



AFDC 26 (1117) DTZS

DRAFT TANZANIA STANDARD

Broccoli - specification

TANZANIA BUREAU OF STANDARD

0 foreword

Broccoli is a green vegetable whose large flowering head is often eaten boiled or steamed but may be eaten raw. It is rich in vitamins, minerals, fiber and antioxidants. It is among the important vegetable crops grown by farmers for consumption and income generation.

This Tanzania Standard was prepared in order to provide guidance to broccoli 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: UNECE standard FFV-48 BROCCOLI 2019.

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 broccoli varieties (cultivars) grown from *Brassica oleracea* var. *italica* Plenck to be supplied fresh to the consumer. Broccoli 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 538, *Packaging, marking and labeling of foods.*
- e) TZS 552, *Code of hygienic practice for fresh leafy vegetables*
- 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 2425 - *Microbiology of food and animal feeding stuffs- Horizontal method for the detection of Escherichia coli O157*
- j) Codex Stan 193, *Codex General standard for contaminants and toxins in food and feed*
- k) *Codex pesticide residues in food online data base*

3 Terms and definitions

3.1 sound

produce not affected by rotting or deterioration such as to make it fit for consumption

3.2 clean

practically free of any visible foreign matter

3.3 firm

resistance to hand pressure

3.4 compact

closeness of individual flower sprouts

3.5 cultivar

plant within a specie that has been produced in cultivation by selective breeding

3.6 pest

any organism that directly or indirectly affects the quality and safety of the produce

3.7 intact

no parts removed and that have not suffered any damage making them incomplete

3.8 floral stem

immature, fresh and tender portion of stem bears dense green clusters of flower buds at the end of central axis and branches

4 Requirements

4.1 General requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, broccoli shall be:

- intact; for the purpose of presentation some sprouts may be removed
- sound;

- clean;
- fresh in appearance;
- practically free from pests and damage caused by them;
- free of abnormal external moisture; in the case where crushed ice is used traces of residual water are not considered to constitute abnormal moisture;
- free of any foreign smell and/or taste.

The cut of the floral stem shall be clean and as square as possible.

Hollow stems are not considered a defect provided the hollow part is sound, fresh and not discoloured.

The development and condition of broccoli shall be such as to enable it to:

- withstand transportation and handling
- arrive in satisfactory condition at the place of destination

4.2 Classification

Broccoli is classified in two classes, as defined below:

4.2.1 Class I

Broccoli in this class shall be of good quality and characteristic of the variety and/or commercial type.

Broccoli shall be:

- firm and compact
- tightly-grained
- free of defects such as stains or traces of frost.

The buds shall be fully closed.

The floral stem must be sufficiently tender and free of woodiness.

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

- a slight defect in shape
- a slight defect in colouring.

Leaves extending above the head may be allowed provided these are green, sound, fresh and tender.

4.2.2 Class II

This class includes broccoli that do not qualify for inclusion in Class I but satisfy the general requirements specified in clause 4.1.

Broccoli may be:

- slightly loose and less compact
- less tightly-grained.

The buds shall be practically closed.

The floral stem shall be reasonably tender, and may have a trace of woodiness.

The following defects may be allowed, provided broccoli retains its essential characteristics as regards the quality, the keeping quality and presentation in the package:

- defects in shape
- defects in colouring
- slight bruising and injury.

Leaves extending above the head may be allowed provided these are green, sound, fresh and tender.

4.3 Provisions concerning sizing

Size is determined either by the diameter of the floral stem at the cut end or by the maximum diameter of the head.

The minimum size shall be:

- 8mm for broccoli graded by diameter of the floral stem
- 2cm for broccoli graded by the diameter of the head and presented, prepacked or bunched
- 6cm for broccoli graded by the diameter of the head.

In any case, the ratio between the diameter of the head and that of the floral stem in each package shall not be less than 2:1

The maximum size shall be 20cm in height, except for long-stemmed type broccoli.

To ensure uniformity in size, the range in size between produce in the same package shall not exceed:

- 20mm for broccoli graded by diameter of the floral stem;
- 4cm for broccoli graded by the diameter of the head if the smallest head has a diameter of less than 10cm;
- 8cm for broccoli graded by the diameter of the head if the smallest head has a diameter of 10cm or more.

For all prepacked or bunched produce, uniformity of size is optional.

The size requirements shall not apply to miniature produce.

4.4 Provisions concerning tolerances

Tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated.

4.4.1 Quality tolerances

4.4.1.1 Class I

A total tolerance of 10%, by number or weight, of broccoli not satisfying the requirements of the class but meeting those of Class II is allowed. Within this tolerance not more than 1% in total may consist of produce satisfying neither the requirements of Class II quality nor the general requirements, or of produce affected by decay.

4.4.1.2 Class II

A total tolerance of 10%, by number or weight, of broccoli satisfying neither the requirements of the class nor the general requirements is allowed. Within this tolerance not more than 2% in total may consist of produce affected by decay.

4.4.2 Size Tolerances

For all classes (if sized); a total tolerance of 10 %, by number or weight, of broccoli not satisfying the requirements as regards sizing is allowed.

4.5 Provisions concerning presentation

4.5.1 Uniformity

The contents of each package shall be uniform and contain broccoli of the same origin, variety or commercial type, quality and size (if sized).

Broccoli in Class I shall be uniform in colouring, however, a mixture of broccoli of distinctly different colours may be packed together in a package, provided they are uniform in quality and for each colour concerned in origin.

In case of those mixtures uniformity in size is not required.

Miniature broccoli shall be reasonably uniform in size. Also may be mixed with other miniature products of a different species and origin.

The visible part of the contents of the package shall be representative of the entire contents.

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6 Hygiene

6.1 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 552.

6.2 Broccoli shall also comply with the microbial requirements prescribed in Table 1.

Table 1 Microbiological limits for broccoli

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

7 Contaminants

7.1 Heavy metal contaminants

Broccoli shall comply with those maximum metal contaminants established by the Codex Stan 193.

7.2 Pesticide residues

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

8 Sampling and tests

8.1 Sampling

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

8.2 Tests

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

9. Packing, marking and labelling

9.1 Packing

Broccoli shall be packed in such a way as to protect the produce properly. Where crushed ice is used, care shall be taken to ensure the heads do not lie in melted water.

The materials used 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 broccoli. 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, broccoli 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 and address of exporter/importer, packer and/or dispatcher/distributor;
- b) Name of the produce (Broccoli) or equivalent denomination where appropriate. "Mixture of broccoli", or equivalent denomination, in the case of a mixture of distinctly different colours of broccoli. If the produce is not visible from the outside, the colours and the quantity of each in the package shall be indicated.

Miniature broccoli, or other appropriate term for miniature produce. Where several species of miniature produce are mixed in the same package, all products and their respective origins shall be mentioned;

- c) Country of origin;
- d) Class;
- e) Size (if sized) expressed as minimum and maximum diameter (floral stem in mm; head in cm);
- f) Net weight (kg);
- g) Batch number
- h) 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.