



Identification of
Tiny Seed and Fruit
Types of Chinese
Materia Medica

Fructus Broussonetiae*



1 cm

Source

The dried ripe fruit of *Broussonetia papyrifera* (L.) Vent. in the family Moraceae

Property and flavour

Cold; sweet

Meridian affinity

Liver and kidney meridians

Actions

To tonify the kidney and clear the liver; to brighten the eyes; to promote urination

Note:

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

Micro-morphological features

Shape

Appears sub-rounded in surface view

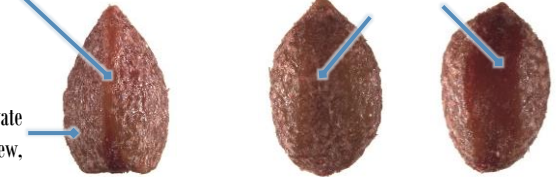


Surface view

With ridge on one side

Slightly flat or with groove on another side

Appears sub-ovate in lateral view, slightly flat



Lateral view

1 mm

Fructus Broussonetiae

With a protuberance observable in between the ridge and the groove



Groove stretches from one side to the base, sometimes observable with remnant of gynophore

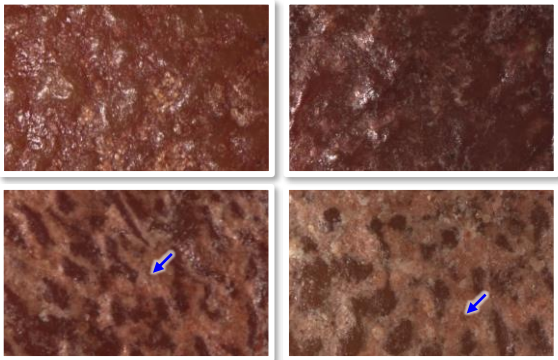
After being soaked in water, diffusion of light orange pigment is observable

Surface view

1 mm

Surface

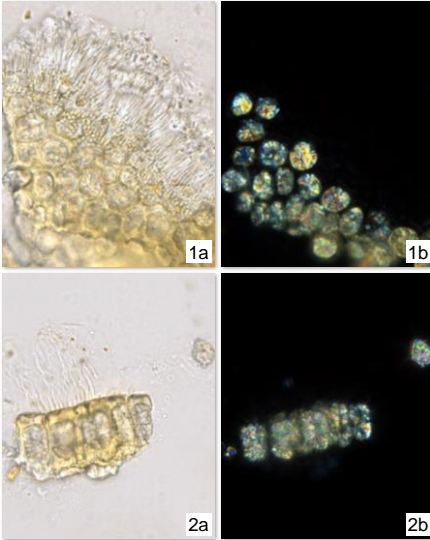
Reddish-brown or brown, with granular protuberances, some can be observed with lighter colour (→) in between the protuberances



0.2 mm

Powder microscopic features

Crystal

Cluster of calcium oxalate

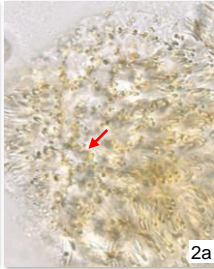
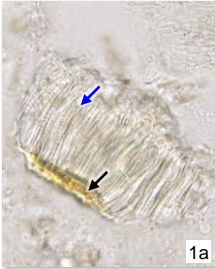
Numerous, sub-rounded, sub-elliptical (1) or sub-rectangular (2), with small angle and obtuse apex, usually present in crystalliferous sclerenchymatous cell or scattered; polychromatic or orange-yellow under polarized light microscope

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

50 μ m

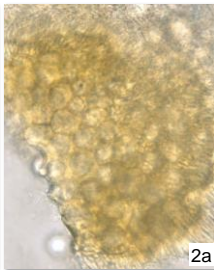
Pericarp

Palisade cell of pericarp

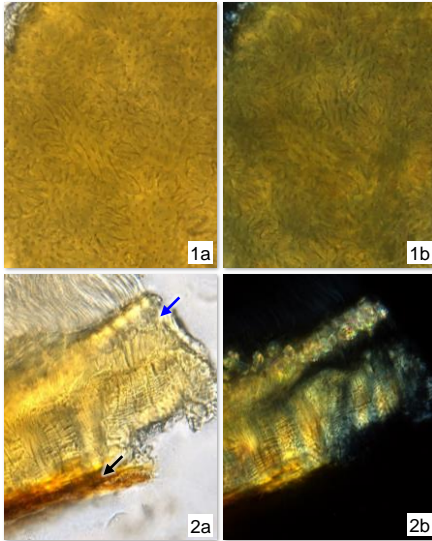


Colourless or light yellow, appears sub-rectangular in lateral view (1), with abundant, uneven and long strip-shaped thickening (→) observable on the wall, usually adheres to crystalliferous sclerenchymatous cell (→); cell appears sub-rounded or sub-polygonal in surface view (2), with dot-like thickening (→) observable on the wall

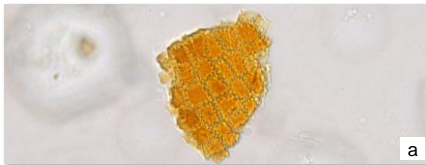
Crystalliferous sclerenchymatous cell



Light yellow, contains 1 cluster of calcium oxalate in lumen; cell appears sub-rectangular in lateral view (1), appears sub-polygonal in surface view (2), with slightly thick wall

Sclerenchymatous cell of endocarp

Yellow, appears sub-polygonal in surface view (1), wall is thick, deeply sinuous, with dotted pits; appears sub-rectangular in lateral view (2), extremely flat, cells are usually overlapped in multiple layers, usually adheres to crystalliferous sclerenchymatous cell (→) or epidermal cell of testa (→); orange-yellow, yellowish-brown or bright white under polarized light microscope

TestaEpidermal cell of testa

Appears polygonal in surface view, with beaded-thickened wall, lumen contains light brown or yellowish-brown substances

Key identification features

Micro-morphology

- ⊙ Appears sub-rounded in surface view; some have gynophores
- ⊙ With ridge on one side, slightly flat or with groove on another side
- ⊙ Surface has granular protuberances, some can be observed with lighter colour in between the protuberances

Powder microscopy

- ⊙ Cluster of calcium oxalate: numerous, with small angle and obtuse apex
- ⊙ Palisade cell of pericarp: with abundant, uneven and long strip-shaped thickening observable on the wall in lateral view; with dot-like thickening observable on the wall in surface view
- ⊙ Sclerenchymatous cell of endocarp: wall is thick in surface view, deeply sinuous, with dotted pits; extremely flat in lateral view, cells are usually overlapped in multiple layers

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