

# Stigma Croci versus Carthami Flos



## Source

**\*Stigma Croci**  
is the dried stigma of  
*Crocus sativus* L.  
in the family Iridaceae

**Carthami Flos**  
is the dried flower of  
*Carthamus tinctorius* L.  
in the family Compositae

## Overview

Both Stigma Croci and Carthami Flos are Chinese Materia Medica (CMM) listed in the Chinese Pharmacopoeia (2020). In addition, Stigma Croci is included in Schedule 2 of the Chinese Medicine Ordinance. According to the *Modern Chinese Materia Medica* and *Zhong hua ben cao*, Stigma Croci originates from Spain and is also known as “*Fan hong hua*”. Currently, the major production areas are situated in Spain and Iran. On the other hand, the growing of Carthami Flos was introduced into China back in the Han Dynasty, with Xinjiang currently having the largest production. According to the Chinese Pharmacopoeia, Stigma Croci can be used to activate blood and to resolve stasis, to cool blood and detoxify, and to relieve depression and tranquilize. On the other hand, Carthami Flos can activate blood to unblock the meridian, and to dissipate stasis to relieve pain. Although the names of these two CMM are similar, the price difference is significant. Moreover, the medicinal effects are not identical. They should be used accordingly.

Note:

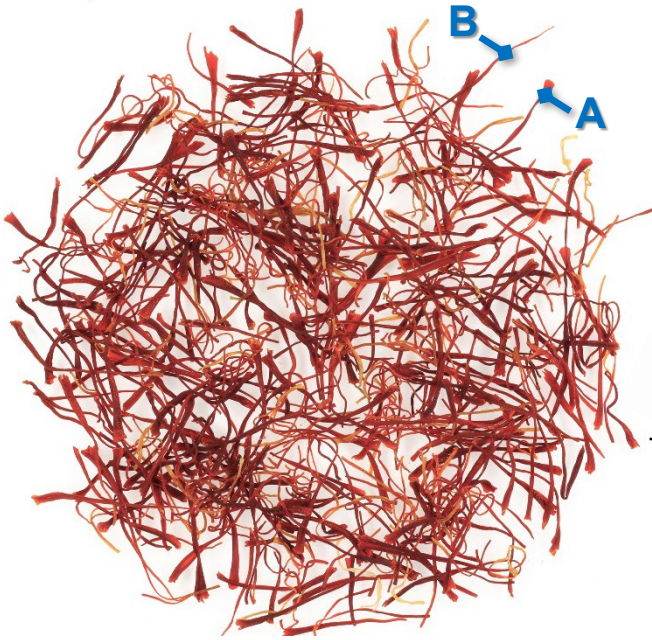
\*Its name in the Chinese Pharmacopoeia (2020) is “Crocus Stigma”.

## Key identification features

### Macroscopic features of Stigma Croci



◆ Linear, dark red



1 cm

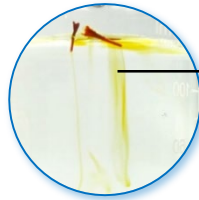
◆ Fragile, easily broken



5 mm

The upper part of stigma is relatively broad and slightly flat, with irregular-dentate margin at the apex

Some with remained yellow style; hence showing the style is 3-branched



When soaked in water, orange-yellow pigment can be seen descending downward in a straight line with relatively slow diffusion

### Micro-morphological features

A1: Curly, with irregular-dentate margin at the apex

A2: Tubular or tubercular protuberances(→) are sometimes observable on the surface of the margin at the apex, frequently adhered with pollen grains(→)

B: Slightly rough surface, sometimes adhered with pollen grains(→)



(Upper part of stigma)

0.5 mm



(Lower part of stigma)

0.5 mm



## Macroscopic features of Carthami Flos

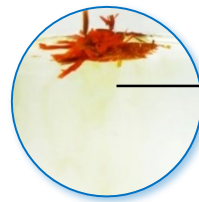
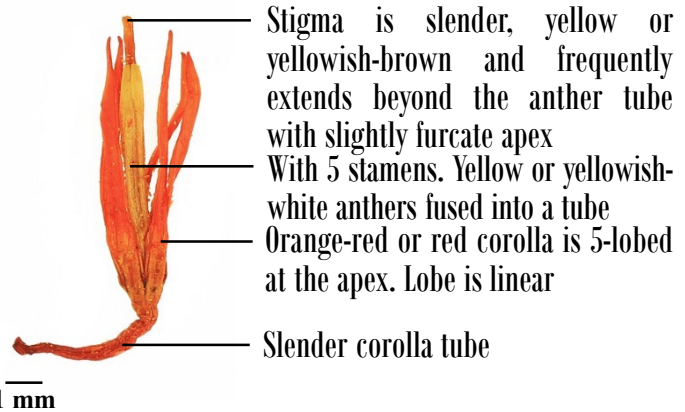


◆ Tubular flowers without the ovaries



1 cm

◆ Soft



When soaked in water, orange-yellow pigment diffuses relatively fast and does not descend downward in a straight line

### Micro-morphological features

A1: Bifid apex

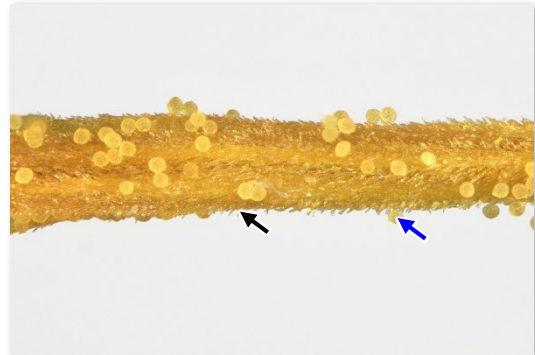
A2: With sparse non-glandular hair-like protuberances(→) on the surface, frequently adhered with pollen grains(→)



(Upper part of stigma)

200 µm

B: With dense non-glandular hair-like protuberances(→) on the surface, frequently adhered with pollen grains(→)



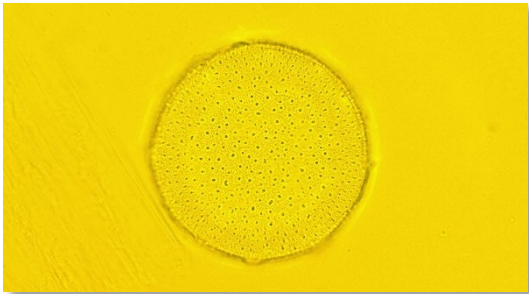
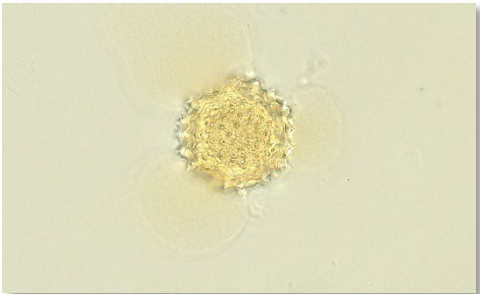
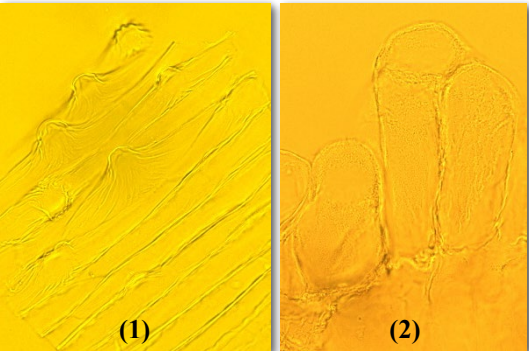
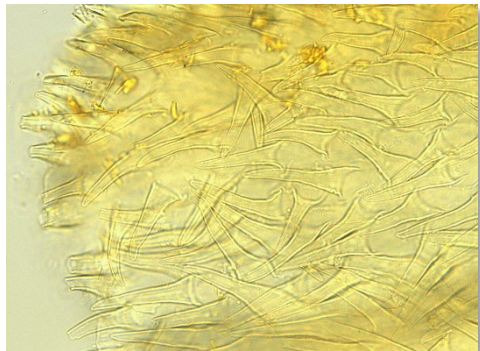


(Lower part of stigma)

200 µm

## Microscopic feature comparison of Stigma Croci and Carthami Flos powder



	Stigma Croci	Carthami Flos
Secretory canal	 Absent	 Tubular, filled with yellowish-brown or reddish-brown secretions
Pollen grain	 Barely found, sub-spherical, relatively large. Exine with fine spine-like protuberances	 Elliptical or spherical, relatively small, with 3 apertures. Exine with spine-like protuberances
Epidermal cell of stigma	 Long strip-shaped in surface view, some with papillary-protruded outer wall(1). Epidermal cell of the apex barely found, with tubularly-protruded outer wall(2)	 Differentiated into unicellular non-glandular hair-like

50 μm

## Summary

Major differences in the features between Stigma Croci and Carthami Flos:

		Stigma Croci	Carthami Flos
Macroscopic and micro-morphological features	<b>Appearance</b>	Linear stigmas	Tubular flowers without the ovaries
	<b>Testing with water</b>	Orange-yellow pigment can be seen descending downward in a straight line with relatively slow diffusion	Orange-yellow pigment diffuses relatively fast and does not descend downward in a straight line
	<b>Stigma</b>	With irregular-dentate margin at the apex	Bifid apex
Microscopic features	<b>Secretory canal</b>	Absent	Present
	<b>Pollen grain</b>	Barely found, relatively large	Relatively small
	<b>Epidermal cell of stigma</b>	Some with papillary-protruded outer wall, epidermal cell of the apex with tubularly-protruded outer wall	Differentiated into unicellular non-glandular hair-like

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



Croci Stigma - Hong Kong Chinese Materia Medica Standards (Volume 5)

Carthami Flos - Hong Kong Chinese Materia Medica Standards (Volume 6)



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