Both Herba Lysimachiae and Herba Desmodii Styracifolii are Chinese Materia Medica (CMM) listed under Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2015 Edition). According to the “Species Systematization and Quality Evaluation of Commonly Used Chinese Traditional Drugs”, various species of “Jin qian cao” are used across China for treating lithiasis and hepatobiliary diseases. Among these species, Lysimachia christinae (in the family Primulaceae), mainly produced in Sichuan, is called Herba Lysimachiae. Whereas another species Desmodium styracifolium (in the family Leguminosae), mainly produced in Guangdong and Guangxi, is known as Herba Desmodii Styracifolii. According to the Chinese Pharmacopoeia, these two CMM exert functions like dampness-draining and anti-icteric, as well as promoting diuresis to relieve strangury. Herba lysimachiae can, in addition, detoxify and disperse swelling. As differences exist between the functions of these two CMM, they should be used differently during clinical application.

Note:
Herba Lysimachiae vs Herba Desmodii Styracifolii

Key identification features

Macroscopic features of Herba Lysimachiae decoction pieces

- Irregular section

Stem surface with longitudinal wrinkles

Solitary and axillary yellowish-brown flower is barely found or absent

Opposite simple leaf, appears broad ovate or cordate when flattened

Spherical capsule with black and short stripes on the surface is barely found or absent

Black or brown stripes become visible under light after soaking the leaf in water

Micro-morphological features

A1: With light brownish-yellow to reddish-brown small glandular dots
A2: With glandular dot scars remained

B1: With small glandular dots
B2: With non-glandular hairs

C: With brownish-yellow to reddish-brown dotted secretory canals in the bark
Macrosopic features of Herba Desmodii Styracifolii decoction pieces

- Irregular section

Alternate pinnate ternate compound leaf, mostly cut into pieces
Leaflet sub-rounded, retuse at the apex, cordate or obtuse at the base
With 1 pair of stipule, lanceolate
Leaflet with glabrous upper surface
Lower surface with long greyish-white villi
Stem surface is densely covered with short yellow pubescences
Some compound leaves are reduced as single leaflets

Micro-morphological features

A: With long greyish-white villi
B: With short pubescences
C: Without dotted secretory canals

(A: Lower surface of the leaf 500 μm)
(B: Surface of the stem 500 μm)
(C: Transverse section of the stem 200 μm)
## Microscopic feature comparison of *Herba Lysimachiae* and *Herba Desmodii Styracifolii* decoction pieces powder

<table>
<thead>
<tr>
<th></th>
<th><em>Herba Lysimachiae</em> decoction pieces</th>
<th><em>Herba Desmodii Styracifolii</em> decoction pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glandular hair</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yellowish-brown to reddish-brown, with rounded or elliptical unicellular head, stalk consists of 1 to 2 cells</td>
<td>Mostly colourless, consists of several to dozens of cells, with slender head and large base</td>
</tr>
<tr>
<td><strong>Non-glandular hair</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absent or occasionally found, consists of several cells</td>
<td>Numerous, mostly consists of 3 cells, with several short basal cells and one long apical cell. Two types can be found: i) Acrorse, with acuminate apex, always with warty protuberances on the surface; ii) With hooked apex and smooth surface</td>
</tr>
<tr>
<td><strong>Crystal fibre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absent</td>
<td>Mostly in bundles, crystal fibre is formed as a result of fibres surrounded by parenchymatous cells which usually contain prisms of calcium oxalate; under the polarized light microscope, fibre appears bright white or polychromatic, while prism of calcium oxalate appears polychromatic</td>
</tr>
</tbody>
</table>

*a. features under bright field; b. features under polarized light*
## Summary

Major differences in the features between Herba Lysimachiae and Herba Desmodii Styracifolii decoction pieces:

<table>
<thead>
<tr>
<th>Macroscopic and micro-morphological Features</th>
<th>Herba Lysimachiae decoction pieces</th>
<th>Herba Desmodii Styracifolii decoction pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phyllotaxis</strong></td>
<td>Opposite simple leaf</td>
<td>Alternate compound leaf</td>
</tr>
<tr>
<td><strong>Lower surface of the leaf</strong></td>
<td>With small glandular dots</td>
<td>Densely covered with long villi</td>
</tr>
<tr>
<td><strong>Result of water test</strong></td>
<td>Black or brown stripes become visible on the leaf under light</td>
<td>No stripes on the leaf under light</td>
</tr>
<tr>
<td><strong>Glandular hair</strong></td>
<td>With unicellular head, and stalk consists of 1 to 2 cells</td>
<td>Consists of several to dozens of cells</td>
</tr>
<tr>
<td><strong>Non-glandular hair</strong></td>
<td>Absent or occasionally found</td>
<td>Numerous</td>
</tr>
<tr>
<td><strong>Crystal fibre</strong></td>
<td>Absent</td>
<td>Present</td>
</tr>
</tbody>
</table>

For more information, please refer to the [Hong Kong Chinese Materia Medica Standards website](#):
**Herba Lysimachiae vs Herba Desmodii Styracifolii**

### Additional information

**Photo of crude Herba Lysimachiae**

- Usually twisted into masses, glabrous or sparsely pubescent
- Twisted stem, brown or dark brownish-red surface, with longitudinal striations; stem node of the lower part with rootlets sometimes, solid fracture
- Opposite leaf, mostly shriveled, appears broad ovate or cordate when flattened, 1-4 cm long, 1-5 cm wide, with retuse base and entire margin; greyish-green or brown upper surface, lower surface with relatively light colour, midrib is distinctly protruding
- After soaking in water, black or brown stripes become visible under light
  - Some with solitary and axillary yellow flowers, with long petioles. Capsule spherical
  - Slight odour and weak taste

**Photo of crude Herba Desmodii Styracifolii**

- Cylindrical stem, up to 1 m long, densely covered with yellow and spreading short pubescences. Slightly fragile, with pith in the centre of the fracture
- Petiole 1-2 cm long; with 1 pair of stipule, lanceolate, about 0.8 cm long
- Alternate leaf, leaflets in 1 or 3, rounded or oblong, retuse at the apex, cordate or obtuse at the base, entire margin. Yellowish-green or greyish-green upper surface, glabrous, with adpressed greyish-white villi on the lower surface, pinnate lateral veins
  - Slight aroma and slightly sweetish taste

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