



DRAFT TANZANIA STANDARD

Pumpkin seeds — Specification

Draft for stakeholders comments

TANZANIA BUREAU OF STANDARDS

Pumpkin seeds — Specification

0 Foreword

Pumpkin seeds are the edible seed of a pumpkin (*Cucurbita pepo* L.), widely used for human consumption and oil production due to its nutritional and functional properties. Pumpkin seeds can be eaten as a snack (roasted or raw), added to bakery products, cereals, salads, and yogurts and used in seed butters and traditional sauces.

This Tanzania Standard lays down specifications aimed at ensuring the safety and quality of raw and roasted pumpkin seeds traded within the country for human consumption.

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4.

1 Scope

This Tanzania Standard specifies requirements, sampling and test methods for seeds obtained from pumpkin (*Cucurbita pepo* L.) intended for human consumption.

This standard applies to raw and roasted pumpkin seeds which may be hulled (green pepitas) or unhulled (white shell).

2 Normative references

The following 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;

CXS 192, *General standard for food additives*

CXS 193, *General Standard for Contaminants and toxins in food and feed*

TZS 4, *Rounding off numerical values*

TZS 109, *Food processing units – Code of hygiene – General*

TZS 538, *Packaging and labeling of foods*

TZS 742, *Oleaginous seeds – Sampling*

TZS 799, *Foodstuffs – Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products – High-performance liquid chromatographic method*

TZS 1314 – 1, *Oilseeds – Determination of content of impurities*

TZS 1314 – 2, *Oilseeds – Determination of moisture and volatile matter content*

TZS 1314 – 3, *Oilseeds – Determination of oil content (Reference method)*

TZS 1314 – 4, *Oilseeds – Determination of acidity of oils*

TZS 122-1 /ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella- Part 1: Detection of Salmonella spp*

TZS 730-2 /ISO 16649-2, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of -b-glucuronidase-positive Escherichia coli – Part 2 – Colony-count technique at 44 °C using 5-bromo-4-chloro-3-indolyl-b-D-glucuronide*

TZS 2426-2/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*

TZS 125-2, *Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) - Part 2: Technique using rabbit plasma fibrinogen agar medium*

3 Terms and definitions

For the purposes of this Tanzania Standard, the following terms and definitions shall apply:

3.1 pumpkin (*Cucurbita pepo* L.)

hard and roundish fruit vegetable of the squash family that usually comes in a bright orange colour or also green and yellow depending on how ripe and grown it is

3.2 pumpkin seed

edible seed of a pumpkin (*Cucurbita pepo* L.)

3.3 raw pumpkin seeds

pumpkin seeds that have been cleaned and dried but not roasted or heat-treated

3.4 roasted pumpkin seed

edible seed of a pumpkin which has been subjected to heat

3.5 foreign matter

any visible and/or apparent matter or material not usually associated with raw and roasted pumpkin seeds

3.6 hulled pumpkin seeds

pumpkin seeds that have had their outer hard shell (hull) removed, leaving only the soft, green inner kernel

3.7 unhulled pumpkin seeds

pumpkin seeds that are consumed with their outer hard shell (hull) still intact

4 Requirements

4.1 General requirements

4.1.1 Raw and roasted pumpkin seeds shall be:

- a) dry flat and oval in shape and may be hulled (green pepitas) or unhulled (white shell).
- b) free from dead or living insects, insect fragments and mites.
- c) practically free from foreign matter such as stones, dirt, or any contamination.
- d) free from foreign odours and undesirable flavour and/or taste.
- e) practically free from decayed and mould -damaged seeds

4.2 Raw materials requirement

4.2.1 Raw and roasted pumpkin seeds shall be prepared from:

- a) pumpkin seeds (*Cucurbita pepo* L.) complying with the requirements of this Tanzania

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Standard

- b) other optional ingredients complying with the relevant standards.

4.2 Specific requirements

Raw and roasted pumpkin seeds shall comply with specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for raw and roasted pumpkin seeds

S/NO	Characteristics	Requirements		Test method
i.	Moisture content and volatile matter% (m/m), max.	Raw pumpkin seeds	8	TZS 1314-2
		Roasted pumpkin seeds	5	
ii.	Free fatty acids, %, m/m, max.	2		TZS 1314 – 4

5 Grading requirements

When grading is required, raw pumpkin seeds shall comply with the grading requirements given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Grading requirements for raw pumpkin seeds

S/No.	Characteristic	Requirement			Test method
		Grade 1	Grade 2	Grade 3	
i.	Damaged seeds, % m/m, max.	0.5	1.5	3.0	TZS 1314 – 1
ii.	Other defects, % m/m, max.	0.5	1.5	3.0	
iii.	Split and broken seeds, % m/m, max.	1.0	2.0	3.0	
iv.	Foreign matter, % m/m, max.	0.1	0.2	0.3	

6 Food additives

Food additives when used in pumpkin seeds shall comply with CXS 192.

7 Hygiene

7.1 Raw and roasted pumpkin seeds shall be processed, handled and stored in accordance with

TZS 109.

7.2 Raw and roasted pumpkin seeds shall not exceed microbiological limits given in Table 3 when tested in accordance with the test method specified therein.

Table 3 — Microbiological limits for raw and roasted pumpkin seeds

S/N	Microorganism	Requirement	Test method
i.	<i>Salmonella</i> spp. in 25 g	Absent	TZS 122-1
ii.	<i>Escherichia coli</i> , CFU/g	Absent	TZS 730-2
iii.	<i>Staphylococcus aureus</i> , CFU/g	Absent	TZS 125-2
iv.	Yeast and moulds, cfu/g, max.	10 ³	TZS 2426-2

8 Contaminants

8.1 Heavy metals

Raw and roasted pumpkin seeds shall not exceed maximum heavy metals specified in CXS 193.

8.2 Pesticide residues

Raw and roasted pumpkin seeds shall comply with those maximum residue limits established by the Codex Alimentarius Commission.

8.3 Mycotoxin

Raw and roasted pumpkin seeds shall not exceed the maximum aflatoxin limits as given in Table 4 when tested in accordance with test method specified therein:

Table 4— Aflatoxin limits for raw and roasted pumpkin seeds

S/N	Aflatoxin	Maximum limit (µg/kg)	Method of test
i.	Total aflatoxin	10	TZS 799
ii.	Aflatoxin B ₁	5	

9 Sampling and methods of testing

9.1 Sampling

Sampling of raw and roasted pumpkin seeds shall be done in accordance with TZS 742.

9.2 Methods of testing

Raw and roasted pumpkin seeds shall be tested in accordance with the methods specified in this standard.

10 Packaging, Marking and Labeling

10.1 Packaging

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Raw and roasted pumpkin seeds shall be packaged in suitable food grade packaging materials which ensure the safety and quality requirements of the product are maintained throughout the shelf life.

10.2 Marking and labeling

10.2.1 The product shall be marked and labeled in accordance with TZS 538. In addition each container/packet of product shall be legibly and indelibly marked with the following information:

- a) Name of the product as 'Raw pumpkin seeds' or 'Roasted pumpkin seeds'
- b) Grade, if applicable for raw pumpkin seeds
- c) Trade name or brand, if any;
- d) Name, address of the producer and/or packer;
- e) Batch or lot number;
- f) Date of packing;
- g) Best before;
- h) Net weight in metric unit;
- i) Allergens declaration
- j) Country of origin;and
- k) Storage conditions.

10.2.2 The containers may also be marked with TBS Standards Mark of Quality.

NOTE — The TBS Standards Mark of Quality may be used by the manufacturers only under license from TBS. Particulars of conditions under which the licenses are granted may be obtained from TBS