衞生署
Department of Health

Identification of Tiny Seed and Fruit Types of Chinese Materia Medica

Fructus Evodiae*

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

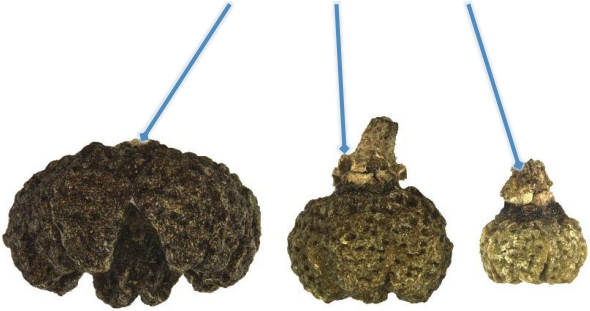
Top view

1 mm

Bottom view

1 mm

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



Lateral view

1 mm

Surface

Dark yellowish-green or brown, rough, with densely 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

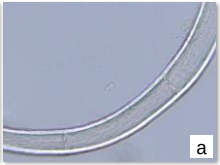
Odour

With strong aroma

Powder microscopic features

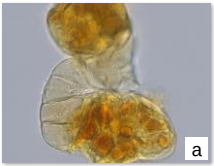
Trichome

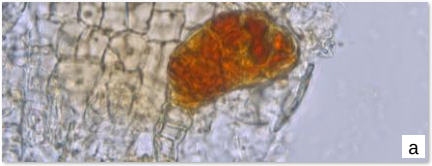
Non-glandular hair



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





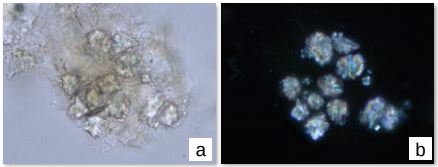
Head is elliptical or pear-shaped, consists of up to a dozen or more cells, usually contains yellowish-brown or reddish-brown substances; stalk consists of 2-5 cells

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

50 μm

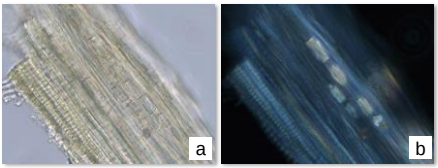
Crystal

Cluster of calcium oxalate



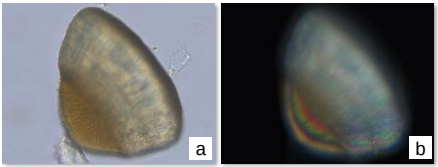
Usually present in pericarp cell; polychromatic under polarized light microscope

Prism of calcium oxalate



Absent or occasionally found; polychromatic under polarized light microscope

Crystal of hesperidin



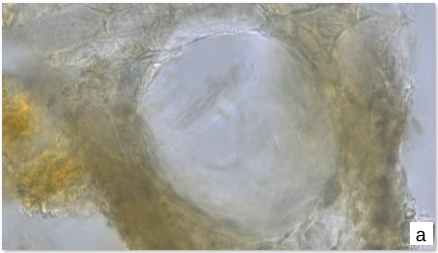
Absent or occasionally found, light yellow, fan-shaped, with radial striations; polychromatic under polarized light microscope

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

50 μm

Secretory tissue

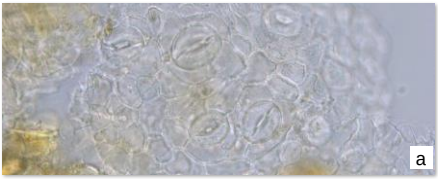
Oil-secretory cavity



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

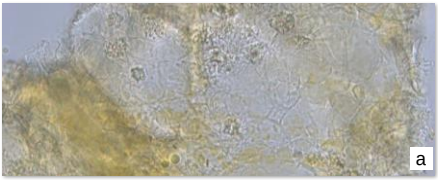
Pericarp

Exocarp cell



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

Mesocarp cell



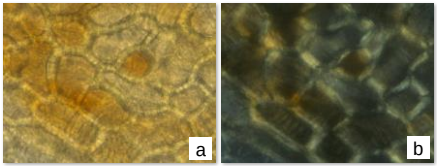
Light yellow, sub-rounded, with slightly thick wall, loosely arranged, usually with oil-secretory cavity and crystal of calcium oxalate

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

50 μm

Others

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 densely 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
- Crystal of calcium oxalate: mainly is cluster of calcium oxalate, usually present in pericarp cell

For more information, please refer to website of the Hong Kong Chinese Materia Medica Standards:

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