



**International  
Standard**

**ISO 11027**

**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*

**Second edition  
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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 document 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](http://www.iso.org/directives)).

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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](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO 11027:1993), which has been technically revised.

The main changes are as follows:

- the references have been updated and usage of the term spectrophotometric has been corrected;
- the Scope has been updated for better clarity.

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](http://www.iso.org/members.html).

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

## 1 Scope

This document specifies a method for the determination of piperine content of peppers (*Piper nigrum* Linnaeus), whole or ground, as well as their extracts (Oleoresins) by high performance liquid chromatography.

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

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

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

## 3 Terms and definitions

No terms and definitions are listed in this document.

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/>

## 4 Principle

### 4.1 Ground pepper

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

### 4.2 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 document.

### 4.3 Oleoresins of pepper

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