



Identification of Tiny Seed and Fruit Types of Chinese Materia Medica

Fructus Evodiae*



1 cm

Source

The dried almost ripe fruit of *Evodia rutaecarpa* (Juss.) Benth., *E. rutaecarpa* (Juss.) Benth. var. *officinalis* (Dode) Huang or *E. rutaecarpa* (Juss.) Benth. var. *bodinieri* (Dode) Huang in the family Rutaceae

Property and flavour

Hot; pungent and bitter; slightly toxic

Meridian affinity

Liver, spleen, stomach and kidney meridians

Actions

To dissipate cold and alleviate pain; to downregulate counter-flow and stop vomiting; to assist yang and stop diarrhoea

Note:

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

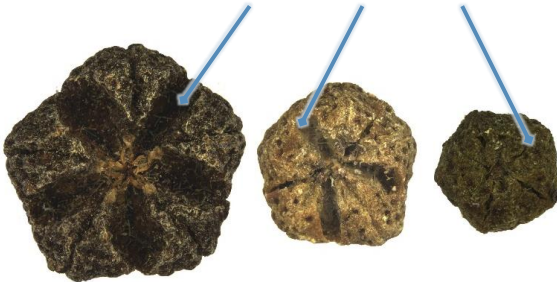
Micro-morphological features

Shape

Slightly oblate, spherical or pentagonal-oblate

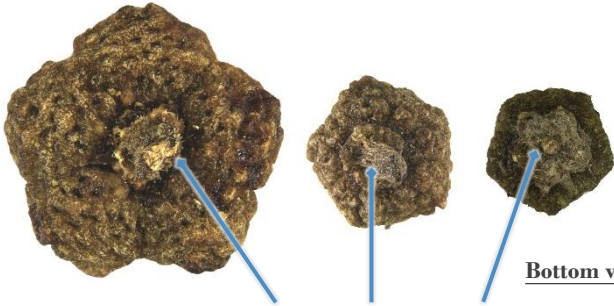


With 5-pointed stellate fissure at the apex



Top view

1 mm



Bottom view

Base has persistent calyx and fruit stalk or the scar of the latter

1 mm

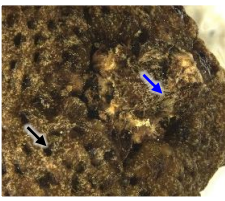


Lateral view

1 mm

Surface

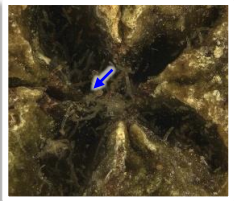
Dark yellowish-green or brown, rough, with numerous dotted protuberances or dented oil spots (→), with pubescence (→) surrounding fissure, persistent calyx and fruit stalk scar or on fruit stalk



1 mm



1 mm



0.5 mm

Odour

With strong aroma

Powder microscopic features

Trichome

Non-glandular hair



Consists of 2-10 cells, straight or curved; smooth, with linear striations or warty protuberances, some contain brownish-yellow or brownish-red substances in lumina

Glandular hair



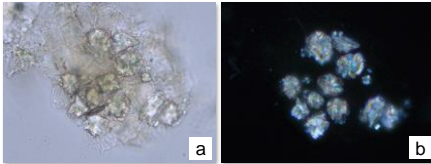
Head is elliptical or pear-shaped, consists of up to a dozen or more cells, usually contains yellowish-brown or reddish-brown substances; stalk consists of 2-5 cells

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

50 μ m

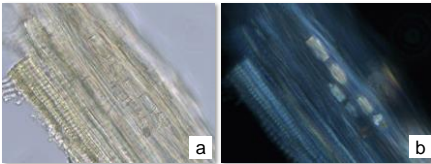
Crystal

Cluster of calcium oxalate



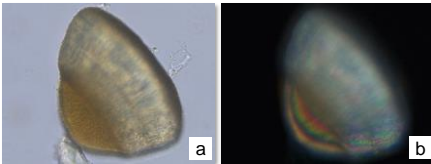
Mostly present in pericarp cell; polychromatic under polarized light microscope

Prism of calcium oxalate



Absent or occasionally found; polychromatic under polarized light microscope

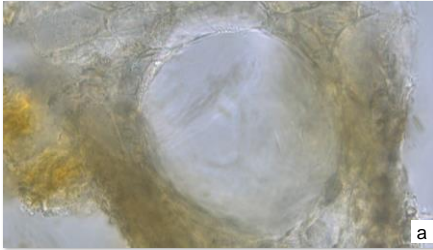
Crystal of hesperidin



Absent or occasionally found, light yellow, fan-shaped, radial striations are observable; polychromatic under polarized light microscope

Secretory tissue

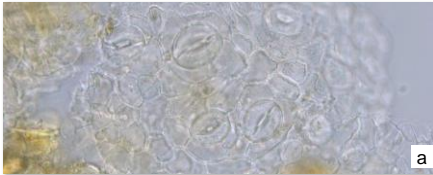
Oil-secretory cavity



Light yellow, intact ones are observable, fragments of oil-secretory cavity are also sometimes observable

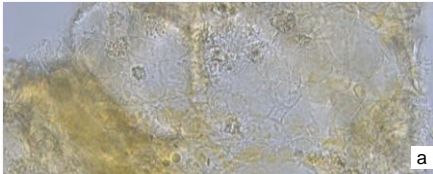
Pericarp

Exocarp cell



Colourless or light yellow, polygonal, with frequently found stoma, anomocytic or cyclocytic, with 4-6 subsidiary cells

Mesocarp cell

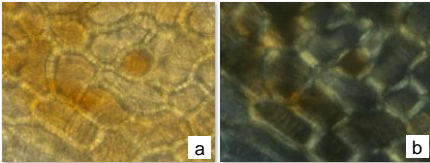


Light yellow, sub-rounded, with slightly thick wall, loosely arranged, frequently observable with oil-secretory cavity and crystal of calcium oxalate

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

50 μ m

Other

Stone cell

Sub-rounded or polygonal, consists of single or several cells or present in groups, lumen is relatively large, some contain yellowish-brown substances; bright white or polychromatic under polarized light microscope

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

50 μm

Key identification features

Micro-morphology

- Slightly oblate, spherical or pentagonal-oblate, with 5-pointed stellate fissure at the apex
- Dark yellowish-green or brown, rough, with numerous dotted protuberances or dented oil spots
- With pubescence surrounding fissure, persistent calyx and fruit stalk scar or on fruit stalk

Powder microscopy

- Non-glandular hair: consists of 2-10 cells, straight or curved; smooth, with linear striations or warty protuberances, some contain brownish-yellow or brownish-red substances in lumina
- Glandular hair: head is elliptical or pear-shaped, consists of up to a dozen or more cells, usually contains yellowish-brown or reddish-brown substances; stalk consists of 2-5 cells

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

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