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

Rhizoma Cimicifugae versus Serratulae Chinensis Radix





Source

*Rhizoma Cimicifugae

is the dried rhizome of
Cimicifuga heracleifolia Kom.,
C. dahurica (Turcz.) Maxim. or
C. foetida L.

in the family Ranunculaceae

Serratulae Chinensis Radix

is the dried root of Serratula chinensis S. Moore in the family Compositae

Overview

The Chinese Materia Medica (CMM) Rhizoma Cimicifugae is listed in both the Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2020), while Serratulae Chinensis Radix is only endorsed in *Chinese Materia Medica Standards in Guangdong Province*. According to the *Zhong hua ben cao*, there are 3 sources of Rhizoma Cimicifugae and are sold nationwide or in the southwest and northwest regions under the customary names of "*Guan sheng ma*", "*Bei sheng ma*" and "*Chuan sheng ma*" correspondingly. Serratulae Chinensis Radix is produced in Guangdong and Fujian areas and is often used by the locals. According to the *Guang dong zhong yao zhi*, Serratulae Chinensis Radix is customarily used as Rhizoma Cimicifugae as medicines in Guangdong. As the source of family and genus, chemical compositions and pharmacological actions of the two CMM are different. Hence, Serratulae Chinensis Radix could not be used as a substitute for Rhizoma Cimicifugae.

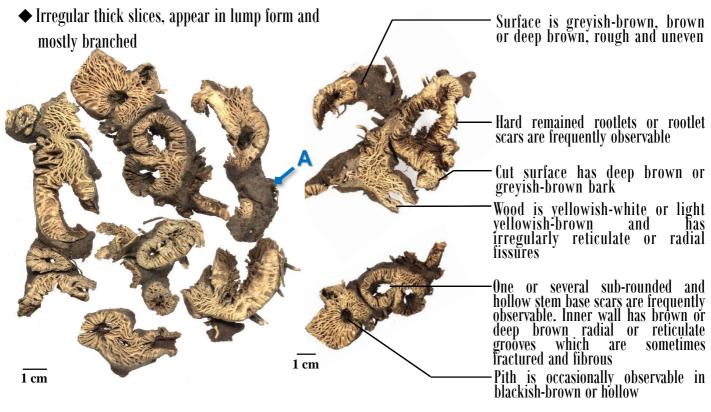
Note:

^{*}Its name in the Chinese Pharmacopoeia (2020) is "Cimicifugae Rhizoma".

Key identification features

Macroscopic features of Rhizoma Cimicifugae decoction pieces





◆ Light, hard and not easily broken

Micro-morphological feature

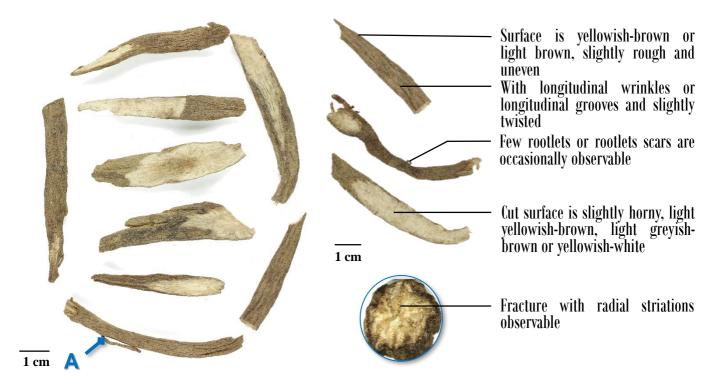
A: Remained rootlets(->) and rootlet scars(->) are frequently observable. Rootlets are relatively thick



Macroscopic features of Serratulae Chinensis Radix decoction pieces



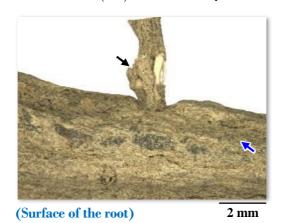
◆ Irregular slices, appear in strip-shaped or fusiform, slightly flat and curved



◆ Hard and fragile, easily broken

Micro-morphological feature

A: Remained rootlets(->) and rootlet scars(->) are occasionally observable. Rootlets are relatively thin



Microscopic feature comparison of Rhizoma Cimicifugae decoction pieces and Serratulae Chinensis Radix decoction pieces powder



	Rhizoma Cimicifugae decoction pieces	Serratulae Chinensis Radix decoction pieces
Inulin#	Absent	Frequently found, irregular or slightly fan-shaped, some with radial striations observable on the surface
Resin canal	Absent	Mostly broken, contains yellowish-brown secretion
Protective tissue	Metaderm cell yellowish-brown, appears rectangular or sub- polygonal in surface view, some wall papillarily protruded inward	Cork cell yellowish-brown or brown, appears sub-square or sub-polygonal in surface view

Note:

50 µm

^{*}Prepare the slide by adding chloral hydrate test solution without heating and observe.

Summary

Major differences in the features between Rhizoma Cimicifugae decoction pieces and Serratulae Chinensis Radix decoction pieces:

		Rhizoma Cimicifugae decoction pieces	Serratulae Chinensis Radix decoction pieces
Macroscopic and micro-morphological features	Shape	Irregular thick slices, appear in lump form and mostly branched	Irregular slices, appear in strip-shaped or fusiform, slightly flat and curved
	Cut surface	Wood with irregularly reticulate or radial fissures; hollow stem base scars are frequently observable	Slightly horny; without stem base scars
	Surface	Remained rootlets and rootlets scars are frequently observable. Rootlets are relatively thick	Remained rootlets and rootlets scars are occasionally observable. Rootlets are relatively thin
Microscopic features	Inulin	Absent	Present
	Resin canal	Absent	Present
	Protective tissue	Metaderm cell	Cork cell

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



Rhizoma Cimicifugae - Hong Kong Chinese Materia Medica Standards (Volume 2)

Additional information

Photo of crude Rhizoma Cimicifugae



Irregular long masses highly branched and appear in nodular form, 10-20 cm long, 2-4 cm in diameter

Surface is blackish-brown or brown, rough and uneven and has hard and small rootlets remained

Fracture is uneven, fissured, fibrous and yellowish-green or light yellowish-white

With several rounded and hollow stem base scars, inner wall of the hole has reticulate grooves; lower part is uneven and has rootlet scars

- ◆ Light, hard and not easily broken
- Slight odour and slightly bitter and astringent taste

Photo of crude Serratulae Chinensis Radix



Long fusiform and slightly twisted. Tapered at both ends and slightly thick in the centre, 10-20 cm long, 0.5-1 cm in diameter

Surface is greyish-yellow, brown or blackishbrown and has thick longitudinal wrinkles and a few rootlet scars

Fracture is dark blue or greyish-yellow and appears slightly horny

- ◆ Hard and fragile, easily broken
- Characteristic odour, weak and slightly bitter and astringent taste

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