

PHARMACOGNOSTIC STUDIES OF SEEDS OF SIMABA CEDRON PLANCH*

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ABSTRACT: Pharmacognostic studies of seeds of *Simaba cedron* Planch. (f. Simarubaceae) were done to lay standards for their identification including their powder. Ultraviolet spectral studies on mother tincture* prepared from seeds were also done for the same purpose.

Diagnostic features include papillose, barrel shaped, tangentially or radially elongated single layered epidermal cells with or without rhomboidal crystals; prominent scattered, conjoint, collateral, endarch, open or closed vascular bundles, starch grains 12 to 20 μ by 12 to 16 μ with central cleft hilum, sieve tubes with oblique scalariform perforation plates. Characteristic absorption peaks of alcoholic extract in ETOH λ max 246 and 287 nm.

INTRODUCTION

Microscopic studies of seeds of *Simaba cedron* Planch. were done with a view to lay down identification standards for them. Anatomical studies of seeds of *Simaba cedron* Planch., the source of raw material for manufacture of homoeopathic drug Cedron have not been reported earlier. Seeds of *Simaba cedron* contains: Cedrin²: 3a, 5, 5a, 9b=Tetrahydro-4, 5-dihydroxy-9-methoxy-3, 5a-dimethylnaphtho (1, 2-b furan)-2, 8 (3H, 4H)-dione.

The drug is used in malarial affections^{2,3}, especially in neuralgia³ and in patients of nervous temperament and in lancinating and radiating pain in limbs. It has a power of antidoting snakebite³ and stings of insects for which pure tincture is applied to wounds.

Experimental: Samples of *Simaba cedron* Planch. seeds were collected from different sources. Each sample was identified morphologically and compared with standard samples present in the Homoeopathic Pharmacopocia Laboratory, Ghaziabad.

Morphology: Seeds are about 3.80cm long and about 2.5cm in diameter, yellowish, tough, hard, with one side convex and other flat or slightly concave with an oval scar near one extremity of the flat surface. Seeds are intensely bitter to taste.

Methodology: Histological studies were made of seeds and their powder. For cross section studies, the material was processed following usual technique of first reviving with boiling water, then cooling followed by dehydration using ethyl alcohol, cleared with xylene, impregnated with beeswax and finally cut to 20 μ size using rotary microtome technique. For powder studies, the material was macerated with 5% aqueous sodium hydroxide solution.

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For ultraviolet spectral studies, Beckmann U.V. spectrophotometer, model M-26 was used. Mother tincture⁴ was directly used for the purpose.

Microscopy: Seeds in cross sections were non-endospermic, oval in outline, sometimes with deep grooves (figs. 1, 2), and composed of a single layered epidermis of papillose barrel shaped, tangentially or radially elongated cells with or without rhomboidal crystals (fig. 3), followed by a zone of 2 to 5 layers of compactly arranged simple parenchyma cells; a wide zone of large oval, isodiametric storage parenchyma cells (fig. 4), 20 to 80 μ by 20 to 60 μ , containing starch grains, 8 to 14 μ in dia. with star-shaped hilum; several linear oval, circular, endarch, conjoint, collateral, open (fig. 4) and sometimes closed (fig. 5) scattered vascular bundles a little behind the simple parenchyma. Xylem composed of annular and scalariform tracheae (fig. 6); cambium when present, 2 to 3 layered; phloem large containing sieve tubes and parenchyma.

Powdered seeds (Fig. 7) were yellow to yellowish-orange in colour and consisted of thin walled tetra-to-hexagonal epidermal cells, 8 to 24 μ by 8 μ , sometimes bearing rhomboidal crystals; oval, thick walled storage parenchyma cells containing starch grains 12 to 20 μ by 12 to 16 μ , bi-to-pentarch

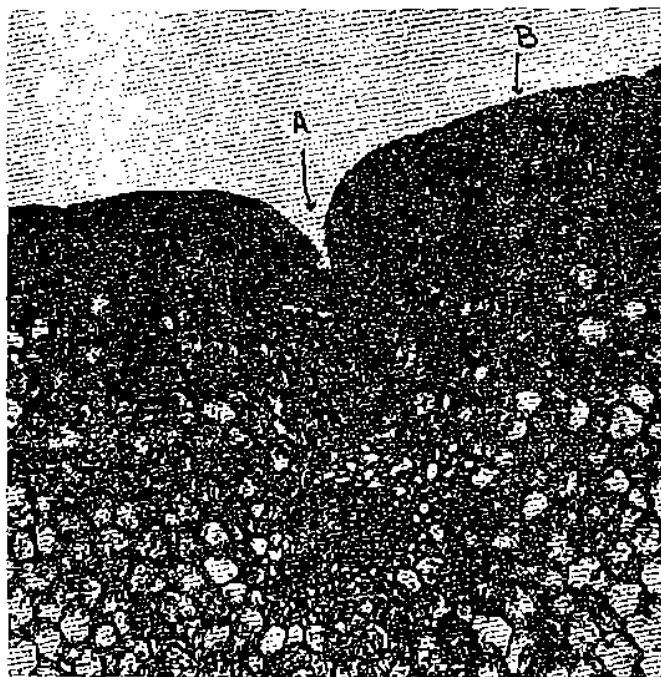


Fig. 1

T. S. Seed: *Simaba cedron* Planch.
A. Deep groove; B. Epidermis.

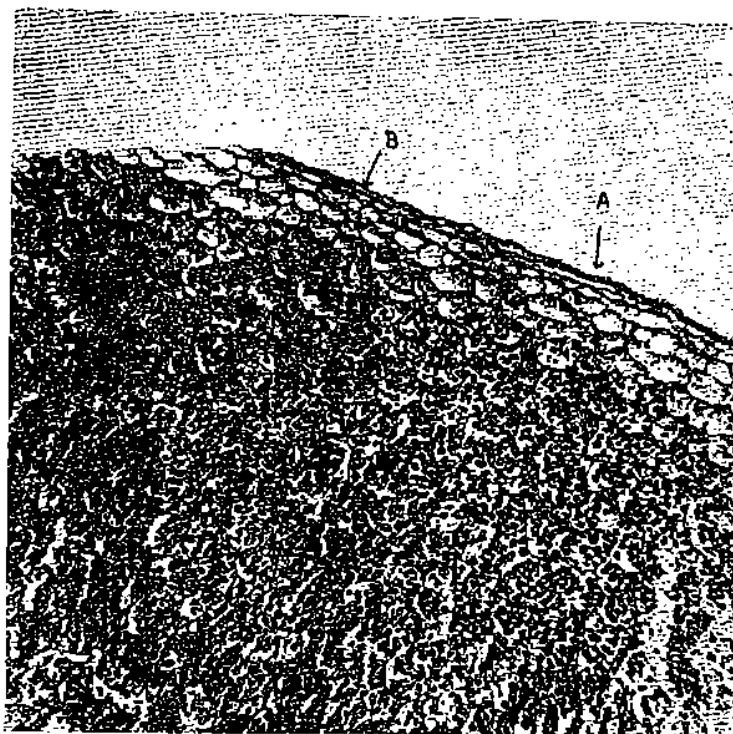


Fig. 2

T. S. Seed: *Simaba cedran* Planch.
A. Outer surface regular & oval; B. Epidermis.

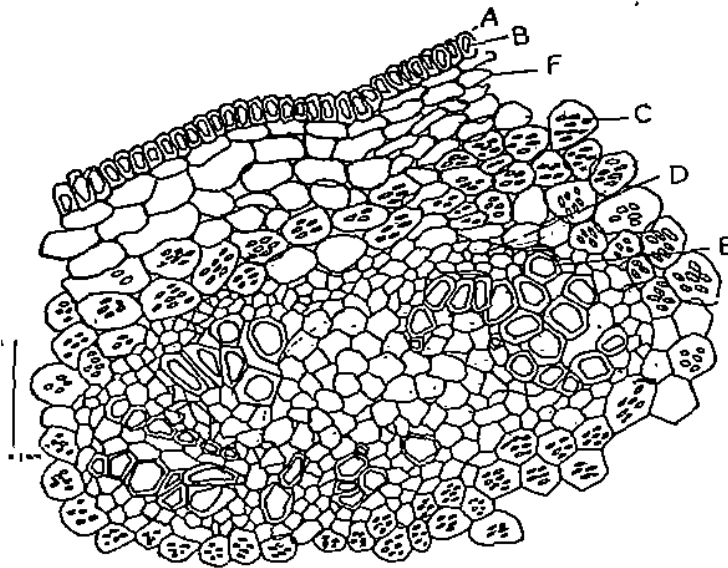


Fig. 3

T. S. Seed: *Simaba cedron* Planch.

A. Epidermal cells with rhomboidal crystals; B. Crystals; D-E. Closed vascular bundles; C. Storage parenchyma cells; D. Phloem; E. Xylem; F. Compactly arranged parenchyma cells.

with central cleft hilum and a single cytoplasmic lamella; thick walled, wide lumened, both septate and aseptate sclerenchyma fibres; thick walled tapering bast fibres, 128 to 168 μ by 8 μ ; spiral and annular xylem vessels; sieve tubes with enlarged oblique scalariform perforation plates.

Spectroscopy: In U.V. spectral studies with mother tincture⁴ of Cedron, following results were obtained:

Absorption peak λ max : 246 and 287 nm

Further chemical studies were not done since they have already been done.

Seeds contain well defined conjoint, collateral, closed or open vascular bundles scattered through its storage parenchyma and numerous rhomboidal crystals. On U.V. spectral studies of mother tincture, two peaks are obtained λ max 246 and 287 nm. Peak at λ max 246 is characteristic of cedrin.

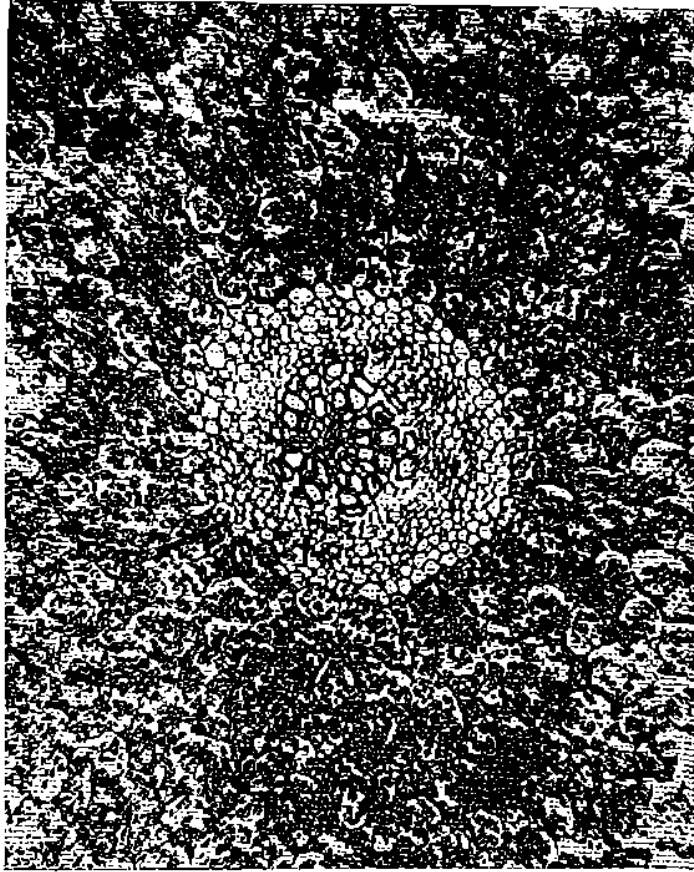


Fig. 4

T. S. Seed; *Simaba cedron* Planch.

A. Storage parenchyma; B. Oval conjoint, collateral, open vascular bundle.

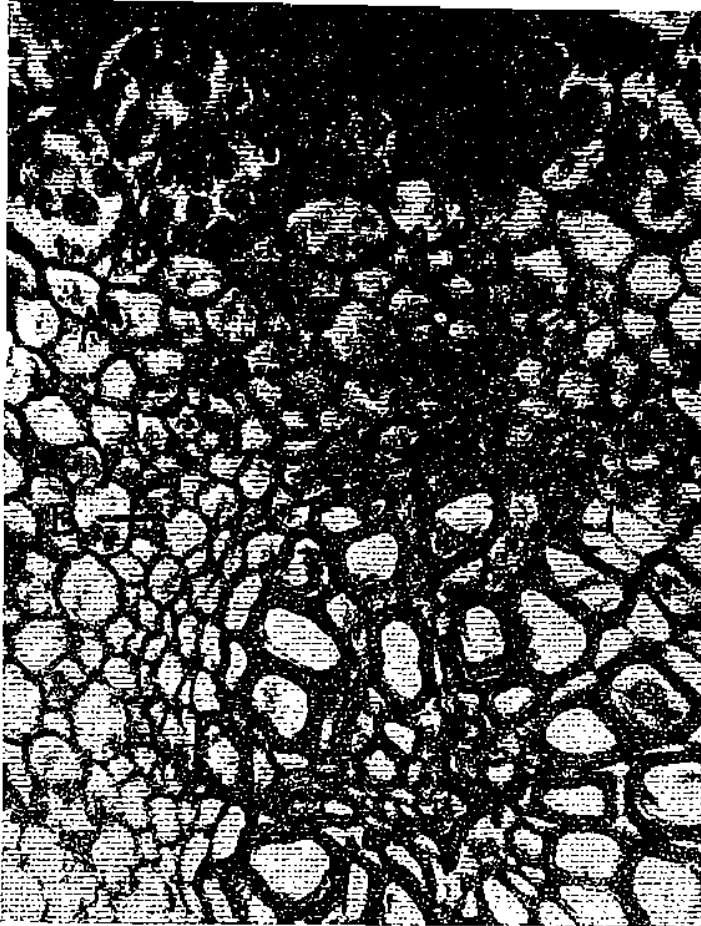


Fig. 5

T. S. Seed: *Simaba cedron* Planch.

A. Storage parenchyma; B. Oval conjoint collateral, open vascular bundle.

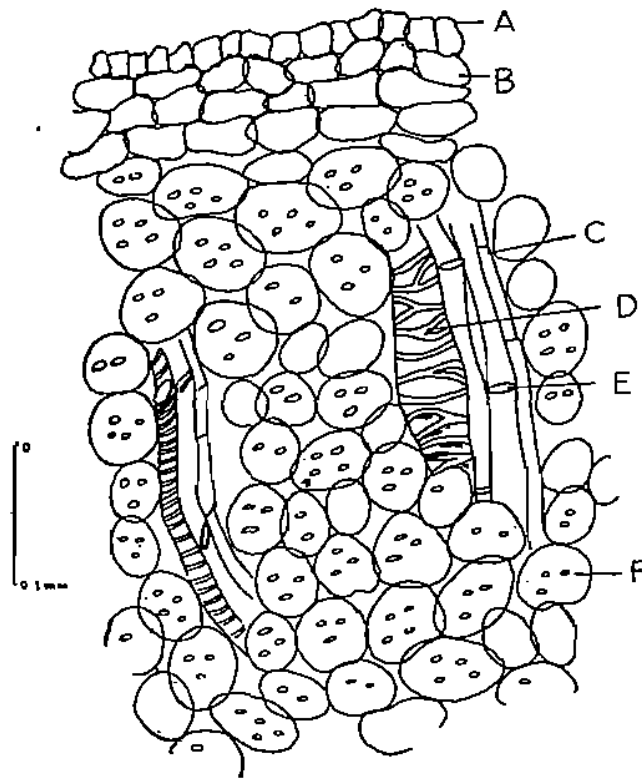


Fig. 6

T. S. Seed: *Simaba cedron* Planch.

A. Epidermis; B. Parenchyma; C. Phloem; D. Tracheids; E. Sieve plate.

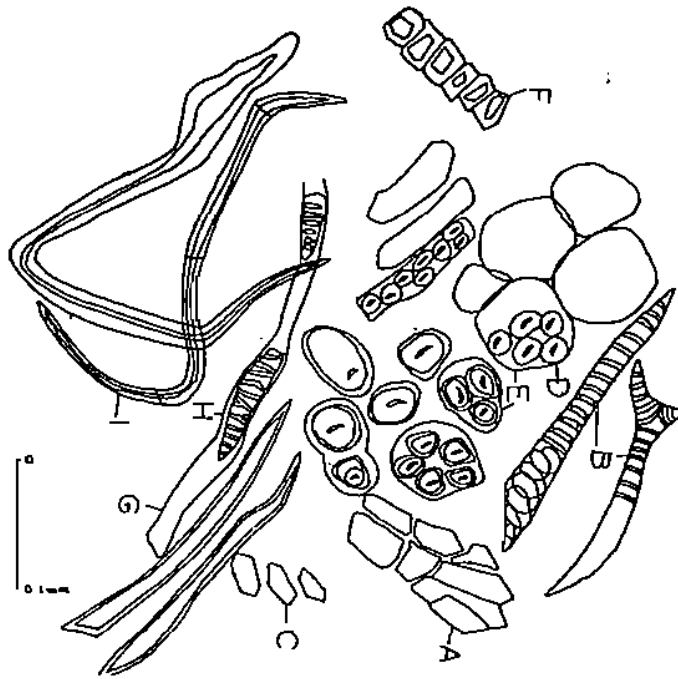


Fig. 7

Powdered Seed: *Simaba cedron* Planch.

- A. Epidermal cells; B. Spiral vessels; C. Crystals; D. Starch grains;
 E. Parenchyma; F. Epidermal cells with crystals; G. Sieve tube;
 H. Oblique elongated scalariform perforation plates; I. Septate fibre.

ACKNOWLEDGEMENT

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