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PHYTOCHEMICAL SCREENING AND PHARMACOGNOSTIC STUDY OF ACALYPHA INDICA

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ABSTRACT

The present study was used to investigate the photochemical and pharmacognostic study of *acalypha indica*. Initially carried out soxhle extraction with various solvent like petroleum ether, ethylacetate, carbon tetrachloride, chloroform ethanol, methanol and water extracts are used for photochemical investigation. we can find out the various chemical test used to conform the presence of alkaloids carbohydrates, volatile oils, tannins, saponins, phytosterols, flavanoids, antroquinones and phenols are investigate with different solvent extracts.in pharmacognostic study perform the section cutting of acalypha indica plant containing various parts like leaf, stem, petiole. Root used to identify internal structure like stomata, epidermal cells, cotex collenchymas' pith cells, xylem fibers, xylem vessels. spongy mesophyl cells, vascular bundles, ground tissue cells, guard cells and stomata cells etc. and observed the powdered microscopical characters.

KEYWORDS: solvent extracts, photochemical screening, pharmacognostic study, acalypha indica.

INTRODUCTION

- Acalypha indica in telugu name murkonda or kuppichettu. its botanical name acalypha indica, family Euphorbiaceae, plant uses, antibacterial, antibacterial, antivatha, anthelmintic[1], expectorant[2], Diuretic[3], Emetic[4], Acalypha indica in English Indian acalypha, Indian nettle, threeseeded mercury, in French language Ricinelle des, Oreille de chatte, herb chatte, Muktajhuri in Bengal, Tamil, kuppaimeni is a species of plant having caking type of inflorescence. The leaf juice or decoction of leaves is prepared and given in dose of 1-2 table spoon of small children 15-30 ml in case of a adult to induce or purgation and expel the the intestinal worms and mucus from intestine. The leaves are

ground with salt and externally ove skin infectionlike scabies.[5,6,7,8,9,10] The decoction of roots is also used to induce purgation. Promotes the removal of mucous secretion from the bronchial tubes. Bronchitis, asthma, pneumonia and rheumatism.[11,12,13,14,15]

Phytochemical screening of acalypha indica

Phytochemical constituents are the basic source for the establishment of several pharmaceutical industries. The constituents present in the plant play a significant role in the identification of crude drugs. Phytochemical screening is very important in identifying new sources of therapeutically and industrially important compounds like alkaloids, flavonoids, phenolic compounds, saponins, steroids, tannins, terpenoids etc., Previously the crude drugs were identified by comparison with the standard descriptions available, but recently due to advancement in the field of pharmacognosy various techniques have been following for the Standardization of crude drugs.

General test for phytochemical screening

1. Alkaloids test

Dragendrafft's test

Take few ml of test solution and add 2-4 drops Dragendroffs reagent.

It forms the reddish brown colour precipitate in the test solution. It indicates the presence of alkaloids.

2. Amino acid test

Ninhydrin test

Take 2ml of test solution and add 1ml Ninhydrinesolution and boil the solution.

The solution turns to violet color it indicates the presence of amino acids.

3. Carbohydrates test

Mollishtest

To the test solution add few drops alcoholic a-naphthal and add few drops of concentrated sulphuric acid through the walls of the test tube. It forms purple to violet colour ring appears at the junction of the test tube. It indicates the presence of carbohydrates in the solution.

4. Volatile oil test

Take the test solution in test tube add few 1ml of Sudan solution. If red colour obtained by globules inthe test tube. It indicates the presence of volatile oil in test solution.

5. Tannins test

Ferric chloride test

To the test solution add 2ml of ferric chloride solution.

It turns to blue colour it indicates the presence of hydrolysable tannins.

If it turns to green colour it indicates the presence of condensed tannins.

5. TEST FOR PHYTOSTEROLS

Salkowski reaction

plant extract in a test tube add 1ml of Conc. H2SO4 from the sides of the test tubes. Appearance of reddish brown colour in chloroform layer indicates presence of phytosterols

6. Saponin Glycosides test

take little quantity of plant extract shake up to few minute if froth formation occur the presence of saponins.

7. antroquinone tests

take little quantity of plant extract then add magnesium metal piece to this add lead acetate solution produce the green precipitate indicate the presence of anthroquinnones.

Flavanoids

Shinoda test

Little quantity of sample to this conc. Hcl acid then it produce the green color indicate the presence of flavonoids.

8. Test for phenols: to the sample solution add little quantity of alcohol and ferric chloride solution and it produce the purple colored developed.

Test name	Petroliumether extract	Ethylacetate extract	Carbon tetra chloride extract	Chloroform extract	ethanol extract	methanol extracct	Water extract
Alkaloidal test	+	+	+	+	+	+	+
Amino acid test	_	+	+	+	+	+	+
Volatile oil test	_	_	_	+	+	+	+
Tannins	+	+	+	+	+	+	+
Carbohydrate test	_	_	+	+	+	+	+
phytosterols test	_	_	_	+	+	+	_
Saponinas	+	+	+	+	+	+	+
Flavanoid test	+	+	+	+	+	+	+
Antroquinone test	_	_	+	+	+	+	_
Phenol test	+	_	_	+	+	_	_

" - "

"+" indicate the presence of phytochemical

"--" indicate the absence of phytochemical

Pharmacognostic study

Acalypha indica plant leaf petiole, stem and root parts are section cutting with sharp plade and thin section species taken on microscopic slide then add chloral hydrate, boiled 10 - 15minutes then add Ploroglucinol ans hydrochloric acid, add 2-3 drops of glycerine covered with coverslip and observed the various internal structural parts of leaf stem root and petole etc. along with study the powdered microscopic characters.

Figure-1

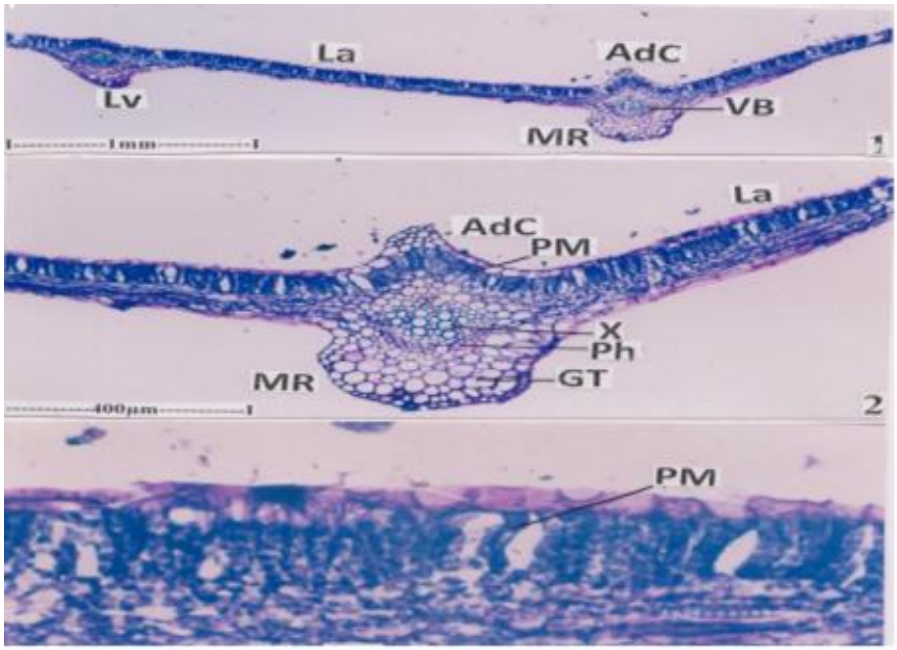


figure -2

1) Leaf upper view and lower view

1. T.S of leaf through midrib and lateral vein

2. T.s mid rib enlarged

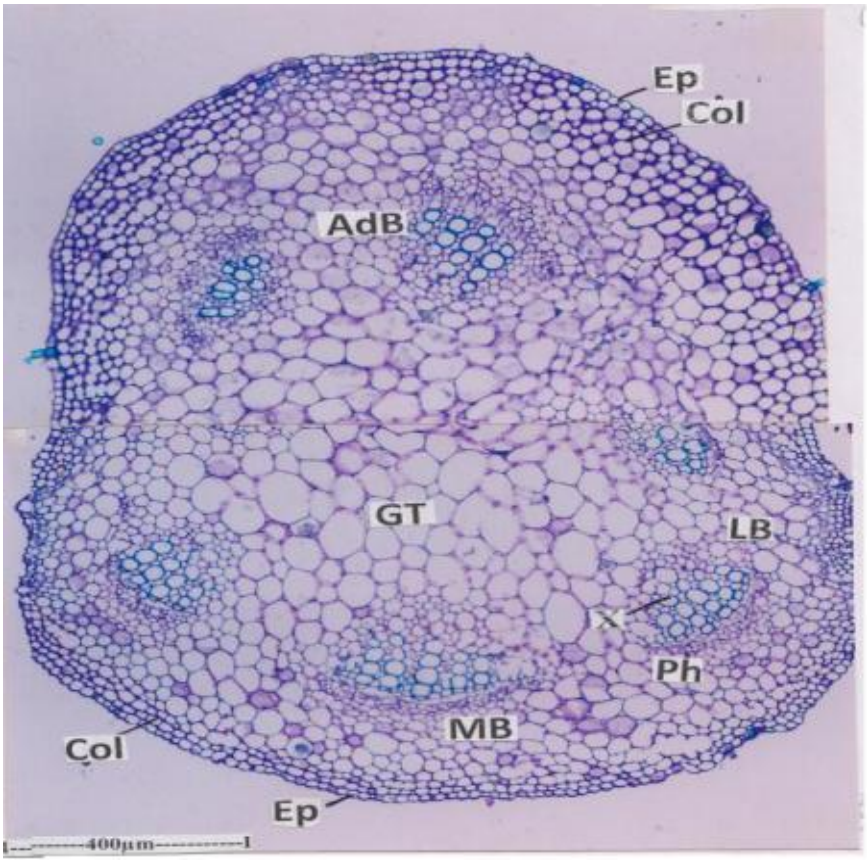


Figure-3

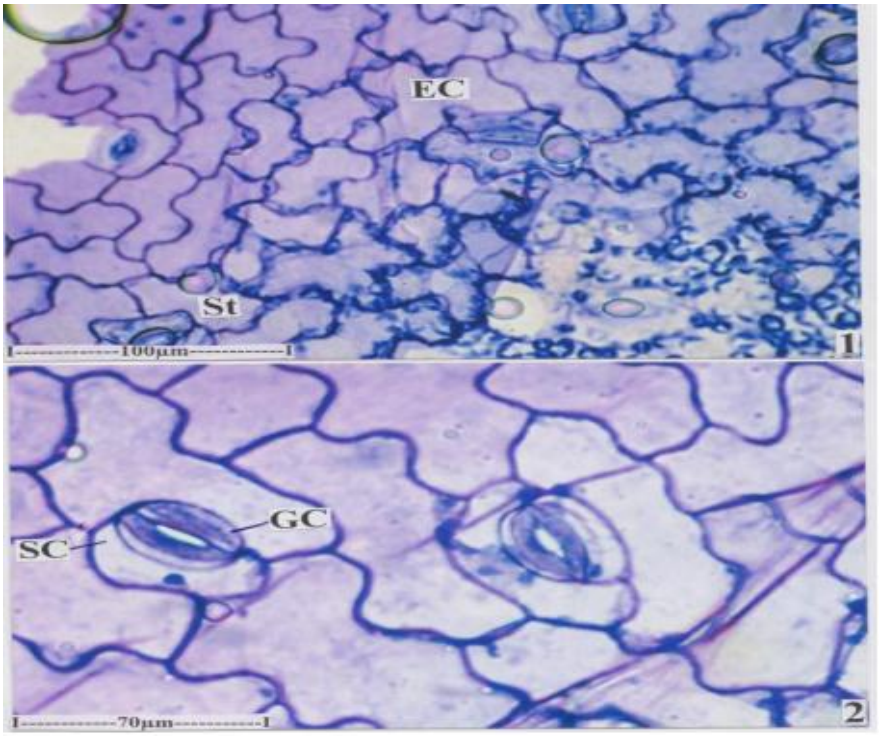
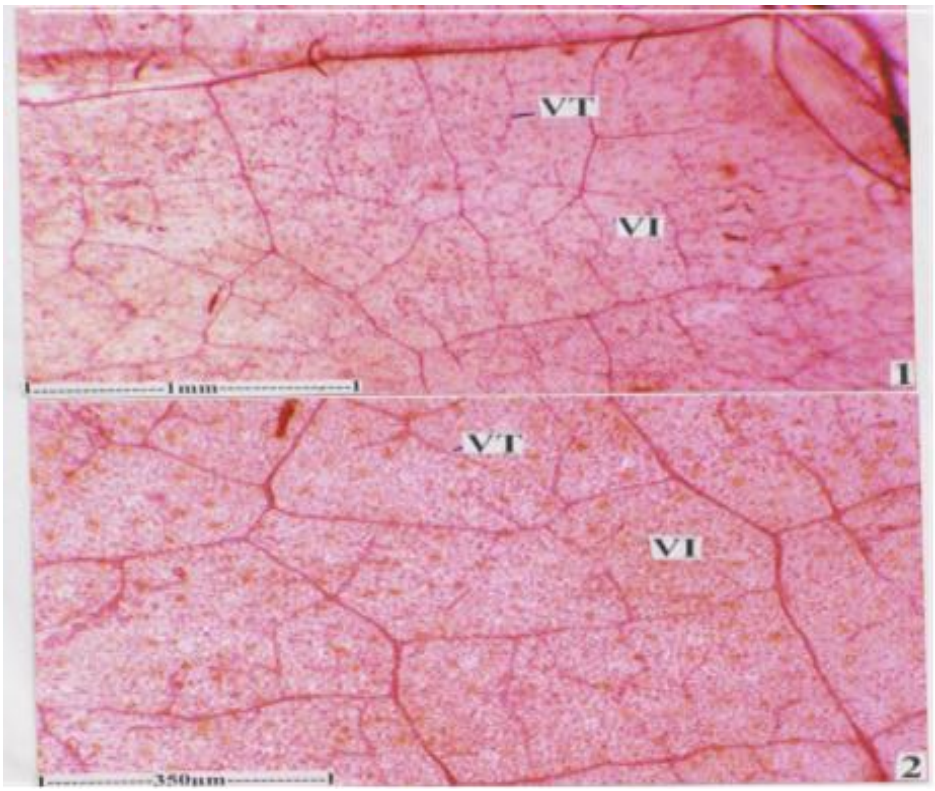


Figure-4

1. Paradermal section of the epidermis
2. Abaxial epidermis showing the stomatal morphology T.s of lamina



Figure—5

Lamina cleared to show venation pattern-vein islets and vein terminations

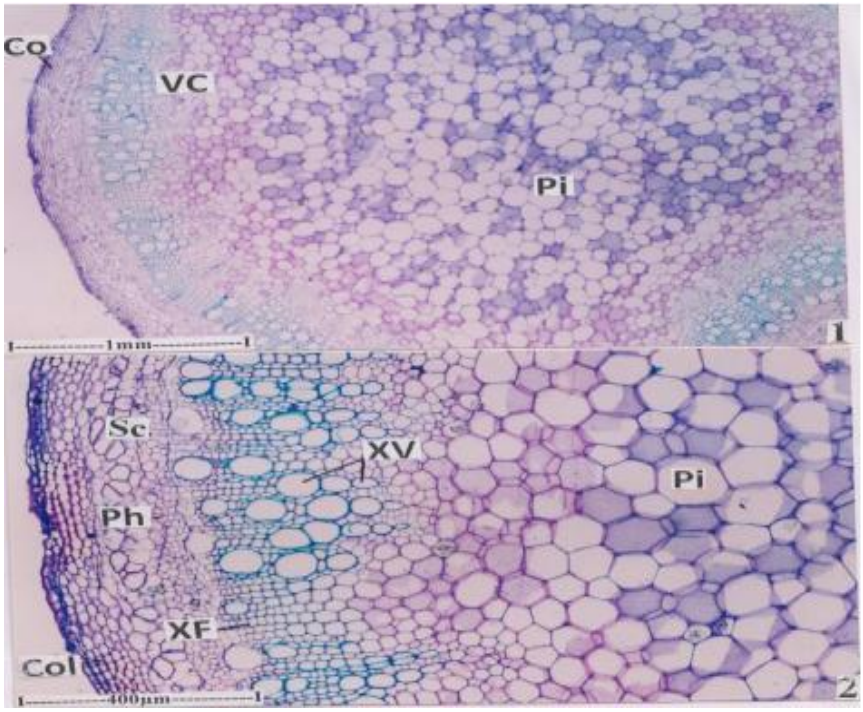


Figure- 6:

1). t.s stem portion

2). T.s stem a sector enlarged

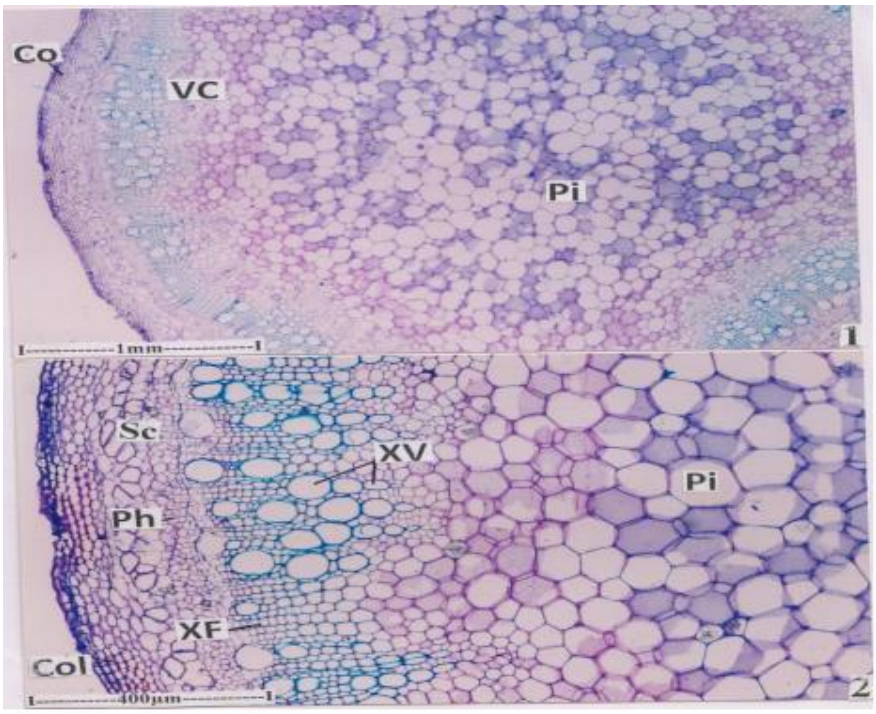


Figure –7:

1. Surface view of the lamina showing the dense distributing of calcium oxalate druses

2) t.s of stem showing continuous cylinder of druses in cortex

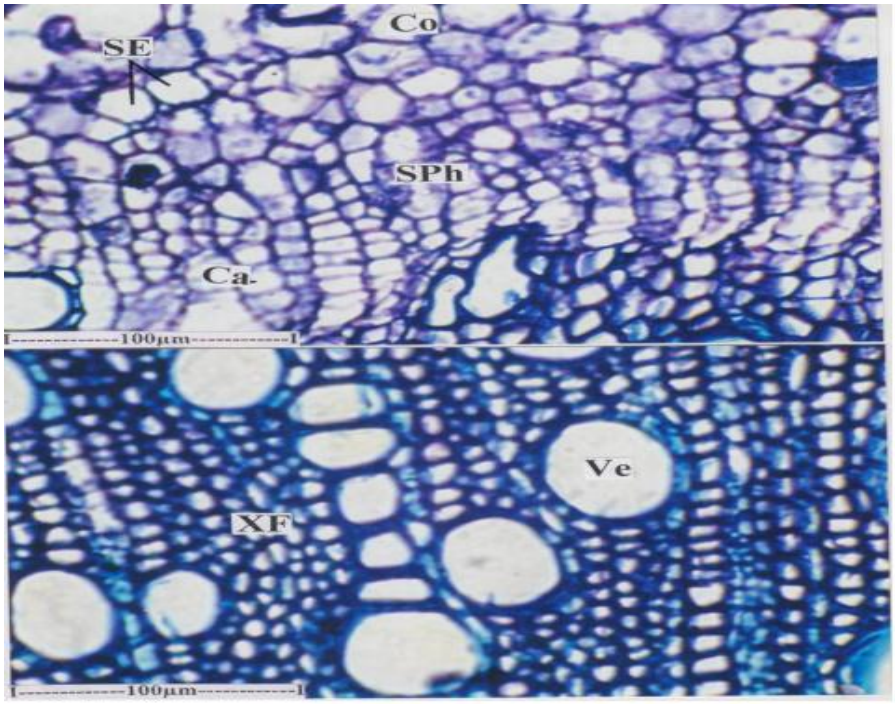


Figure -8:

1. T.s of stem secondary phloem enlarged

2). T.s of stem secondary xylem enlarged

RESULTS AND DISCUSSION

In this work various phytochemical tests are performed some of the tests are giving positive results some of the tests are negative results. Dragendorff's test for Alkaloids: all extracts are showing positive result. Ninehydrine test for amino acids: all extracts are showing positive result and petroleum ether extracts shows the negative result. Sudan-III test for Volatile oil: petroleum ether extract, ethyl acetate, carbon tetra chloride test showing the negative result and chloroform, ethanol. Methanol, water extracts are showing positive result Saponin test: petroleum ether, ethyl acetate, ethanol, carbontetrachloride, chloroform, methanol and water extracts are shows the positive results. Flavanoid test: petroleum ether, ethyl acetate, ethanol, carbon tetrachloride, chloroform, methanol and water extracts are shows the positive results. Anthroquinone test: petroleum ether, chloroform, Ethanol extracts are shows the positive results. ethyl acetate, carbon tetrachloride, methanol and water extracts were shows the negative results in pharmacognostic study we can identify the various internal structures observed by trinocularscope shows the stomata, midrib, lamina vein islet number, vein termination number, xylem vessel, pit cells and various structural parts are observed.

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