



PRELIMINARY PHYTOCHEMICAL STUDY OF SEED AND BARK OF MEDICINAL PLANT *STERCULIA VILLOSA* ROXB USED AS APHRODISIAC

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ABSTRACT

The Paper reports Preliminary phytochemical and anatomical study of Seed and Bark of *Sterculia villosa* (Roxb.) have been carried out. The plant is aphrodisiac in nature. phytochemical screening of Seed and Bark shows the presence of alkaloids, saponin, steroids, flavonoids, in ethanolic & aqueous extract of these plant.

KEYWORDS: Phytochemical constituents, extraction, medicine, Impotency.

INTRODUCTION

Ancient ethnic communities around the world had learnt to utilize their neighbored herbal wealth for curative as well as offensive purpose (Subramannium and Pushpagadan, 1995). Literature study reveals that significant research works on plants improving fertility or impotency have been carried out (Evans, 1969). An attempt was made to investigate the preliminary phytochemical screening of following plants used in traditional system of medicine. People have been using medicinal plant for male impotency since time

immemorial. Various substances of plant origin have been administrative in folk medicine of different culture to energize, vitalize and improve impotency or infertility

METHODOLOGY

Fresh Plant and Plant parts were collected in different seasons. Plants were shed dried and plant extracts were prepared using standard method (Kokate et al, Harborne, 1998; Krishnaiah, 2009). Different qualitative tests were performed for screening the presence of various active plant constituents.

Table 1.1: Phytochemical Screening of *Sterculia villosa* Roxb.

S. No.	Name of the Phytochemical	Name of the test	Seed		Bark	
			Ethanol Extract	Aqueous Extract	Ethanol Extract	Aqueous Extract
1	Glycosides	Borntrager's Test	+ve	-ve	+ve	+ve
2	Alkaloids	Mayer's Test	+ve	-ve	+ve	+ve
		Hager's Test	+ve	-ve	+ve	+ve
		Wager's Test	+ve	-ve	+ve	+ve
		Fehling Test	+ve	-ve	+ve	+ve
3	Carbohydrates	Benedict's Test	+ve	-ve	+ve	+ve
		Barfoed's Test	-ve	-ve	-ve	+ve
		Biuret's Test	-ve	-ve	+ve	+ve
4	Protiens and Amino Acids	Ninhydrin Test	-ve	-ve	+ve	+ve
		Lead Acetate Test	+ve	-ve	+ve	+ve
5	Flavonoid	Alkaline Reagent Test	+ve	-ve	+ve	+ve
		Shinoda Test	+ve	-ve	+ve	+ve
		Salkowski's Test	+ve	+ve	+ve	-ve
6	Triterpenoids and Steroids	Libbermann burchard's Test	+ve	+ve	+ve	-ve
		Ferric Chloride Test	-ve	-ve	-ve	-ve
7	Tanin and Phenolic Compounds	Lead Acetate Test	-ve	-ve	-ve	-ve
		Dilute Iodine Solution Test	-ve	-ve	-ve	-ve
		Gelatin Test	-ve	-ve	-ve	-ve

+ve = Present and -ve = absent

TLC Study

TLC was carried out in different developers Solvent 1 Developers (chloroform: Ethyl acetate 60:40) Solvent 2 Developers (chloroform: Acitonic formaldehyde 75:16.5:8) Chemical test shows the presence of akaloids (Table -1). There are four values of RF in solvent system 1 while in solvent system 2 are three RF value found. It

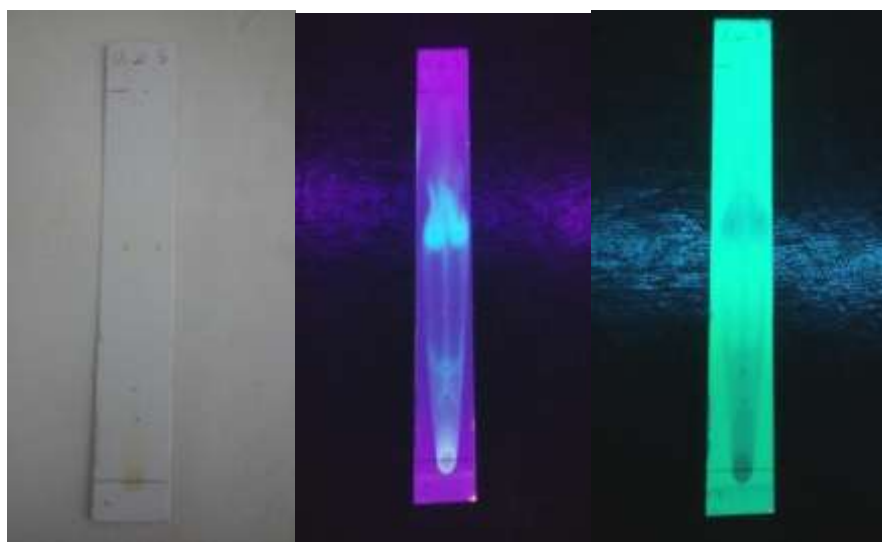
leads that tentatively the RF values in two system indicating the presence of (range from 0.6 to 0.9) higher alkaloids, carbohydrate, flavonoides. They have their specific biochemical role in plants. The spots corresponding to Rf value between 0.6 to 0.9 usually the possibility of conine is assumed.

Table 1.2: Rf value of ethanol extract.

S. No.	Seed		Bark	
	Solvent 1 (chloroform: Ethyl acetate 60:40)	Solvent 2 (chloroform: Acitonic formaldehyde 75:16.5:8)	Solvent 1 (chloroform: Ethyl acetate 60:40)	Solvent 2 (chloroform: Acitonic formaldehyd 75:16.5:8)
1.	0.987	0.891	0.962	0.937
2.	0.607	0.635	0.912	0.875
3.	0.227	0.270	0.900	0.825
4.	0.164		0.812	0.762
5.			0.775	0.725
6.			0.687	0.587
7.			0.262	0.525
8.			0.200	0.437
9.			0.150	0.375
10.				0.212

Table 1.3: Rf value of aqueous extract.

S. No.	Seed		Bark	
	Solvent 1 (chloroform: Ethyl acetate 60:40)	Solvent 2 (chloroform: Acetonic formaldehyde 75:16.5:8)	Solvent 1 (chloroform: Ethyl acetate 60:40)	Solvent 2 (chloroform: Acitonic formaldehyde 75:16.5:8)
1.	0.975	0.943	-	0.529
2.	0.864	0.386	-	0.435
3.	-	0.170	-	-

**Plate 1.1: TLC plates of Ethanol Extract solvent 1(seed).**

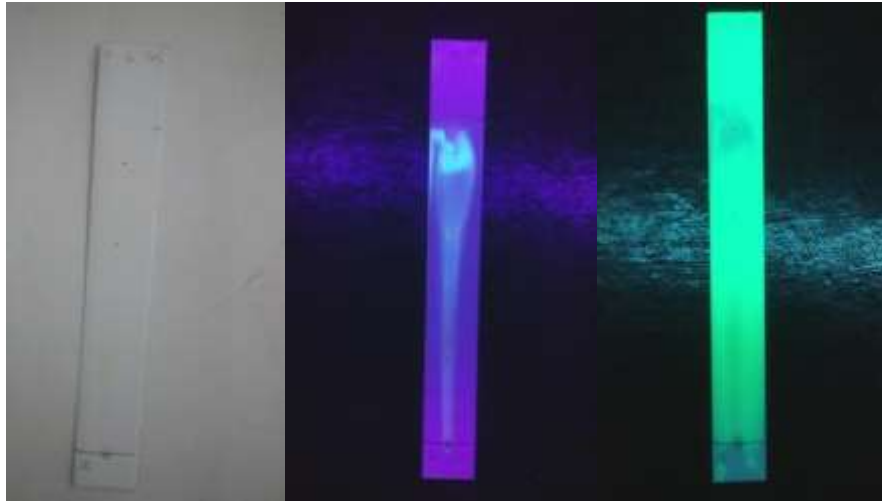


Plate 1.2: TLC plates of Ethanol Extract solvent 2(seed).

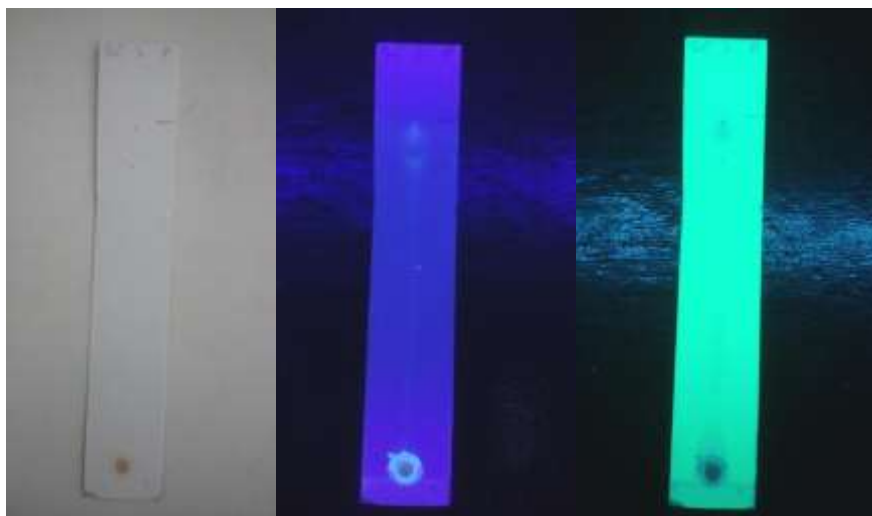


Figure 1.3: TLC plates of Aqueous Extract solvent 1(seed).

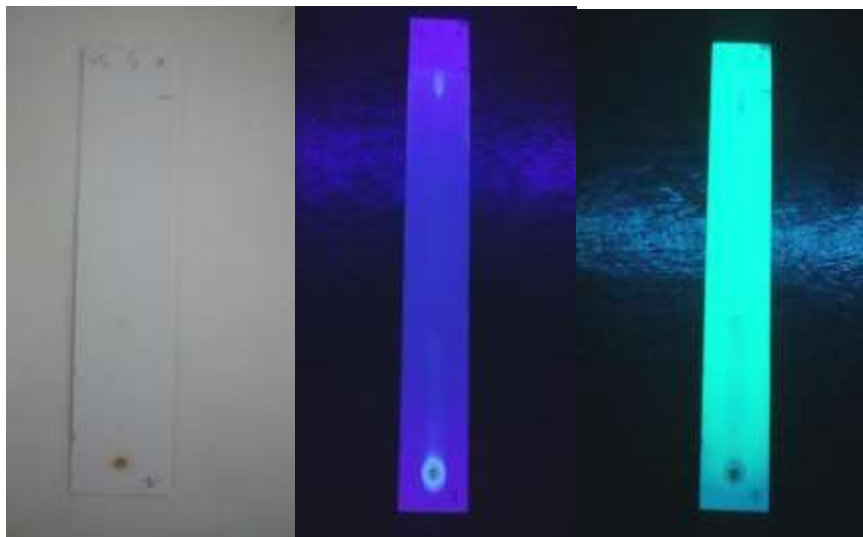


Plate 1.4: TLC plates of Aqueous Extract solvent 2 (seed).

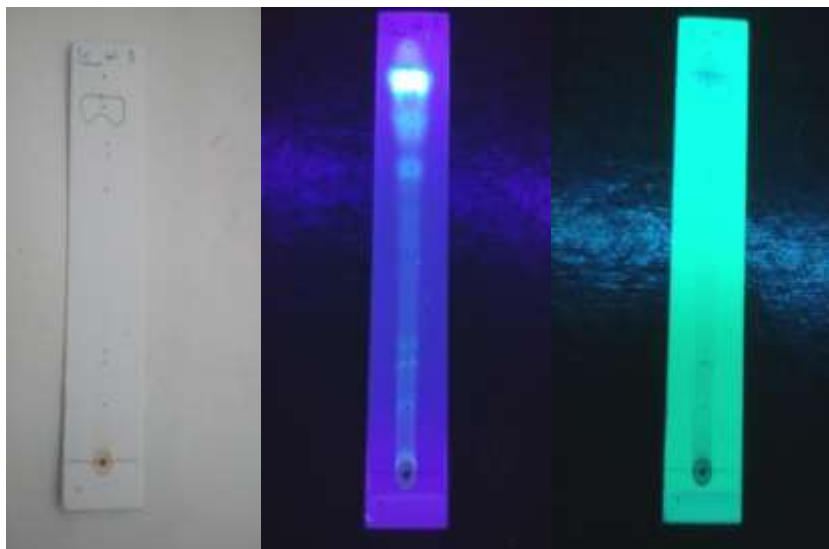


Plate 1.5: TLC plates of Ethanol Extract solvent 1(bark).

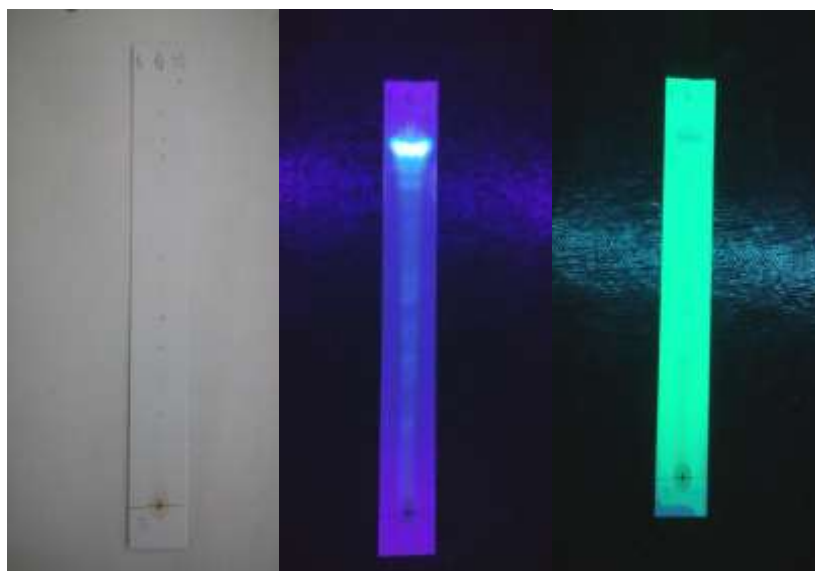


Plate 1.6: TLC plates of Ethanol Extract solvent 2(bark).

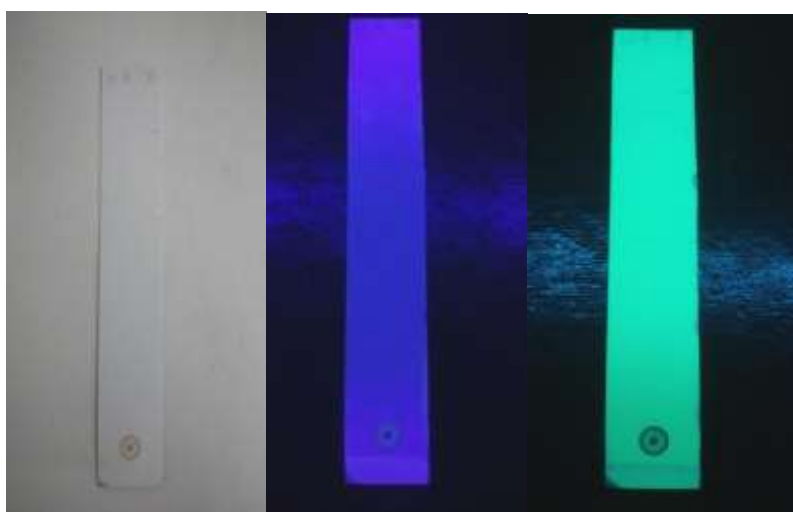


Plate 1.7: TLC plates of Aqueous Extract solvent 1 (bark).

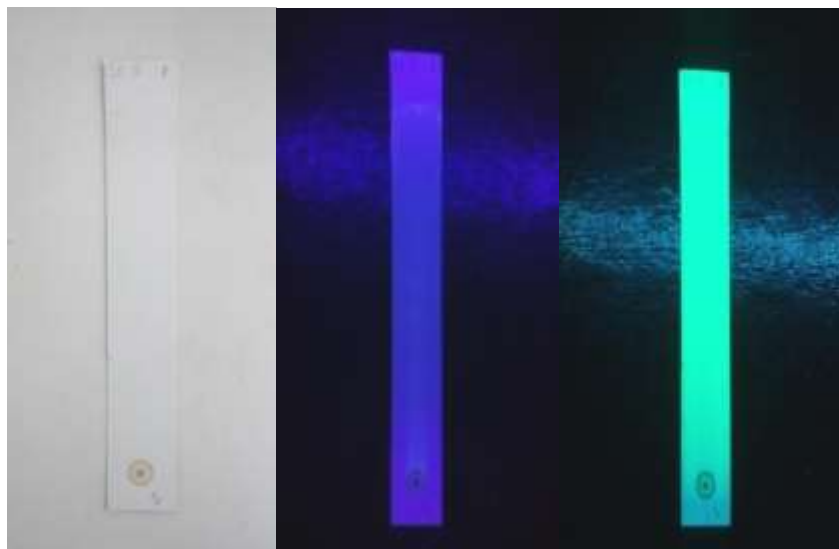


Plate 1.8: TLC plates of Aqueous Extract solvent 2 (Bark).

RESULT AND DISCUSSION

Qualitative test were performed and phytoconstituents were observed (Table-1). Ethanolic extract showed the presences of Alkaloids, Flavonoids, triterpenoids and steroids almost in all investigated plants. Some phytochemical tests present or absent in ethanolic extract. This is soxhlet extract of specific part of plant i.e. seed is taken in soxhlet apparatus and subjected for soxhlation taking ethanol as solvent. This is subjected for chromatographic study taking solvent System 1 (chloroform: ethylacetate= 60:40) and solvent System 2 (chloroform: acetone: formic acid= 75:16.5:8.5).

In system-1 there are four spots while in system-2 there are three spost. It may be concluded that at least three major components are present in this extract Routine chemical test of this fraction reveals the presence of Glycosides, alkaloides, carbohydrates, protein, amino acids flavonoids, terpenoids, steroids ,tannin and phenolic compounds observing. The possibility of some nitrogen containing alkaloid or terpenoids since nitrogen is commonly present in alkaloids and perusal of data indicates the presence of conine molecule.

This is a supplementary part of previous plant. This is soxhlet extract of specific part of plant i.e. bark of previous plant is subjected for soxhlation taking ethanol as a solvent and chromatographic study is performed using solvent System 1 (chloroform: ethyl acetate= 60:40) and solvent System 2 (chloroform: acetone: formic acid= 75:16.5:8.5).

This fraction contains at least nine to ten compounds corresponding to different R_f values Routine chemical test indicate presence of Glycosides, alkaloides, carbohydrates protein and amino acids flavonoids and terpenoids. Bark usually contains higher terpenoids by observing the presence of some gummy material which may be due to higher Terpenoids or polymerise Terpenoids. No specific conclusion can be drawn. The

number of R_f value in both solvent system has decreased. It suggests that many heat sensitive compounds either burnt out or evaporated. There is also wide variation of R_f value. Hence no conclusion regarding to phytochemicals can be positively drawn.

CONCLUSIONS

Phytochemical screening of medicinal plants reveals that the maximum classes of phytoconstituents present in ethanolic extract. The major phytoconstituents Alkaloids and flavonoides are present in both ethanolic as well as aqueous plant extract. Seed and Bark extract shows alkaloids and flavonoids absent in aqueous extract. Study will definitely be helpful for scientific validation of investigated plants. Plant is used in large scale for various ailments particularly in different diseases. Plants contain various Phytochemicals specially alkaloids, phenolics, carbohydrate, terperoids and flavonoids of medicinal importance. Although no concrete conclusion can be drawn on active constituents of these phytochemical on the basis of TLC but further details study will be helpful to identify the exact bioactive principles and design a herbal specific drugs. Present show is scientific validation of medicinal plants/herbal formulation world providing inputs and generates information that could be used in future drug development programme. Due to heavy demand for these medicinal plants certain novel biotechnological approached are required to improve and establish in vitro callus for propagation of plants for large scale. Over exploitation of bulbous, rhizome, tuber and bark for medicinal purposes are facing high risk of exploitation. Therefore immediate steps for in situ conservation and complete ban of its collection from forest area must be implemented at early stage.

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