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RESEARCH PAPER

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### Preliminary Phytochemical Screening of Bark Extract of *Anthocephalus cadamba*

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#### ABSTRACT

*The Kadamba is one of the important medicinal plants belonging to the Rubiaceae family. It is crucially significant as it has the largest number of Phytochemicals and secondary metabolites having pharmacological and biological properties. Phytochemicals are the active chemicals of plant origin. They are naturally synthesized in all parts of the plant. Bark, root, leaves, stem, flower, fruits, seeds etc. any part of the plant may contain the active components. In this study methanolic bark extract of Anthocephalus cadamba samples were used for the phytochemical analysis to find out the phytochemical constitutes.*

**Keywords:** Photochemical Screening, Bark Extract, Anthocephalus cadamba and Medicinal Plants.

#### INTRODUCTION

The Cadamba is a large tree with a broad umbrella shaped crown and straight cylindrical thumb. Leaves are opposite, simple, elliptic-oblong, flowers in solitary globose head, orange or yellow, fruits are pseudo carps. Commonly and in Sanskrit it is known as Kadamba. It is

easily available in every part of India as well as Bangladesh, Myanmar, Sri Lanka, Cambodia, Laos, Philippines, Indonesia, Malaysia and Australia. In Ayurveda this plant is used in the treatment of much type of diseases. The useful part of this plant is Bark, Leaf and Fruit. Bark is the important useful part in the preparation of Ayurvedic medicine. The present study is evaluating the presence of chemical constituent in the Bark of Kadamba (**Dubey et al. 2011, Dwivedi et al., 2015, Hassan et al., 2015, Jaylalita et al., 2015, Khandelwal et al., 2015**).

## MATERIAL AND METHODS

### Collection of plant materials

The barks of *Anthocephalus cadamba* (Rubiaceae family) were collected from area of Jalukbari, Guwahati Assam. The plants were authenticated at Botanical Survey of India.

### Preparation of extraction of plant material

The bark of *Anthocephalus cadamba* dried at shade at room temperature and powdered by grinder. 50 gm air dried powdered plant material was taken, extraction was done in successive method for 8 hrs in soxhlet apparatus. Each time before extracting with the next solvent, dried the powdered (plant) material in air oven below 50 degree Celsius.

### Detection of Alkaloids

Preparation of filtered solvent free extract (50mg) is stirred with 2ml of dilute hydrochloric acid and filtered. In 1ml of filtrate a drop of Mayer's reagent was added by the side of test tube then observed for a white creamy precipitate.

### Detection of Glycosides

To 0.5ml of filtrate 0.5ml of Benedict's reagent was added. The mixture was heated on a boiling water bath for 2 minutes. Red color precipitate was absent.

### Detection of Saponins

1ml of aqueous extract is diluted by distilled water up to 10 ml and shaken for 15 min. There is absence of layer of froth.

### Detection of Tannins

2ml of extract was taken in test tube and added 2ml of Ferric chloride solution. Deep green colour of the solution was formed which shows the presence of Tannins.

### LCMS and FT-IR spectral Analysis

LCMS and FT-IR spectral (lmax in cm<sup>-1</sup>) analysis was carried out from the active column chromatographic fractions of methanolic extract of bark (of *Anthocephalus cadamba*) detects the bioactive compounds.

## RESULTS

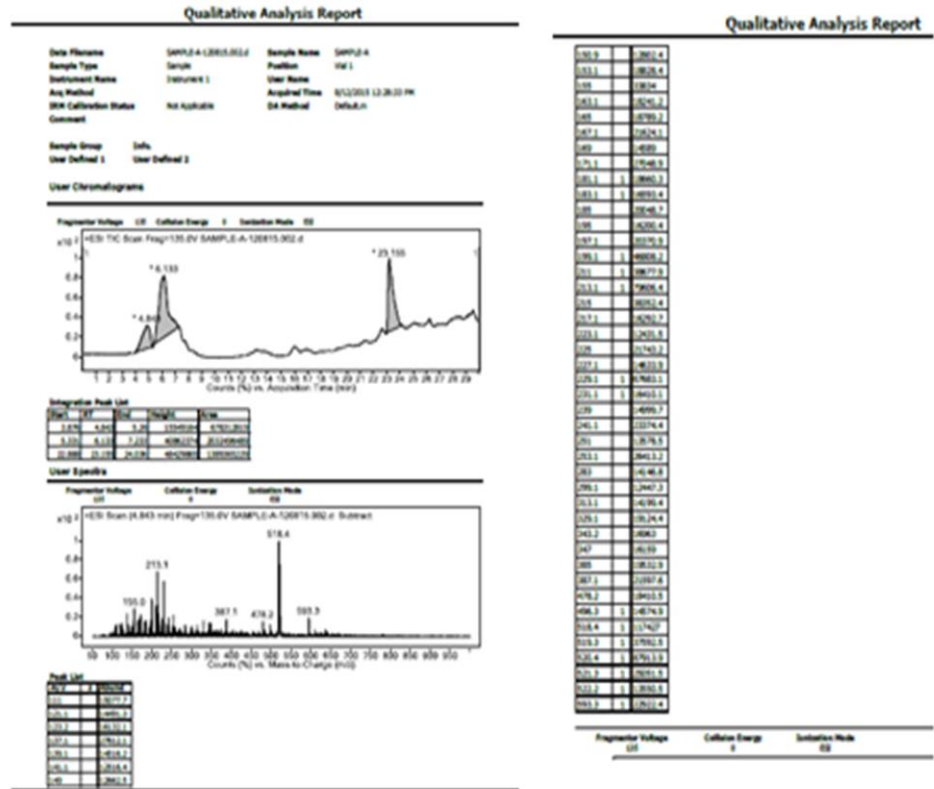
### Qualitative analysis of extraction of *Anthocephalus cadamba*

Test	Methanolic extracts
Alkaloides	+
Glycosides	-
Saponins	-
Tannins	+

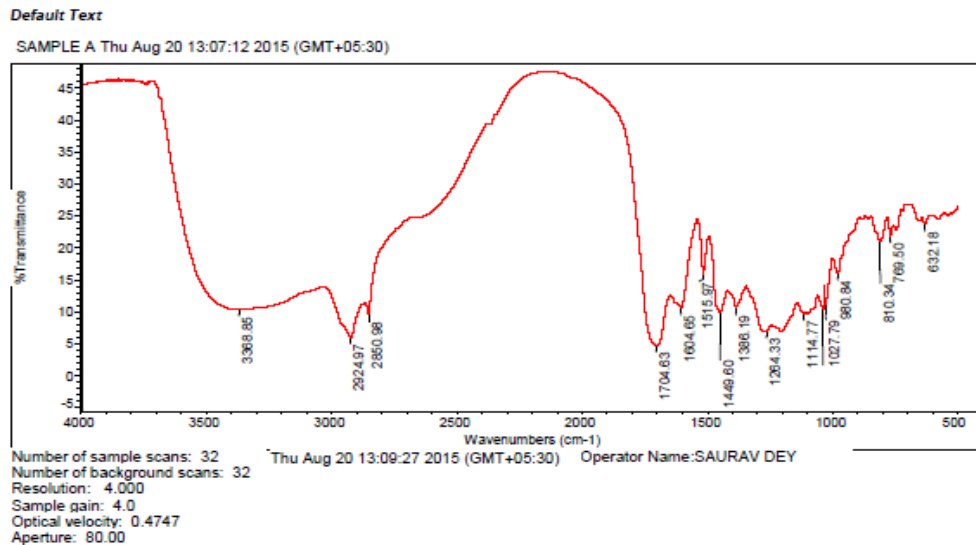
Methanolic extraction A. cadamba bark shows the presence of Alkaloides and Tannins in qualitative analysis.

LCMS The crude ethanolic extract of kadamba shows the three peaks are present.

Thin layer chromatography  
7 Number of spots obtained in U.V. chamber was noted and their Rf values  
are-  
0.07, 0.10, 0.14, 0.40, 0.50, 0.60, 0.70.



FT-IR Spectrum



INSTRUMENT: THERMO NICOLET IS10 FT-IR SPECROMETER (THERMO SCIENTIFIC)

Thu Aug 20 13:09:12 2015 (GMT+05:30)

FIND PEAKS:

Spectrum: SAMPLE A Thu Aug 20 13:07:12 2015 (GMT+05:30)

Region: 3999.81 499.49

Absolute threshold: 38.261

Sensitivity: 50

Peak list:

Position:	632.18	Intensity:	23.676
Position:	769.50	Intensity:	21.797
Position:	810.34	Intensity:	20.991
Position:	980.84	Intensity:	16.005
Position:	1027.79	Intensity:	11.168
Position:	1038.43	Intensity:	10.353
Position:	1114.77	Intensity:	9.710
Position:	1264.33	Intensity:	6.887
Position:	1386.19	Intensity:	10.575
Position:	1449.60	Intensity:	9.899
Position:	1515.97	Intensity:	15.818
Position:	1604.65	Intensity:	10.573
Position:	1704.63	Intensity:	4.692
Position:	2850.98	Intensity:	9.568
Position:	2924.97	Intensity:	6.016
Position:	3368.85	Intensity:	10.325

Operator Name: SAURAV DEY

Thu Aug 20 13:09:27 2015 (GMT+05:30)

## DISCUSSION

In the present study bark of *Anthocephalus cadamba* were collected and dried. It was powdered and then successive extraction was done. In Qualitative analysis methanolic extracts of *A. cadamba* shows white creamy precipitate in Mayer's reagent test, which confirm the presence of Alkaloids. In the Ferric chloride solution, methanolic extraction of bark of *A. cadamba* becomes deep green solution which shows the presence of Tannins. Thin layer chromatography shows the seven numbers of spots. LCMS and FTIR spectral analysis shows many peaks, among them three peaks are prominent which shows the presence of bioactive compound (Mhaske et al., 2013, Nagar et al., 2012, Pal et al., 2014, Shaikh et al., 2015).

## CONCLUSION

The extracts after the various analyses shows the presence of Alkaloids and Tannins, Phytochemical found present in bark of kadamba indicates the potency of drug which are used as medicinally.

## ACKNOWLEDGMENTS

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