

# Rhizoma Dryopteris Crassirhizomae versus Rhizoma Braineae Insignis



## Source

\***Rhizoma Dryopteris Crassirhizomae** is the dried rhizome with petiole of *Dryopteris crassirhizoma* Nakal in the family Dryopteridaceae

**Rhizoma Braineae Insignis** is the dried rhizome of *Brainea insignis* (Hook.) J. Sm. in the family Blechnaceae

## Overview

Rhizoma Dryopteris Crassirhizomae is a Chinese Materia Medica (CMM) listed in Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2020), while Rhizoma Braineae Insignis has not yet been listed in either references. According to the *Chinese Materia Medica Standards in Guangdong Province*, up to 29 types of “Guan zhong” have been used country-wide, where the northeast region mainly uses *Dryopteris crassirhizoma* as medicine, some regions in Guangdong province use *Brainea insignis*. According to the Chinese Pharmacopoeia and the *Chinese Materia Medica Standards in Guangdong Province*, both can clear heat and detoxify and repel insects, furthermore, Rhizoma Braineae Insignis can stop bleeding. As the origins and functions of these two CMM differ, they should be used accordingly.

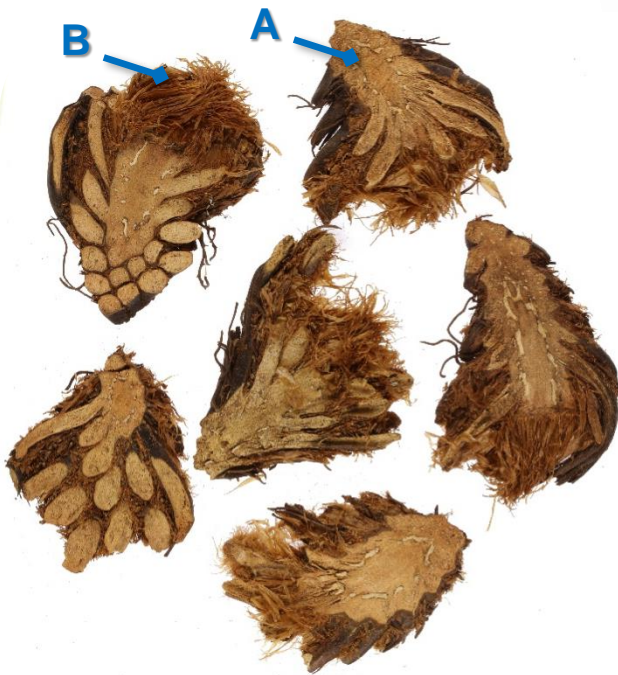
Note:  
\*Its name in the Chinese Pharmacopoeia (2020) is “Dryopteridis Crassirhizomatis Rhizoma”.

## Key identification features

### Macroscopic features of Rhizoma Dryopteris Crassirhizomae decoction pieces



◆ Mostly irregular longitudinal slices or pieces



Surface of the rhizome has remnants of densely grown blackish-brown stipe

Numerous yellowish-brown ramenta are observable

Some with rootlets observable

Cut surface of the rhizome is light brown or brown

With annularly arranged yellowish-white irregular meristeles

With scattered leaf trace vascular bundles at the periphery

Cut surface of the stipe is light brown or brown

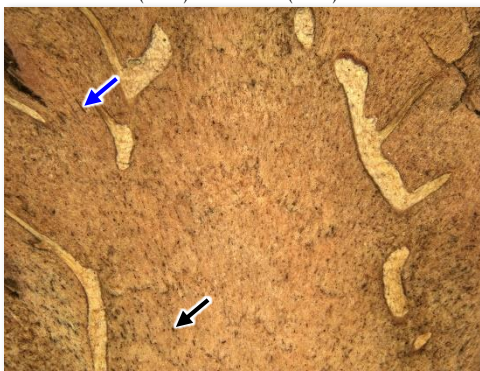
Some with annularly arranged yellowish-white dotted or linear meristeles observable

1 cm

2 cm

### Micro-morphological features

A: With meristeles, sometimes with smaller black dots(→) or lines(→) observable



(Cut surface)

2 mm

B: Yellowish-brown, mostly broader



(Ramentum)

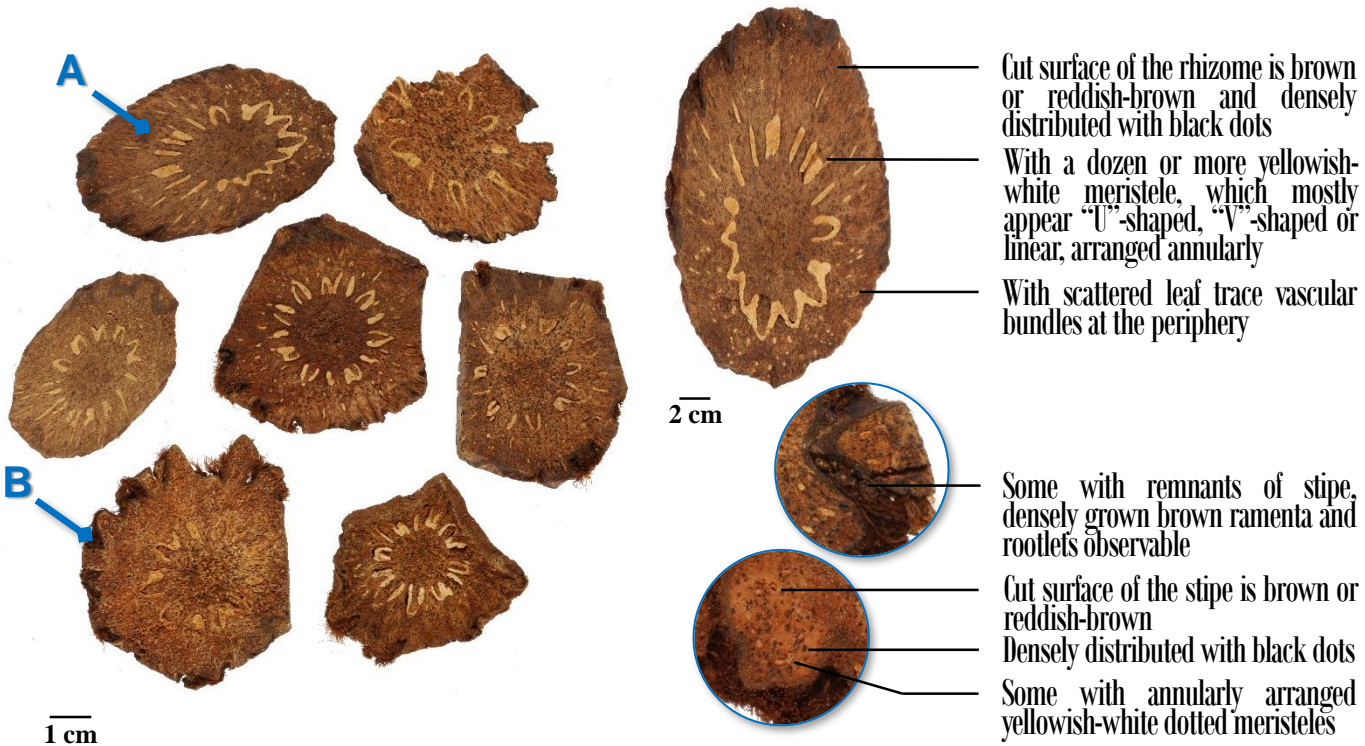
1 mm



## Macroscopic features of Rhizoma Braineae Insignis decoction pieces

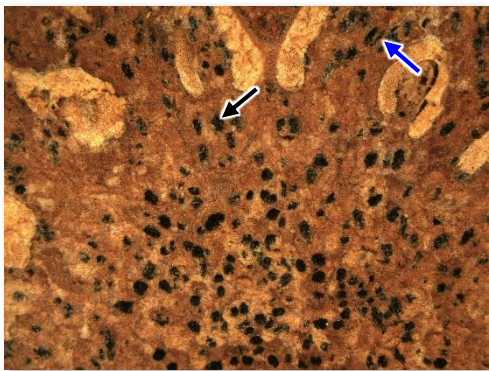


◆ Sub-rounded, sub-elliptical or sub-polygonal transverse slices



### Micro-morphological features

A: With meristele and larger black dots (→) or lines (→) observable



(Cut surface)

2 mm

B: Brown, narrower

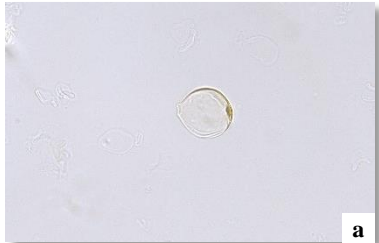


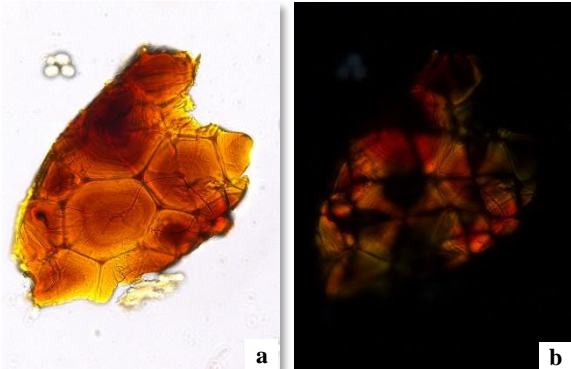
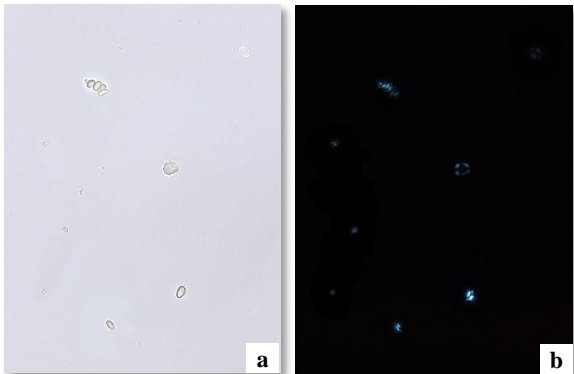
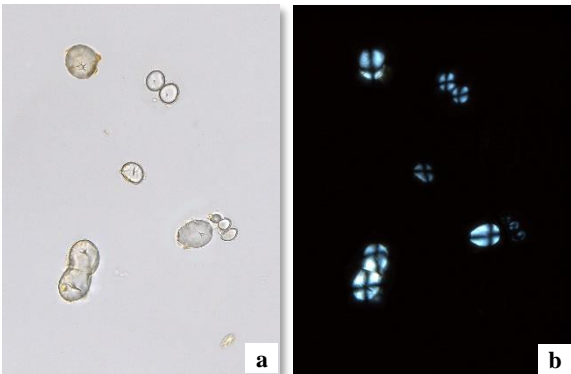


(Ramentum)

1 mm

**Microscopic feature comparison of Rhizoma Dryopteris Crassirhizomae decoction pieces and Rhizoma Braineae Insignis decoction pieces powder**



	<b>Rhizoma Dryopteris Crassirhizomae decoction pieces</b>	<b>Rhizoma Braineae Insignis decoction pieces</b>
<b>Intercellular glandular hair</b>	 <p>Mostly broken, intact one appears sub-rounded or sub-elliptical, with elongated base, some contain yellowish-brown substance</p>	 <p>Absent</p>
<b>Stone cell*</b>	 <p>Absent</p>	 <p>Barely found, mostly in groups, reddish-brown, sub-rounded, sub-polygonal or fusiform, distinct pit canals; dark reddish-brown under the polarized light microscope</p>
<b>Starch granule</b>	 <p>Numerous, simple granule appears sub-rounded, elliptical or ovoid, relatively small, indistinct hilum and striations; black and cruciate-shaped under the polarized light microscope</p>	 <p>Numerous, simple granule appears sub-rounded, elliptical or ovoid, relatively large, distinct hilum, striations occasionally observed, fewer compound granule; black and cruciate-shaped under the polarized light microscope</p>

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

50 μm

Note:

\*In order to reveal clearly the shape of the stone cells, the light source intensity will need to be increased during observation or photography as this feature is very dark coloured.

## Summary

Major differences in the features between Rhizoma Dryopteris Crassirhizomae decoction pieces and Rhizoma Braineae Insignis decoction pieces:

		Rhizoma Dryopteris Crassirhizomae decoction pieces	Rhizoma Braineae Insignis decoction pieces
Macroscopic and micro-morphological features	<b>Appearance</b>	Irregular longitudinal slices or pieces	Sub-rounded, sub-elliptical or sub-polygonal transverse slices
	<b>Cut surface of meristele</b>	Irregular	Mostly appears “U”-shaped, “V”-shaped or linear
	<b>Ramentum</b>	Mostly broader	Narrower
Microscopic features	<b>Intercellular glandular hair</b>	Present	Absent
	<b>Stone cell</b>	Absent	Present
	<b>Starch granule</b>	Relatively small, mainly simple granule	Relatively large, with simple and compound granules

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

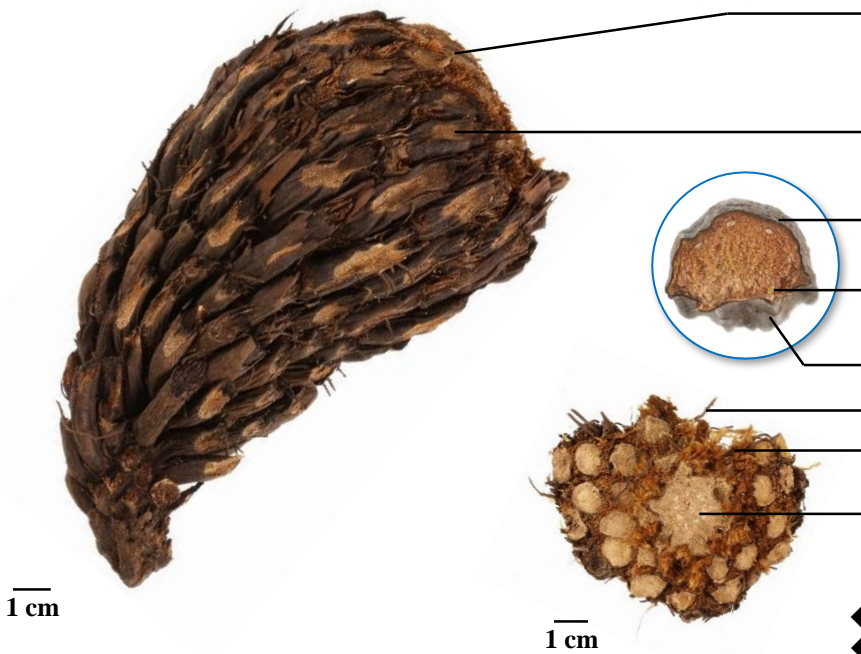


Dryopteridis Crassirhizomatis Rhizoma - Hong Kong Chinese Materia Medica Standards (Volume 6)



## Additional information

### Photo of crude Rhizoma Dryopteris Crassirhizomae



Appears long-obovate and slightly curved with obtuse or truncate upper end and relatively pointed lower end. Some are longitudinally dissected into half, 7-20 cm long, 4-8 cm in diameter

Surface is yellowish-brown to blackish-brown and densely covered with orderly arranged remnants of stipe and ramenta. Curved rootlets also present

Remnant of stipe appears flattened round, 3-5 cm long, 0.5-1.0 cm in diameter

Fracture is slightly flat, brown and has 5-13 yellowish-white meristele arranged annularly

With longitudinal ridges on the surface

Outer side of each remnant of stipe usually has 3 rootlets

Ramentum is linear-lanceolate and has entire margin. Mostly fallen off

Fracture is slightly flat and dark green to brown. It has 5-13 yellowish-white meristele, which have relatively more leaf trace vascular bundles scattered at its periphery, arranged annularly

- ◆ Rhizome is hard; stipe is hard and fragile
- ◆ Characteristic odour. Taste weak and slightly astringent at the beginning, gradually becomes bitter and pungent later

### Photo of crude Rhizoma Braineae Insignis



Cylindrical and slightly curved sometimes. Mostly longitudinally cut into half or transversely and obliquely cut into thick slices

Rhizome is strong and 3-5 cm in diameter. It is densely covered with extremely short remnants of stipe and rootlets, and small amount of brown ramenta, or having all the remnants of stipe removed

Transverse section of stipe base is sub-rounded, 5-8 mm in diameter, densely distributed with black dots and has 6-10 meristele arranged annularly

Transverse section is rounded, greyish-brown to reddish-brown and densely distributed with black dots

With irregular crenate margin and blackish-brown outer bark

Cortex is distributed with numerous yellow dotted vascular bundles. There are a dozen or more meristele, which mostly appear "U"-shaped, "V"-shaped or short linear, arranged annularly to form a pattern

- ◆ Hard
- ◆ Slight odour and astringent taste

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Department of Health  
Enquiry Hotline: 3188 8079  
Website: www.cmro.gov.hk

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