Identification of Easily Confused Species of Chinese Materia Medica in Hong Kong by Macroscopic and Microscopic Characteristics Project

## Radix Cynanchi Paniculati versus Herba Asari (subterraneous part)





## Source

#### \*Radix Cynanchi Paniculati

is the dried root or rhizome of

Cynanchum paniculatum (Bge.) Kitag.

in the family Asclepiadaceae

#### Herba Asari# (subterraneous part)^

is the dried subterraneous part of Asarum heterotropoides Fr. var. mandshuricum (maxim.) Kitag.,

- A. sieboldii Miq. var. seoulense Nakai or
- A. sieboldii Miq.
- in the family Aristolochiaceae

#### **Overview**

Both Radix Cynanchi Paniculati and Herba Asari are listed in the Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2020). According to the *Zhong hua ben cao*, ancient Chinese literatures such as *Ben cao jing ji zhu* and *Xin xiu ben cao* recorded that the Radix Cynanchi Paniculati did look very similar to Herba Asari. As stated in the Chinese Pharmacopoeia, Radix Cynanchi Paniculati has the functions of dispelling wind, resolve dampness, relieving pain and itching, whilst the functions of Herba Asari are releasing exterior and dissipating cold, dispelling wind and relieving pain, open the orifices, warm the lung and resolve fluid retention. As the two Chinese Materia Medica differ in function, they should be used accordingly.

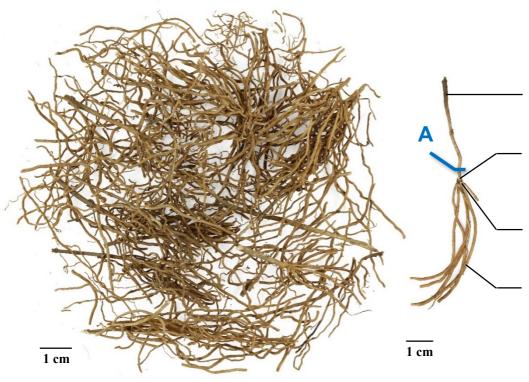
#### Note:

- \* Its name in Chinese Pharmacopoeia (2020) is "Cynanchi Paniculati Radix et Rhizoma".
- # Its name in the Chinese Pharmacopoeia (2020) is "Asari Radix et Rhizoma".
- The medicinal part recorded in Schedule 2 of the Chinese Medicine Ordinance is any or whole part; while the medicinal part in the Chinese Pharmacopoeia only includes the root and rhizome. Since only the subterraneous part is considered in current study, the term "subterraneous part" is listed to avoid confusion.

## **Key identification features**

## Macroscopic features of Radix Cynanchi Paniculati decoction pieces





Some rhizomes with cylindrical remnant of the stem at the apex

Rhizome is vertically grown, irregular-cylindrical and has light brownish-yellow or brown surface

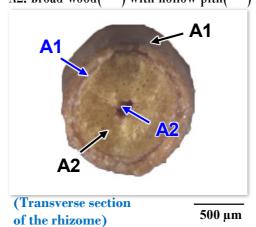
Rhizome has node with numerous roots inserted at the surroundings

Cylindrical and curved root. Light yellowish-white, light brownishyellow or brown surface with fine longitudinal wrinkles, and some are observed with tenuous rootlets adhered

**◆** With aroma

## Micro-morphological features

A1: Brown narrow bark(→) with light brown cambium ring(→)
A2: Broad wood(→) with hollow pith(→)



# Macroscopic features of Herba Asari (subterraneous part) decoction pieces





Aerial stem is removed

Rhizome is horizontally grown, irregular-cylindrical and has greyish-brown surface. Some have short branches observable

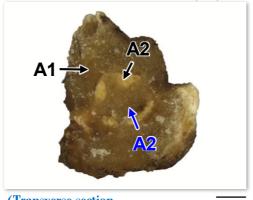
Annulate node is observable sometimes and has root densely grown on

Cylindrical and curved root. Greyishyellow or yellowish-white surface is smooth or has longitudinal wrinkles. Some are observed with tenuous rootlets adhered

◆ Pungent odour with aroma

## Micro-morphological features

A1: Brown or light yellowish-brown and broad bark(→) with indistinct cambium ring A2: Narrow wood(→) is separated into several bundles. Pith(→) is brown or light yellowish-brown



(Transverse section of the rhizome)

500 μm

## Microscopic feature comparison of Radix Cynanchi Paniculati decoction pieces and Herba Asari (subterraneous part) decoction pieces powder



	Radix Cynanchi Paniculati decoction pieces	Herba Asari (subterraneous part) decoction pieces
Crystal of calcium oxalate	Cluster of calcium oxalate presents in cells or scattered; polychromatic under the polarized light microscope	Crystal sand of calcium oxalate extremely small, usually presents in cells; bright white under the polarized light microscope
Fibre	(1)  With 2 types. Xylem fibres(1) are frequently found, colourless or light yellow, mostly in bundles, with the thick wall, pits, broad and distinct lumen; bright white under the polarized light microscope. Pericyclic fibres(2) are occasionally found, colourless, slender, mostly broken, with narrow lumen; polychromatic under the polarized light microscope	Barely found or occasionally found, colourless or light yellow, wall thick; bright white under the polarized light microscope
Stone cell	Absent	Observable or barely found, mostly singly scattered, appears subsquare, sub-rectangular or polygonal, with distinct pits; bright white under the polarized light microscope

## Summary

Major differences in the features between Radix Cynanchi Paniculati decoction pieces and Herba Asari (subterraneous part) decoction pieces:

		Radix Cynanchi Paniculati decoction pieces	Herba Asari (subterraneous part) decoction pieces
Macroscopic and micro-morphological features	Appearance of the rhizome	Vertically grown	Horizontally grown
Macrose micro-morphol	Cut surface of the rhizome	Narrow bark, broad wood and hollow pith	Broad bark, narrow wood is separated into several bundles, with pith
ures	Crystal of calcium oxalate	Mainly cluster of calcium oxalate	Mainly crystal sand of calcium oxalate
Microscopic features	Fibre	Two types are frequently found	One type is barely found or occasionally found
Micr	Stone cell	Absent	Present

For more information, please refer to the <u>Hong Kong Chinese Materia Medica</u> Standards website:



Cynanchi Paniculati Radix et Rhizoma - Hong Kong Chinese Materia Medica Standards (Volume 6)

#### **Additional information**

## Photo of crude Radix Cynanchi Paniculati



Irregular cylindrical rhizome. With node, 0.5-3.5 cm long, 2-4 mm in diameter. Some with fine cylindrical remnant of stem at the apex, about 2 cm long, 1-2 mm in diameter and hollow fracture

Numerous roots are inserted at the surrounding of the node of the rhizome

Slender, cylindrical and curved root, 10-16 cm long, 1-1.5 mm in diameter. Light yellowish-white to light brownish-yellow or brown surface with fine longitudinal wrinkles and tenuous rootlets

Starchy fracture with whitish or yellowishwhite bark, light brown cambium ring and small wood

- Fragile, easily broken
- With aroma and slightly pungent and cool taste

 $\label{lem:condition} \begin{tabular}{ll} Government Chinese Medicines Testing Institute \\ Department of Health \\ \end{tabular}$ 

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