Pharmacognostic Study on Root Bark of Cassia Sophera Linn

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The macroscopic and microscopic studies and preliminary chemical tests were done. Presence of fibres in groups in upper phelloderm layer and abundance of rosette calcium oxalate crystals in lower phelloderm are diagnostic features. Qualitative chemical tests showed presence of anthraquinone compounds.

Introduction :

Cassia Sophera Linn., is a diffuse shrub with yellow flowers, 1.3-3.4m high. Leaves 18-23 cm long ; rachis grooved, glabrous or nearly so, with a solitary conical gland near the base. Leaflets 6-12 pairs acute or acuminate mostly 2.5-7.5 cm long, cuneate at the base. Flowers in short axillary and terminal panicles. Pods 7.5-10 cm long, slightly falcate, somewhat turgid, transversely septate between the seeds. Seeds 30-40, broadly ovoid, compressed, dark brown (Biswas 1950 ; Duthie, 1960 ; Gamble, 1957; Haines, 1961).

Distribution—The plant is found throughout India and in most tropical countries. It is very common in wastelands, on roadsides and in the border of the jungles (Duthie, 1960 ; Gamble, 1957 ; Haines, 1961).

Synonym—*C. coromendeliana* Jacq.

Common names—Its sanskrit name is Kaasamarda and other vernacular names are Beng.—Kalakasunda, Eng.—Senna sophera, Hind.-Baski-kasunda, Mal.-Ponnantakara, Mal.-Rantankala, Tam.-Shulavarai, Tel.-Paidi-tangaedu

Uses—Bark, leaves and seeds are cathartic whereas the root is an expectorant. Leaves are anthelmintic and antiseptic (Anonymous 1976). Root bark is used in homoeopathic medicine and finds useful application in symptom complex related to bronchial asthma and that has also been confirmed in a clinical trial conducted at Central Research Institute, Calcutta.

In view of the existence of pharmacognostic study on leaf in literature (Chaudhuri, 1964) and lack of pharmacognostic details on root bark in the same, the present study has been taken up.

Materials & Methods

Root barks were collected from Regional Research Institute, Ayurveda Calcutta. Free hand sections were employed for microscopic study. Fluorescence character of the powdered drug was determined following the method of Chase and Pratt, 1949. For qualitative chemical test a portion of dried powdered drug was extracted with ether for Borntrager's test and another portion was subjected to oxidative hydrolysis following the method of British Pharmacopoeia (Anonymous, 1973) and extracted with ether. Both the ether extracts were concentrated under *vacuo* and taken for analysis.

Observations

Macroscopical characters—Outer surface of fresh bark is rough, blackish in colour, inner surface greenish white, fracture of dried bark fibrous, odourless, slightly bitter. Chloral hydrate cleared portion of bark shows cork cells on the upper surface interspersed with patches of waste materials. Phelloderm layer is devoid of waste materials and includes long fibres.

Microscopical characters—A T.S. of bark shows an outer layer of cork consisting of 6—10 layers of narrow, rectangular, tangentially elongated cells which get compressed. Presence of lenticels is also noted in outer corky layer. Outer corky layer is followed by

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phelloderm consisting of 10-14 layers of slightly thick-walled, tabular, rectangular or irregularly shaped cells. Fibres are found in groups of 2-10 in upper phelloderm layer. Rosette crystals of calcium oxalate are found abundantly in cells of lower phelloderm layer. (Fig. 1)

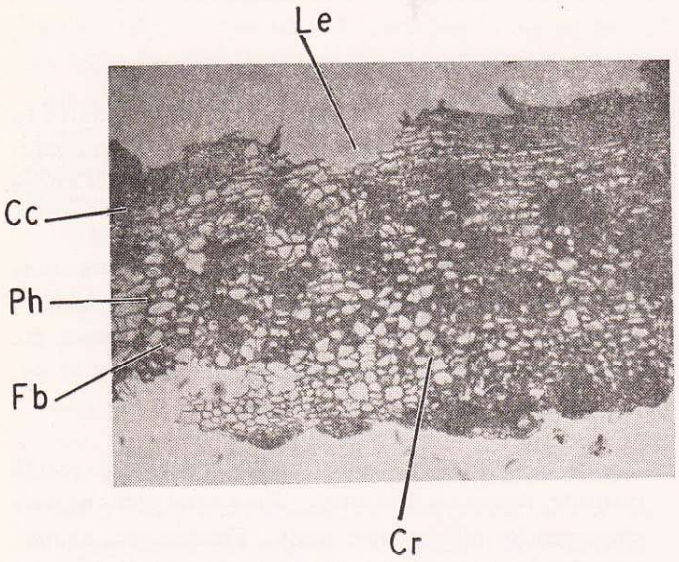

Fig. 1. A T.S. of root bark X 50
Cc—Cork cell, Le-Lenticel, Ph—Phelloderm
Fb—Fibres, Cr—Crystals of Calcium oxalate.

Measurements of Tissue Elements in T.S.

	In Microns
Cork cells (L/B)	37.0-111.0/14.8-25.9
Phelloderm cells (L/B) :	18.5-58.1/11.1-29.6
Fluorescence character of powdered drug—	
	Colour in UV light (365 mμ)
Powder (control)	Light pink
Powder treated with methanolic NaOH (1N)	Light green
Powder treated with methanolic NaOH (1N) and mounted in nitrocellulose in amylacetate	Dark blue

Chemical Tests : Ether extract of free anthraquinones present in the powdered drug showed reddish violet colour with dilute ammonia solution (Borntrager's test).

An aliquot of ether extract of the hydrolysate was spotted on silica gel G plate and developed in n-propanol+ethylacetate+water (40+40+30) in ascending manner upto 20 cm Two anthraquinone compounds were located as brown fluorescing spots in long wave UV light (365 mμ) at Rf 0.7-0.8 and 0.9-1.0. The brown fluorescence was intensified following spraying with dilute ammonia solution. Both the spots showed positive reaction with 2.6 dichloroquinone chloroimide followed by spraying with 10% solution of sodium carbonate in 30% methanol, yielding violet colour.

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