衞生署
Department of Health

# Identification of Tiny Seed and Fruit Types of Chinese Materia Medica

# Fructus Malvae*

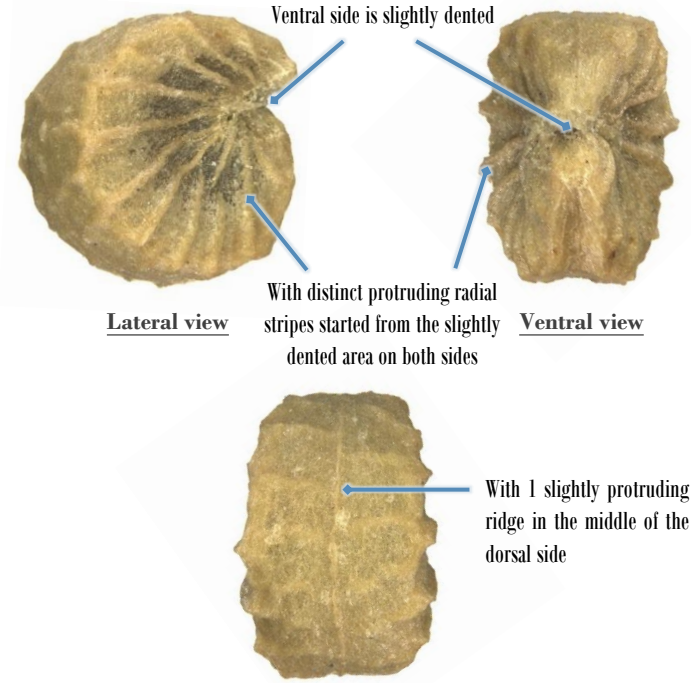
| | |
|---|---|
| **Source** | The dried ripe fruit of *Malva verticillata* L. in the family Malvaceae |
| **Property and flavour** | Cool; sweet and astringent |
| **Meridian affinity** | Large intestine, small intestine and bladder meridians |
| **Actions** | To clear heat and disinhibit urine; to resolve swelling |

Note:

* Its name in Chinese Pharmacopoeia (2020 Edition) is "Malvae Fructus".

# Micro-morphological features

**Shape** **Citrus segment-shaped mericarp**



1 seed in the shape of citrus-segment reniform or reniform is visible after removing the pericarp

**Lateral view**

With hilum at the dented area

With strophiole on one side of the hilum, partially covering the hilum

**Lateral view** **Ventral view**

**Seed**

0.5 mm

## Surface

**Mericarp is yellowish-white or light yellowish-brown, pericarp near the centre is usually relatively thin (→)**

0.5 mm

**Seed is slightly rough, blackish-brown or brown, area near the hilum and the strophiole (→) is yellowish-brown**

Surface view

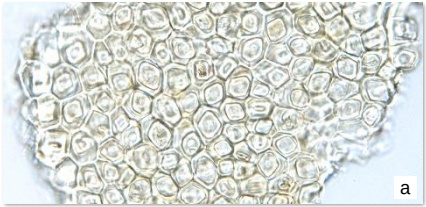
Ventral view

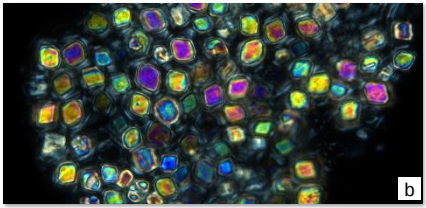
0.5 mm

# Powder microscopic features

## Crystal

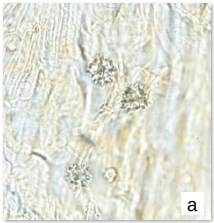
### Prism of calcium oxalate

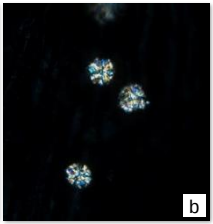



Usually present in groups in mesocarp cell; polychromatic under polarized light microscope

### Cluster of calcium oxalate



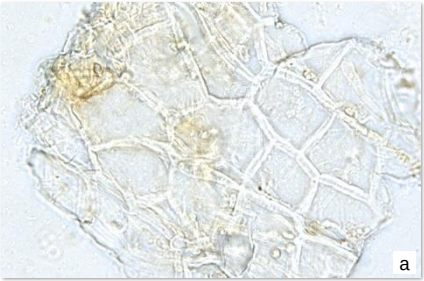

Barely found, scattered or present in parenchymatous cell; polychromatic under polarized light microscope

*a. features under bright field; b. features under polarized light*

50 μm

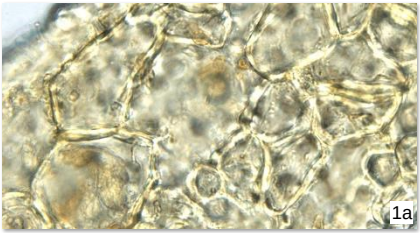
# Pericarp

## Exocarp cell




Appears polygonal or sub-polygonal in surface view, with slightly thick wall

## Mesocarp cell



With slightly thick wall; cells at the outer side (1) are relatively large, appear sub-rounded, sub-polygonal or irregular in surface view, loosely arranged; cells at the innermost layer are (2) relatively small, appear polygonal in surface view, tightly arranged, contain 1 prism of calcium oxalate

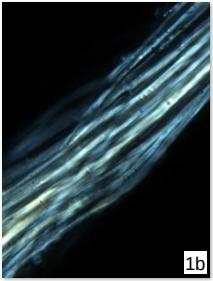
***a. features under bright field; b. features under polarized light***

50 μm

## Endocarp cell

Appears long strip-shaped or sub-rectangular in surface view, with thin or slightly thick wall, anticlinal wall is straight (1) or beaded (2)

## Fibre



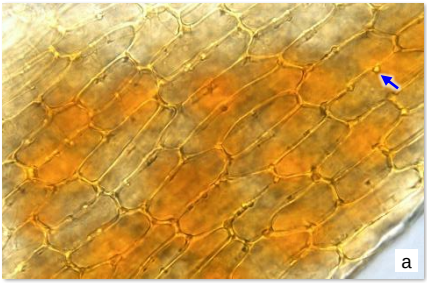

Usually in bundles, wall is slightly thick, with sparse pits and pit canals; bright white, orange-yellow or polychromatic under polarized light microscope

***a. features under bright field; b. features under polarized light***

50 μm

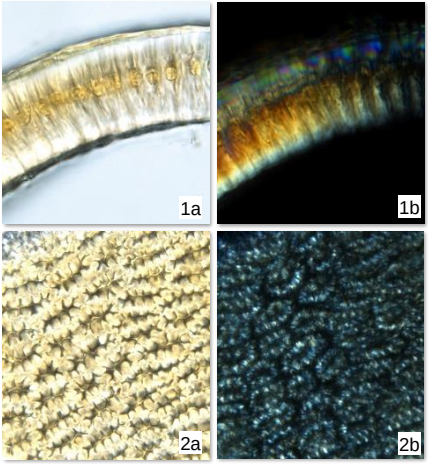
# Testa

## Epidermal cell of testa




Appears sub-rectangular or sub-polygonal in surface view, some anticlinal walls have dotted thickening (→)

## Palisade cell of testa

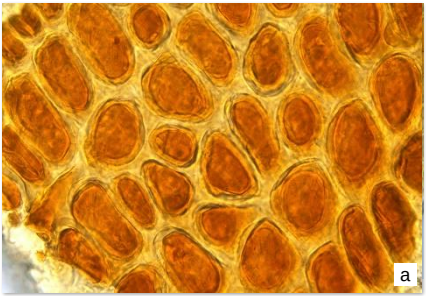



Rectangular cells occur in 1 row in lateral view (1), lumen is located in the centre; polychromatic under polarized light microscope. Appears polygonal or sub-polygonal in surface view (2), irregular lumen is visible; bright white or orange-yellow under polarized light microscope

*a. features under bright field; b. features under polarized light*

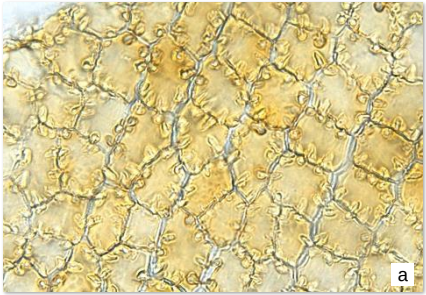
50 μm

## Pigment cell




With slightly thick wall and indistinct cell boundary, contains yellowish-brown or reddish-brown masses

## Endotesta cell




Appears sub-polygonal in surface view, with irregularly thickened anticlinal wall, contains yellowish-brown substances

*a. features under bright field; b. features under polarized light*

50 μm

# Key identification features

## Micro-morphology

- Citrus segment-shaped mericarp, with radial stripes on both sides
- 1 seed in the shape of citrus-segment reniform or reniform is visible after removing the pericarp

## Powder microscopy

- Prism of calcium oxalate: usually present in groups in mesocarp cell
- Endocarp cell: appears long strip-shaped or sub-rectangular in surface view, anticlinal wall is straight or beaded
- Palisade cell of testa: cells occur in 1 row in lateral view, irregular lumen is visible in surface view

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