Unprocessed Semen Hyoscyami

versus

Semen Hygrophilae Salicifoliae

Overview

Unprocessed Semen Hyoscyami is a potent/toxic Chinese herbal medicine and is listed under Schedule 1 of the Chinese Medicine Ordinance (CMO). It is also listed in the Chinese Pharmacopoeia (2015 Edition). According to “Zhong hua ben cao”, unprocessed Semen Hyoscyami is mainly produced in Hebei and Henan, and is sold throughout China. The Chinese Pharmacopoeia has indicated that unprocessed Semen Hyoscyami is warm in property and highly toxic. The functions of unprocessed Semen Hyoscyami include: arresting convulsions, relieving pain, calm panting and tranquilizing. On the other hand, Semen Hygrophilae Salicifoliae was not included in the CMO or the Chinese Pharmacopoeia. According to “Zhong hua ben cao”, this CMM is mainly produced in Guangdong and Guangyi, and is marketed locally. Cold in property, Semen Hygrophilae Salicifoliae possesses functions of heat-clearing and detoxicating, as well as dispersing swelling to relieve pain. It is only for external use. As the two CMM differ in the properties and functions, they should be used distinctly and in accordance with their properties.

Source

* Unprocessed Semen Hyoscyami is the unprocessed dried ripe seed of
  * Hyoscyamus niger L.
    in the family Solanaceae

Semen Hygrophilae Salicifoliae is the dried ripe seed of
  * Hygrophila salicifolia (Vahl) Nees
    in the family Acanthaceae

Note:

1 cm 1 cm
Unprocessed Semen Hyoscyami vs Semen Hygrophilae Salicifoliae

Key identification features

Macroscopic features of unprocessed Semen Hyoscyami *

- Flattened sub-reniform or flattened ovate

A: Lustrous, honeycomb-like grid, edge slightly twisted with uneven protuberances
A2: Sunken centre

Appearance remains unchanged after soaking in water, without mucilaginous trichomes observed

Micro-morphological features

A1: Lustrous, honeycomb-like grid, edge slightly twisted with uneven protuberances
A2: Sunken centre

With dotted hilum at the slightly pointed end
Brownish-yellow or greyish-yellow surface, with fine reticulate striation

Note:
*Unprocessed Semen Hyoscyami is a toxic CMM. Handle it with care and avoid tasting during identification.
Macroscopic features of Semen Hygrophilae Salicifoliae

- Flattened cordate

With hilum at the base
Brownish-red or dark brown surface, slightly smooth, with appressed and membranous trichomes
After soaking in water, the seeds become viscous and stick together

Micro-morphological features

A: Appressed mucilaginous trichome stretches from hilum to the edge to become fimbriate
After soaking in water, mucilaginous trichome becomes swollen, erect and loosely spread out

(A: Surface) 200 μm
(Water test) 0.5 mm
Microscopic feature comparison of unprocessed Semen Hyoscyami and Semen Hygrophilae Salicifoliae powder

<table>
<thead>
<tr>
<th></th>
<th>Unprocessed Semen Hyoscyami</th>
<th>Semen Hygrophilae Salicifoliae *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exotesta cell</strong></td>
<td><img src="image1" alt="a" /> <strong>features under bright field</strong>; <img src="image2" alt="b" /> <strong>features under polarized light</strong></td>
<td><img src="image3" alt="a" /> (in surface view) <img src="image4" alt="a" /> (in lateral view)</td>
</tr>
<tr>
<td></td>
<td>Yellow to yellowish-brown, irregular-polygonal or long-polygonal in surface view, with sinuous anticlinal walls and distinct striations; bright orange-yellow to polychromatic under the polarized light microscope</td>
<td>Yellowish-brown, with numerous trichomes on the surface; trichome with annular thickening, containing large amount of mucilage</td>
</tr>
<tr>
<td><strong>Cluster of calcium oxalate</strong></td>
<td><img src="image5" alt="a" /></td>
<td><img src="image6" alt="a" /> 50 µm</td>
</tr>
<tr>
<td></td>
<td>Absent</td>
<td>Numerous, fine, scattered or present in cotyledon cell; polychromatic under the polarized light microscope</td>
</tr>
</tbody>
</table>

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

Note:
*When preparing the slides, the powder should be well mixed as soon as possible after the test solution is added. Avoid mixing the mixture after it has been stood for a while or heated, in order to prevent the powder from sticking together.
Summary

Major differences in the features between unprocessed Semen Hyoscyami and Semen Hygrophilae Salicifoliae:

<table>
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<th>Unprocessed Semen Hyoscyami</th>
<th>Semen Hygrophilae Salicifoliae</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>Flattened sub-reniform or flattened ovate</td>
<td>Flattened cordate</td>
</tr>
<tr>
<td>Surface</td>
<td>With fine reticulated striation</td>
<td>Slightly smooth, with membranous trichomes</td>
</tr>
<tr>
<td>Result of water test</td>
<td>Appearance remains unchanged</td>
<td>Trichome becomes swollen and erect</td>
</tr>
<tr>
<td>Exotesta cell</td>
<td>Irregular-polygonal or long-polygonal in surface view, with sinuous anticlinal walls</td>
<td>With numerous trichomes on the surface</td>
</tr>
<tr>
<td>Cluster of calcium oxalate</td>
<td>Absent</td>
<td>Numerous, fine</td>
</tr>
</tbody>
</table>

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

[Website link]

Hyoscyami Semen (unprocessed) - Hong Kong Chinese Materia Medica Standards (Volume 8)