



DRAFT TANZANIA STANDARD

Fresh bitter gourd – specification

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0 foreword

Bitter gourd is an ovoid to oblong shaped fruit vegetable grown for its immature fruits which have a unique bitter taste. Fruits are consumed fresh or cooked and rich in vitamins and minerals. Bitter gourd fruits have medicinal properties.

This Tanzania Standard was prepared in order to provide guidance to fresh bitter gourd producers and traders as well as regulators, and to ensure safety and quality of the produce.

In the preparation of this Tanzania Standard considerable assistance was derived from KS 1299 *Fresh bitter gourds (karela) - Specification*.

In reporting the results of a test or analysis made in accordance with this standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

1. Scope

This standard specifies quality and safety requirements, methods of sampling and test of bitter gourd (*Mormodica charantia* L.) to be supplied fresh to the consumer. Bitter gourds for industrial processing are excluded.

2. Normative references

The following referenced standards are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standards (including any amendments) applies.

- a) TZS 4, *Rounding off of numerical values*
- b) TZS 109, *Code of hygiene for food processing unit*
- c) TZS 122-1- *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella- Part 1: Detection of Salmonella spp.*
- d) TZS 127-1 - *Microbiology of the food chain- Horizontal method for the determination of Vibrio spp. - Part 1: Detection of potentially enteropathogenic Vibrioparahaemolyticus, Vibrio cholerae and Vibrio vulnificus*
- e) TZS 538, *Packaging, marking and labeling of foods*
- f) TZS 852-1- *Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp - Part 1: Detection method*

- g) TZS 1002, *Fresh fruits and vegetables – Sampling*
- h) TZS 1003, *Guide to the pre-packaging of fresh fruits and vegetables*
- i) TZS 1743, *Code of Hygienic Practice for Fresh fruits*
- j) TZS 2424-1 - *Microbiology of the food chain- Horizontal method for determination of hepatitis A virus and norovirus using real-time RT-PCR- Part 1: Method for quantification*
- k) TZS 2425 - *Microbiology of food and animal feeding stuffs- Horizontal method for the detection of Escherichia coli O157*
- l) Codex Stan 193, *Codex General standard for contaminants and toxins in food and feed*
- m) *Codex pesticide residues in food online data base*
- n) TZS 3004 - *Microbiology of the food chain - Detection and enumeration of Cryptosporidium and Giardia in fresh leafy green vegetables and berry fruits*

3 Terms and definitions

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

3.1 clean

free from dirt, dust, insect stains or other foreign substances

3.2 damage

any injury or defect caused by sunscald, low temperatures, yellowing, sun-burn, cuts, bruises, scars or insects, which affects the appearance and eating quality of fresh bitter gourds.

3.3 deformed

the fresh bitter gourd is so misshaped that the appearance does not fit the known characteristics of the variety

3.4 firm

the fresh bitter gourd is crisp and should not be shriveled, limp or pliable

3.5 fresh

fresh bitter gourds whose quality has not deteriorated due to loss of moisture, discoloration, or injury through bruising

3.6 tender

soft, succulent before maturity

3.7 intact

bitter fresh gourds with no parts removed and that have not suffered from any damage making them incomplete

3.8 length

the greatest dimension of the fresh bitter gourd fruit measured from the stem end to the blossom end, including the stalk

3.9 moderately coloured

fresh bitter gourds having at least half of the surface bearing the characteristic colour of the variety

3.10 uniformly coloured

fresh bitter gourds having at least three quarters ($\frac{3}{4}$) of the surface bearing the characteristic colour of the variety

3.11 superior quality

fresh bitter gourds that are:

- i. well developed;
- ii. well shaped and practically straight;
- iii. free from defects including all deformations, particularly those caused by seed formation

3.12 good quality

bitter gourds that are:

- i) reasonably developed;
- ii) reasonably well shaped and practically straight

3.13 longitudinal diameter

length of long axis of the fruit, from level of peduncle to the pistil attachments on the fruit

4 Requirements

4.1 General requirements

In all classes, subject to the special provisions of each class and tolerances allowed, the following shall be the general requirements for fresh bitter gourds:

- i) firm and intact
- ii) fresh and clean
- iii) tender
- iv) not overgrown
- v) fairly well-formed
- vi) characteristic colour of the variety
- vii) free from pests and damages caused by them
- viii) free from foreign smell and/or taste

The length and colour of the fruits shall comply with the requirements given in Table 1.

Table 1 Longitudinal diameter (length) and colour of bitter gourd varieties

Variety	Stalk length	Longitudinal diameter (mm)	Colour
Long	50 mm ± 10 mm	100-120	Deep green
Short	50 mm ± 10 mm	70-100	Deep green

4.2 Classification

Bitter gourds shall be classified in three classes, as defined below:

4.2.1 Extra class

This class consists of fresh bitter gourds which are uniformly coloured and are of superior quality in shape, appearance and development. They shall be characteristic of the variety.

The difference in length between the shortest and the longest fresh bitter gourd within the same package shall not exceed 10% of the average length of the lot.

4.2.2 Class I

Fresh bitter gourds in this class shall be slightly coloured and of good quality. The difference in length between the shortest and the longest gourd within the same package shall not exceed 20% of the average length of the lot.

The following defects are allowed provided that they do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package:

- a) A slight deformation
- b) Slight defect in colouring, especially the light coloured part of the fruit where it touched the ground during growth.
- c) Slight skin blemishes or injury due to rubbing and handling or low temperature, provided that they have healed and do not affect the quality.

4.2.3 Class II

This class includes fresh bitter gourds, which do not qualify for inclusion in the higher classes but meet the general requirements.

5 Tolerances

The following tolerances in respect of quality shall be allowed:

5.1 Extra class

A maximum of 5% by weight of bitter gourds not complying with the requirements of the class but complying with the requirements of Class I shall be allowed.

5.2 Class I

A maximum of 5% by weight of bitter gourds not complying with the requirements of the class but complying with those class II shall be allowed.

5.3 Class II

A maximum of 5% by weight of bitter gourds not complying with the requirements of the class but complying with the general requirements in clause 4.1 shall be allowed.

6 Provisions concerning presentation

6.1 Uniformity

The contents of each package (or lot for produce presented in bulk in the transport vehicle), shall be uniform and contain bitter gourds of the same origin, variety or commercial type and quality, and size (if sized).

Bitter gourd in Class I shall be uniform in shape and colour. However, a mixture of bitter gourds of distinctly different types and/or colours may be packed together in a package, provided they are uniform in quality and, for each type and/or colour concerned, in origin.

Miniature bitter gourds shall be reasonably uniform in size. They may be mixed with other miniature products of different species and origin.

The visible part of the contents of the package (or lot for produce presented in bulk in the transport vehicle) shall be representative of the entire contents.

7 Contaminants

7.1 Pesticide residues

Fresh bitter gourds shall comply with those maximum residue limits established in the Codex pesticide residues in food online data base.

7.2 Other contaminants

Fresh bitter gourds shall comply with those maximum metal contaminants established by the Codex Stan 193.

8 Hygiene

8.1 It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with TZS 109 (see clause 2) and TZS 1743.

8.2 Fresh bitter gourds shall also comply with the microbial requirements prescribed in Table 2.

Table 2 Microbiological limits for fresh bitter gourds

S/N	Test	Test Method	Requirement
1.	<i>Listeria monocytogenes</i> per 25g	TZS 852-1	Absent
2.	<i>Escherichia coli</i> O157:H7	TZS 2425	Absent
3.	<i>Salmonella</i> per 25g	TZS 122-1	Absent

9 Sampling and tests

9.1 Sampling

Representative samples of fresh bitter gourds shall be drawn as prescribed in TZS 1002 (see clause 2).

9.2 Tests

Tests shall be done in accordance with the methods prescribed in this standard.

9. Packing, marking and labelling

9.1 Packing

Fresh bitter gourds shall be packed in such a way as to protect the produce properly. The materials used that is in contact with the produce shall be of food grade, 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 bearing trade specifications, is allowed, provided the printing or labelling has been done with nontoxic ink or glue.

9.1.1 The containers shall meet the quality, hygiene, ventilation and resistance characteristics that shall ensure suitable handling, shipping and preserving fresh bitter gourds. Packages shall be free of foreign matter and objectionable smell.

9.1.2 The use of any substance tending to modify the natural characteristics of the produce, especially form, texture and taste shall be prohibited.

9.1.3 In addition to the provisions covered by this standard, fresh bitter gourds shall also be packed in accordance with TZS 538 and TZS 1003 (See clause 2).

9.2 Marking and labelling

9.2.1 Each package shall legibly and indelibly bear the following information in Swahili or and English on the same side:

- a) Name of the produce (fresh bitter gourds)
- b) Name, physical and postal address of the packer, importer/exporter, distributor and/ or dispatcher;
- c) Name of the variety or commercial type;
- d) Country of origin;
- e) Class;
- f) Net weight (kg);

- g) Size;
- h) identification code and/or batch number;
- i) Storage condition.

9.2.2 Certification mark – Each container may also be marked with TBS certification mark.

NOTE: The use of TBS certification mark is governed by provisions of the Standards Act, 2009. Details of the conditions under which a license for the use of TBS certification mark may be granted to manufacturers or producers, may be obtained from TBS.

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