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

Herba Spirodelae versus Herba Pistiae Stratiotis

Source

* Herba Spirodelae is the dried whole part of *Spirode[...](L.) Schleid. in the family Lemnaceae

Herba Pistiae Stratiotis is the dried whole part of *Pistia stratiotes* L. in the family Araceae

Overview

Herba Spirodelae is listed under both Schedule 2 of the Chinese Medicine Ordinance and the Chinese Pharmacopoeia (2015 Edition), while Herba Pistiae Stratiotis is not listed in either. According to “Zhong hua ben cao”, both Herba Spirodelae and Herba Pistiae Stratiotis are aquatic plants. Whilst Herba Spirodelae is widely distributed in the central, southern and northern parts of China, Herba Pistiae Stratiotis is cultivated in all parts of the southern region of the Changjiang river basin. As recorded by the “Guang dong zhong yao zhi”, Herba Pistiae Stratiotis has been commonly used as “Fu ping” in the Guangdong Province for a long history. Chinese Pharmacopoeia states that Herba Spirodelae has effects of diffusing wind-heat, outthrusting rashes, and diuretic. Meanwhile, “Zhong hua ben cao” indicates that Herba Pistiae Stratiotis can be used for dispersing wind to outthrust rashes and can promote diuresis to eliminate dampness, at the same time it is blood-cooling and blood-activating. As these two Chinese Materia Medica function differently at certain extent, they should be identified and used correctly.

Note:
* Its name in the Chinese Pharmacopoeia (2015 Edition) is “Spirodelae Herba”.

Regional custom
Key identification features

Macroscopic features of Herba Spirodelae

- Flat thallus

Upper surface of leaf in light green to greyish-green with entire or slightly curly margin

Ovate leaf

Lower surface of leaf in purplish-green to purplish-brown with a few fibrous roots inserted

Micro-morphological feature

A: Glabrous

(Surface of the leaf)
Macroscopic features of *Herba Pistiae Stratiotis*

- Mostly shriveled to masses

Leaf base is covered with long, dense and brown hairs and remained with fibrous root

Leaf appears obovate-cuneate when flattened

Surface of leaf in light yellow to light green, both sides densely covered with white short fine hairs

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**Micro-morphological feature**

A: With glomerate, dense, white short fine hairs

(Surface of the leaf)
### Microscopic feature comparison of Herba Spirodelae and Herba Pistiae Stratiotis powder

<table>
<thead>
<tr>
<th>Feature</th>
<th>Herba Spirodelae</th>
<th>Herba Pistiae Stratiotis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-glandular hair</strong></td>
<td>Absent</td>
<td>Numerous, multicellular, extremely long, thin wall, mostly broken and shriveled</td>
</tr>
<tr>
<td><strong>Upper epidermal cell</strong></td>
<td>Irregular or long-polygonal in surface view, anticlinal wall slightly wavy, stomata(→) frequently found, anomocytic</td>
<td>Polygonal or sub-polygonal in surface view, anticlinal wall straight, non-glandular hair(→) frequently found, stomata(→) sometimes visible, anomocytic</td>
</tr>
</tbody>
</table>

50 µm
## Summary

Major differences in the features between Herba Spirodelae and Herba Pistiae Stratiotis:

<table>
<thead>
<tr>
<th>Macroscopic and micro-morphological features</th>
<th>Herba Spirodelae</th>
<th>Herba Pistiae Stratiotis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shape</strong></td>
<td>Flat thallus; ovate leaf</td>
<td>Mostly shriveled to masses. Leaf appears obovate-cuneate when flattened</td>
</tr>
<tr>
<td><strong>Size of the leaf</strong></td>
<td>Smaller</td>
<td>Larger</td>
</tr>
<tr>
<td><strong>Surface of the leaf</strong></td>
<td>Glabrous</td>
<td>With glomerate, dense, white short fine hairs</td>
</tr>
<tr>
<td><strong>Non-glandular hair</strong></td>
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