
**Spices and condiments — Dried sumac
— Specification**

Épices et condiments — Sumac sèche — Spécifications

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 7, *Spices, culinary herbs and condiments*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Spices and condiments — Dried sumac — Specification

1 Scope

This document specifies requirements for rubbed form of dried sumac (*Rhus coriaria*, family Anacardiaceae).

Recommendations relating to storage and transport conditions are given in [Annex A](#).

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 927, *Spices and condiments — Determination of extraneous matter and foreign matter content*

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

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

ISO 939, *Spices and condiments — Determination of moisture content*

ISO 948, *Spices and condiments — Sampling*

ISO 2825, *Spices and condiments — Preparation of a ground sample for analysis*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

sumac

shrub or small tree belonging to the Anacardiaceae family

Note 1 to entry: Sumac can reach a height of 1 m to 5 m. The leaves are spirally arranged; they are usually pinnately compound, though some species have trifoliate or simple leaves. There are two kinds of sumac according to the area of cultivation: red and brown sumac.

Note 2 to entry: The flowers are in dense panicles or spikes 20 cm to 25 cm long. Each flower is very small, and greenish, creamy white or red in colour, with five petals. The fruits form dense clusters of reddish drupes called “sumac bobs”.

3.2

dried sumac

powder obtained by drying fruits from dense clusters of reddish drupes of *Rhus coriaria* of the Anacardiaceae family

4 Requirements

4.1 Odour and flavour

Dried sumac shall have a characteristic odour and flavour. It shall be free from mustiness and other foreign flavours.

4.2 Colour

The colour of dried sumac is red to brown. It shall be free from added colour.

4.3 Fineness of dried sumac

Dried sumac shall pass completely through a sieve of nominal aperture size 2 000 µm.

4.4 Physical and chemical requirements

Table 1 — Physical and chemical requirements for dried sumac

Characteristic	Requirements	Method of test
Moisture content (% mass fraction), max.	10,0	ISO 939
Total ash (% mass fraction) on dry basis, max.	13	ISO 928
Acid insoluble ash (% mass fraction), on dry basis, max.	1,5	ISO 930
Added colours (natural and artificial)	Absent	Annex B
Foreign matter	Absent	ISO 927
Extraneous matter (% mass fraction), on dry basis, max.	0,2	ISO 927

5 Sampling

Sample the dried sumac by the method specified in ISO 948. Sample preparation shall be in accordance with ISO 2825.

6 Method of test

Samples of dried sumac shall be tested for conformity to the requirements of this document by the test methods referred to in [Table 1](#).

7 Packaging and marketing

7.1 Packaging

Dried sumac shall be packed in rigid, sealed, clean and sound containers made of material which cannot affect the product quality and which protects it from environmental effects. The packing material shall be waterproof and consumer friendly.

7.2 Marking

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

- name of the product;
- trade name or brand name;
- name and address of the producer or packer and trademark, if any;

- d) name of producing country;
- e) the year of harvest and date of packaging, code or batch number;
- e) the net mass;
- f) any treatment given to the product (e.g. fumigation or irradiation).

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Annex A (informative)

Recommendations relating to storage and transport conditions

A.1 Containers of dried sumac should be stored in covered premises, well protected from the sun, rain and excessive heat.

A.2 The storeroom should be dry, free from objectionable odours, and proofed against the entry of insects and vermin. The ventilation should be controlled so as to give good ventilation under dry conditions and to be fully closed under damp conditions.

In a storage warehouse, suitable facilities should be available for fumigation. Fumigation should only be performed using products authorized in the importing country.

A.3 The containers should be handled and transported so that they are protected from rain, from the sun or other source of excessive heat, from unpleasant odours and from cross-infection, especially in the holds of ships.

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Annex B (normative)

Detection and identification of artificial, water-soluble acidic colorants — Thin layer chromatography method (TLCM)

B.1 General

This method is applicable to dried sumac provided that the powder conforms to the fineness prescribed in [4.3](#).

B.2 Principle

To extract artificial water-soluble acidic colorants in dried sumac, first the natural pigments of sumac are eliminated. Elimination of the natural pigments of sumac is done by successive washes and/or acidic treatment. Then artificial colours are isolated and eluted by chromatography on polyamide micro-column. They are identified by thin-layer chromatography.

B.3 Reagents

Unless otherwise indicated, use only reagents of recognized analytical grade, and distilled or demineralised water or water of equivalent purity.

B.3.1 Polyamide SC-6 for column chromatography, for particles with dimension 0,05 mm to 0,16 mm.

B.3.2 Methanol.

B.3.3 Acetone.

B.3.4 Formic acid, 98 % (mass fraction) or glacial acetic acid.

B.3.5 Ammonia solution, 25 % (mass fraction).

B.3.6 Glacial acetic acid.

B.3.7 N-butanol.

B.3.8 Elution solvent for purification of the methanol/ammonia column.

Add 5 ml of ammonia 25 % (by mass) to a 100 ml test solution. Add 95 ml of methanol.

B.3.9 Elution solvent mixture.

B.3.9.1 Eluent 1.

Prepare the solution by dissolving 2 g of trisodium citrate on 80 ml of water and 20 ml of ammonia 25 % (mass fraction).

B.3.9.2 Eluent 2.

Dissolve 0,4 g of potassium chloride in a mixture of 50 ml tert-butanol, 12 ml of propionic acid and 38 ml of water.

B.3.9.3 Eluent 3.

Mix 20 ml N-butanol, 5 ml glacial acetic acid and 12 ml of water.

B.3.10 Artificial, water-soluble acidic colorants – stock solutions, corresponding to 1 g of colorant per litre of water.

The list of colorants indicated as references is not exhaustive.

In a series of five 100 ml beakers dissolve, respectively, Amaranth¹⁾, Ponceau 4R²⁾, Azorubin³⁾, Erythrosine⁴⁾ and Rocelline⁵⁾ in water. Transfer into a series of nine 100 ml volumetric flasks. Make up to the mark and stir. Each solution contains 1 g of colorant per litre of water.

B.3.11 Artificial, water-soluble acidic colorants – working solutions, corresponding to 1 g of colorant per litre of methanol.

In a series of five 100 ml volumetric flasks, add 10 ml of each stock solution ([B.3.10](#)) using a pipette. Make up to the mark with methanol and stir.

NOTE These solutions are used to individually measure the R_f according to the procedure given in [B.5.5](#).

B.3.12 Artificial, water-soluble acidic colorants – reference solutions, corresponding to a mixture of colorants with 1 g of colorant per litre of methanol.

In one 100 ml volumetric flask, add 10 ml of each working solution ([B.3.11](#)) using a pipette. Make up to the mark with methanol and stir.

B.4 Apparatus

B.4.1 Solid phase extraction (SPE) purification column for chromatography, with a capacity of 3 ml and a diameter of 9 mm with a frit, or an **SPE cartridge** filled with 125 mg polyamide SC-6.

B.4.2 Glass wool.

B.4.3 Rotary evaporator.

B.4.4 Tabletop centrifuge, with speed up to 4 000 r/min and rotar for 25 ml tubes.

B.4.5 Centrifuge tubes, with a capacity of 25 ml.

B.4.6 Heart-shaped flask with a capacity of 10 ml.

B.4.7 Vacuum extraction appliance (optional).

1) Colour index No. 16185.

2) Colour index No. 16255.

3) Colour index No. 14720.

4) Colour index No. 45430.

5) Colour index No. 15620.

B.4.8 Micropipettes, permitting delivery of 100 µl to 1 ml.

B.4.9 Glass pipette with a capacity of 10 ml.

B.4.10 One-mark volumetric flask with a capacity of 100 ml.

B.4.11 Test piece with a capacity of 100 ml.

B.4.12 Beaker, high form with a capacity of 100 ml.

B.4.13 Syringe, graduated in micro litres, permitting delivery of volumes of up to 10 µl.

B.4.14 Pasteur pipette.

B.4.15 Cellulose and silica gel plates.

B.4.16 Thin-layer chromatography tank, glass, with a ground glass lid, capable of containing 200 mm × 200 mm plates.

B.4.17 10 ml and 2 ml plastic (polyethylene or polypropylene) syringe.

B.4.18 Water bath.

B.5 Procedure

B.5.1 Test portion

Weigh out 5 g sumac to 1 mg accuracy in a centrifuge tube from the powder obtained in [4.3](#) for dried sumac.

B.5.2 Extraction of artificial colorants

Add 25 ml water heated at 60 °C using a graduated pipette. Stir manually for 1 min ensuring that the sumac powder does not remain in suspension on the sides of the tube. If sample remains in the bottom, the sumac should be suspended once again using a small spatula.

After agitation, allow to rest for 10 min away from light and then stir vigorously again. The tubes are balanced and then centrifuged at 4 000 r/min for 10 min.

The supernatant is then transferred into a beaker using a Pasteur pipette. Add 500 µl of formic acid or 2,5 ml of glacial acetic acid to bring the medium to pH 2 approximately.

The tubes are balanced and then centrifuged at 4 000 r/min for 5 min.

B.5.3 Purification of sample

B.5.3.1 Preparation of purification column and absorption of artificial colorants

Prepare the column with a frit in the base as follows:

- Prepare a suspension of polyamide in water.
- Add a sufficient volume of polyamide suspension to obtain a column of about 10 mm after the solvent drains, which corresponds to a mass of 125 mg of polyamide.
- Place a small glass wool plug at the head of the column.