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IN VITRO ANTIMICROBIAL ACTIVITY OF *CASSIA AURICULATA*

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Abstract: The *In vitro* antimicrobial activity of *Cassia auriculata* leaf extracts has been investigated against *S. aureus, E. coli, K. pneumonia*, *shigella* and *S. typhi.* The fresh and methanol extracts *Cassia auriculata* showed high activity against nearly all test micro organisms. The zones of inhibition of extracts are very close and identical in magnitude and are comparable with that of standard antibiotic used.

Keywords: *Cassia auriculata*, Antibacterial activity, *S. aureus, S. typhi, E. coli, K. pneumonia* and *Shigella*, leaf extract, Zone of Inhibition.

INTRODUCTION

Cassia auriculata linn (Caesalpiniaceae) is a shrub, used in traditional medicine in many parts of India and the West Indies for treatment of various infections like fever, constipation, diabetes, urinary disorders. It has many medicinal properties. Its bark is used as an astringent, leaves and fruits anthelminthic, seeds used to treat in eye troubles and root employed in skin diseases[10]. It is also used for the treatment of ulcers, leprosy and liver disease[4]. The antidiabetic, hypolipidemic[7] and antioxidant[6] and hepato protective[5] effect of *Cassia auriculata* have been reported. It was also observed that flower and leaf extract of *Cassia auriculata* shown to have antipyretic activity[8]. The aim of the present study was to determine the antibacterial activity of various extracts of *Cassia auriculata* Leaves[1,3] which is having traditional claims for several diseases. The present study is aimed to evaluate antimicrobial activity of *Cassia auriculata*.

MATERIALS AND METHODS

The *Cassia auriculata* leaves were collected from the local area in and around Loni, during July-August 2007.the material was botanically identified and confirmed from the expert of department of botany P.V.P Arts and Science College Pravaranagar, Loni. The powder leaves were make into extract with chloroform, acetone and ethanol (95%) using a soxhlet apparatus. Then the extracts were dried and concentrated in vacuo by rotary evaporator. The ethanol (95%) the extract was dissolved in sterile water while other organic solvents extracts were dissolved in sterile water with the help of sterile DMSO which was previously tested for antimicrobial activity, against all test micro organisms and found negative. These solutions were further diluted to get test solutions of required concentrations. Solution of desired concentration of Ampicillin were prepared are used as standards.

The antimicrobial activities of various organic solvent extracts were assayed by agar well diffusion assay[2]. Ampicillin and tetracycline were used as standard and nutrient agar was employed as a medium. The invitro screening of antimicrobial activity was carried out against *S. aureus, E. coli, S. typhi, K. pneumonia & Shigella*. The plates were inoculated with 18 hrs cultures of respective microorganisms. The wells were made aseptically with cork borer having 6mm diameter and 0.2ml of test solutions of each extract as well as the standard was added into the well using a micro pipette under aseptic conditions. The plates were kept in refrigerator for 2 hrs as a period of pre incubation diffusion followed by incubation at 37+/- 0.5. The zone of inhibition of microbial growth was measured after incubation for 18hr. Each experiment was carried out in three replicates and the mean diameter of inhibition zone was recorded.

RESULTS AND DISCUSSION

Results of screening of antimicrobial activity of *Cassia auriculata* extracts summarized in table. I, It is evident from the results that the acetone and ethanol (95%) extracts showed high antimicrobial activity against nearly all the test micro organisms. These extracts showed significant inhibition of the growth of *S. aureus*, *E. coli*, Shigella, *S. typhi*. In addition to this acetone extract inhibited the growth of shigella while ethanol inhibited the growth of *K. pneumonia*. Chloroform extract showed activity only against *E. coli* and *S. typhi*. The degree of inhibition ranged from 12mm to 16mm against test micro organisms and comparable with ampicillin the standard antibiotics employed. The ethanol (95%) extract of *Cassia auriculata* leaves was formed to have wider antimicrobial activity. From thus results, it can be concluded that *Cassia auriculata* extracts can be regarded as a broad spectrum of antimicrobial agent.

Table. I: Antimicrobial activity of Chloroform, Acetone, and Ethanolic extracts of *Cassia auriculata.*

Organism	Zone of inhibition in mm			
	Chloroform	Acetone	Ethanol (95%)	Ampicillin
S. aureus ATCC25923	-	13*	16*	10
E. coli ATCC25922	-	14	15*	14
S. typhi ATCC441	-	13	14*	13
K.pneumonia ATCC35657	15*	-	16*	12
Shigella flexneri	14*	15*	-	13

All Values are an average of 3 determinations
*p<0.05 significant when compared with positive control

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