



Identification of
Tiny Seed and Fruit
Types of Chinese
Materia Medica

Fructus Kochiae*



Source

The dried ripe fruit of *Kochia scoparia* (L.) Schrad. in the family Chenopodiaceae

Property and flavour

Cold; pungent and bitter

Meridian affinity

Kidney and bladder meridians

Actions

To clear heat and drain dampness; to remove wind and relieve itch

Note:

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

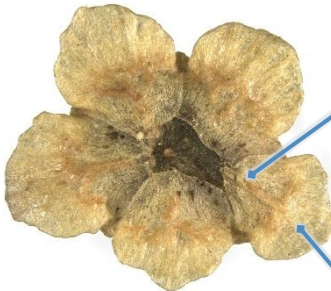
Micro-morphological features

Shape

Sub-five-pointed stellate, flat, edge is wavy, varying in depth



1 mm



Top view

With 5-lobed persistent perianth visible in top view

Outer side of each lobe has an outstretching wing, which is sub-triangular or ovate



Lateral view

0.5 mm

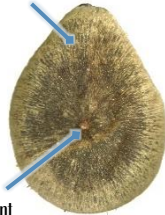
With protruding fruit stalk scar at the base



Usually has several radial veins

Bottom view

Flattened ovate fruit is visible after removing persistent perianth



Sometimes with remnant of style at the centre of the top side

Top view



Pericarp is membranous, easily peeled, usually relatively thin on the bottom side

Bottom view

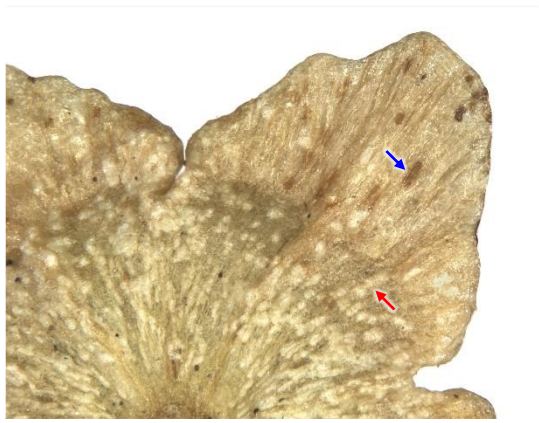


Seed is black, flattened ovate, slightly dented at the centre

Surface view

Surface

Persistent perianth is yellowish-brown or light brown, with brown or deep brown maculae (→) and white warty protuberances (→)



0.2 mm

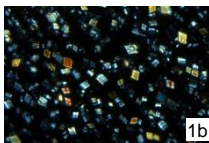
Powder microscopic features

Crystal

Prism of calcium oxalate

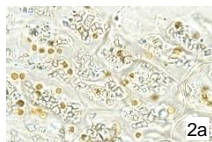


1a

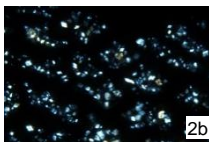


1b

Numerous, small, present in groups in crystalliferous cell of pericarp (1) or cell of persistent perianth (2); bright white or polychromatic under polarized light microscope

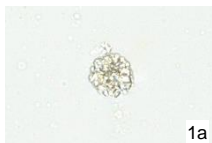


2a

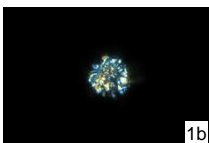


2b

Cluster of calcium oxalate

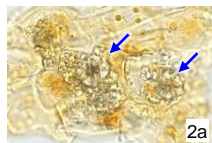


1a

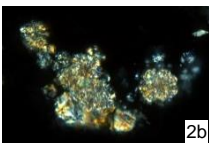


1b

Scattered (1) or present in cell of persistent perianth (2) (→), usually with indistinct angles; polychromatic under polarized light microscope



2a



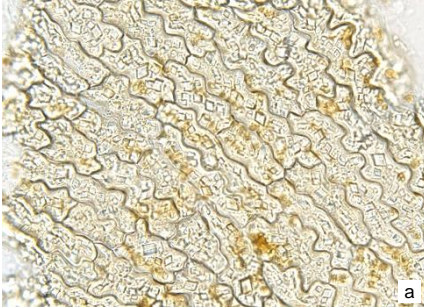
2b

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

50 μm

Pericarp

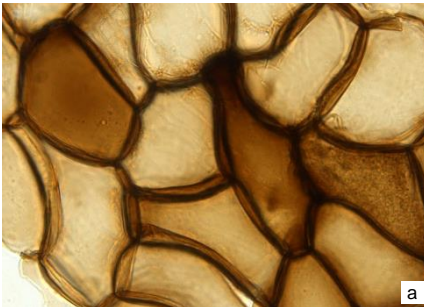
Crystalliferous cell of pericarp



Appears sub-rectangular or sub-polygonal in surface view, with slightly thick and sinuous anticlinal wall, contains numerous prisms of calcium oxalate

Testa

Testa cell



Yellowish-brown or brown, appears sub-polygonal, sub-square or sub-rectangular in surface view

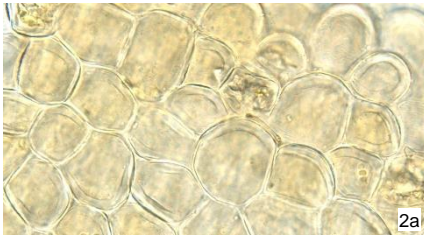
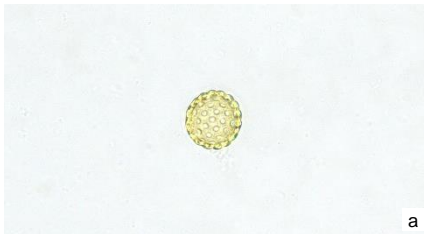
a. features under bright field; b. features under polarized light

50 μ m

Others

Epidermal cell of persistent perianth

Colourless or light yellow, appears polygonal (1) or sub-polygonal (2) in surface view, some with anomocytic stoma (→)

Pollen grain

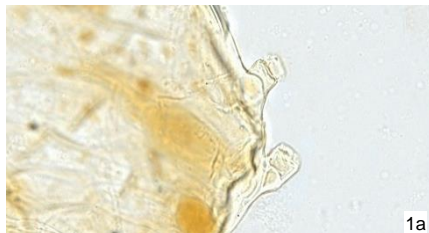
Yellow, sub-spherical, densely covered with sub-rounded apertures on the surface

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

50 μ m

Trichome

Non-glandular hair



Barely found, mostly broken, mainly is remnant of non-glandular hair (1), intact ones (2) are occasionally found



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

50 μ m

Key identification features

Micro-morphology

- ⊙ Sub-five-pointed stellate, flat
- ⊙ Persistent perianth is 5-lobed, with an outstretching wing on the outer side of each lobe
- ⊙ Surface of persistent perianth has brown or deep brown maculae and white warty protuberances

Powder microscopy

- ⊙ Prism of crystal oxalate: small and numerous
- ⊙ Crystalliferous cell of pericarp: with sinuous anticlinal wall, contains numerous prisms of calcium oxalate
- ⊙ Testa cell: yellowish-brown or brown, appears sub-polygonal, sub-square or sub-rectangular in surface view

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

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