INTERNATIONAL STANDARD

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Pepper and pepper oleoresins — Determination of piperine content — Method using high-performance liquid chromatography

Poivres, oléorésines de poivres — Détermination de la teneur en pipérine — Méthode par chromatographie en phase liquide à haute performance

Reference number
ISO 11027:1993(E)

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.

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.

International Standard ISO 11027 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 7, *Spices and condiments*.

Annex A of this International Standard is for information only.

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Pepper and pepper oleoresins — Determination of piperine content — Method using high-performance liquid chromatography

1 Scope

This International Standard specifies a method for the determination, by high-performance liquid chromatography, of the piperine content of peppers (*Piper nigrum* Linnaeus), whole or powdered, as well as their extracts (oleoresins).

This method enables the separation and, if necessary, the determination of the other alkaloids of pepper (isochavicine, isopiperine and piperittin).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2825:1981, *Spices and condiments — Preparation of a ground sample for analysis.*

ISO 5564:1982, *Black pepper and white pepper, whole or ground — Determination of piperine content — Spectrophotometric method.*

3 Principle

3.1 Ground pepper

Extraction with ethanol under reflux, then determination of piperine by high-performance liquid chromatography (HPLC), in accordance with the procedure described in this International Standard.

3.2 Whole pepper

Preparation by grinding the sample, then extraction of the powder obtained, followed by determination of piperine by HPLC, in accordance with the procedure described in this International Standard.

3.3 Oleoresins of pepper

Dilution of the oleoresin in ethanol, then determination of piperine by HPLC, in accordance with the procedure described in this International Standard.

4 Reagents

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

4.1 Reference substance

Piperine of at least 98 % purity, determined by the spectrometric method described in ISO 5564.

WARNING — This product should be handled with care as it is strongly irritating.

4.2 Solvents

4.2.1 Ethanol, 96 % (*V/V*).

4.2.2 Acetonitrile

WARNING — This product should be handled with care as it is lachrymatory.

4.2.3 Acetic acid, 1 % (*V/V*) aqueous solution.