

# Radix Isatidis

versus

# Rhizoma et Radix Baphicacanthis Cusiae



1 cm



1 cm

## Source

**\*Radix Isatidis**  
is the dried root of  
*Isatis indigotica* Fort.  
in the family Cruciferae

**Rhizoma et Radix Baphicacanthis Cusiae<sup>#</sup>**  
is the dried rhizome or root of  
*Baphicacanthus cusia* (Nees) Bremek  
in the family Acanthaceae

## Overview

Both Radix Isatidis and Rhizoma et Radix Baphicacanthis Cusiae are Chinese Materia Medica (CMM) listed under Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2020). According to the research by *Zhong hua ben cao*, five different kinds of CMM were documented as “Lan” in the *Ben cao gang mu* of the Ming Dynasty. One of these “Lan” which was described as “Leaves like the leaves of pak choi” refers to *Isatis indigotica* in the family Cruciferae, while the one recorded as “Leaves like the leaves of sow thistle...refers as ‘Ban lan’ by the community” refers to *Baphicacanthus cusia* in the family Acanthaceae and is the “Ban lan” used by the community. To date, the subterraneous part of *Baphicacanthus cusia* continues to be used by people of the southern part of China as “Ban lan gen”. The Chinese Pharmacopoeia states that both CMM exert functional effects of heat-clearing and detoxifying. While Radix Isatidis can cool the blood aspect and soothe the throat, Rhizoma et Radix Baphicacanthis Cusiae serves to cool the blood aspect and resolve macule. As the two CMM differ in functions, they should be used distinctly and in accordance with their properties.

Note:

\*Its name in Chinese Pharmacopoeia (2020) is “Isatidis Radix”.

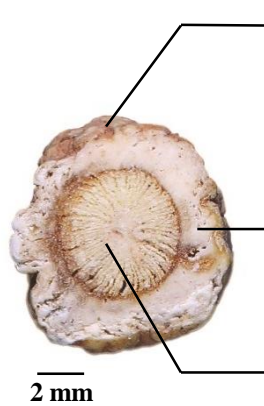
<sup>#</sup>Its name in Chinese Pharmacopoeia (2020) is “Baphicacanthis Cusiae Rhizoma et Radix”.

## Key identification features

### Macroscopic features of Radix Isatidis decoction pieces



◆ Rounded transverse slices



Surface is light greyish-yellow to brownish-yellow and has longitudinal wrinkles and long horizontal lenticels observable

Bark is yellowish-white to yellowish-brown

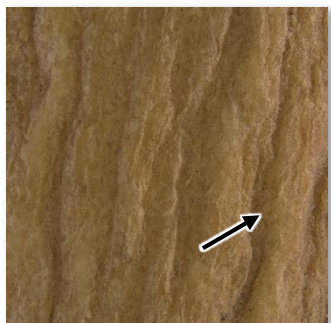
Wood is yellow and has no pith in the centre

1 cm

◆ Slightly soft

### Micro-morphological features

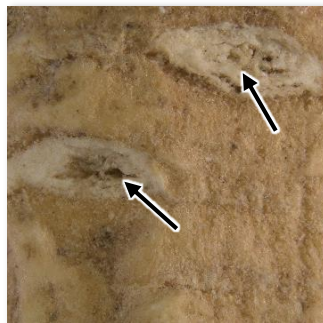
A: With longitudinal wrinkles



(Surface)

1 mm

B: With long horizontal lenticels observable

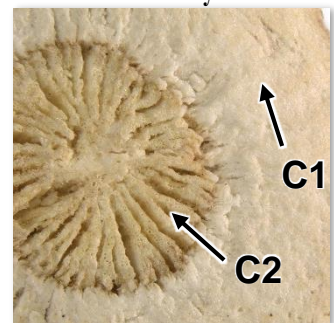


(Surface)

1 mm

C1: Bark is yellowish-white to yellowish-brown

C2: Wood is yellow



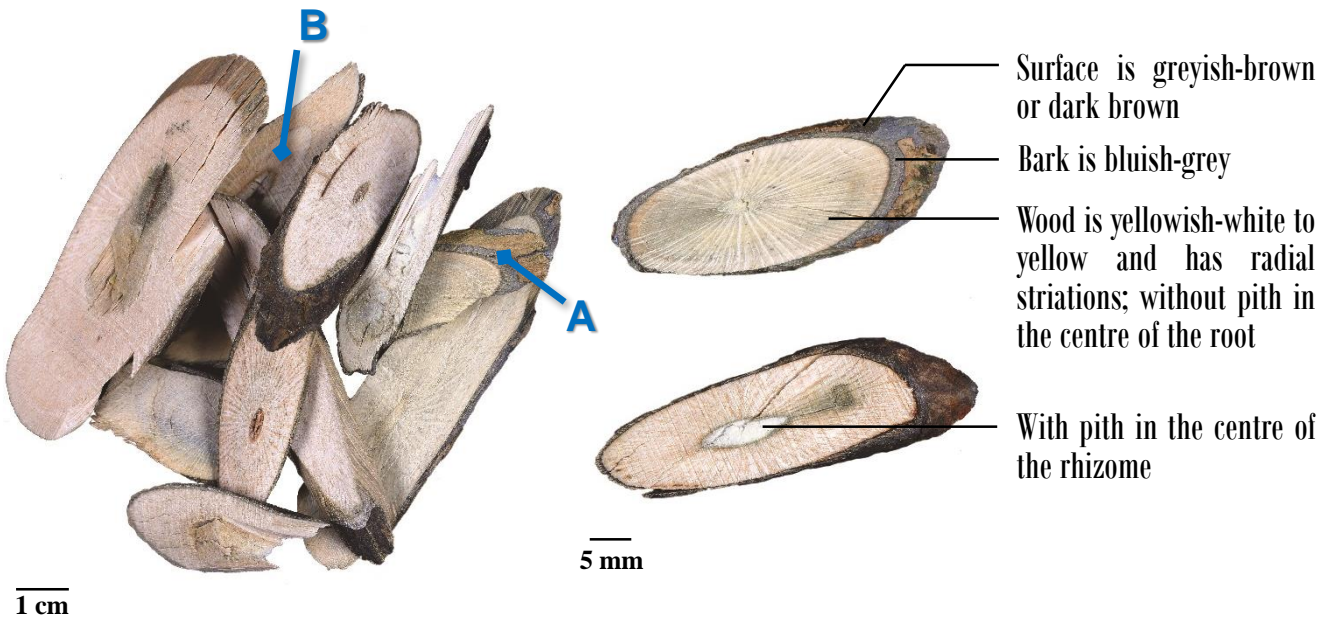
(Cut surface)

1 mm

## Macroscopic features of Rhizoma et Radix Baphicacanthis Cusiae decoction pieces



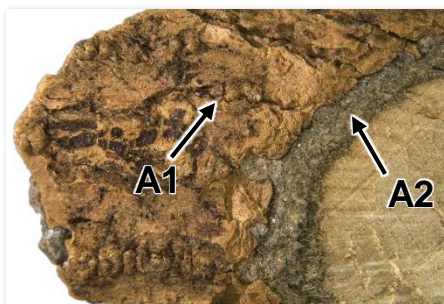
### ◆ Elliptical oblique slices



### ◆ Hard and fragile

## Micro-morphological features

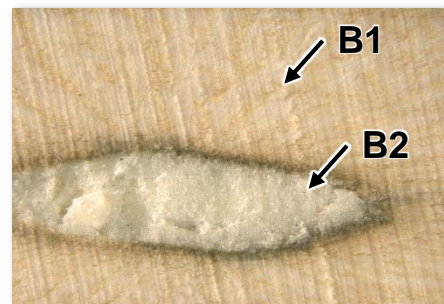
A1: Surface is greyish-brown or dark brown  
A2: Cut surface of the bark is bluish-grey



(Surface/Cut surface)

1 mm

B1: Wood is yellowish-white to yellow  
B2: With pith in the centre of the rhizome




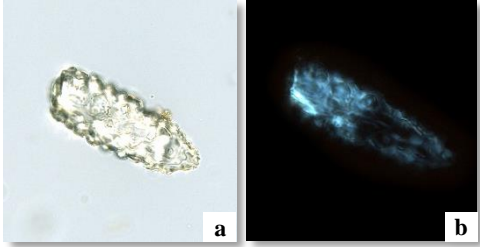
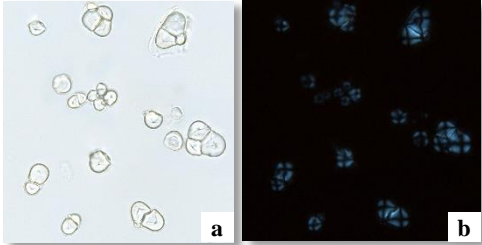
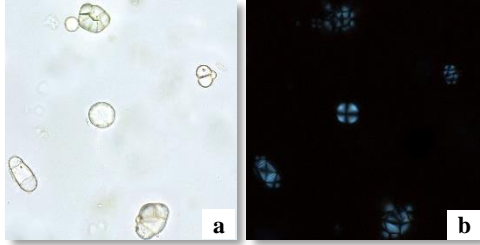
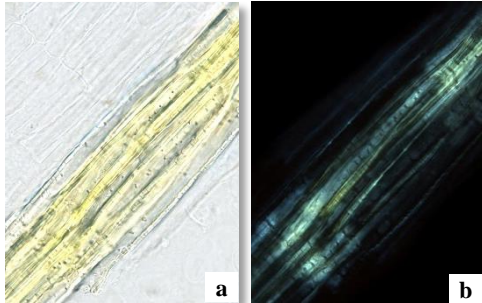
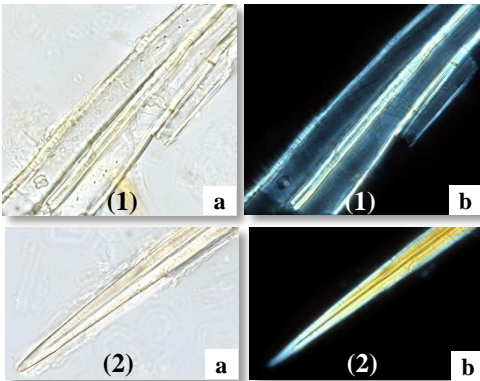
(Cut surface)

1 mm



**Microscopic feature comparison of Radix Isatidis decoction pieces and Rhizoma et Radix Baphicacanthis Cusiae decoction pieces powder**



	<b>Radix Isatidis decoction pieces</b>	<b>Rhizoma et Radix Baphicacanthis Cusiae decoction pieces</b>
<b>Cystolith</b>	 Absent	 <p>Frequently found, light yellow or colourless, long-elliptical or elliptical; mostly white, yellowish-white or polychromatic under the polarized light microscope</p>
<b>Starch granule</b>	 <p>Numerous, accounted for the majority of the powder, mainly compound granule</p>	 <p>Barely found, mainly compound granule, but the proportion of simple granule is higher than that of Radix Isatidis</p>
<b>Fibre</b>	 <p>Xylem fibre barely found, yellow, mostly in bundles, with pits and pit canals; mostly yellowish-white under the polarized light microscope</p>	 <p>Xylem fibre(1) frequently found, mostly in bundles, with pits and pit canals; mostly yellowish-white under the polarized light microscope; Phloem fibre(2) frequently found, mostly solitary, with thick wall; mostly bright yellow under the polarized light microscope</p>

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

50 μm

## Summary

Major differences in the features between Radix Isatidis decoction pieces and Rhizoma et Radix Baphicacanthis Cusiae decoction pieces:

		Radix Isatidis decoction pieces	Rhizoma et Radix Baphicacanthis Cusiae decoction pieces
Macroscopic and micro-morphological features	<b>Texture</b>	Slightly soft	Hard and fragile
	<b>Colour of the bark</b>	Yellowish-white to yellowish-brown	Bluish-grey
	<b>Pith</b>	Absent	Root without pith; rhizome with pith
Microscopic features	<b>Cystolith</b>	Absent	Present
	<b>Starch granule</b>	More	Fewer
	<b>Fibre</b>	Fewer. With only one type – xylem fibre	More. With two types – phloem fibre and xylem fibre

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

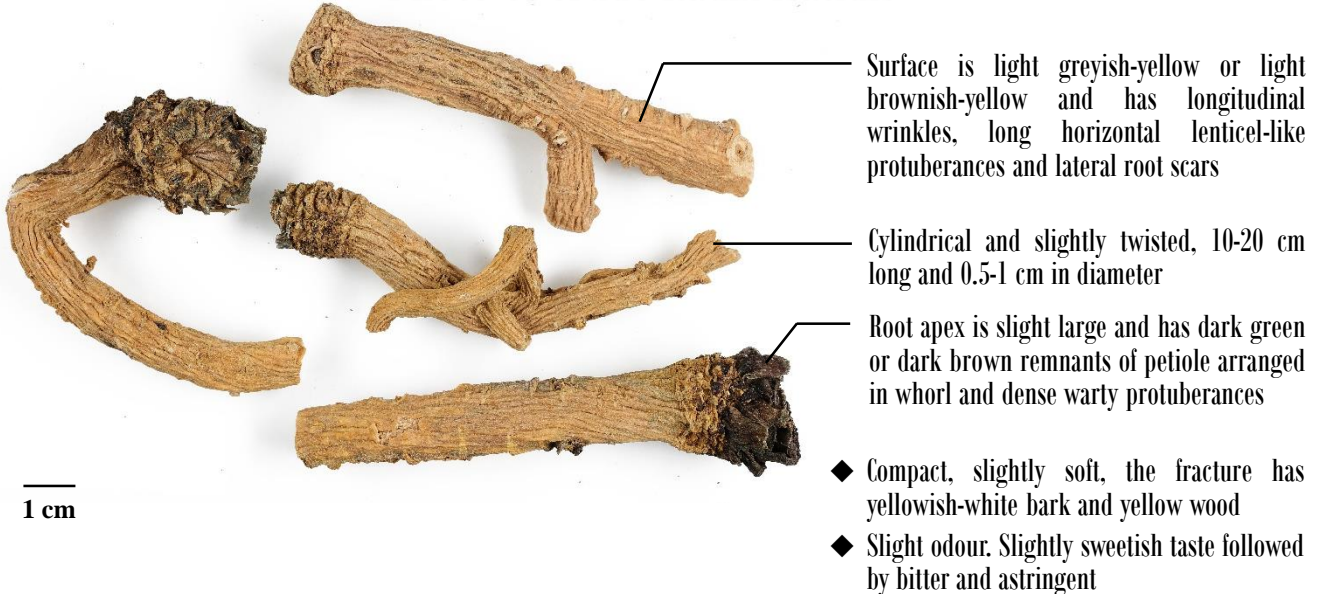


Isatidis Radix - Hong Kong Chinese Materia Medica Standards (Volume 4)

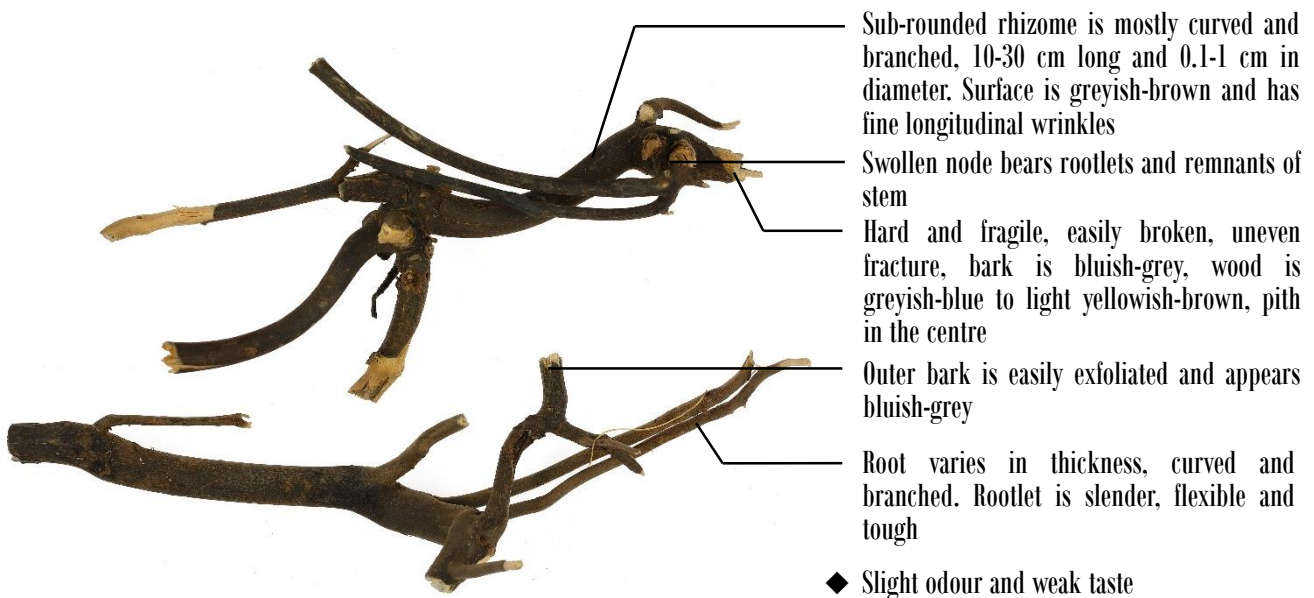
Baphicacanthis Cusiae Rhizoma et Radix - Hong Kong Chinese Materia Medica Standards (Volume 5)

## Additional information

### Photo of crude Radix Isatidis



### Photo of crude Rhizoma et Radix Baphicacanthis Cusiae



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