulali (Lug, Gis); Kamalra (A&J); Pirpiri (Kk), Hamulali (Sam).
<i>C. frutescens</i>	Chillies	Leaves	Kamulali (Lug); Rura (Ach); Eshenda (Ank).
<i>Colocasia esculenta</i> [†]	Cocoyam	Leaves	Timba (Lug); Mattu midolodolo (Gis); Opela (A&J); Ebitekyere (Ank); Oburagoi (Kg).
<i>Commelina benghalensis</i> [†]	Day flower	Leaves	Nnanda ennene (Lug); Orandi (Bk); Ekoropot (Ts); Lolo (Md); Androko (A&J).
<i>Chocorus olitoris/ Corchoris trilocularis</i>	Leaves		Otigo (Ach), etigo (Ts), Omutere (Sam)
<i>Colocasia schimperi</i>	Cocoyam		Leaves
<i>Crotalaria Spp</i>		leaves	
<i>Cucurbita maxima</i> [†]	Pumpkin	Leaves, seeds	Ensujju (Lug, Ts); Essunsa (Lug); Buziriziri/Kimisebebe (Gis); Kasogo (Kg); Imunyuru (Ts); Okondo (A&J); Ebishusha/Obututu (Ank, Kg); Kedi (Kk); Enjubi/Ejubi (Md); Kicwika/konokono (Ach); Emyongo (Tr, Yr).
<i>Gynandropsis gynandra</i> [†]	African spider herb (L)	Leaves	Ejjobyo (Lug); Isaga (Gis); Ekiau (Kmji); Ekaboi/Ecaboi (Rs); Ekeyo (A&J); Tegeri (Kk); Jirri (Md); Ekeyo (Lag); Eshoje (Ank), Esaka (Sam)
<i>Hibiscus cannabinus</i> [†]	Kenaf, Deccan Help		Lubeera (Lug); Etoke (Kmji); Ebirai (Ts); Nyarogena (Ach).
<i>H. esculentus</i>	Okra	Leaves	Bamia (Kk, Bar, Yr); Loka/Obori (Md); Otigo-Iwoka (Bar, Ach).
<i>H. sabdariffa</i> [†]	-	Leaves Shoot	(E) malakwang (Kmji)/Ts/Bar); Kuluba (Kk); Ekiganga (Yr); Emalakwany (Ts); Malakwang (A&J); Kalabi (Md).
<i>Ipomoea batatas</i>	Sweet potatoes	Leaves	Lumonde (Lug), Amasafu ka mabwoni (Sam)

<i>I. eriocarpa</i>	-	Leaves	Ecadokoko (Ts); Nyamaradundu (A&J); Ecejofo (Md); Padowiakuri (Ach); Acatolao/Acatominoula (Lag).
<i>Luffa cylindricata</i>	Loofah gourd	Leaves	Kyangwe (Lug); Ekyangwe (Yr, Tr).
<i>Manihot esculenta</i> [†]	Cassava	Leaves	Mattu gamwogo (Gis). Chombe (A&J); Soutigbanda (Kk); Gbandabi (Md); Potmogo (Lag); Muhogo (Ank, Kg, Yr).
<i>Moringa</i>	Moringa		Leaves/flowers
<i>Oxytenanthera abyssinica</i>	Bamboo shoots	Stem	Maleewa (Gis)
<i>Phaseolus lunatus</i> [†]	Lima beans (S)	shoot	Ebigaaga (Lug); Korokoco (Kk); Onguk/Orusa (A&J); Ckuku (Lag); Abongband (Ach) Obuhindhindi (Ank)..
<i>P. vulgaris</i> [†]	French beans (L, S, F)	Leaves Shoot fruit	Ebijanjaalo: L,S, Ebisobooza: L, Ebisobyo/Ebikanga: L, (Lug); Mattu wanyambi (Gis); Teiko/Ngaingai (Kk); Ebihimba (Ank, Tr, Yr).
<i>Sechium edule</i>	Cho-cho	Leaves	Ebisusuuti (Lug).
<i>Sesamum indicum</i>	Sim-sim (S)	Shoot	Bukenyimu (Buk).
<i>Solarium aethiopicum</i> [†]	Scarlet eggplant	Leaves	Nakati/Nakasuga (Lug).
<i>Solanum scabrum</i>	African egg plant	Leaves	Entula enganda (Lug), Jagi (Ach); Entura (Ank, Kg); Enjagi (Tr, Yr).
<i>Solanum aethiopicum</i>	African egg plant	Fruit	Entula enganda (Lug) Jagi (Ach); Entura (Ank, Kg); Enjagi (Tr, Yr).
<i>S. gilo</i>	Bitter berries	Leaves/Fruit	Entula enganda (Lug); Jagi (Ach); Entura (Ank, Kg); Enjagi (Tr, Yr).
<i>S. indicum subsp. distichum</i> [†]	Bitter berries	fruit	Katunkuma (Lug); Uli (A&J); Namatala (Gis).
<i>S. macrocarpon</i>	Vergans	Leaves	Nakati nume y'akyalo (Lug).
<i>S. nigrum (dark stem)</i> [†]	Night shade	Leaves	Ensugga enzirugavu (Lug); Ocokocok

			(Lag.).
<i>S. nigrum</i> (green stem) [†]	Night shade	Leaves	Ensugga (Lug); Esufa (Gis); Enyoro (Kmj); Ociga (A&J); Lere (Kk); Ocugocuga (Ach); Ocuga (Lag); Esiiga (Ank).
<i>Vigna unguiculata</i> [†]	Cowpea	Leaves shoot	Eggobe/Ekiyindiru/Mpindi (Lag); Likote (Gis); Eboo/Imere (Ts); Boo/Ngor (Ach); Amuli/Obo (A&J); Nyele (Kk); Omugobe (Ank, Tr, Yr); Bojo (Lug); Maruet "wild" (Kmj); Namuri "wild" (Kk); Laputu (Kk); Enkoole (Ank).

A

Annex B (normative)

Sampling of dried vegetables and herbs

B.1 Definitions

B.1.1

package

individually packaged part of a lot, including contents so as to facilitate handling and transport of a number of sales units or of products loose or arranged, in order to prevent damage by physical handling and transport. Road, rail, ship and air containers are not considered as packages.

B.1.2

sales package

individually packaged part of a lot, including contents, which is so as to constitute a sales unit to the final user or consumer at the point of purchase

B.1.3

pre-packages

sales packages such as the packaging encloses the foodstuff completely or only partially, but in such a way that the contents cannot be altered without opening or changing the packaging. Protective films covering single product are not considered as a pre-package.

B.1.4

consignment

quantity of product to be sold by a given trader found at the time of inspection and defined by a document. A consignment may consist of one or several types of product; it may contain one or several lots of dried fruit.

B.1.5

lot

quantity of product which, at the time of inspection at one place, has similar characteristics with regard to:

- a) packer and/or dispatcher;
- b) country of origin;
- c) nature of product;
- d) class of product;
- e) size (if the product is graded according to size);
- f) variety or commercial type (according to the relevant provisions of the standard); and
- g) type of packaging and presentation.

If it is difficult to distinguish between different lots and/or presentation of individual lots all lots of a specific consignment may be treated as one lot if they are similar in regard to type of product, dispatcher, country of origin, class and variety or commercial type, if this is provided for in the relevant marketing standard.

B.1.6

sampling

collective samples taken temporarily from a lot during conformity check

B.1.6.1

primary sample

package taken at random from the lot, in case of packed product or, in case of bulk product (direct loading into a transport vehicle or compartment thereof), a quantity taken at random from a point in the lot.

B.1.6.2

bulk sample

several primary samples supposed to be representative for the lot so that the total quantity is sufficient to allow the assessment of the lot with regard to all criteria

B.1.6.3

secondary sample

equal quantity of product taken at random from the primary sample

The secondary sample shall comprise 30 units, in case the net weight of the package is 25 kg or less and the package does not contain any sales packages. In certain cases this means that the whole content of the package has to be checked, if the primary sample contains not more than 30 units.

B.1.6.4

composite sample

mix, weighing at least 3 kg, of all the secondary samples taken from the bulk sample. Product in the composite sample shall be evenly mixed.

B.1.6.5

reduced sample

quantity of product taken at random from the bulk or composite sample whose size is restricted to the minimum quantity necessary but sufficient to allow the assessment of certain individual criteria.

If the inspection method would destroy the product, the size of the reduced sample shall not exceed 10 % of the bulk sample. In the case of small dry or dried products (that is, 100 g include more than 100 units) the reduced sample shall not exceed 300 g.

Several reduced samples may be taken from a bulk or composite sample in order to check the conformity of the lot against different criteria.

B.2 Sampling method

B.2.1 Identification of lots and/or getting a general impression of the consignment

The identification of lots shall be carried out on the basis of their marking or other criteria. In the case of consignments which are made up of several lots it is necessary for the inspector to get a general impression of the consignment with the aid of accompanying documents or declarations concerning the consignments. The inspector shall then determine how far the lots presented comply with the information in these documents.

If the product is to be or has been loaded onto a means of transport, the registration number of the latter shall be used for identification of the consignment.

B.2.2 Presentation of product

The inspector shall decide which packages are to be checked. The presentation shall be made by the operator and shall include the presentation of the bulk sample as well as the supply of all information necessary for the identification of the consignment or lot.

If reduced or secondary samples are required, these shall be identified by the inspector from the bulk sample.

The inspector shall determine the size of the bulk sample in such way as to be able to assess the lot. The inspector selects at random the packages to be inspected or in the case of bulk product the points of the lot from which individual samples shall be taken.

Care shall be taken to ensure that the removal of samples does not adversely affect the quality of the product.

Damaged packages shall not be used as part of the bulk sample. They shall be set aside and may, if necessary, be subject to a separate examination and report.

The bulk sample shall comprise the following minimum quantities whenever a lot is declared unsatisfactory or the risk of a product not conforming to the standard has to be examined:

Number of packages in the lot	Number of packages to be taken (primary samples)
Packaged products	
Up to 100	5
From 101 to 300	7
From 301 to 500	9
From 501 to 1 000	10
More than 1 000	15 (minimum)
Product in bulk	
Quantity of lot in kg or number of bundles in the lot	Quantity of primary samples in kg or number of bundles
Up to 200	10
From 201 to 500	20
From 501 to 1 000	30
From 1 001 to 5 000	60
More than 5 000	100 (minimum)

In the case of bulky dried fruit and vegetables (over 2 kg per unit), the primary samples shall be made up of at least five units. In the case of lots comprising fewer than five packages or weighing less than 10 kg, the check shall cover the entire lot.

If the inspector discovers, after an inspection, that a decision cannot be reached, another physical check shall be undertaken and the overall result reported as an average of the two checks.

B.2.3 Control of product

In case of packed product, the primary samples shall be used to check the general appearance of the product, the presentation, the cleanliness of the packages and the labelling. In all other cases, these checks shall be done on basis of the lot or transport vehicle.

The product shall be removed entirely from its packaging for the conformity check. The inspector may only dispense with this where the sampling is based on composite samples.

The inspection of uniformity, minimum requirements, quality classes and size shall be carried out on the basis of the bulk sample, or on the basis of the composite sample.

When defects are detected, the inspector shall ascertain the respective percentage of the product not in conformity with the standard by number or weight.

External defects shall be checked on the basis of the bulk or composite sample. Certain criteria on the degree of development and/or ripeness or on the presence or absence of internal defects may be checked on the basis of reduced samples. The check based on the reduced sample applies in particular to checks which destroy the trade value of the product.

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Annex C (normative)

Determination of the moisture content for dried vegetables and herbs

NOTE: This method is the same as that prescribed by the AOAC: Official Methods of Analysis, XIIIth edition, 1980, 22.013 - *Moisture in Dried fruits and vegetables*, Official Final Action.

C.1 Definition

The moisture content of dried vegetables and herbs is defined as being the loss of mass determined under the experimental conditions described in this annex.

C.2 Principle

The principle of the method is the heating and drying of a sample of dried vegetables and herbs at a temperature of 70 °C + 1 °C at a pressure not exceeding 100 mm Hg.

C.3 Apparatus

Usual laboratory apparatus is used together with the following items:

Electrically heated constant-temperature oven, capable of being controlled at 70 °C + 1 °C at a pressure of 100 mm Hg

- b) **Dishes with lids**, of corrosion-resistant metal of about 8.5 cm in diameter
- c) **Mincer**, either hand or mechanically operated
- d) **Desiccator**, containing an effective desiccant
- e) **Precision balance**

C.4 Procedure

C.4.1 Preparation of the sample

Take approximately 50 g of dried fruit from the laboratory sample, and mince it twice with the mincer.

C.4.2 Test portion

Place 2 g of finely divided asbestos into the dish, tare the dish with its lid and the asbestos, dried beforehand. Weigh, to the nearest 0.01 g about 5 g of prepared sample.

NOTE Dried sand which has previously been washed in hydrochloric acid and then rinsed thoroughly with water may be used in the place of the asbestos. Analysts using this technique should note that it is a deviation from the AOAC procedure, and should mention this in their report.

C.4.3 Determination

Moisten the sample and the asbestos thoroughly with a few millilitres of hot water. Mix the sample and the asbestos together with a spatula. Wash the spatula with hot water to remove the sample residues from it, letting the residues and the water fall into the dish.

Heat the open dish on a boiling-water bath (Bain-marie) to evaporate the water to dryness. Then place the dish, with the lid alongside it, in the oven and continue drying for six hours at 70 °C under a pressure not exceeding 100 mm Hg, during which time the oven should not be opened. During drying admit a slow current of air (about two bubbles per second) to the oven, the air having been dried by passing through H₂SO₄. The metal dish must be placed in direct contact with the metal shelf of the oven. After drying, remove the dish, cover it immediately with its lid and place it in the desiccator. After cooling to ambient temperature, weigh the covered dish to the nearest 0.01 g

C.5 Calculation and expression of results

The moisture content of the sample, as percentage by mass is calculated as follows:

$$\text{Moisture content} = 100 \times (M_1 - M_2) / (M_1 - M_0)$$

where

M_0 is the mass, in grams, of the empty dish with its lid and containing the asbestos,

M_1 is the mass, in grams, of the dish with its lid, asbestos and test portion before drying, and

M_2 is the mass, in grams, of the dish with its lid after drying.

The results are expressed to one decimal place.

Duplicate determinations should agree to 0.2 % moisture.

Bibliography

- [1] US 889:2011, *Dried vegetables and herbs for use — Specification*
- [2] DKS 435:2018, *Dehydrated vegetables — Specification*

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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.

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