

## Research Article

**Evaluation of Antibacterial Activity of *Sophora interrupta* bedd**

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**ABSTRACT**

Plant based antimicrobials represent a vast untapped source of medicines and further exploration of plant antimicrobials need to occur. Antimicrobials of plants origin have enormous therapeutic potential. The active constituents of roots of *Sophora interrupta* Bedd., is extracted by using solvent benzene and the antibacterial activity is evaluated by Disc diffusion method. It showed a great significant antibacterial activity in concentrations of 0.5 to 1.5 mg/ml than standard concentrations of Ciprofloxacin.

**Keywords:** Ciprofloxacin, Benzene, Diffusion, Antimicrobials.

**INTRODUCTION**

The control of micro organisms is critical for the prevention and treatment of disease. Many chemical and physical agents are used to treat inanimate objects in order to destroy microorganisms or inhibit their growth. They also go on other organisms and microbial colonization can lead to disease, disability and death. Thus control of microorganisms residing within the body of humans and other animals is of great importance. When disinfecting or sterilizing an inanimate object, it should not damage the object itself. The same is true for the treatment of living hosts.

The most successful drugs interfere with vital process that differ between the pathogen and host, thereby seriously damaging the target microorganisms while harming its host as little as possible. According to Ehrlich, the anti microbial agents must have selective toxicity.

Now –a-days the sale of antimicrobial drugs is big business. In the United States millions of pounds of synthetic antimicrobials valued at billions of dollars are produced annually because of the massive quantities of antibiotics being prepared and used, an increasing number of diseases are resisting treatment due to the spread of drug resistance.

Toxic, broad spectrum antimicrobials are sometimes given in the place of narrow spectrum drugs as a substitute for culture and sensitivity testing, with the consequent risk of dangerous side effect, opportunistic infections and the selection of drug resistant mutants. The situation is made worse by patients not completing their course of medication. When

antibiotic treatment is ended too early, drug resistant mutants may survive.

The use of plant extract from medicinal treatment has become popular when people realised that the effective lifespan of antibiotic is limited and over prescription and misuse of traditional antibiotic are causing microbial resistance. At present, nearly 30% or more of the modern pharmacological drugs are derived directly or indirectly from plants and their extracts dominate in homeopathic or ayurvedic medicines.

Hence the recent bans and restrictions on the use of animal antibiotic growth promoters stimulated interest in bioactive secondary metabolites of plant sources as alternative performance enhancers. By considering the drawbacks of synthetic antimicrobials the attempts were made to evaluate the potentiality of the plant extract *Sophora interrupta* against standard micro-organisms.

**MATERIALS AND METHODS****Evaluation of Antibacterial Activity**

The antibacterial activity of benzene extract of *Sophora interrupta bedd*, was carried out by disc diffusion technique.

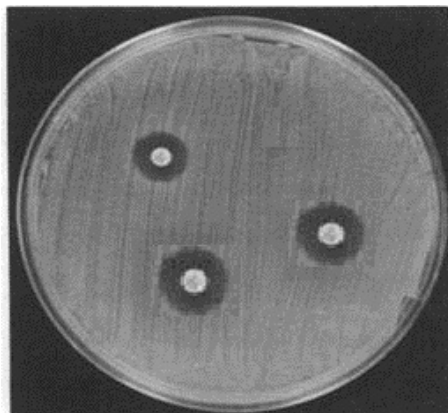
The test organism used for evaluation of antibacterial activity are mutant strain of *Bacillus subtilis*, *Pseudomonas aureus* and *Pseudomonas syringe*. These cultures were maintained on nutrient agar by sub culturing them on fresh slants after every 4 weeks. Temperature for incubation was at 30°C for 24 hrs.

The benzene extract of *Sophora interrupta* of different concentrations about 0.25, 0.5, 0.75,

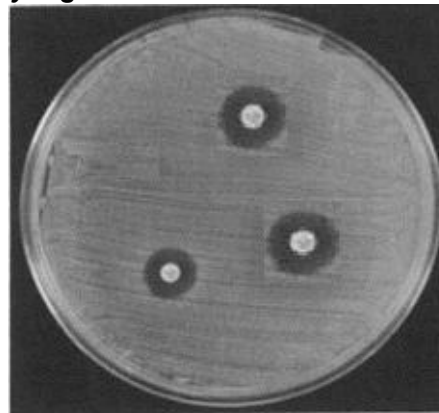
1.0, 1.25, 1.50 mg/ml was made dissolved in DMSO. These solutions were sterilised using filterate sterilization technique (membrane filter # 0.45 $\mu$ ), these dilutions were used to test the antibacterial activity of 3 different strains viz, *Bacillus subtilis*, *Pseudomonas aureus* and

*Pseudomonas syringe*. The obtained results were compared with standard drug Ciprofloxacin. The minimum inhibitory concentration was determined for the concerned micro organism.

**Zone of Inhibition  
*Pseudomonas syringe***

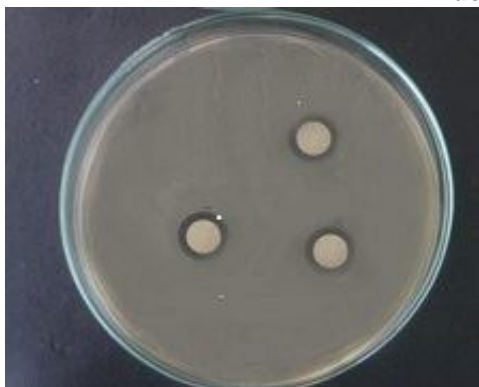


Standard (Ciprofloxacin)



Benzene extract of *S. interrupta* (1.25mg/ml)

***Bacillus subtilis***

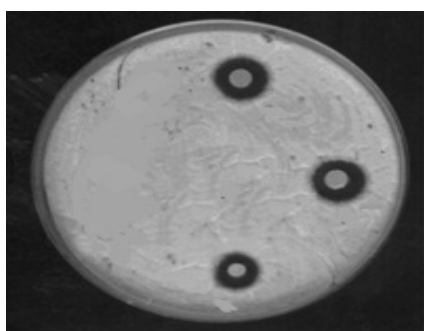


Standard (Ciprofloxacin)

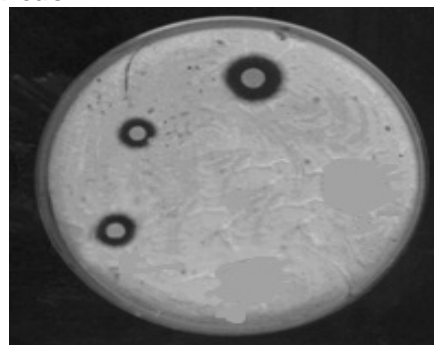


Benzene extract of *S. interrupta* (0.5mg/ml)

***Pseudomonas aureus***



Standard (Ciprofloxacin)



Benzene extract of *S. interrupta* (1.5mg/ml)

## RESULTS AND DISCUSSIONS

Table 1: MIC OF Benzene Extract of *Sophora interrupta*

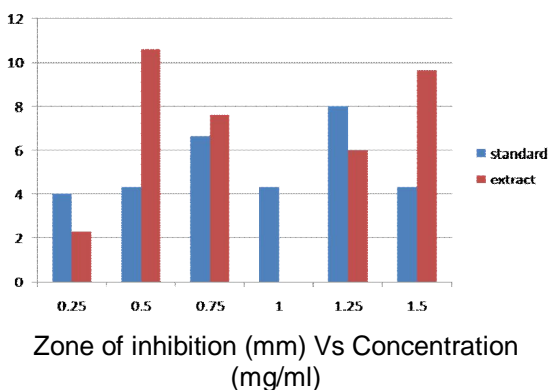
S. No.	MICRO ORGANISMS	ZONE OF INHIBITION(mm)											
		0.25mg/ml		0.5mg/ml		0.75mg/ml		1mg/ml		1.25mg/ml		1.5mg/ml	
		S1	E1	S2	E2	S3	E3	S4	E4	S5	E5	S6	E6
1	G+ <i>B. subtilis</i>	4	2.3	4.3	10.6	6.6	7.6	4.3	0	8	6	4.3	9.6
2	G- <i>P. syringe</i>	0	2.6	0	4	4	2	6	5.3	7.3	7.3	11	0.3
3	G+ <i>P. aureus</i>	6.3	0	6	6.6	6.3	4.6	6.3	4.3	8.3	5.3	11	7

Note: S: Standard ; E: Extract

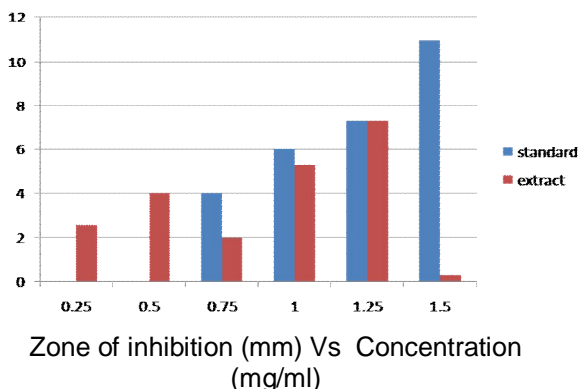
The Benzene Extract of the *Sophora interrupta* bedd., evaluated for Anti-bacterial activity by comparing with the standard drug of the ciprofloxacin on Gram positive and Gram Negative strains. At different concentrations benzene extract of the *sophora interrupta* bedd., showed significant anti-bacterial activity compared with standard drug at respective concentrations Shown in the table : 1 : Minimum Inhibitory Concentration of Benzene Extract of *Sophora Interrupta* Bedd.

#### Graphical View of Evaluation of Antibacterial Activity

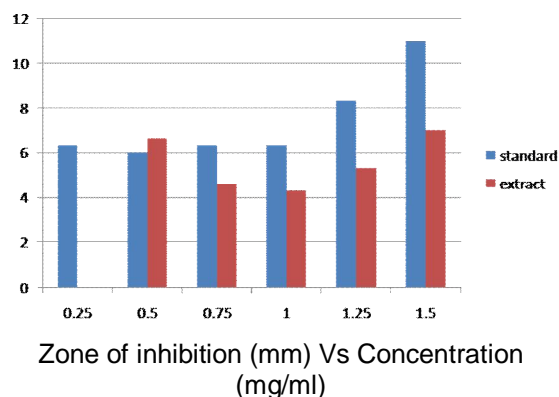
##### *Bacillus subtilis*



##### *Pseudomonas syringe*



##### *Pseudomonas aureus*



#### CONCLUSION

Plant based antimicrobials represent a vast untapped source of medicines and further exploration of plant antimicrobials need to occur. Antimicrobials of plants origin have enormous therapeutic potential. They are effective in the treatment of infectious diseases while simultaneously mitigating many of the side effects that are often associated with synthetic antimicrobials. Thus from the study it can be concluded that root extract of *Sophora interrupta* Bedd., has very good Antibacterial activity and can be explored further as effective Antibacterial agents.

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