
**Traditional Chinese medicine —
Microscopic examination of
medicinal herbs**

*Médecine traditionnelle chinoise — Examen microscopique des herbes
médicinales*

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Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Sampling	2
5 Apparatus	2
6 Preparation for microscopic examination	2
6.1 Cross-section or longitudinal-section slides	2
6.2 Powder slides	2
6.3 Mounting and swelling agents	2
7 Observation of components	3
8 Test report	3
Annex A (informative) Preparation methods for microscopy	4
Bibliography	10

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Foreword

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

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Traditional Chinese medicine — Microscopic examination of medicinal herbs

1 Scope

This document specifies the methods for microscopic examination of medicinal herbs. It covers the equipment, sampling, preparation and observation methods. This document is applicable to medicinal herbs used in traditional Chinese medicine, including Chinese materia medica (whole medicinal materials) and decoction pieces derived from plants. It is not applicable to medicinal materials derived from animals or minerals.

2 Normative references

There are no normative references in this document.

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:

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

3.1

microscopic examination

examination of a test specimen by microscope with a magnification of generally $\times 50$ to $\times 500$

[SOURCE: ISO 17639:2003, 3.2, modified.]

3.2

medicinal herbs

raw materials derived from various parts of plants for drugs used in herbal medicine

Note 1 to entry: Herbal medicine includes traditional Chinese medicine, Korean medicine and Kampo.

3.3

slide

flat rectangular plate of glass on which an object is mounted for microscopic examination

[SOURCE: ISO 10934-1:2002, 2.133]

3.4

cover glass

rectangular or circular piece of thin glass used to cover a microscopical preparation

[SOURCE: ISO 10934-1:2002, 2.34, modified — Note 1 to entry removed.]

3.5

micrometer

device for measuring small lengths

[SOURCE: ISO 10934-1:2002, 2.96]

4 Sampling

Small-sized, cut or powdered material (50 g to 250 g) samples shall be taken after mixing thoroughly. Large-sized or whole material (250 g to 500 g) samples shall be taken after mixing thoroughly. After that, select a representative sample of the material. If necessary, the samples should be preserved in airtight containers.

5 Apparatus

Use the usual laboratory apparatus and, in particular, the following:

5.1 Optical microscope or slide scanner.

5.2 Optical or in-software micrometer.

5.3 Imaging devices such as drawing attachments, embedded camera or digital imaging sensor for the microscope.

5.4 Slides and cover glasses.

5.5 Botanical dissecting instruments such as tweezers, surgical knife, razor blade, microtome.

6 Preparation for microscopic examination

6.1 Cross-section or longitudinal-section slides

- a) According to the sample condition, moisturizing, fixation or maceration process can be added. See [A.1](#) to [A.3](#) for additional information.
- b) Select representative pieces of the material being examined and cut into suitable lengths.
- c) After softening, cut the material with a razor blade or a microtome to a thickness of 10 µm to 20 µm.
- d) Place a section on a slide glass, add two or three drops of a mounting agent or chloral hydrate solution and place a cover glass over it, taking precautions against the inclusion of bubbles.
- e) Embed the material in hard paraffin for cutting, if necessary. See [A.4](#).

6.2 Powder slides

- a) Place about 0,1 g of powdered sample in a watch glass containing two or three drops of a swelling agent or chloral hydrate solution, stir well with a small rod to prevent the inclusion of bubbles and allow to stand for more than 10 min to swell the sample.
- b) Using a small glass rod, smear the slide glass with a small amount of the swollen sample, add one drop of the mounting agent and place a cover glass on it so that the tissue sections spread evenly without overlap, taking precautions against the inclusion of bubbles.

6.3 Mounting and swelling agents

Mounting and swelling agents may be made of a mixture of glycerine and water (1:1) or a mixture of glycerine, 95 % ethanol and water (1:1:1) as mounting and swelling agents. Other agents which have characteristics of mounting and swelling agents can be used.