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MICROBIOLOGICAL STUDY ON BAUHINIA BLAKEANA FLOWERS

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ABSTRACT

The microbiological study was conducted to evaluate the antimicrobial activity of flower extract of *Bauhinia blakeana* (Family-Fabaceae). The Acetone extract was prepared by Soxhlet extraction and Agar well diffusion method was used for the evaluation of Antimicrobial activity. This revealed the acetone extracts showing high Antimicrobial activity against the microbes. In the previous investigation showed the presence of secondary metabolites such as flavonoids, saponins and phenols. This may be cause for their antimicrobial activity. Hence, we can conclude that the flower extracts of *Bauhinia blakeana* was possess Antimicrobial activity.

KEYWORDS

Bauhinia blakeana, acetone, antimicrobial activity, Agar well diffusion method, Soxhlet extraction.

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INTRODUCTION

India is the country which giving more importance to the traditional healing system around the world. From prehistoric time, many practioners are involving in the herbal treatment against various infectious diseases in India. Recently, cause of fewer side effects and copious accessible in nature, there is a massive increase of interest in the traditional healing system.

Bauhinia blakaena (Family: Fabaceae) is an 'Orchid' tree commonly found in India. The previous phytochemical investigation of flower extract revealed the presence of flavonoids, saponins and phenols. There was no report about

antimicrobial activity of this plant particularly in flower extract. Hence, in the present study the acetone extract of *Bauhinia blakaena* was evaluated for their antimicrobial activity.

MATERIAL AND METHODS

Collection and identification of Plant material

The fresh flowers of *Bauhinia blakaena* were collected from Cholan Nagar, Tiruchirappalli District, Tamilnadu State, India and authenticated by State Horticulture Farm, Mudhalaipatti (Village), Trichy Karur Road, Karur (District), Tamilnadu. The flowers were thoroughly washed, dried under shade and pulverized.

Preparation of Flower Extracts

The acetone extract was successively prepared by hot continuous percolation method in 1:10 (w/v) ratio by Soxhlet extraction and concentrated. Then it was subjected to dryness to yield crude residue. This residue was employed for Antimicrobial evaluation.

Microbial strain

For the evaluation, the pure microbial strain cultures were collected from the Biotechnology Laboratory of Bishop Heber College, Tiruchirappalli (Ref. No.:BHC-BT-CTS02/2014/NMC) and used. The gram-positive and gram-negative bacteria namely *E.coli*, *Proteus sp.*, *Enterobacter sp.* and *Klebsiella sp.* were taken for this investigation and they were cultured on Nutrient Agar (Hi Media) Slants at 4°C. In this evaluation, Streptomycin (100µg/mL) was used as a reference standard.

Antibacterial assay

The antibacterial activity assay of flower extract was performed by Agar well diffusion method. 20mL of

sterile muller Hinton agar (Hi Media) was poured in sterile petri dishes. The plates were allowed to solidify and used. 10mL of sterilized Muller Hinton agar medium was seeded with organisms (about 0.2mL according to 0.5 McFarland's standard), in semi hot conditions and was poured uniformly on the base agar. 8mm bores were made each equal distance from one another on the medium using sterile borer and 100µL of different urine preparation were added to respective bore. The plates were incubated at 37°C for 24 hrs and zone of inhibition were measured. For each test, three replicates were performed. Here an attempt was made to compare the antibacterial efficiency of flower extract along with activity of standard antibiotic.

RESULT AND DISCUSSION

The results of Antimicrobial activity of flower extracts of *Bauhinia blakeana* are furnished in Table No.1. The Acetone extract was exhibited maximum potential against *Proteus sp.* (52mm) and minimum potential against *E.coli* (18mm). The results revealed that the acetone extract is potent antimicrobials against the test organism. The antibacterial activity was observed from the zone of inhibition. The preliminary evaluation emphasizes further research to describe the bioactive compounds involved for their antimicrobial activity and to evaluate their other pharmacological activities of the plant. The photographs of the result of Antibacterial potential of Acetone extracts are presented in Figure No.1.

Table No.1: Result of Zone of inhibition of Antibacterial activity of Acetone extracts of *Bauhinia blakeana* Flowers

S.No.	Name of the bacteria	Mean Zone of Inhibition in mm
		Acetone Extract
1	<i>E.coli</i>	18
2	<i>Proteus sp.</i>	51
3	<i>Enterobacter sp.</i>	45
4	<i>Klebsiella sp.</i>	50

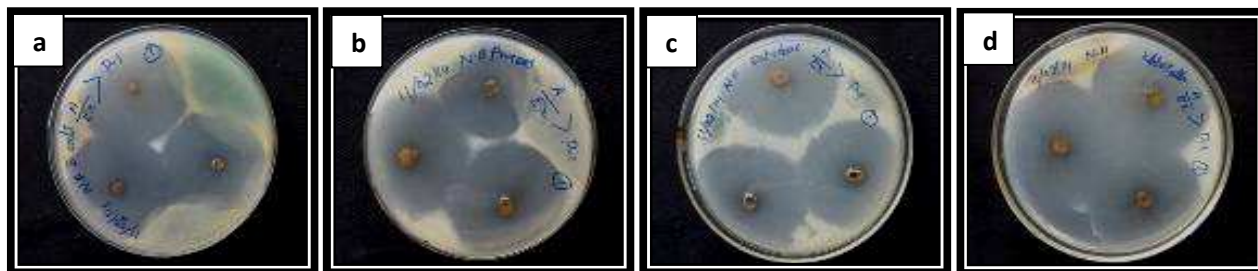


Figure No.1: Photograph of a dish showing zone of inhibition of Acetone extracts against the organisms (a) *E.coli*, (b) *Proteus sp.*, (c) *Enterobacter sp.*, and (d) *Klebsiella sp.*

CONCLUSION

It has been concluded that the acetone extracts of the *Bauhinia blakeana* showed significant antimicrobial activity against selected microbes by Agar well diffusion method.

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