

Pharmacognostical evaluation of *Flemingia strobilifera* (R.Br.) root

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Abstract

Flemingia strobilifera (R.Br.), an important medicinal plant, commonly known as Kusrun and belongs to the family Leguminosae. The plant is found in Sind, Rajputana, Bengal, South India and Andaman's. The present investigation, the various Pharmacognostical standard have been generated, so that authentic plant material could to explore for its therapeutic claims. Microscopically, the root of *Flemingia strobilifera* showed the presence of cork cells, secondary phloem, xylem vessels, medullary rays and fibers. The powdered roots of plant showed bordered pitted vessels, fibers; starch grains and prismatic type calcium oxalate crystals were important diagnostic significance of the spices.

Keywords: *Flemingia strobilifera*, Pharmacognostical studies.

Introduction

Flemingia strobilifera (R.Br.), an important medicinal plant, commonly known as Kusrun and belongs to the Leguminosae family. The plant is found in Sind, Rajputana, Bengal, South India and Andamans. The roots of this plant have been indigenously used in epilepsy and hysteria and the leaves were reported to be used as vermifuge. Arabian it is employed in cosmetic, anthelmintic and a remedy coughs and chills. Previous Phytochemical investigations reported various chalcones, flavonoid glycosides, aurone glycosides and epoxy Chromenes.

Material and Methods

The roots of *Flemingia strobilifera* were collected from Tadikhet (Distt Ranikhet), Uttarakhand in October 2008. The identity of the plant material was identified by Dr.J.C. Joshi Ex-Botanist Research Institute of Ayurveda, Tadikhet, (U.K) and Dr. H.B Singh, Head, Raw Materials Herbarium and Museum, NISCAIR, New Delhi and a voucher specimen number NISCAIR/RHMD/Consult/06/757/74 was deposited at the Herbarium of National Institute of Science Communication and Information Resources, New Delhi.

Macroscopic Study

The root of *Flemingia strobilifera* was cylindrical or slightly tortuous. Root was externally earthy brownish in color and internally yellowish brown, its surface was fissured, rootlets and lenticels were present. It has no specific odour and taste. The thin young root of about 1.6 mm diameter was studied.

Microscopic Studies

The transverse sections (TS) of root were obtained by usual techniques. Thin sections were collected and placed on a grease free microscopic slide along with a drop of glycerin water (1:1). The sections were covered with clean cover slip and observed under the compound microscope at 100 & 400 magnifications. A camera Lucida was attached with the microscope and the sections were suitably traced out.

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Powder Microscopy

Powder of *Flemingia strobilifera* root was cleaned with chloral hydrate solution mounted with glycerin and observed under microscope.

Preparation of Stain Solution

The stain solutions are solutions that are appropriate for each kind of cell to distinguish the tissue or cells. The stain solutions for medicinal plant powder are specific to each constituent such as distilled water, tests parenchyma cells, starch, crystals and basic cell components.

2% Iodine solution dyes starch grains in blue or violet and 1-2% Phloroglucinol solution in alcohol + 20% hydrochloric acid, dyes lignin fibers and selereids in pink or red colour. The internal characteristics of powder of *Flemingia strobilifera* root exhibited various types of elements such as calcium oxalate crystals were abundant in different parts of the root. The crystals were predominantly prismatic type and xylem fibers were lignified long narrow, thin-wall cell.

Xylem vessels large with numerous bordered pitted Surfaces are lignified. These were cylindrical cells with wide simple perforated plates at the ends. The perforations were slightly oblique or horizontal, lateral wall pits were abundant. Starch grains were both simple and compound in high quantities, also inside and outside of parenchyma cells. Most are simple, oval or round and Cork cells were abundant fragments of orange-brown composed of thin walled polygonal cells

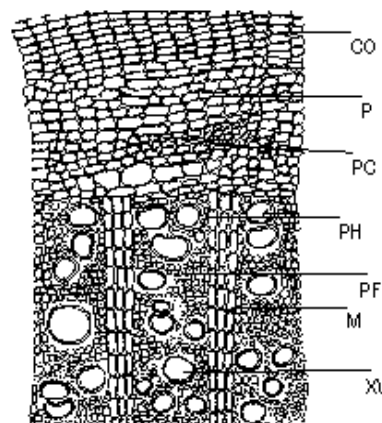


Fig. 1: T.S. of *F. strobilifera* root

CO- Cork Cells,
P- Phelloderm,
C- Parenchymatous Cells
PH- Secondary Phloem,
M- Medullary Rays,
XV- Xylem Vessels

Results and discussion

In present investigation, the various Pharmacognostical standard has been generated, So that authentic plant material could be explored for it therapeutic claims.

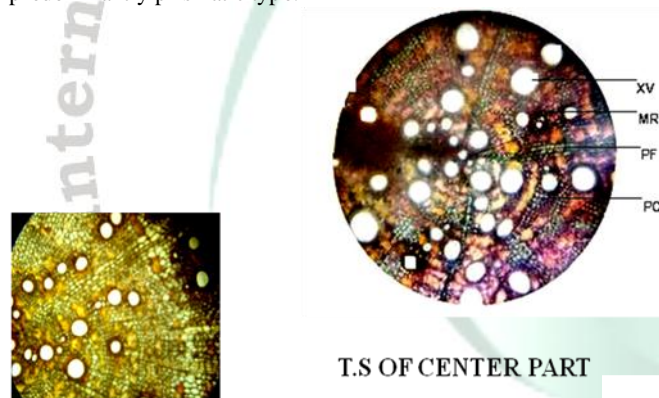
Flemingia strobilifera was subjected to qualitative and microscopic studies. Transverse sections of roots as well as the powdered of the plant were studied for microscopic characters.

Transverse section of root of *Flemingia strobilifera* showed the upper layer of cork cells, ten or more layers of tabular cells, outer layer contain reddish brown amorphous matter and inner layer show thick walled colourless cells. Phelloderm is arranged one to three layers of radially arranged parenchymatous cells.

Secondary phloem in which presents phloem fibers which is thickened wall, lignified in the outer parts and thin walled cells phloem parenchyma. Medullary rays, distinct, bi to multiserial parenchymatous cells, narrow in the xylem region and wider in the phloem region.

Secondary xylem contains xylem vessels, with thick and lignified and lignified xylem fibers were presents. Xylem parenchyma contains starch grains which were oval, round in shape and prismatic type's calcium oxalate crystals were present. Parenchymatous cells with intercellular spaces. Pith was absent in root.

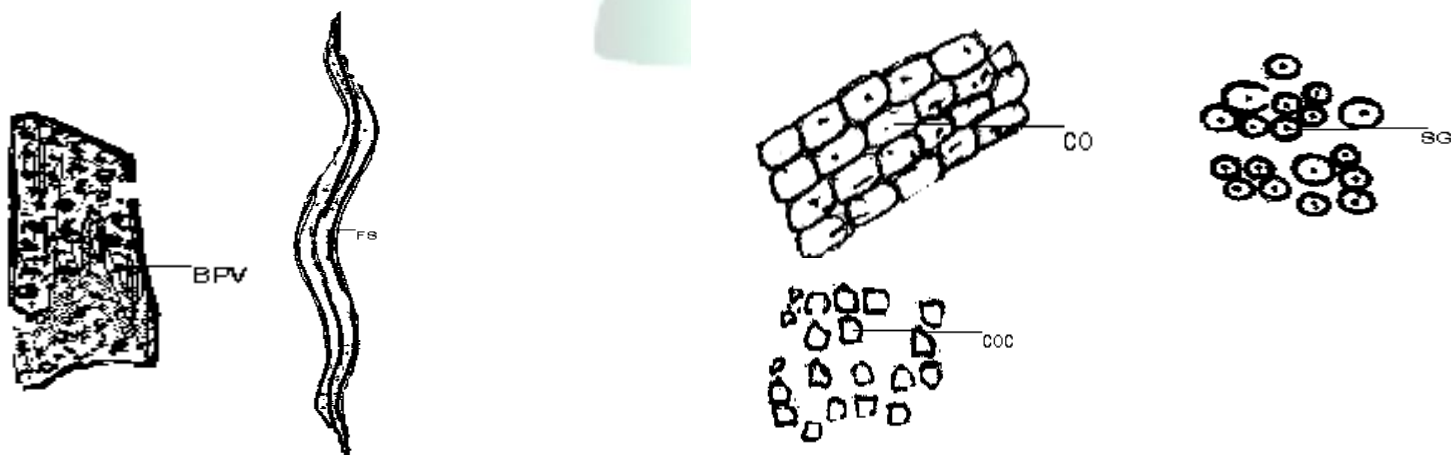
Microscopic studies of the powdered root of *Flemingia strobilifera* showed the presence of xylem fibers, xylem vessels, starch grains, cork cells and calcium oxalate crystals which were abundant in different parts of the root. The crystals were predominantly prismatic type.



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Fig. 2: Power microscopy of *Flemingia strobilifera* root



FS: - Xylem fibers

BPV: - Bordered pitted vessels