
**Traditional Chinese medicine —
Salvia miltiorrhiza seeds and
seedlings**

*Médecine traditionnelle chinoise — Graines et plants de Salvia
miltiorrhiza*

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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.

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This document was prepared by Technical Committee ISO/TC 249, *Traditional Chinese medicine*.

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Traditional Chinese medicine — *Salvia miltiorrhiza* seeds and seedlings

1 Scope

This document specifies the minimum requirements and test method for *Salvia miltiorrhiza* seeds and seedlings. It is suitable for use in quality assurance during the production and management of *Salvia miltiorrhiza* seeds and seedlings.

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), *International Rules for Seed Testing*

International Seed Testing Association (ISTA), *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

seed lot

specified quantity of *seed* (3.7) that is physically and uniquely identifiable

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.1]

3.2

primary sample

portion taken from the *seed lot* (3.1) during one single sample action

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.2]

3.3

composite sample

sample formed by combining and mixing all the *primary samples* (3.2) taken from the *seed lot* (3.1)

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.3, modified]

3.4

subsample

portion of a *primary sample* (3.2) obtained by reducing a sample

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.4]

**3.5
submitted sample**

sample that is to be submitted to the testing laboratory and may comprise either the whole of the *composite sample* (3.3) or a *subsample* (3.4)

Note 1 to entry: The submitted sample may be divided into subsamples packed in different material meeting conditions for specific tests (e.g. moisture or health).

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.5]

**3.6
working sample**

whole of the *submitted sample* (3.5) or a *subsample* (3.4), to which one of the quality tests described in the ISTA Rules is applied

Note 1 to entry: The working sample is at least the weight prescribed by the ISTA Rules for the particular test.

[SOURCE: ISTA, International Rules for Seed Testing, 2.2.7, modified]

**3.7
seed**

mature ovule produced by *Salvia miltiorrhiza* Bunge

Note 1 to entry: It consists of three basic parts: embryo, endosperm and the seed coat.

**3.8
seedling**

young plant of *Salvia miltiorrhiza* Bunge after cultivation for one year, consisting of bud, *tap root* (3.14), lateral root and fibrous root

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**3.9
purity**

weight percentage of pure *seed* (3.7) fraction over the total weight of the *working sample* (3.6)

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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 (%).

[SOURCE: ISTA, International Rules for Seed Testing, definition 3.2.1, modified]

**3.10
viability**

potential ability of a *seed* (3.7) to germinate or the capability of an embryo to live

Note 1 to entry: It is the percentage of stained seeds in the *working sample* (3.6), estimated using the Topographical Tetrazolium Test.

**3.11
1 000-seed weight**

average weight of every 1 000 pure *seeds* (3.7) of a *working sample* (3.6)

**3.12
seed moisture content**

loss of weight of *seed* (3.7) after drying over the weight of seed before drying

**3.13
germination percentage**

percentage of germinated *seed* (3.7) over the *working sample* (3.6)

**3.14
tap root**

root generated from the one year development of the radical after *seed* (3.7) germination

3.15**seedling length**

largest distance from the lower part to the top

Note 1 to entry: It is expressed in centimetres.

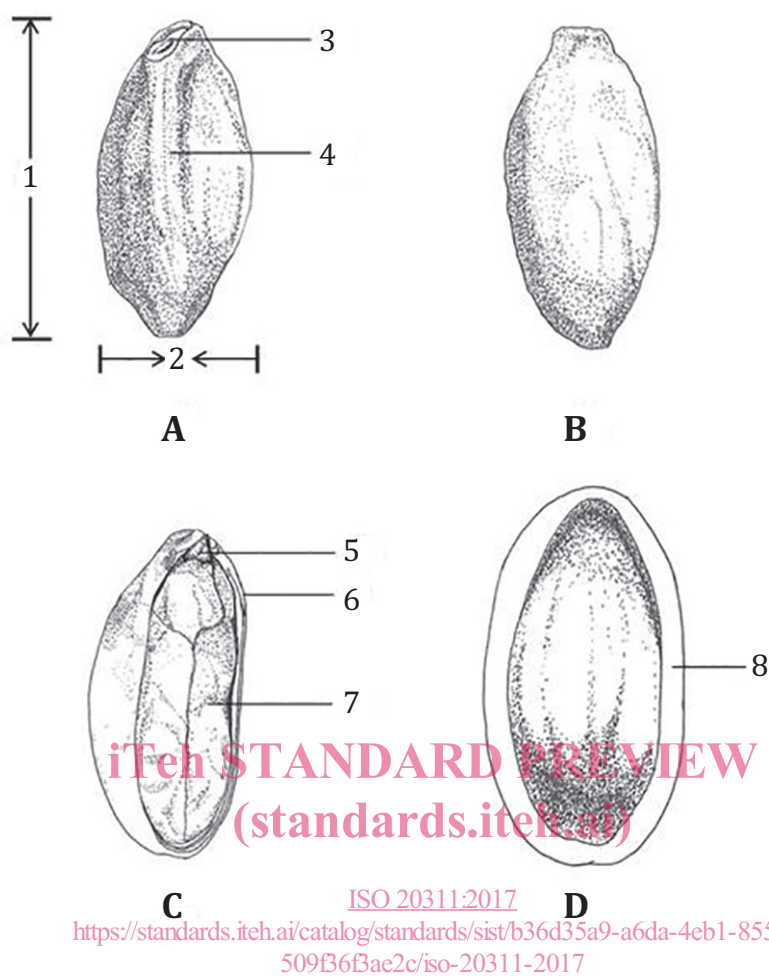
4 Descriptions

Salvia miltiorrhiza seed is the dried seed of the plant *Salvia miltiorrhiza* Bunge and consists of three basic parts: the embryo, cytoledon and the pericarp (see [Figure 1 C](#)). The epidermal mucilage layer swells to a transparent mucilage membrane surrounding the seed after soaking the seed with warm water ([Figure 1 D](#)).

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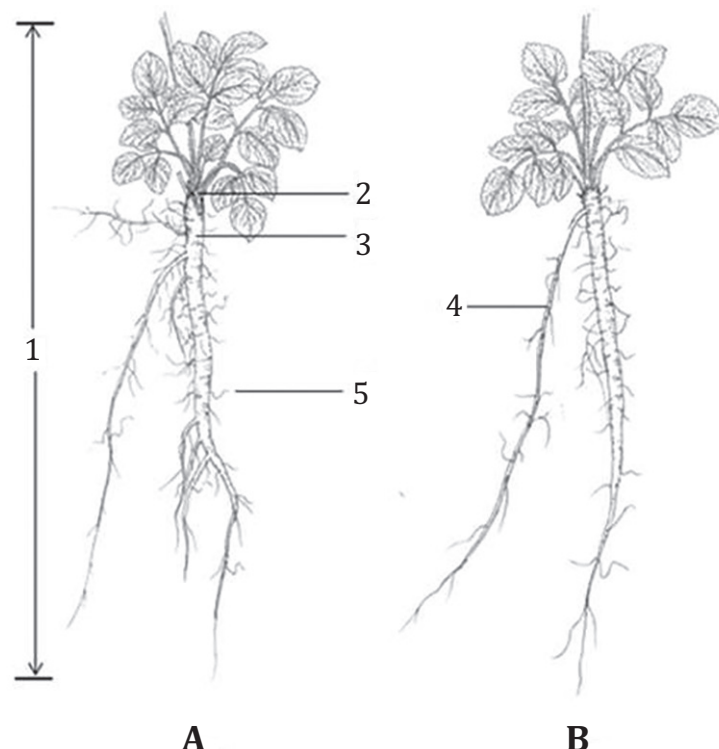


Key

- | | | | |
|---|----------------|---|----------------------------------|
| 1 | seed length | A | facade of the seed |
| 2 | seed thickness | B | back of the seed |
| 3 | hilum | C | longitudinal section of the seed |
| 4 | raphe | D | seed after soaking in water |
| 5 | embryo | | |
| 6 | pericarp | | |
| 7 | cotyledon | | |
| 8 | mucilage layer | | |

Figure 1 — Structure of *Salvia miltiorrhiza* seed

The *Salvia miltiorrhiza* seedling is a one-year seedling, consisting of four parts: bud, tap root, lateral root and fibrous root, as shown in [Figure 2](#).



A **B**
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Key

- 1 seedling length
- 2 bud
- 3 tap root
- 4 lateral root
- 5 fibrous root

- A seedling with more lateral roots
- B seedling with fewer lateral roots

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Figure 2 — *Salvia miltiorrhiza* seedling

5 Requirements

5.1 General characteristics

The following requirements shall be met before separating the bulk sample into test samples:

- a) *Salvia miltiorrhiza* seedlings shall be healthy and intact;
- b) the presence of living insects, mouldy seeds and external contaminants which are visible to the naked eye shall not be permitted.

5.2 *Salvia miltiorrhiza* seeds

5.2.1 The colour of the seed shall be black or brown. The seed shall have a hard texture, without any peculiar smell and mildew.

5.2.2 The mass fraction of moisture shall not be greater than 10 %.