Vitex trifolia L. (ကြောင်ပန်း/ကြောင်ပန်းလေး)

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1. Scope

This standard prescribes the specification and identification for quality criteria of *Vitex trifolia* L. (ကြောင်ပန်း/ကြောင်ပန်းလေး) leaflets powder to be used as a single agent or as an ingredient in the traditional medicine formulations.

2. Definition

Vitex trifolia L. (Indian wild pepper) belongs to the family Verbenaceae; its leaf is used in Traditional Medicines.

3. Description

3.1. Macroscopic characteristics

Compound trifoliate leaf, upper surface dark green and grayish below, oblong-obovate, base tapering, apex obtuse or accuminate, surface glabrous above and white tomentose beneath. Strong smell when crushed, taste not characteristic.

3.2. Microscopic characteristics

Transverse section of *Vitex trifolia* L. leaf shows:

- a layer of epidermis having unicellular hairs and multicellular trichomes
- mesophyll layer consists of palisade cells and spongy parenchyma present in both epidermis
- in midrib, 3-4 layers of collenchyma cells under the upper and lower epidermis
- beneath the collenchyma cells, large parenchyma cells are present
- vascular bundle consists of xylem surrounded by phloem
- anomocytic stomata present in both surfaces
- lower epidermis also covered with unicellular or multicellular trichomes

3.3 Characters of the powdered drug

Greenish brown powder, characteristic smell, tasteless. The diagnostic characters are:

- upper epidermis
- lower epidermis
- leaf fragment
- trichome

4. Specification

4.1. Physicochemical data

- Loss on drying at 105°C : Not more than 8.10 %
- Foreign matter : Not more than 1.00 %
- Total ash : Not more than 7.80 %
- Acid-insoluble ash : Not more than 0.50 %
- Ethanol soluble extract : Not less than 13.86 %
- Water soluble extract : Not less than 13.14 %

5. Identification

5.1. Phytochemical test

A) In a test tube containing 0.5-1.0 mL of ethanol extract of sample, add 5-10 drops of hydrochloric acid, followed by a small piece of magnesium ribbon. Boil solution for few minutes, red 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 analysis

To 1 g of powder sample add 5 mL of methanol, shake for 30 minutes, allow to stand for overnight. Filter and filtrate is used for chromatography.

Application volume : 2 µL

Developing solvent system : Hexane: Ethyl acetate (7:3)

Spray reagent : 10% Ethanolic sulphuric acid

Stationary phase : Silica gel G (A & D are glass plates, B & C are aluminium sheets GF_{254})

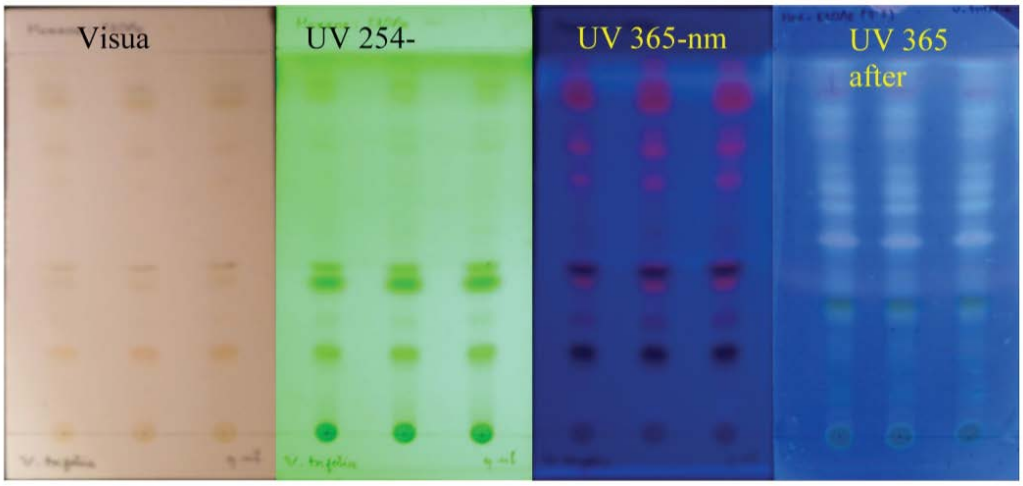

Fig.1. Thin-layer Chromatogram of methanol extract of the leaves of *Vitex trifolia* L.

Table.1. R_f values of components in methanol extract of the leaves of *Vitex trifolia* L.

R_f	Visual	UV 254 nm	UV 365 nm	Spray
0.88	Green	-	Red	Reddish brown
0.72	-	-	Red	Light blue
0.65	-	-	Red	Light blue
0.42	Green	Green	Red	Light blue
0.37	Yellowish brown	-	Red	Yellowish green
0.28	Yellowish brown	-	Red	-
0.2	Yellow	Green	Light brown	-

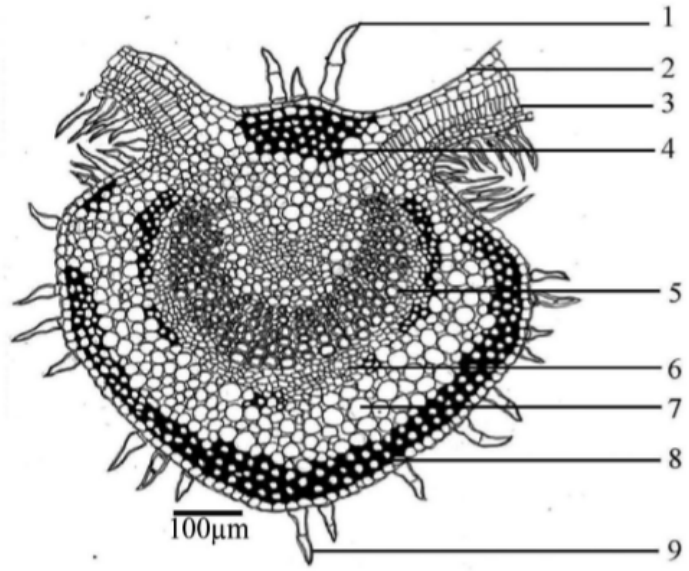

Fig.2. Transverse section of *Vitex trifolia* L. leaf

1. Trichome
2. Upper epidermis
3. Palisade

4. Collenchyma
5. Xylem
6. Phloem
7. Parenchyma
8. Collenchyma
9. Trichome

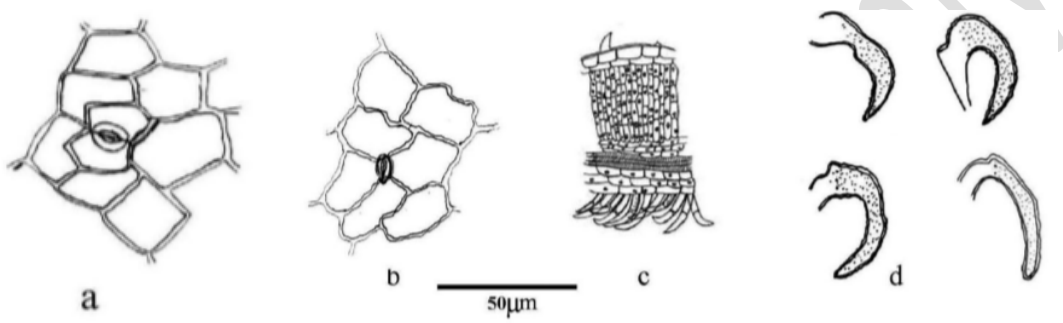

Fig.3. Characters of the powdered drug

a. Upper epidermis

b. Lower epidermis

c. Leaf fragment

d. Trichome

6. Reference

Department of Traditional Medicine, Ministry of Health. Myanmar Herbal Pharmacopoeia. VOLUME I. Nay Pyi Taw, Myanmar; 2013. Pg 85-89.