

Perillae Fructus versus Semen Ricini



Source

Perillae Fructus
is the dried ripe fruit of
Perilla frutescens (L.) Britt.
in the family Labiatae

Semen Ricini*
is the dried ripe seed of
Ricinus communis L.
in the family Euphorbiaceae

Overview

Perillae Fructus has been listed in Chinese Pharmacopoeia (2020), while Semen Ricini has been listed in both Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia. The appearance and sources of these two Chinese Materia Medica (CMM) vary significantly, moreover, Semen Ricini contains toxic constituents including ricin and ricinine. According to *A Reference Book for Chinese medicines which had been reported as adverse events in Hong Kong*, there was a case where Semen Ricini has been dispensed as Perillae Fructus, leading to poisonous incidence. According the Chinese Pharmacopoeia, Perillae Fructus can direct qi downward to resolve phlegm, suppress cough and to calm panting, and moisten the intestines and relax the bowels. On the other hand, Semen Ricini has the properties of purgation and free stagnation, disperse swelling and draw out toxin. As the properties of these two CMM vary significantly and Semen Ricini is toxic, they should be used accordingly.

Note:

*Its name in the Chinese Pharmacopoeia (2020) is "Ricini Semen".

Key identification features

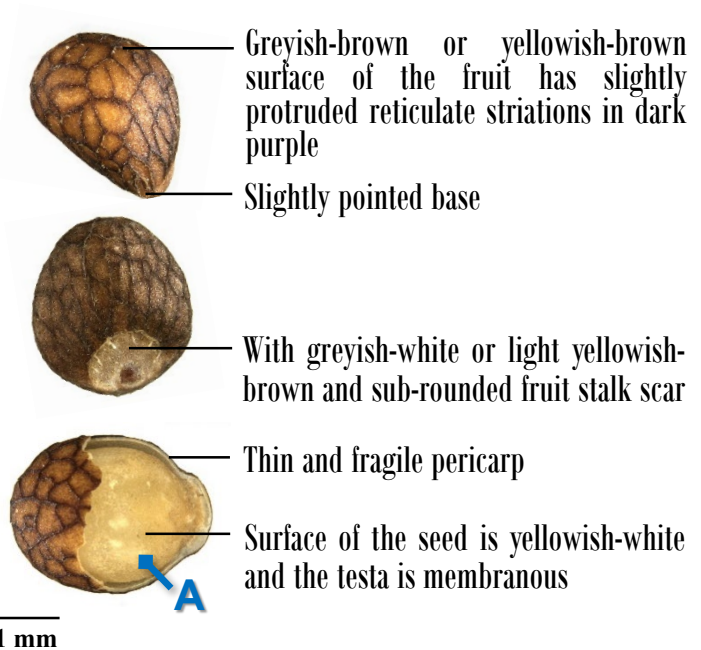
Macroscopic features of Perillae Fructus



◆ Ovoid or sub-spherical



◆ With aroma when crushed



Micro-morphological feature

A: Brown or yellowish-brown



(Raphe)

500 µm

Macroscopic features of Semen Ricini#



- ◆ Elliptical, oblong or ovate



1 cm



With greyish-white or light brown protruded strophiole on one end

Smooth surface with irregularly interlacing greyish-white and blackish-brown, or yellowish-brown and reddish-brown striations



Relatively flat on one side



The flatter side has 1 protruded raphe



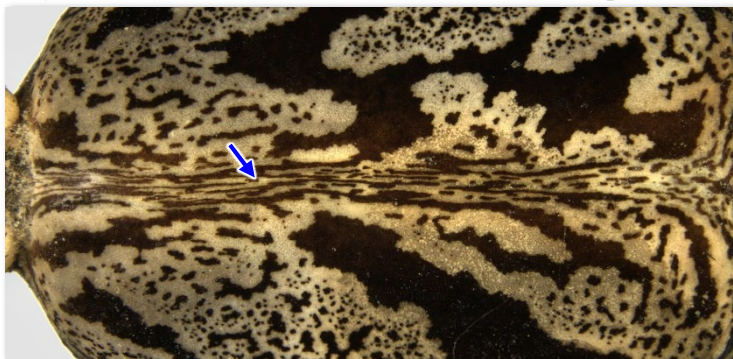
Thin and fragile testa

5 mm

- ◆ Slight odour

Micro-morphological feature

A: With irregularly interlacing greyish-white and blackish-brown, or yellowish-brown and reddish-brown linear or lump striations



(Raphe)

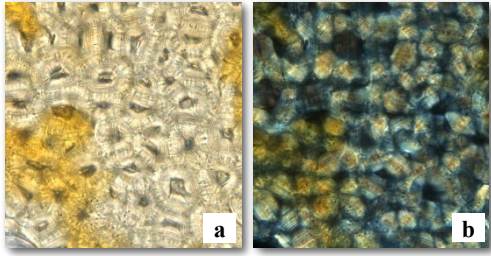


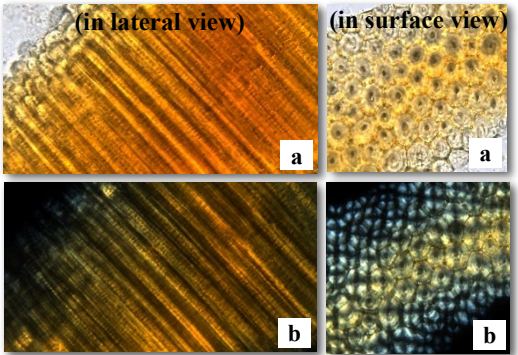
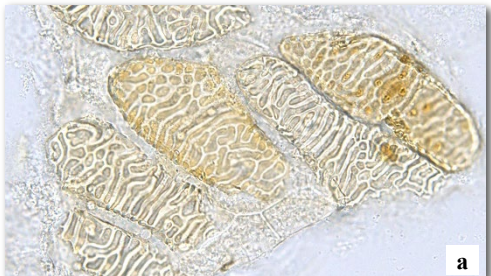
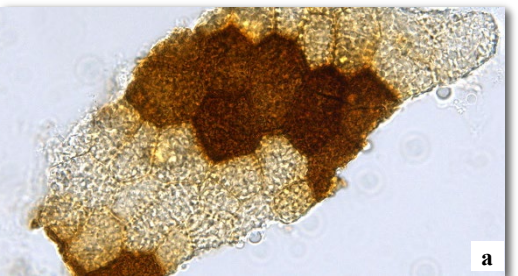
2 mm

Note:

#Semen Ricini is a toxic CMM. Handle it with care and avoid tasting during identification.

Microscopic feature comparison of Perillae Fructus and Semen Ricini powder



	Perillae Fructus	Semen Ricini[%]
Stone cell of pericarp	 <p>Present in groups, appears sub-polygonal or irregular in surface view, with pit canals and pits, some with observable striations; bright white or orange yellow under the polarized light microscope</p>	 Absent
Palisade cell of testa	 Absent	 <p>Mostly broken, reddish-brown or yellowish-brown, thick wall, appears long strip-shaped in lateral view, with fine and dense pit canals, barely found in surface view, sub-polygonal or sub-rounded, distinct lumina; orange yellow under the polarized light microscope</p>
Epidermal cell of testa	 <p>Colourless or light yellow, appears elliptical or sub-polygonal in surface view, mostly separated, with reticulate thickening, frequently adheres with sub-square or sub-polygonal parenchymatous cells</p>	 <p>Brown, yellowish-brown or colourless, appears polygonal in surface view, granular surface</p>

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

50 μm

Note:

[%]Content of fatty oil in Semen Ricini is relatively high. In order to remove some of the oil, the coarse powder can be washed initially with ethanol, ether or petroleum ether. After the sample is dried, sieve again, followed by slide preparation.

Summary

Major differences in the features between Perillae Fructus and Semen Ricini:

		Perillae Fructus	Semen Ricini
Macroscopic and micro-morphological features	Pericarp	With slightly protruded reticulate striations	Absent
	Surface of the seed	Yellowish-white	With irregularly interlacing greyish-white and blackish-brown, or yellowish-brown and reddish-brown striations
	Raphe	Brown or yellowish-brown	With irregularly interlacing greyish-white and blackish-brown, or yellowish-brown and reddish-brown linear or lump striations
Microscopic features	Stone cell of pericarp	Present	Absent
	Palisade cell of testa	Absent	Present
	Epidermal cell of testa	With reticulate thickening on the surface	Granular surface

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



Ricini Semen - Hong Kong Chinese Materia Medica Standards (Volume 6)



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