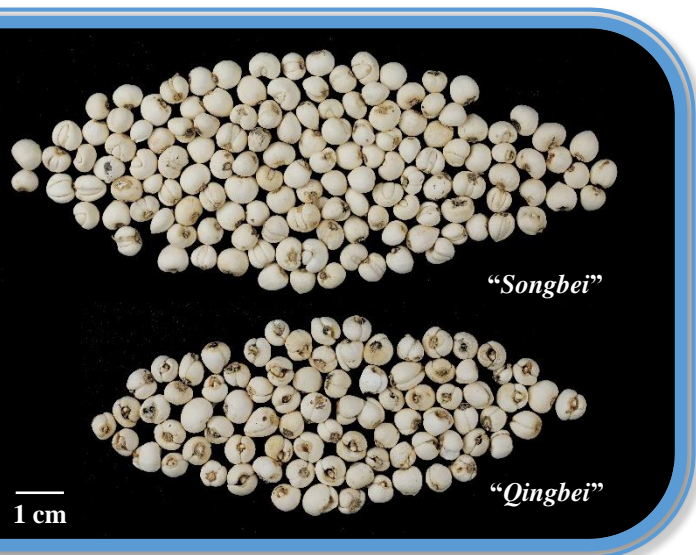


Bulbus Fritillariae Cirrhosae versus Bulbus Fritillariae Ussuriensis



Source

Bulbus Fritillariae Cirrhosae
is the dried bulb of
Fritillaria cirrhosa D. Don,
F. unibracteata Hsiao et K.C. Hsia,
F. przewalskii Maxim or
F. delavayi Franch*
in the family Liliaceae

Bulbus Fritillariae Ussuriensis[#]
is the dried bulb of
Fritillaria ussuriensis Maxim.
in the family Liliaceae

Overview

Bulbus Fritillariae Cirrhosae and Bulbus Fritillariae Ussuriensis are both listed in Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2020). According to the *Authentication of Valuable Chinese Materia Medica*, Bulbus Fritillariae Cirrhosae is predominantly sourced from the wild. Since its supply has long been in shortage, the price remains high, especially for “Songbei” and “Qingbei”. For Bulbus Fritillariae Ussuriensis with a shorter growth period, its appearances are similar to that of “Songbei”, and is often found forging as “Songbei” in the market. As recorded in the Chinese Pharmacopoeia, both Bulbus Fritillariae Cirrhosae and Bulbus Fritillariae Ussuriensis can clear heat and moisten the lung, resolve phlegm and suppress cough. In addition, Bulbus Fritillariae Cirrhosae can also disperse abscesses and nodules. Despite similar appearance, there are variation in the functions between these two Chinese Materia Medica, thus they should be used accordingly.

Note:

[^]Its name in Chinese Pharmacopoeia (2020) is “Fritillariae Cirrhosae Bulbus”.

[#]Its name in Chinese Pharmacopoeia (2020) is “Fritillariae Ussuriensis Bulbus”.

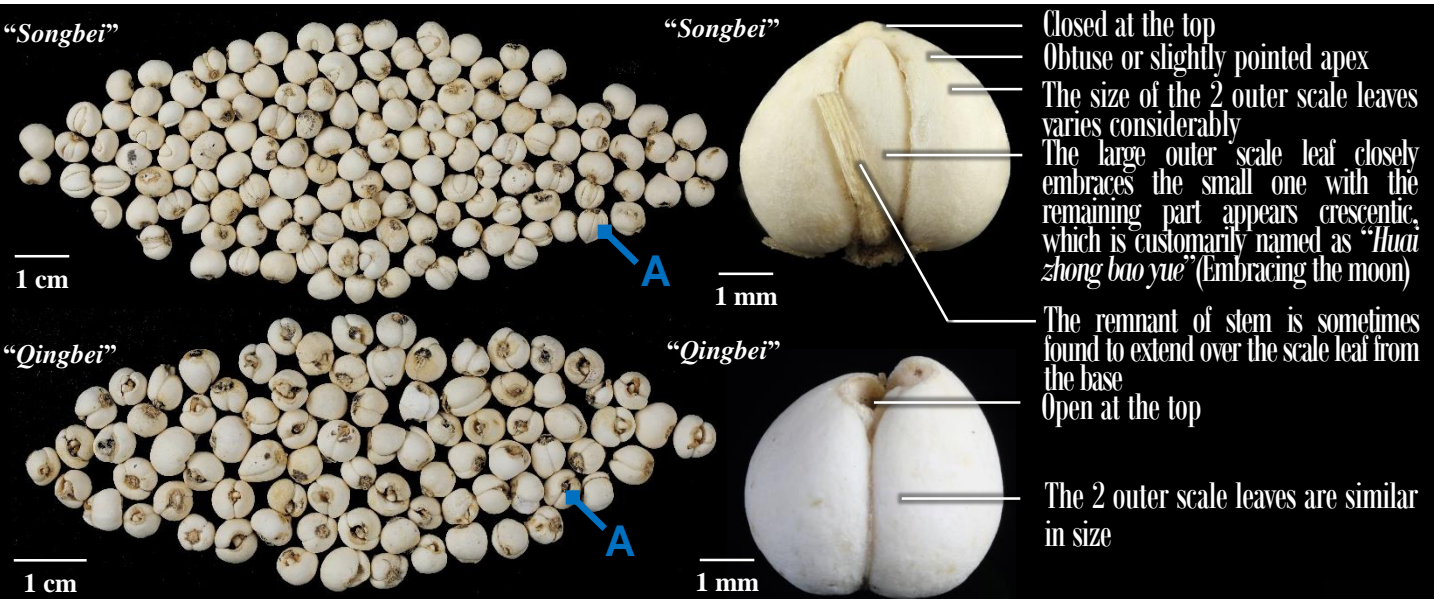
*According to the Chinese Pharmacopoeia (2020), Bulbus Fritillariae Cirrhosae is customarily named as “Songbei”, “Qingbei”, “Lubei” and “Zaipeipin”, based on the variations in macroscopic features. Only “Songbei” and “Qingbei” are included in this study as currently they are the most frequently found Bulbus Fritillariae Cirrhosae in the market.

Key identification features

Macroscopic features of Bulbus Fritillariae Cirrhosae



- ◆ Sub-conical or sub-spherical
- ◆ Whitish



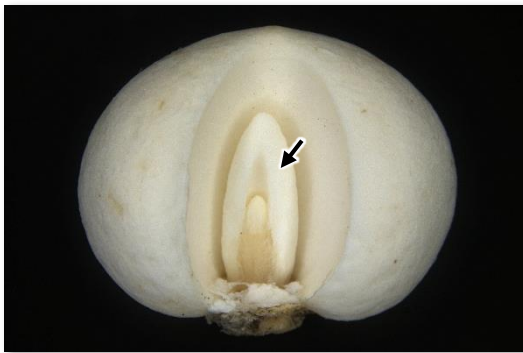
Closed at the top
 Obtuse or slightly pointed apex
 The size of the 2 outer scale leaves varies considerably
 The large outer scale leaf closely embraces the small one with the remaining part appears crescentic, which is customarily named as “*Huai zhong bao yue*” (Embracing the moon)
 The remnant of stem is sometimes found to extend over the scale leaf from the base
 Open at the top
 The 2 outer scale leaves are similar in size

- ◆ Slight odour and slightly bitter taste

Micro-morphological features

“*Songbei*”

A: With 1-2 small scale leaves(→) observable inside and without remnant of stem in the centre



(Front view after removing the outer small scale leaf)

2 mm

“*Qingbei*”

A: With 2-3 small scale leaves(→) and remnant of stem(→) observable inside



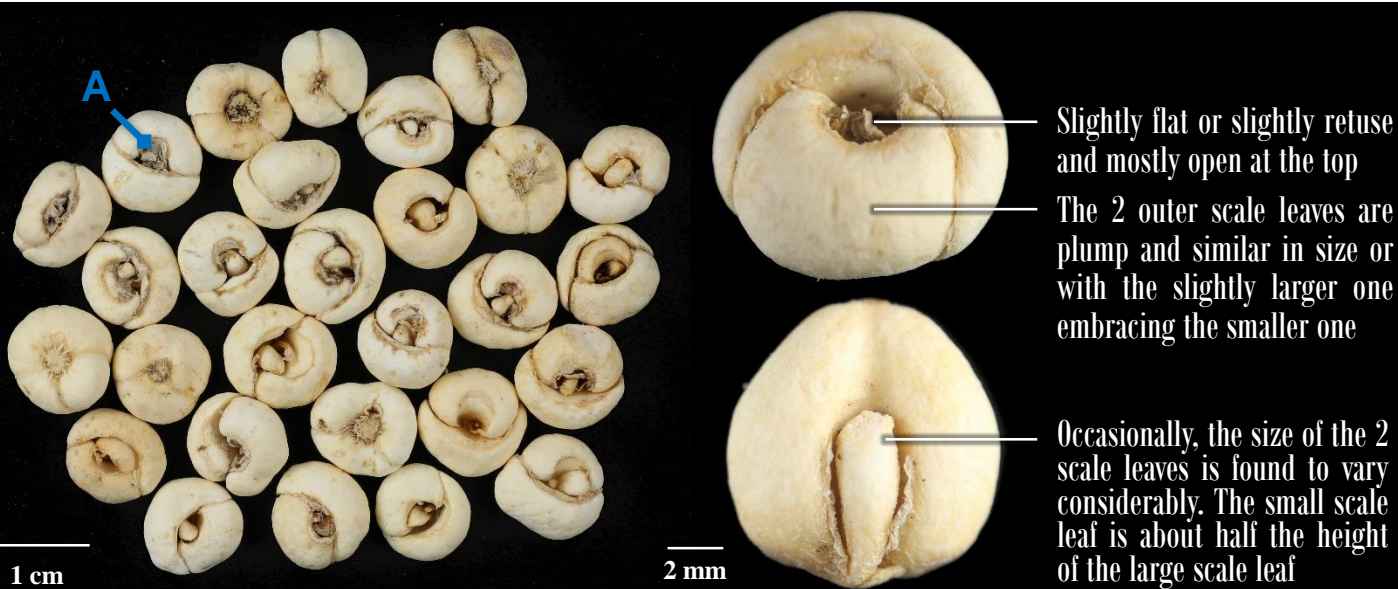
(Front view after removing the outer small scale leaf)

2 mm

Macroscopic features of Bulbus Fritillariae Ussuriensis



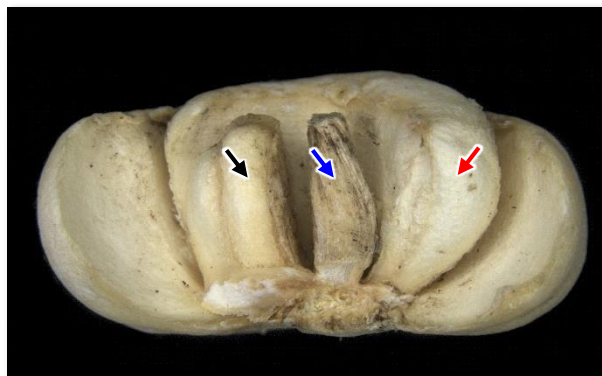
- ◆ Oblate, occasionally sub-conical
- ◆ Light yellowish-white or yellowish-white



- ◆ Slight odour and bitter taste

Micro-morphological features

A: With 2-3 small scale leaves(→) and remnant of stem(→) observable inside. One of the scale leaves is sometimes larger to embrace others(→)

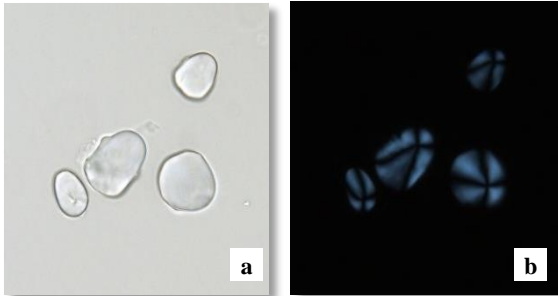
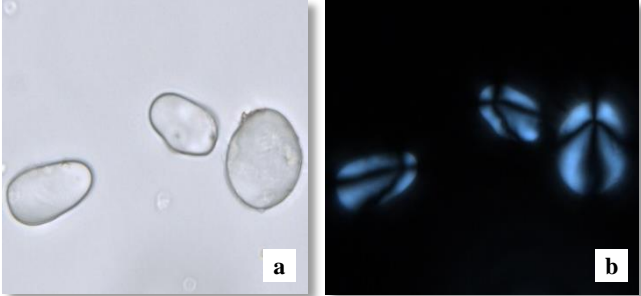
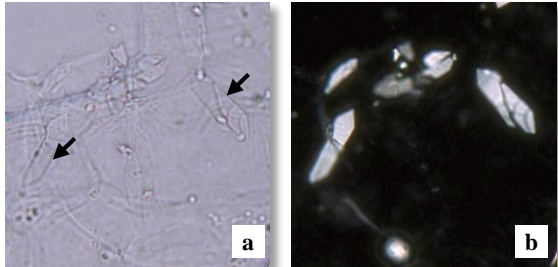
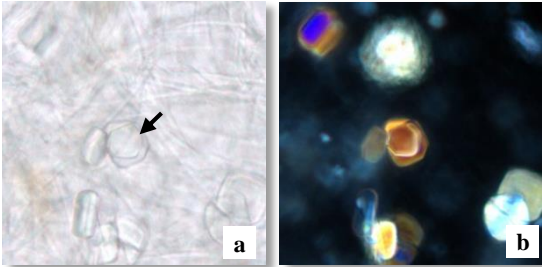


(Front view after removing the outer small scale leaf)

2 mm

Microscopic feature comparison of Bulbus Fritillariae Cirrhosae and Bulbus Fritillariae Ussuriensis powder



	Bulbus Fritillariae Cirrhosae	Bulbus Fritillariae Ussuriensis
Starch granule	 <p>Numerous, ovate, oblong or sub-rounded, some margin is uneven or slightly branched. Short slit-shaped, dotted, "Y"-shaped or "U"-shaped hilum; black and cruciate-shaped under the polarized light microscope</p>	 <p>Numerous, sub-triangular or ovate. Dotted hilum; black and cruciate-shaped under the polarized light microscope</p>
Crystal of calcium oxalate	 <p>Crystal of calcium oxalate (→) is barely found, polygonal; bright white under the polarized light microscope</p>	 <p>Crystal of calcium oxalate (→) is barely found, polygonal, rounded or oblong; bright white or polychromatic 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 Bulbus Fritillariae Cirrhosae and Bulbus Fritillariae Ussuriensis:

	Bulbus Fritillariae Cirrhosae		Bulbus Fritillariae Ussuriensis	
	“Songbei”	“Qingbei”		
Macroscopic and micro-morphological features	Outer scale leaf	The large outer scale leaf closely embraces the small one with the remaining part appears crescentic, thus, is customarily named as “ <i>Huai zhong bao yue</i> ” (Embracing the moon)	Similar in size	Plump and similar in size or with the slightly larger one embracing the smaller one
	Inner small scale leaf	1-2	2-3	2-3. One of them is sometimes larger to embrace others
	Remnant of stem	The remnant of stem is sometimes found to extend over the scale leaf from the base	The remnant of stem is observable after removing the outer small scale leaf	The remnant of stem is observable after removing the outer small scale leaf
Microscopic features	Starch granule	Ovate, oblong or sub-rounded		Sub-triangular or ovate
	Crystal of calcium oxalate	Polygonal; bright white under the polarized light microscope		Polygonal, rounded or oblong; bright white or polychromatic under the polarized light microscope

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



Bulbus Fritillariae Cirrhosae - Hong Kong Chinese Materia Medica Standards (Volume 7)

Bulbus Fritillariae Ussuriensis - Hong Kong Chinese Materia Medica Standards (Volume 3)



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