



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

Fructus Arctii*



Source

The dried ripe fruit of *Arctium lappa* L. in the family Compositae

Property and flavour

Cold; pungent and bitter

Meridian affinity

Lung and stomach meridians

Actions

To remove wind and clear heat; to disperse the lung and promote skin eruption; to remove toxins and clear the throat

Note:

* Its name in Chinese Pharmacopoeia (2020 Edition) is “Arctii Fructus”.

Micro-morphological features

Shape

Usually sub-ovate, slightly flat, relatively straight on one side, relatively curved on another side; occasionally oblong-trigonous and curved



1 mm

Apex truncate

With several longitudinal ridges on the surface, some are relatively distinct

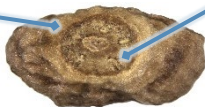


Base truncate

Surface view

0.5 mm

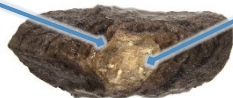
With a sub-oblong or sub-rounded ring at the top



Top view

With scars of style in the ring, sometimes with slightly protruding sub-oblong or sub-rounded striations clearly visible in the centre, surrounded by several linear striations

With a sub-oblong, sub-triangular or sub-rounded fruit stalk scar at the base, bearing surface is lighter in colour



Bottom view

Sometimes with linear or dotted striations; for those with relatively large basal area, striations are mainly distributed at the surrounding

0.5 mm

Surface

Greyish-brown, yellowish-brown, brown or deep brown, usually with deep brown or blackish-brown irregular mottles, colour of the longitudinal ridges (→) is darker than that of the surface

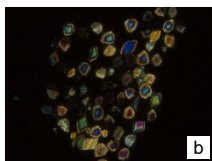
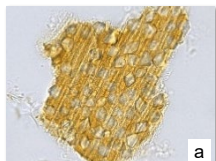


0.2 mm

Powder microscopic features

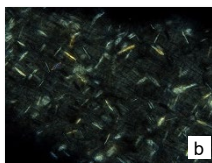
Crystal

Prism of calcium oxalate



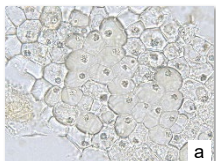
Square or hexagonal, usually present in groups in parenchymatous cell of mesocarp; polychromatic under polarized light microscope

Columnar crystal of calcium oxalate



Usually present in testa cell; bright white or polychromatic under polarized light microscope

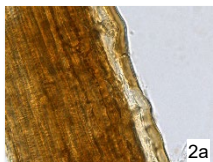
Cluster of calcium oxalate



Usually present in the cotyledon cell; bright white or polychromatic under polarized light microscope

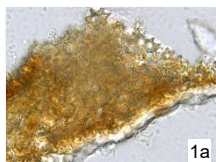
Pericarp

Exocarp cell



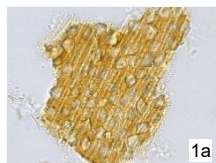
Colourless or yellowish-brown, appears sub-polygonal in surface view (1); cells occur in 1 row in lateral view (2), usually adhere to reticulated cell of mesocarp

Reticulated cell of mesocarp



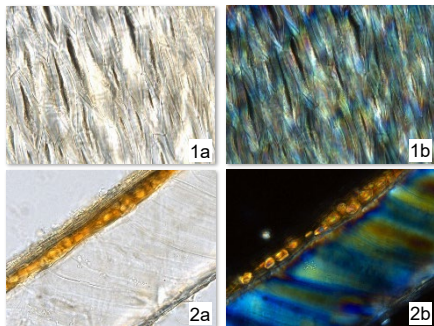
Yellowish-brown, usually present in groups, appears sub-rounded in lateral view (1), with unevenly thickened anticlinal wall; appears long strip-shaped in surface view (2), with small and dense reticulate striations on wall

Parenchymatous cell of mesocarp



Usually contains prisms of calcium oxalate, with indistinct cell boundary, cells usually adhere to reticulated cell of mesocarp (1) or stone cell of endocarp (2)

Stone cell of endocarp



Broken or present in groups, appears fusiform, elliptical or sub-rounded in surface view (1), tightly mosaic, with thick walls and distinct striations, some with pit canals; appears sub-rectangular in lateral view (2), some are slightly pointed at one end; bright white or polychromatic under polarized light microscope

Testa

Testa cell



Yellowish-brown, multiple layers of cells are usually overlapped, with indistinct cell boundary, contains columnar crystals of calcium oxalate

Key identification features

Micro-morphology

- ⊙ Usually sub-obovate, slightly flattened, relatively straight on one side, relatively curved on another side
- ⊙ With several longitudinal ridges on the surface and a sub-oblong or sub-rounded ring at the top
- ⊙ Surface usually has deep brown or blackish-brown irregular mottles

Powder microscopy

- ⊙ Reticulated cell of mesocarp: appears long strip-shaped in surface view, with small and dense reticulate striations on wall
- ⊙ Parenchymatous cell of mesocarp: usually contains prisms of calcium oxalate, with indistinct cell boundary
- ⊙ Testa cell: multiple layers of cells are usually overlapped, contains columnar crystals of calcium oxalate

For more information, please refer to [website of the Hong Kong Chinese Materia Medica Standards](#):

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