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Antibacterial Activity of Leaves of BAMBOO

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ABSTRACT

The Leaf of *bamboo*, belonging to family Gramine is used as anthhelmintic. Tabashir (bamboo manna) is stimulant, astringent, febrifuge, tonic, cooling, antispasmodic, and aphrodisiac. Antimicrobial activity of the successive extract of the fresh leaves of *bamboo* was evaluated against both Gram positive and Gram-negative bacterial strains by disc diffusion method. The results revealed that all extracts showed effective inhibitory action against S. aureas. The aqueous and ethnolic extracts showed very effective as compared to standard penicillin.

KEYWORDS

Antibacterial activity, Zone of inhibition, *Bamboo*.

INTRODUCTION

Bamboo is the longest grass in the world. It consists of a hollow culm or stem, with nodes or joints between segments of the stem, and oval leaves. The culm, branches and leaves stay green throughout the bamboo's life, even during winter. The bamboo's lifespan is not very long about 20 years, and it flowers once every 7 to 12 years, depending on the species. Interestingly, all the bamboo of a particular species will flower at exactly the same time, regardless of their geographical location. Being a very versatile plant, bamboo grows in a lot of different climates – it can be found on all

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the continents except Antarctica. Moreover, it is incredibly flexible; it will bend in strong winds, but it rarely breaks. With a tensile strength superior to mild steel, and a weight-to-strength ratio better than graphite, bamboo is the strongest growing woody plant on Earth. A testament to its durability is the fact that a stand of bamboo plants near ground zero at Hiroshima in 1945 survived the atomic blast and sent up new shoots within days. It is also perhaps the fastest growing plant with some varieties growing at the rate of 5 cm per hour to 1.5 metres a day.

In the present investigation, the ethnolic and aqueous extracts were subjected for antimicrobial activity against the strains of *Staphylococcus aureus, P.aeruginosa, E.coli,* and *Bacillus.*

MATERIALS AND METHODS

The authenticated Leaf drugs of Bamboo were obtained from local area of Sultanpur, U.P. and used for further proposed studies.

1 Extraction:
Fresh leaves were collected and dried in shade. Dried leaves were powdered then it was subjected to successive extraction with pet ether, benzene, chloroform, ethyl acetate, ethanol, and aqueous. All the successive extract were collected, filtered and concentrated in vaccum under reduced pressure and dried and stored in desiccators.

2 Test Organisms
The pure cultures of bacteria maintained in the microbiology Laboratory were used for the microbiological work. The test organisms were maintained on Nutrient agar medium. The test organism were used for work are, *Staphylococcus aureus, Escherichia coli, P.aurenginosa , Bacillus.*

3 Preparation of inoculums
Stock cultures were maintained at 4°C on slopes of nutrient agar. Active cultures for experiments were prepared by transferring a loopful of microorganism from the stock cultures to test tubes of Nutrient broth, and incubated for 24 hrs at 37°C. The cultures were diluted with fresh Nutrient broth.

4 Preparation of Media
The medium was prepared by dissolving the different ingredients in water and autoclaved at 121°C for 15 minutes. This was used for preliminary antibacterial studies.

5 Antibacterial susceptibility test
The disc diffusion method was used to screen the antibacterial activity. In vitro antibacterial activity was screened by using Nutrient agar (NA) obtained from Himedia
(Mumbai). The NA plates were prepared by pouring 15 ml of molten media into sterile
petriplates. The plates were allowed to solidify and 0.1 % inoculum suspension was swabbed uniformly and the inoculum was allowed to dry for 5 minutes. The different extracts were loaded on 3mm sterile disc till saturation. The loaded disc was placed on the surface of medium and the compound was allowed to diffuse for 5 minutes and the plates were kept for incubation at 37°C for 24 hrs. At the end of incubation, zone of inhibition formed around the disc were measured with transparent ruler in millimeter. These studies were performed in triplicate by using standard drugs (10 mcg/disc Penicillin). ethnolic and aqueous extracts were

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subjected for antimicrobial activity against the strains of *Staphylococcus aureus*, *P.aeruginosa*, *E.coli*, and *Bacillus.*

RESULTS AND DISSCUSSIONS

The zone of inhibition of different extract and standard are recorded in table 1. Both the extracts were subjected to antibacterial activity by disc diffusion method. Significant antimicrobial effect was observed. The aqueous extract was also found to have very significant antimicrobial effect against E. coli.

Ethanolic extract shown moderately effective against all four organisms, but aqueous extract shown moderately effective against *E. coli* and *S. aureus.* Where as the other extracts were found to have resistant

ANTIMICROBIAL ACTIVITY REPORT:

In biological investigation we were observed following result by checking antimicrobial activity on extract of bamboo leaf on some microbial agent. Here is the table chart of zone of inhibition as following:-

Table no.1

Antimicrobial activity of Bamboosa arundinaceae extract

NAME OF PLANT EXTRACT	CONCENTRATION	AVERAGE ZONE OF INHIBITION(mm)				
		S.aureus	***E. coli***	**P.aurgenosa**	**Bacillus**	**Standard Penicillin**(1mg/ml)
Ethanolic extract	1mg/ml	2.1	3.1	1.2	2.5	10
Aqueous Extract	1mg/ml	1.2	l.1	nil	nil	10

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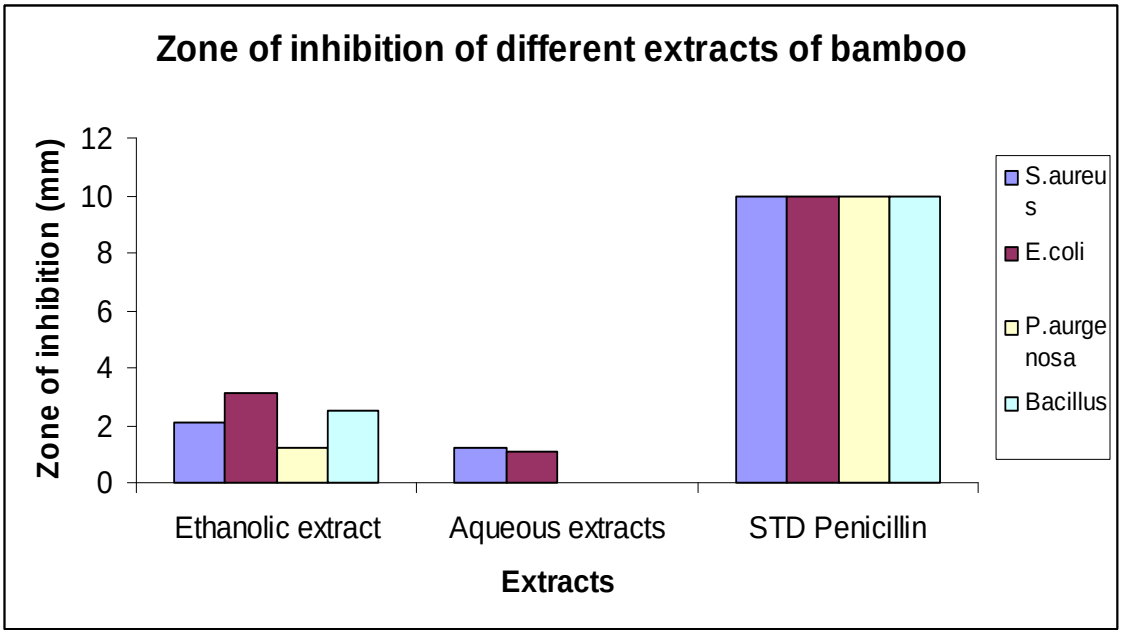

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