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**Dried rosehips — Specification and test  
methods**

*Cynorhodon séché — Spécifications et méthodes d'essai*

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# Contents

Page

Foreword.....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>1</b>
<b>4 Requirements .....</b>	<b>2</b>
4.1 Description .....	2
4.2 Odour and taste .....	2
4.3 Freedom from insects, moulds, etc. ....	2
<b>5 Classification.....</b>	<b>2</b>
5.1 General.....	2
5.2 Classes .....	3
5.2.1 Extra class .....	3
5.2.2 Class I .....	3
5.2.3 Class II .....	3
5.3 Sizing .....	4
5.4 Tolerances .....	4
<b>6 Sampling.....</b>	<b>4</b>
<b>7 Test methods.....</b>	<b>4</b>
<b>8 Packing and marking.....</b>	<b>4</b>
8.1 Packing .....	4
8.2 Marking .....	5
<b>9 Contaminants .....</b>	<b>5</b>
<b>10 Hygienic requirements .....</b>	<b>5</b>
<b>Annex A (normative) Determination of the content of pest-infested and spoiled dried rosehips, immature fruits, extraneous matter and deviations from main colour .....</b>	<b>6</b>
<b>Annex B (normative) Determination of moisture content .....</b>	<b>7</b>
<b>Bibliography .....</b>	<b>10</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 23391 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 14, *Fresh, dry and dried fruits and vegetables*.

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# Dried rosehips — Specification and test methods

## 1 Scope

This International Standard specifies requirements and test methods for dried rosehips obtained from the fruits of the rosehips shrub (*Rosa canina* L.) destined for 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.

ISO 6557-2, *Fruits, vegetables and derived products — Determination of ascorbic acid content — Part 2: Routine methods*

ISO 928, *Spices and condiments — Determination of total ash*

ISO 930, *Spices and condiments — Determination of acid-insoluble ash*

ISO 948, *Spices and condiments — Sampling*

## 3 Terms and definitions

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

### 3.1

#### **dried rosehips**

sun-dried or artificially-dried fruits of the shrub *Rosa canina* L. and other *Rosa* species prepared from sufficiently ripe fruits

### 3.2

#### **pest-infested dried rosehips**

dried rosehips damaged by insect and/or mite infestation

### 3.3

#### **spoiled rosehips**

rosehips damaged by bruises, or darkened in colour, or showing the presence of mushy tissue, visible decomposition caused by bacteria, fungi, visible mould hyphae or any other indications of disease

### 3.4

#### **immature rosehips**

dried rosehips obtained from an unripe rosehips, having poor flavour, hard tissue and undesirable appearance

### 3.5

#### **gritty**

distinct particles in the fruit flesh

**3.6**

**stem or seeds**

piece of dried rosehips with stem and/or seeds attached

**3.7**

**fermented rosehips**

piece of dried rosehips damaged by fermentation to the extent that the characteristic appearance and/or flavour is substantially affected

**3.8**

**extraneous matter**

dirt, pieces of skin, calyx, leaf, peduncle, twigs, bits of wood, soil or any other foreign matter among or on the rosehips

**3.9**

**mineral impurities**

acid-insoluble ash content which is determined by the method specified in ISO 930

**3.10**

**moisture content**

loss in mass determined under the operating conditions specified in Annex B

**3.11**

**ascorbic acid (vitamin C) content**

content of dried rosehips which is determined by the method specified in ISO 6557-2

## **4 Requirements**

### **4.1 Description**

The stems shall be pulled or cut off and the calyx ends removed. The fruits shall be sound and clean.

### **4.2 Odour and taste**

Rosehips shall have an odour and taste characteristic of the variety. They shall be free from foreign odour and odour traces coming from abnormal fermented rosehips.

### **4.3 Freedom from insects, moulds, etc.**

Rosehips shall be free from living insects, mites or other parasites and moulds, and shall be practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision). When such magnification exceeds  $\times 10$ , this fact shall be stated in the test report.

## **5 Classification**

### **5.1 General**

Dried rosehips shall be classified on the basis of colour and the presence of defects, extraneous matter and broken pieces, as specified in Table 1. They may also be separated into sizes.

Rosehips are classified into three classes defined in 5.2.1 to 5.2.3.

## 5.2 Classes

### 5.2.1 Extra class

Rosehips in this class shall be of superior quality. They shall be characteristic of the variety and/or commercial type. They shall be practically free from defects, provided that these do not affect the general appearance of the product, the quality, or its presentation in the package. Rosehips in this class shall not exceed the allowable percentages for the various defects given in Table 1.

### 5.2.2 Class I

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

The following slight defects are allowed, provided that the dried rosehips retain their essential characteristic as regards general appearance, quality and presentation: skin defect, coloration defects.

### 5.2.3 Class II

This class includes rosehips which do not qualify for inclusion in the higher classes but which satisfy the requirements specified in Table 1.

The following defects are allowed, provided that the dried rosehips retain their essential characteristics as regards general appearance, quality and presentation: skin defect, coloration defects.

**Table 1 — Requirements for dried rosehips in different classes**

	Extra class	Class I	Class II
<b>Pest-infested</b> , mass fraction, % (max.)	1	2	3
<b>Spoiled</b> , mass fraction, % (max.)	2	3	4
<b>Immature</b> , mass fraction, % (max.)	1	2	4
<b>Extraneous matter</b> , mass fraction, % (max.)	0,5	1,0	1,5
<b>Mineral impurities</b> , mass fraction, % (max.)	0,6	0,6	0,6
<b>Colour</b>	light and cream with reddish of cut edges	light and cream with reddish of cut edges	light reddish
<b>Deviations from the main colour</b> , mass fraction, % (max.)	2	5	10
<b>Gritty</b> , mass fraction, % (max.)	1	2	3
<b>Proportion of non-whole rosehips</b> , max. number in 100 pieces (%)	0	5	10
<b>Proportion of stem or seeds</b> , max. number in 100 pieces (%)	2	5	7
<b>Fermented rosehips</b> , mass fraction, % (max.)	0,5	1,0	2,0
<b>Moisture content</b> , mass fraction, % (max.)	5,5	5,5	5,5
<b>Ascorbic acid content</b> , mg per 100 g (min.)	200	175	150

### 5.3 Sizing

Sizing is determined by the diameter of the widest part. The following minimum diameter is required for each class:

- Extra class > 12 mm;
- Class I 6 mm to 12 mm;
- Class II < 6 mm.

The difference between the longest and smallest fruit in any package shall not be greater than 8 mm.

Sizing is therefore compulsory for the Extra class and Class I, but is not required for Class II rosehips.

### 5.4 Tolerances

Subject to agreement between the interested parties, tolerances with respect to characteristic and size may be allowed in each package (or in each lot for product transported in bulk) for product not satisfying the requirements of the class indicated.

## 6 Sampling

It is important that the laboratory receive a sample which is truly representative and has not been damaged or changed during transport or storage.

Sampling shall be conducted in accordance with ISO 948.

## 7 Test methods

Samples of dried rosehips shall be tested for conformity of the product to the requirements of Table 1 by the test method specified in Annex A.

The mineral impurities (3.9) shall be determined in accordance with ISO 928.

The moisture content (3.10) shall be determined in accordance with Annex B.

The ascorbic acid content (3.11) shall be determined in accordance with ISO 6557-2.

## 8 Packing and marking

### 8.1 Packing

Dried rosehips shall be packed in clean, sound and dry containers made of materials which do not affect the product. If wooden boxes are used, they shall be lined with a suitable paper.

For direct consumption, small consumer packages may be used. The quantities packed in such packages are usually 0,5 kg, 1,0 kg or 2,5 kg net mass but, if required, other quantities may be used. A suitable number of such small packages shall be placed in large wooden or cardboard cases.

The size of the packages and the number of small packages packed in a case shall be subject to agreement between the purchaser and vendor. However, the mass of the large containers or cases shall not be more than 25 kg.



## 8.2 Marking

The container and case shall be marked or labelled with the following particulars:

- a) the name of the product or variety, and the trademark or brand name, if any;
- b) the name and address of the producer or packer;
- c) the code or batch number;
- d) the net mass, or gross mass (according to the request of the importing country);
- e) the class of product;
- f) the producing country;
- g) the expiry date;
- h) any other marking required by the purchaser, such as year of harvest and date of packing (if known)
- i) a reference to this International Standard (optional).

## 9 Contaminants

The contents of contaminants (heavy metals, pesticide residues, mycotoxins, etc.) of the dried rosehips shall not exceed the maximum limits established by the Codex Alimentarius Commission for this commodity and/or shall comply with relevant food safety legislation in force in the target country:

- iron 15,0 mg/kg max.;
- copper 5,0 mg/kg max.;
- arsenic 0,2 mg/kg max.;
- lead 0,2 mg/kg max.;
- zinc 5,0 mg/kg max.

## 10 Hygienic requirements

**10.1** It is recommended that the dried rosehips be prepared in accordance with the appropriate sections of the Recommended International Code of Practice — General Principles of Food Hygiene <sup>[1]</sup> and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to the product.

### 10.2 The product

- a) shall be free from microorganisms in amounts which may represent a hazard to health,
- b) shall be free from parasites which may represent a hazard to health, such as
  - 1) total mesophilic aerobic bacteria  $1 \times 10^4$ (cfu/g) max.,
  - 2) *Escherichia coli* 0 cfu/g max.,
  - 3) mould-yeast  $5 \times 10^2$  (cfu/g) max.,
  - 4) *Salmonella* 0 cfu per 25 g max.,
  - 5) *Staphylococcus aureus* 0 cfu/g max.

## Annex A (normative)

### Determination of the content of pest-infested and spoiled dried rosehips, immature fruits, extraneous matter and deviations from main colour

#### A.1 Principle

Visual inspection of a test portion of dried rosehips. Physical separation of the damaged pieces, immature fruits and extraneous matter from the sound, healthy and ripe pieces of the sample.

#### A.2 Procedure

Weigh, to the nearest 0,02 g, a test portion of about 500 g. Separate carefully, by hand or using tweezers, the pest-infested and spoiled dried rosehips, immature fruits, extraneous matter and the dried rosehips which show deviations from the main colour.

Weigh, to the nearest 0,02 g, each of the categories separately.

#### A.3 Expression of results

The proportion,  $p$ , expressed as a percentage by mass, of each category separately is equal to

$$p = \frac{m_1}{m_0} \times 100 \%$$

where

$m_0$  is the mass, in grams, of the test portion;

$m_1$  is the mass, in grams, of the relevant category (see A.2).

#### A.4 Test report

The test report shall specify

- a) all information necessary for the complete identification of the sample;
- b) the sampling method used, if known;
- c) the test method used, with reference to this International Standard;
- d) all operating details not specified in this International Standard, or regarded as optional, together with details of any incidents which may have influenced the test result(s);
- e) the test result(s) obtained, or, if the repeatability has been checked, the final quoted result obtained.

## **Annex B**

### **(normative)**

## **Determination of moisture content**

### **B.1 Principle**

Heating and drying of test portion of dried rosehips at a temperature of  $70\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  under a pressure not exceeding 13 kPa (100 mmHg).

### **B.2 Materials**

Use only materials of recognized analytical grade and distilled or demineralized water or water of equivalent purity.

#### **B.2.1 Sand.**

### **B.3 Apparatus**

Usual laboratory apparatus and, in particular, the following.

**B.3.1 Electric oven**, capable of being maintained at  $70\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  at a pressure of 13 kPa (100 mmHg).

**B.3.2 Dish**, of corrosion-resistant metal, of diameter about 8,5 cm, **with tight-fitting lid**.

**B.3.3 Fruit chopper**, made of a material which does not absorb moisture.

**B.3.4 Desiccator**, containing an effective desiccant.

**B.3.5 Steam bath**.

**B.3.6 Balance**, capable of weighing to the nearest 0,01 g.

### **B.4 Preparation of test sample**

Take approximately 50 g of dried rosehips and pass them through the fruit chopper (B.3.3) three times, mixing thoroughly after each grinding. Keep them in a completely filled, airtight, closed container to prevent absorption of water.

### **B.5 Procedure**

#### **B.5.1 Preparation of dish and lid**

Add about 2 g of sand (B.2.1) to the dish (B.3.2) and dry, with the lid, for 2 h in the oven (B.3.1) set at  $70\text{ }^{\circ}\text{C}$ . Leave to cool to room temperature in the desiccator (B.3.4) and weigh the sample to the nearest 0,01 g. Repeat the same drying procedure until a constant mass is achieved.

### B.5.2 Test portion

Weigh, to the nearest 0,02 g, about 5 g of the test sample (B.4) and spread this test portion as evenly as possible over the bottom of the dish (B.3.2) containing the sand (B.2.1).

### B.5.3 Determination

Moisten the test portion and the sand (B.2.1) thoroughly with a few millilitres of hot water. Mix the test portion and sand with a spatula. Wash the sample residue on the spatula into the dish with the minimum volume of hot water.

Heat the open dish on the steam bath (B.3.5) to evaporate the water to dryness. Then put the dish, with the lid alongside, in the electric oven (B.3.1) set at 70 °C and continue drying for 6 h under a pressure not exceeding 13 kPa (100 mmHg). Do not open the electric oven during this period. During drying, pass through the oven a slow current of air (about 2 bubbles per second) which has been dried by passing through sulfuric acid. The metal dish shall be placed in direct contact with the metal shelf of the oven.

After drying, remove the dish, cover it immediately with its lid and place it in the desiccator (B.3.4). After cooling to room temperature, weigh it, still covered, to the nearest 0,02 g.

## B.6 Calculation and expression of results

### B.6.1 Calculation

The moisture content,  $w$ , expressed as a percentage by mass, of the test portion is equal to

$$w = \frac{m_1 - m_2}{m_1 - m_0} \times 100 \%$$

where

$m_0$  is the mass, in grams, of the dish with its lid and the sand;

$m_1$  is the mass, in grams, of the dish with its lid and the sand with the test portion before moistening and oven-drying;

$m_2$  is the mass, in grams, of the dish with its lid and the sand with the test portion after oven-drying.

### B.6.2 Expression of results

Give the result to one decimal place.

## B.7 Repeatability

The absolute difference between two independent single test results, obtained using the same method on identical test material in the same laboratory by the same operator using the same equipment within a short interval of time, should not be greater than 0,2 g of water per 100 g of sample.

If it is required to check whether the repeatability requirement is met, carry out two single determinations in accordance with B.5.1 to B.5.3 under repeatability conditions.