INTERNATIONAL STANDARD

ISO 20408

First edition
2017-01

Traditional Chinese medicine — *Panax notoginseng* seeds and seedlings

Médecine traditionnelle chinoise — Graines et plants de Panax notoginseng

Reference number
ISO 20408:2017(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 249, *Traditional Chinese medicine*.

Traditional Chinese medicine — *Panax notoginseng* seeds and seedlings

1 Scope

This document specifies minimum requirements and test methods for seeds and seedlings of *Panax notoginseng* (Burk.) F. H. Chen. It is suitable for marketing of cultivated *Panax notoginseng* seeds and seedlings. It is also suitable to be used for quality assurance by cultivators of *Panax notoginseng*.

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.

International Seed Testing Association (ISTA): 2016, *International Rules for Seed Testing*

International Seed Testing Association (ISTA): 2003, *Working Sheets on Tetrazolium testing*

3 Terms and definitions

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

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
1 000-seed weight
average weight of every 1 000 pure seeds of a *test sample* (3.19)

3.2
composite sample
portion formed by combining and mixing all the *primary samples* (3.8) taken from the *lot* (3.6)

3.3
foreign matter
parts of *Panax notoginseng seeds* (3.11) or *seedlings* (3.15) other than those named with the limits specified for the herbal materials concerned

Note 1 to entry: Foreign matter is any organism, part or product of an organism, other than that named in the specification and description of *Panax notoginseng* seeds or seedlings.

Note 2 to entry: Foreign matter is mineral admixtures not adhering to *Panax notoginseng* seeds or seedlings, such as soil, stones, sand and dust.

3.4
hibernaculum
hibernated bud with bud scales

3.5
hibernaculum diameter
largest distance at the site of the *hibernaculum* (3.4)

Note 1 to entry: See Figure 2.

Note 2 to entry: It is expressed in centimetres.

3.6
lot
specified quantity of *seeds* (3.11) or *seedlings* (3.15) that is physically and uniquely identifiable

3.7
maturity
percentage of mature seeds, determined by number, in the *test sample* (3.19)

3.8
primary sample
portion taken from the *lot* (3.6) during one single sampling action

3.9
purity
weight of pure seed fraction over the total weight of the *test sample* (3.19)

Note 1 to entry: The pure seed refers to the species stated by the applicant or found to predominate in the test and includes all botanical varieties and cultivars of that species.

Note 2 to entry: It is expressed in per cent.

3.10
sealed
<container for seeds> closed in such a way that the container cannot be opened to get access to the seed and be closed again without either destroying the seal or leaving evidence of tampering

Note 1 to entry: This definition refers to the sealing of seed *lots* (3.6), as well as of seed samples.

3.11
seed
mature ovules produced by *Panax notoginseng* (Burk.) F. H. Chen, consisting of three basic parts: embryo, endosperm and seed coat

3.12
seed length
largest distance from the lower part to the top

Note 1 to entry: See Figure 1.

Note 2 to entry: It is expressed in millimetres.

3.13
seed thickness
largest distance from the side perpendicular to the ridge to the opposite side

Note 1 to entry: See Figure 1.

Note 2 to entry: It is expressed in millimetres.

3.14
seed width
largest distance from the side of the raphe to the opposite

Note 1 to entry: See Figure 1.

Note 2 to entry: It is expressed in millimetres.

3.15
seedling
young plant of *Panax notoginseng* (Burk.) F. H. Chen, which, after cultivation for one year, consists of *hibernaculum* (3.4), *tap root* (3.18), lateral root and fibrous root

3.16
seedling diameter
largest distance at the site of the taproot

Note 1 to entry: See Figure 2.

Note 2 to entry: It is expressed in centimetres.

3.17
seedling weight
average weight of *test samples* (3.19) of *seedlings* (3.15)

3.18
tap root
root generated from the one year development of the radicle after seed germination

3.19
test sample
portion of the *composite sample* (3.2) to which one of the test required in this standard is applied

Note 1 to entry: Test samples may be packed in different materials meeting conditions for specific tests [e.g. moisture or *purity* (3.9)].

3.20
viability

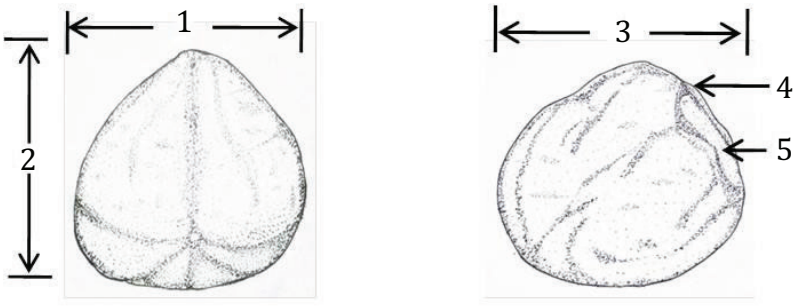
potential ability of a seed to germinate, or capability of an embryo to live, as a percentage of stained seeds in the *test sample* (3.19)

Note 1 to entry: The percentage of stained seeds in the test sample shall be estimated by the method of Topographical Tetrazolium Test.

4 Descriptions

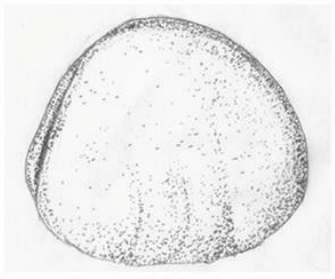
4.1 *Panax notoginseng* seed

In this document, *Panax notoginseng* seed is the dehydrated seed of plant *Panax notoginseng* (Burk.) F. H. Chen consisting of three basic parts: embryo, endosperm and the seed coat, as shown in Figure 1.

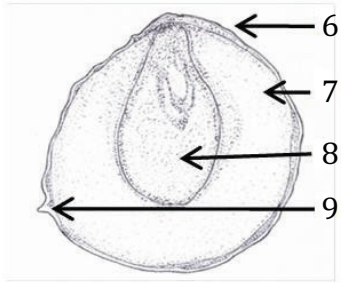


a) Façade of the seed

b) Back of the seed



c) Kernel, without seed coat



d) Section of the kernel of a stratified seed

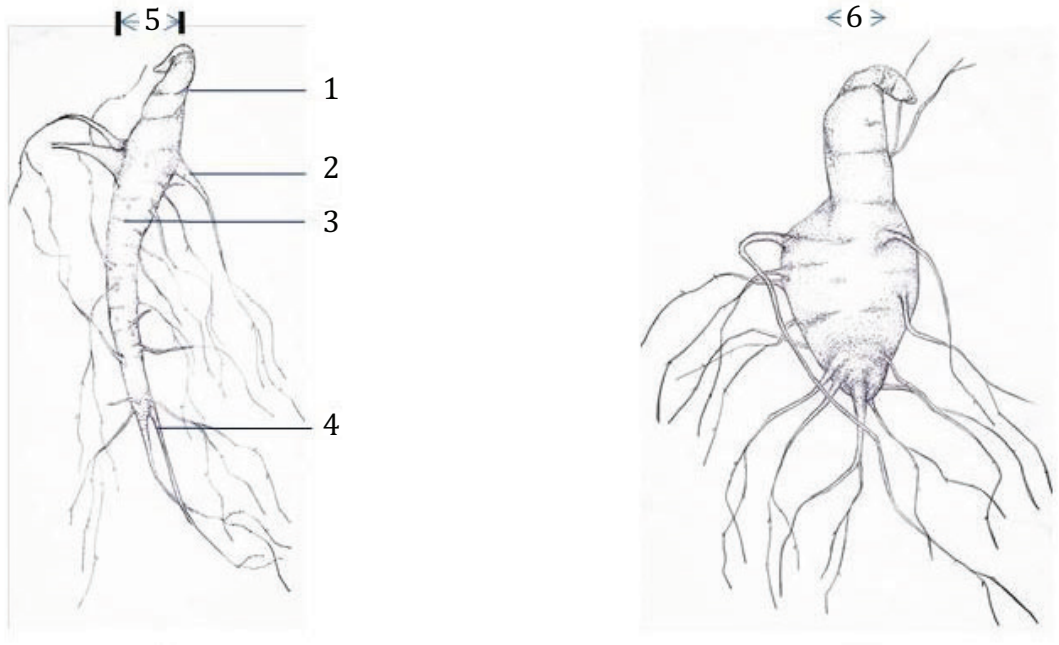
Key

1 seed width
2 seed length
3 seed thickness
4 circular water hole
5 raphe
6 seed coat
7 endosperm
8 embryo
9 cavity of seed

Figure 1 — Structure of *Panax notoginseng* seed

4.2 *Panax notoginseng* seedling

Panax notoginseng seedling is one-year-old seedling, consisting of four parts: hibernaculum, taproot, lateral root and fibrous root. For practical application, *Panax notoginseng* seedlings are classified into two groups on the basis of their morphology: long seedlings and short seedlings, as shown in Figure 2.



a) Long seedling **b) Short seedling**

Key

1 hibernaculum
2 lateral root
3 taproot
4 fibrous root
5 seedling diameter
6 hibernaculum diameter

Figure 2 — *Panax notoginseng* seedling

5 Requirements

5.1 General characteristics

The following requirements shall be met before separating the composite sample into test samples.

a) *Panax notoginseng* seeds shall be clean and free from foreign matter.

b) *Panax notoginseng* seedlings shall be healthy and intact.

c) The presence of mouldy seeds and external contaminants which are visible to the naked eye shall not be permitted.

5.2 *Panax notoginseng* seed

5.2.1 Morphological features of seed

The colour of the seed shall be white or yellowish white. The seed shall be hard-texture, without any unusual smell or mildew.

5.2.2 Moisture

The moisture content in percentage mass shall not be less than 60 %.