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Fresh garlic — Specification

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In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

RS 371 was prepared by Technical Committee RSB/TC 019, *Spices, condiments and food additives*.

This second edition cancels and replaces the first edition (RS 359: 2017) which has been technically revised.

Committee membership

The following organizations were represented on the Technical Committee on Spices, condiments and food additives (RSB/TC 019) in the preparation of this standard.

Rwanda Standards Board (RSB) – Secretariat

Fresh garlic — Specification

1 Scope

This Draft Rwanda Standard specifies requirements, classification and sampling for fresh garlic.

It applies to fresh garlic of varieties (cultivars) grown from *Allium sativum var. sativum* L. to be supplied fresh, semi-dry or dry to the consumer and to be used for industrial processing.

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.

ISO 948, *Spices and condiments — Sampling*

RS CAC/RCP 1, *General principles of food hygiene*

RS EAS 38, *General requirements of labelling of pre-packaged foods*

3 Terms and definitions

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

3.1

fresh garlic

garlic with a "green" stem and with the outer skin of the bulb still fresh

3.2

semi dry garlic

fresh produce with the stem and outer skin of the bulb not completely dry

3.3

dry garlic

fresh produce in which the stem, outer skin of the bulb and the skin surrounding each clove are completely dry

4 Quality requirements

4.1 Classification

Fresh garlic shall be classified in three classes, namely; "Extra"Class, Class I and Class II

4.2 General requirements

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

- a) sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
- b) clean, practically free of any visible foreign matter;
- c) practically free from pests;
- d) practically free from damage caused by pests;
- e) firm;
- f) free of damage caused by frost or sun;
- g) free of externally visible sprouts;
- h) free of abnormal external moisture;
- i) free of any foreign smell and/or taste; and
- j) for dry garlic, if trimmed, the stem length should not exceed 3 cm.

4.1.2 The development and condition of the garlic shall be such as to enable them:

- a) to withstand transportation and handling;
- b) to arrive in satisfactory condition at the place of destination; and
- c) to be uniform, of the same variety or commercial type, quality and size.

4.3 Specific requirements for classes

4.3.1 Specific requirements Extra Class

4.2.1.1 Fresh garlic in this class shall be of superior quality and shall be characteristic of the variety and/or commercial type.

4.2.1.2 The fresh garlic shall be:

- a) intact;
- b) of regular shape;
- c) properly cleaned;
- d) the cloves shall be compact; and
- e) the roots shall be cut close to the base of the bulb in the case of dry garlic.

4.2.1.3 Fresh garlic shall 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.

4.3.2 Specific requirements Class I

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

4.2.2.2 The bulbs shall be:

- a) intact; and
- b) of fairly regular shape.

4.2.2.3 The cloves of fresh garlic shall be reasonably compact.

4.2.2.4 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:

- a) slight tears in the outer skin of the bulb; and
- b) slight defect in shape.

4.3.3 Specific requirements Class II

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

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

- a) tears in the outer skin or missing parts of the outer skin of the bulb;

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- b) healed injuries;
- c) slight bruises;
- d) irregular shape; and
- e) no more than three cloves, or one fifth of the total number of cloves in a bulb (whichever is lower) may be missing

5 Sizes of fresh garlic

5.1 Size is determined by the maximum diameter of the equatorial section. The minimum diameter shall be:

- a) 45 mm for "Extra" Class; and
- b) 30 mm for Classes I and II.

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

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

6 Tolerances

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

6.1 Quality tolerances

6.1.1 "Extra" Class

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

6.1.2 Class I

6.1.2.1 A total tolerance of 10 %, 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 1 % in total may consist of produce satisfying neither the requirements of Class II quality nor the minimum requirements, or of produce affected by decay.

6.1.2.2 Within this tolerance not more than 1 % by weight of bulbs may have cloves with externally visible sprouts.

6.1.3 Class II

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

6.1.3.2 In addition to this tolerance, not more than 5 % by weight of bulbs may have cloves with externally visible sprouts.

6.2 Size tolerances

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

7 Hygiene

Fresh garlic shall be prepared and handled in accordance with the hygienic requirements stipulated in RS CAC/RCP 1.

8 Packaging

Fresh Garlic shall be packed in a way that protects the produce properly. The materials used inside the package shall be clean and of a quality such as to avoid causing any external or internal damage to the produce and shall be free from foreign matters. The use of materials, particularly paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

9 Labelling

In addition to the requirements of RS EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked and each package must bear the following information, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

- a) name of the product "Fresh garlic";
- b) name and address of the packer;
- c) nature of the produce as "Fresh garlic", "Semi dry Garlic" or "dry Garlic";
- d) commercial type as "White garlic or pink garlic";
- e) class;
- f) date of packing;
- g) batch number; and

h) country of origin.

10 Sampling

Sampling shall be done in accordance with ISO 948.

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Annex A (normative)

Gravimetric determination of water-insoluble solids content (Type II method)

A.1 Sampling

A.1.1 Liquid or strained honey

If sample is free from granulation, mix thoroughly by stirring or shaking; if granulated, place closed container in water-bath without submerging, and heat 30 min at 60 °C; then, if necessary, heat at 65 °C until liquefied. Occasional shaking is essential. Mix thoroughly and cool rapidly as soon as sample liquefies. Do not heat honey intended for Hydroxymethylfurfural or diastatic determination. If foreign matter, such as wax, sticks, bee's particles or comb, etc., is present, heat sample at 40 °C in water-bath and strain through cheesecloth in hot-water-funnel before sampling

A.1.2 Comb honey

Cut across top of comb, if sealed, and separate completely from comb by straining through a sieve the meshes of which are made by so weaving wire as to form square opening of 0.500 mm by 0.500 mm when portions of comb or wax pass-through sieve, heat sample as in A.1.1 and strain through cheesecloth. If honey is granulated in comb, heat until wax is liquefied; stir, cool and remove wax.

A.2 Procedure

A.2.1 Preparation of test sample

Weigh 20 g of honey and dissolve in a suitable quantity of distilled water at 80 °C and mix well.

A.2.2 Gravimetric determination

The test sample is filtered through a previously dried and weighed fine sintered glass crucible (pore size 15.40) and washed thoroughly with hot water (80 °C) until free from sugars (Mohr test). The crucible is dried for one hour at 135 °C, cooled and weighed to 0.1 mg.

A.2.3 Expression of results

The result is expressed as percent water insoluble solids (m/m).

Annex B (normative)

Determination of fructose-glucose ratio

B.1 Principle of the method

The glucose portion of the invert sugar content of honey is determined by reacting it with iodine. The fructose content is calculated by subtraction.

B.2 Apparatus

B.2.1 0.05 N iodine solution

B.2.2 0.01 N sodium hydroxide solution

B.2.3 0.05 N standard sodium thiosulphate solution

B.3 Procedure

Pipette 50 ml of honey solution in a 250-ml stoppered flask. Add iodine solution and 25 ml of sodium hydroxide solution. Stopper the flask and keep in dark for 20 min. Acidify with 5 ml of sulphuric acid and titrate quickly the excess of iodine against standard thiosulphate solution. Conduct a blank using 50 ml of water instead of honey solution.

B.4 Calculation and expression of results

B.4.1 Approximate glucose, percent by mass (g of glucose per 100 g honey):

$$w = \frac{(B - S) \times 0.004502 \times 100}{a}$$

where

B is the volume, in millilitres, of sodium thiosulphate solution required for the blank.

S is the volume, in millilitres, of sodium thiosulphate solution required for the sample, and

a is the mass, in grams, of honey taken for the test.

B.4.2 Approximate fructose, per cent by mass (g fructose per 100 g honey):

$$x = \frac{\text{Total reducing sugars}(c) - \text{approximate glucose content}(w)}{0.925}$$

B.4.3 Actual glucose content (g per 100 g honey), per cent (Y) = $W - 0.012X$ and

$$\text{Fructose content (g per 100 g honey), percent (z)} = \frac{\text{Total reducing sugars} - y \text{ actual}}{0.925}$$

B.4.4 Fructose-glucose ratio

$$\text{Fructose - glucos ratio} = \frac{\text{Actual fructose content (z)}}{\text{Actual glucose content (y)}}$$

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Annex C
(normative)

Fiehe's test

C.1 Reagent

C.1.1 Resorcinol solution

Dissolve 1 g of resublimed resorcinol in 100 ml of hydrochloric acid (specific gravity 1.18 or 1.19).

C.2 Procedure

Dissolve 2 g of honey in 10 ml of water and extract with 30 ml ether. A continuous extractor is preferable. Remove ether in a separating funnel and concentrate the layer at 5 ml. Add 2 ml of freshly prepared resorcinol solution, shake and note the colour.

C.3 Expression of results

A cherry red colour appearing in a minute indicates the presence of commercial invert sugar.

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