

**ETHIOPIAN
STANDARD**

ES 6783:2021

Fresh Garlic– Specification

ICS: 67.200.10
Published by Ethiopian Standards Agency
©ESA/ISO



Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Fruit and vegetable (TC 13) and published by the Ethiopian Standards Agency (ESA).

The standard has been developed to address observed needs and to support the local industry and exporter in order to make progress through upraising competitiveness and maintain comparative market advantage both domestically and internationally.

Implementation of this standard shall be effective as of xx-xx- 2020.

In the preparation of this standard reference has been made to the following:

CODEX STAN 193, Codex general standard for contaminants and toxins in food.

CODEX STAN 192, General Standard for Food Additives

CODEX STAN 210, Codex standard for named vegetable oils.

CAC/RCP 1-1969, Rev. 4-20031, Recommended International Code Of Practice General Principles of Food Hygiene.

CX/Mrl 2-2018, Maximum Residue Limits (Mrls) and Risk Management Recommendations (Rmrs) for Residues of Veterinary Drugs in Foods.

CXG 21-1997, Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods.

Acknowledgement is made for the use of information from the above publications.

Fresh Garlic– Specification

1. Scope

This Ethiopian Standard specifies the requirements of Fresh garlic derived from *Allium sativum* variety *sativum* L. intended for direct 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. For undated references, the latest edition of the referenced document (including any amendments) applies.

CES 17, Refined sun flower seed oil *Specification*.

ES 6532, *Crude Soyabean Oil Specification*.

ES 56, *Animal and vegetable fats and oils - Determination of relative density*.

ES 65, *Animal and vegetable fats and oils - Determination of soap content*

CES 73, *General standard for pre-packaged foods labeling*.

ES 577, *Recommended code of practice - General principles of food hygiene*.

ES ISO 660, *Animal and vegetable fats and oils - Determination of acid value and acidity*.

ES ISO 661, *Animal and vegetable fats and oils - Preparation of test sample*.

ES ISO 662, *Animal and vegetable fats and oils - Determination of moisture and volatile matter content*.

ES ISO 663, *Animal and vegetable fats and oils - Determination of insoluble impurities content*.

ES 929, *Code of practice -food hygiene management*.

ES 953, *Good manufacturing practice (GMP) for food processing companies*.

ES ISO 2590, *General method for the determination of arsenic-silver diethyldithiocarbamate photometric method*.

ES 3359, *General standard for the labeling of and claims for prepackaged foods for special dietary uses*.

ES ISO 3596, *Animal and vegetable fats and oils - Determination of unsaponifiable matter — Method using diethyl ether*.

ES ISO 3657, *Animal and vegetable fats and oils - Determination of saponification value*

ES ISO 3960, *Animal and vegetable fats and oils - Determination of peroxide value — Iodometric (visual) end point determination*.

ES ISO 3961, *Animal and vegetable fats and oils - Determination of iodine value*.

ES ISO 5555, *Animal and vegetable fats and oils - Sampling*.

ES ISO 6883, *Animal and vegetable fats and oils - Determination of conventional mass per volume (liter weight in air)*.

ES ISO 7932, *Microbiology of food and animal feeding stuff-Bacillus cereus (Colony count technique at 30 °C)*.

ES ISO 8294, *Animal and vegetable fats and oils -Determination of copper, iron and nickel contents- Graphite furnace atomic absorption method.*

ES ISO 12193, *Animal and vegetable fats and oils -Determination of lead by direct graphite furnace atomic absorptionspectroscopy.*

ES ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 incereals, nuts and derived products — High-performance liquid chromatographic method.*

ES ISO 22000:2018; *Food safety management systems — Requirements for any organization in the food chain.*

3. Terms and definitions

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

3.1

Fresh garlic means produce with a "fresh" stem and with the outer skin of the bulb still fresh.

3.2

Semi-dry garlic means fresh produce with the stem and outer skin of the bulb not completely dry.

3.3

Dry garlic means fresh produce in which the stem, outer skin of the bulb and the skin surround each clove are completely dry.

4. Requirements²⁺²²

4.1 Minimum Requirements

Fresh Garlic shall:

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

- intact; covered with outer skin
- sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- clean, practically free of any visible foreign matter
- practically free from pests
- practically free from damage caused by pests
- firm
- free of damage caused by frost or sun
- free of externally visible sprouts
- free of abnormal external moisture
- free of any foreign smell and/or taste

4.2 Classification

Garlic is classified in three classes, as defined below:

(i) Class I

Garlic in this class must be of superior quality. It must be characteristic of the variety and/or commercial type.

The bulbs must be:

- Of regular shape
- Properly cleaned.

The cloves must be compact.

Garlic must be free from defects, with the exception of very slight superficial defects,

Provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package.

(ii) Class II

Garlic in this class must be of good quality. It must be characteristic of the variety and/or commercial type.

The cloves must be reasonably compact.

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

- Slight tears in the outer skin of the bulb
- A slight defect in shape.

(ii) Class III

This class includes garlic that does not qualify for inclusion in the higher classes but satisfies the minimum requirements specified above.

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

- Tears in the outer skin or missing parts of the outer skin of the bulb
- staining on the outer skins of the bulb provided it does not cover more than half the bulb surface
- healed injuries
- Slight bruises
- Irregular shape
- No more than three cloves, or one fifth of the total number of cloves in a bulb (whichever is lower) may be missing

4.3 Provisions concerning sizing

Size is determined by the maximum diameter of the equatorial section.

The minimum diameter shall be:

- 45 mm for Class I
- 30 mm for Classes II and III

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

- 15 mm when the smallest bulb has a diameter of less than 40 mm
- 20 mm when the smallest bulb has a diameter equal to or more than 40 mm.

4.4 Provisions concerning tolerances

At all marketing stages, 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

(i) Class I

A total tolerance of 5 per cent, by number or weight, of garlic not satisfying the requirements of the class but meeting those of Class II is allowed. Within this tolerance not more than 0.5 per cent in total may consist of produce satisfying the requirements of Class III quality.

ii) Class II

A total tolerance of 10 per cent, by number or weight, of garlic not satisfying the requirements of the class but meeting those of Class III is allowed. Within this tolerance not more than 1 per cent in total may consist of produce satisfying neither the requirements of Class III quality nor the minimum requirements, or of produce affected by decay. Within this tolerance not more than 1 per cent by weight of bulbs may have cloves with externally visible sprouts.

In addition to this tolerance, not more than 25 per cent, by number or weight, of bulbs showing slight staining on the outer skin of the bulb, provided it does not cover more than a quarter of the bulb surface

iii) Class III

A total tolerance of 10 per cent, by number or weight, of garlic satisfying neither the requirements of the class nor the minimum requirements is allowed. Within this tolerance not more than 2 per cent in total may consist of produce affected by decay. In addition to this tolerance, not more than 5 per cent by weight of bulbs may have cloves with externally visible sprouts.

4.4.2 Size tolerances

For all classes: a total tolerance of 10 per cent by weight of garlic not satisfying the requirements as regards sizing is allowed.

5. Contaminants

5.1 Pesticides Residues

Garlic shall conform to those maximum pesticide residue limits established by the CODEX Alimentarius Commission for general standard for contaminants and toxins in food and feed (CODEX STAN193).

5.2 Mycotoxin Limit

Garlic shall comply with those maximum mycotoxin limits established by the Codex Alimentarius general standard for contaminants and toxins in food and feed (CODEX STAN193).

6. Hygiene

6.1 It is recommended that the products covered by the provisions of this Standard shall be produced, prepared and handled in accordance with the appropriate sections of ES 577, ES 929, ES ISO 22002-1 and CAC/RCP 1-1969, Rev. 3-1997.

6.2. The products shall comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CXG 21-1997).

7. Packaging and Labeling

7.1 Packaging

- A.** Garlic must be packed in such a way so as to protect the produce properly.
- B.** The materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly paper or stamps bearing trade specifications is allowed, provided the printing or labeling has been done with non-toxic ink or glue.
- C.** The contents of each package must be uniform and contain only garlic of the same origin, variety or commercial type, quality and size.
- D.** The visible part of the contents of the package must be representative of the entire contents.
- E.** Garlic shall be packaged in food grade containers and sealed in manner to ensure the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product in accordance with ES 3359.
- F.** Garlic shall be packed in containers which will safeguard the hygienic, nutritional and organoleptic qualities of the products.
- G.** The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odor or flavor to the product.
- H.** Each package shall be securely closed and sealed.
- I.** Packages must be free of all foreign matter.

7.2 Labeling

The labeling of containers of garlic shall comply with the requirements of CES 73 and shall be legibly and indelibly marked with the following:

- a)** Name of the product
- b)** Name and address of manufacturer
- c)** Batch /code number
- d)** Date of manufacture
- e)** Expiry date
- f)** Net weight in Liter
- g)** Storage recommendation
- h)** Country of origin

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1998.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes. Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed from our website.

ESA has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of ESA.

International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the International Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

More Information?

Contact us at the following address.

The Head Office of ESA is at Addis Ababa.

☎ 011- 646 06 85, 011- 646 05 65

☎ 011-646 08 80

✉ 2310 Addis Ababa, Ethiopia

E-mail: info@ethiostandards.org,

Website: www.ethiostandards.org



Standard Mark