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

Herba Cirsii Japonici (aerial part) versus Herba Cirsii





Source

*Herba Cirsii Japonici^(aerial part)

is the dried aerial part of Cirsium japonicum DC. in the family Compositae

Herba Cirsii#

is the dried aerial part of Cirsium setosum (Willd.) MB. in the family Compositae

Overview

Herba Cirsii Japonici and Herba Cirsii are both recorded in Schedule 2 of the Chinese Medicine Ordinance and Chinese Pharmacopoeia (2020). According to the research by Species Systematization and Quality Evaluation of Commonly Used Chinese traditional Drugs, Herba Cirsii has been listed under Herba Cirsii Japonici in ancient Materia Medica records and was only separately listed since the Ben cao pin hui jing yao of the Ming Dynasty. Despite differences in the plant source of Herba Cirsii Japonici and Herba Cirsii since ancient times, when compared by ancient Materia Medica, it was mentioned that these two Chinese Materia Medica (CMM) were similar and were distinguished by their plant size. For example, it was listed in the Ming dynasty's Ben cao pin hui jing yao that "the stems and leaves of Herba Cirsii Japonici and Herba Cirsii are similar...compared to Herba Cirsii but larger". According to the Chinese Pharmacopoeia, both CMM can cool the blood to stop bleeding, dissipate stasis, detoxify and disperse abscesses; however, Zhong hua ben cao had mentioned that the efficacy of Herba Cirsii in dispersing abscesses is weak, therefore, these two CMM should be used accordingly.

Note:

^{*}Its name in Chinese Pharmacopoeia (2020) is "Cirsii Japonici Herba".

[^]The medicinal part recorded in Schedule 2 of the Chinese Medicine Ordinance are aerial part or root; while the medicinal part in the Chinese Pharmacopoeia only includes the aerial part. In the current study, only the aerial part is considered for direct comparison between Herba Cirsii Japonici and Herba Cirsii. To avoid confusion, the term "aerial part" is listed for distinction

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

Key identification features

Macroscopic features of Herba Cirsii Japonici (aerial part)





Capitulum is mostly broken. Intact capitulum appears spherical or elliptical. Campanulate involucre has about 6 layers of lanceolate involucral bract arranged in imbricate

Greyish-white feathery pappus has purple or purplish-red tubular flowers observable at some inflorescences

Leaf is shriveled and mostly broken. Relatively intact leaf can be observed with pinnatipartite or nearly divided margin when flattened. greyish-white With pubescences on both sides

With spines of uneven length at the margin

Cylindrical stem is relatively thick. Light green or light brownish-yellow surface has longitudinal ridges and is covered with white pubescences

Micro-morphological features

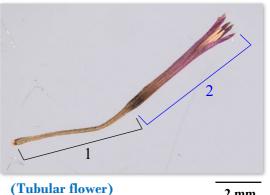
1 cm

A: Relatively narrow and long. Apex has a darker colour(→) and appears soft spine-like(→) at some of the tips

1 cm



(Involucral bract) 2 mm B: Corolla tube(1) is around the same length or slightly shorter than the lobe(2)



2 mm

Macroscopic features of Herba Cirsii decoction pieces





Capitulum is mostly broken. Intact capitulum appears spherical or elliptical. Campanulate involucre has about 6 layers of sub-triangular involucral bract arranged in imbricate

Greyish-white feathery pappus with deep purple tubular flowers observable at some inflorescences

Leaf is shriveled and mostly broken. Relatively intact leaf can be observed with entire or parted margin when flattened. With greyish-white pubescences on both sides

With spines of uneven length at the margin Cylindrical stem is relatively thin. Greyishgreen or light brownish-yellow surface has longitudinal ridges and is covered with white pubescences

Micro-morphological features

A: Relatively short and thick. Apex has a darker colour(->-)



(Involucral bract)

2 mm

B: Corolla tube(1) is significantly longer than the lobe(2)

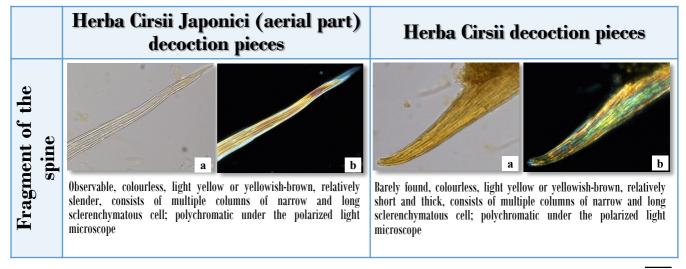


(Tubular flower)

2 mm

Microscopic feature comparison of Herba Cirsii Japonici (aerial part) decoction pieces and Herba Cirsii decoction pieces powder^{\$}





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

50 µm

Note:

[§] Features of Herba Cirsii Japonici (aerial part) decoction pieces and Herba Cirsii decoction pieces powder are very similar, only small differences in the size of particular features are observable.

Summary

Major differences in the features between Herba Cirsii Japonici (aerial part) decoction pieces and Herba Cirsii decoction pieces:

		Herba Cirsii Japonici (aerial part) decoction pieces	Herba Cirsii decoction pieces
Macroscopic and micro-morphological features	Leaf margin	Pinnatipartite or nearly divided	Entire or parted
	Involucral bract	Relatively narrow and long. Appears soft spine-like at some of the tips	Relatively short and thick
	Tubular flower	Corolla tube is around the same length or slightly shorter than the lobe	Corolla tube is significantly longer than the lobe
Microscopic feature	Fragment of the spine	Observable, relatively slender	Barely found, relatively short and thick

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



Cirsii Japonici Herba - Hong Kong Chinese Materia Medica Standards (Volume 7) Cirsii Herba - Hong Kong Chinese Materia Medica Standards (Volume 6)

Additional information

Photo of crude Herba Cirsii Japonici (aerial part)



Terminal capitulum is spherical or elliptical and has yellowish-brown involucre and feathery greyish-white pappus

Leaf is shriveled and mostly broken. Intact leaf appears oblanceolate or obovate-elliptical and pinnatipartite when flattened. With spines of uneven length at the margin

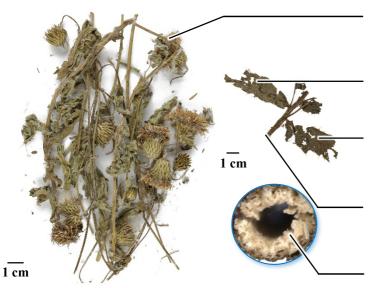
Upper surface is greyish-green or yellowish-brown and the colour is lighter at the lower surface. With greyishwhite filiform hairs on both sides

Cylindrical stem with base up to 1.2 cm in diameter; greenish-brown or brown surface has several longitudinal ridges and is covered with white filiform hairs

Fracture is greyish-white with loose or hollow pith

► Slight odour and weak taste

Photo of crude Herba Cirsii



Capitulum is solitary or several in terminal; campanulate involucre has 5-8 layers of yellowish-green involucral bract; purplish-red flower

Alternating leaves; without stalks or with short stalk; blade is shriveled or broken. Intact blade appears long elliptical or oblong-lanceolate when flattened, 3-12 cm long, 0.5-3 cm wide

Entire or serrulate to pinnatipartite margin with spine at the tip of the serrae; greenish-brown at the upper surface and greyish-green at the lower surface. With white pubescences on both sides

Stem is cylindrical and some have branching at the upper part, 5-30 cm long, 0.2-0.5 cm in diameter; greyish-green or purplish surface with longitudinal ridges and white pubescences

Fragile, easily broken, hollow in fracture

Slight odour and slightly bitter taste

Government Chinese Medicines Testing Institute Department of Health

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