Research Article

Evaluation of Anti-Microbial Activity of *Bambusa Vulgaris* Leaves

Sravanprasad macherla^{1*,} Manoranjan sabat², Sharadanalla², Venkateshwarlu.G^{2,} E.Rajeshwari²

- 1. Sri indu institute of pharmacy, sheriguda, ibrahimpatnam R.R dist
- 2. Venkateshwara institute of pharmaceutical sciences, cherlapally, Nalgonda 508001

ABSTRACT

The present study was used to evaluate the antimicrobial activity of *Bambusa vulgaris* along with the phytochemical constituents. The diameter of inhibition zones recorded includes the size of filter paper discs. To study the in-vitro antimicrobial activity of methanolic extracts of *Bambusa vulgaris* on gram +ve , gram –ve bacteria and fungi. The maximum activity was found to be on *B.subtilis* among gram +ve bacteria. The inhibition zone, especially on Kanamycitin resistant was found to be 25-to35mm, on other hand the maximum activity was observed on *E.coli* among the Gram-ve bacteria. When compared to the standard, zone of inhibition of extract on fungi was observed nearer to the standard.

KEY WORDS: Bambusa vulgaris, Anti-microbial activity, E. coli, Kanamycitin, S.aurious, B.subtilis.

INTRODUCTION:

Traditionally Bambusa used for various ailments like ulcer and anti inflammatory, anti diabetic agents in ayurveda system. Bambusa vulgaris has historically been used to treat cough and excess mucus and help alleviate fever¹⁻². Its juice can be used to treat jaundice. It is often used for its tonic and astringent properties. Leaves can be used as abortifacient agent. It protects skin against bacteria and fungus, helping avoid various skin troubles so it is used extensively in skin care products and it shows anti-oxidant property³⁻⁴. It is also effective against fever, epilepsy, alcoholpoisoning, asthma, palsy and pain. It has anti-microbial activity because of PABA antagonism. The decoction of sprouts is beneficial in anorexia, dyspepsia and worms. Vamsarconais (bamboo manna) useful in various disorders like hyperpepsia, diarrhea vomiting and

raktapitta heart diseases⁵⁻⁷. The roots are diuretic, tonic depurative, laxative and cooling and also used in burning sensation, arthralgia, and general debility and dysuria. The fruits are salutary in diabetes whereas, the seeds are useful in obesity to reduce fats⁸. The decoction of roots is an antidote for arka poisoning. The present work has been carried out to evaluate the antimicrobial effect of methanolic extract of *Bambusa vulgaris*.

COLLECTION OF PLANT MATERIAL:

Bambusa vulgaris were purchased from commercial supplier of rural Nalgonda, Andra Pradesh, India. The plant authenticated by Dr.K.Raju, Head of Dept of Botany, Kakatiya University, Warangal, India

PREPARATION OF EXTRACT:

The plant was shade dried and made in to coarse powder. It was extracted with methanol in Soxhlet apparatus for 24 hours. The concentrated material was reduced to a thick mass at room temperature and water was removed by placing it on water bath. The weight of the dried material was recorded and used for experimental study (8).

MATERIALS AND METHODS:

Methanol and kanamycin (S.D fine chemicals Hyderabad), E.coli, S.aurious, B.subtilis, K.pneumoniae, C.albicans are purchased from C.C M.B Hyderabad. Soxhlet apparatus was from Venkateshwara Institute of Pharmaceutical Sciences. The solvents and other chemicals were procured from E.merk, Mumbai and they were of analytical grade quality. Methonolic extract of Bambusa vulgaris were screened for anti-microbial

activity done by cup plate method (6). The activity was compared with standard (Kanamycin) and control is methanol in propylene glycol. Various organisms used in the study are gram +ve (B.subtilis, S.aurious), gram -ve bacteria (E.coli, K.pneumoniae) and fungi (C.albicans). Different concentration of extracts equivalent to 10, 50 and 100 mg/ml were prepared by using 0.1% methanol in propylene glycol. 10µg/ml concentration of kanamycin was prepared individually used as standard to be studied along with test solution and studied for their zone of inhibition individually. Nutrient agar was used to study the anti bacterial activity of extracts. The zone of inhibition around the cup indicates the anti-microbial activity. The control was run simultaneously to asses the activity of 0.1% of methanol in propylene glycol which was used as vehicle for extract. The diameter of zone of inhibition was recorded.

Table 1: Anti-microbial activity of gram +ve bacteria (zone of inhibition in mm):

Test organism	Control	Kanamycin	Methanolic extracts			
			10mg/ml	50 mg/ml	100mg/ml	
S.aurious	10	30	11	13	15	
B.subtilis	10	33	13	16	20	

Table 2: Anti-microbial activity of gram -ve bacteria (zone of inhibition in mm):

Test organism	Control	Kanamycin	Methanolic extracts			
			10mg/ml	50 mg/ml	100mg/ml	
E.coli	10	25	15	18	21	
K.pneumoniae	10	23	13	16	19	

 Table 3: Anti-microbial activity of fungi (zone of inhibition in mm):

Test organism	Control	Kanamycin	Methanolic extracts			
			10 mg/ml	50 mg/ml	100mg/ml	
C.albicans	10	25	14	18	24	

RESULTS AND DISCUSSIONS:

The preliminary chemical analysis of Bambusa vulgaris was done. From the result be inferred it can that. carbohydrates, tannins, phenols, saponins, flavonoids, volatile oils, steroids and proteins present in methanolic extract. In the present study anti-microbial activity of methanolic extract individually and kanamycin was performed. The data obtained for the anti-microbial activity were present in table no. 1 & 2. The maximum activity was on B.subtilis and minimum activity was on S.aurious among the gram +ve bacteria. The inhibition zone, especially on kanamycin resistant was 25-35mm respectively. On the other hand maximum activity was observed on *E.coli* among the gram –ve bacteria.

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