Kaempferia galanga L. ကွမ်းစားဂမုန်း

1. Scope

This standard prescribes the specification and identification for quality criteria of *Kaempferia galanga* L. ကွမ်းစားဂမုန်း rhizome powder to be used as a single or as an ingredient of the traditional medicine formulations.

2. Definition

*Kaempferia galanga* L. (Sand ginger) belongs to the family Zingiberaceae; its rhizome is used in Traditional Medicines.

3. Description

3.1. Macroscopic characteristics

Rhizome includes little ovate tuber, outer brownish yellow, rootlets or rootlets scar on the surface, inner off-white colour, fragile and starchy, odour aromatic, taste pungent.

3.2. Microscopic characteristics

Transverse section of *Kaempferia galanga* L. rhizome shows:

- cork layers consisting several layers of rectangular cells
- cortical parenchyma composed of cortical or polygonal cells, containing vascular bundle and starch granules
- endodermis with casparian strip adjoining pericycle
- pith parenchyma cells are slightly thick-walled consisting of starch granules and scattered vascular bundles.
- oil cells present in both cortical and pith parenchyma

3.3. Characters of the powdered drug

Off-white powder, aromatic odour and pungent taste. The diagnostic characters are -
— parenchyma containing starch granules and yellow oil drops
— scalariform vessel
— cork in sectional view
— Pith parenchyma cells are slightly thick-walled consisting of starch granules and scattered vascular bundles

4. Specification

4.1. Physicochemical data

• Loss on drying at 105°C : Not more than 11.25 %
• Foreign matter : Not more than 2 %
• Total ash : Not more than 6.45 %
• Acid-insoluble ash : Not more than 1.55 %
• Ethanol soluble extract : Not less than 7.65 %
• Water soluble extract : Not less than 9.25 %

5. Identification

5.1. Phytochemical test

A. Add 2 mL of acetic anhydride solution to 1 mL of petroleum ether extract of the drug in chloroform, followed by 1 mL of sulphuric acid. Greenish blue colour is produced.

B. Dissolve a small amount of aqueous extract of sample in 2 mL of distilled water, and add a few drops of 10 % aqueous ferric chloride solution. Blue colour is produced.
5.2. TLC profile

Add 1 g of sample powder in 5 mL of methanol, shake vigorously for 15 minutes, allow to stand and filter. Filtrate is used for Chromatography.

Application volume : 5 μL

Solvent system : Hexane: Ethyl acetate (7:3)

Spray reagent : Anisaldehyde-sulphuric acid

Stationary phase : Silica gel G

(A, D & E are glass plates, B & C are aluminium sheets GF254)
<table>
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<th>$R_f$</th>
<th>Visual</th>
<th>UV 254 nm</th>
<th>UV 365 nm</th>
<th>Spray</th>
<th>365 nm after spray</th>
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<td>Violet</td>
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<tr>
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<td>Blue</td>
<td>Violet</td>
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6. **References**

Transverse section of *Kaempferia galanga* L. rhizome
1. Cork layers
2. Oil cells
3. Vascular bundle
4. Starch granules
5. Endodermis with casparian strip

Characters of the powdered drug
a. Parenchyma with yellow drops and starch grains
b. Scalariform vessel
c. Cork in sectional view
d. Starch granules