Biospectra : Vol. 11(2), September, 2016, pp 61-62

An International Biannual Refereed Journal of Life Sciences

Plant Science

ISSN : 0973-7057

Antibacterial activity of *Butea monosperma* plant leaf extract of Ranchi District, Jharkhand, India

Ishwari Prasad Gupta [a] and Arapna Sinha [b]

Post Graduate Department of Botany, Ranchi College Ranchi-834008

Received , 25th June, 2016; Revised: 19th August, 2016

Abstract : The antibacterial activity of ethanol and aqueous extracts of leaves of Butea monosperma was evaluated on one gram positive strain like Staphylococcus aureus and one gram negative strain like Escherichia coli. The antibacterial activity was performed by disc diffusion method. The antibacterial activity of the active extraxts was compared with standard antibiotic gentamicin (40 µg/ml). from the experiment done the ethanolic extract of Butea monosperma leaves did produce considerable antibacterial activity than the aqueous extract was observed. The results obtained in the present study suggest that Butea monosperma leaves can be used in treating diseases caused by test organism.

Keywords : Butea monosperma, ethanolic extract, aqueous extract.

INTRODUCTION

India is a land of biodiversity. The plants are the source of medicines since ancient times. According to World Health Organization, 80% of the populations in the world depends on traditional medicinal practioners for ther medicinal needs. Butea monosperma (lam) is a deciduous tree, belongs to family Fabaceae, which grows up to 15m in height and 1.5-1.8 m in girth, with a crooked trunk. Leaves 3 - foliolate, large, unequal, 10.2-20.5 cm. the leaves are useful in diabetes, in treatment of Leucorrhea and also useful in congested and septic throat.

MATERIALS AND METHODS

Plant material - Leaves of Butea monosperma plant was collected from local area.

Preparation of extracts:- 5kg of leaves of Butea monosperma were shade dried, crushed to coarse powder. The powder was stored in air tight, high density poly ethylene containers before extraction. Extraction was performed by using soxhlet apparatus (48 hours), carried out with ethanol and aqueous. The extracts were concentrated for further studies at reduced presence and temperature in a rotary evaporator. Different concentrations of extract were prepared by dissolving the fine powder in 10% aqueous Dimethyl Sulfoxide (DMSO) for further study.

Screening of Antimicrobial activity:- The disc diffusion method was used for the determination of the antibacterial activity.

Disc diffusion method:- Screening of extracts for antibacterial activity was done by the disc diffusion method. It was performed using an Agar plates. Bacterial inoculums were spread over the plates using a sterile cotton swab. The extracts were dissolved in 10% aqueous Dimethyl Sulfoxide (DMSO). Under aseptic condition, empty sterilized discs were impregnated with 100 µl of each of the extracts of different concentrations and left to dry under laminar flow cabinet and then placed on the agar surface. Standard discs containing gentamicin (40 µg/ml) was used as control.

All Petri dishes were left for 30 minutes at room temperature to allow the diffusion of test drugs and kept for incubation at 370 C for 18 hours. After the incubation time, all the plates were examined for the presence of zones of inhibition. The antibacterial activity was interpreted from the size of the diameter of zone of inhibition.

*Corresponding author :
Phone: 9431326281
E-mail : ishwariprasadgupta@rediffmail.com

Antibacterial activity of Butea monosperma leaves extracts

Treatment	Staphylococcus aureus (Zone of inhibition in mm)		Escherichia coli (Zone of inhibition in mm)	
	Ethanolic extract	Aqueous extract	Ethanolic extract	Aqueous extract
Control (DMS0)	16.77 ± 0.775	16.77 ± 0.775	16.50 ± 0.577	16.50 ± 0.577
40 µg/ml Gentamicin	41.53 ± 2.69	41.53 ± 2.69	44.97 ± 2.26	44.97 ± 2.26
125 mg/ml	18.07 ± 0.845	16.77 ± 1.95	23.16 ± 2.52	24.63 ± 0.664
250 mg/ml	26.87 ± 1.42	24.5 ± 1.95	28.63 ± 0.648	33.5 ± 1.528
500 mg/ml	30.83 ± 0.920	28.83 ± 0.33	32.8 ± 0.929	35.93 ± 0.721
1000 mg/ml	38.1 ± 0.850	35.5 ± 2.88	38.47 ± 0.636	37.97 ± 1.810

RESULT AND DISCUSSIONS

The result indicated that ethanolic extract of Butea monosperma can be used for the treatment of diseases caused by gram positive bacteria such as S. aureus and Escherichia coli, which are gram negative bacteria. This result proves that the use of the leaves of Butea monosperma to cure illness, especially those caused by microbes.

CONCLUSION

Ethanolic extract of Butea monosperma possesses antimicrobial potentials against both gram positive and gram negative bacteria. It is therefore confirmed as useful antimicrobial agent.

REFERENCES

1. The ayurvedic pharmacopocia of India. Part-1, Volume-II government of India ministry of health and family department of Ayush.
2. M A EKpo and P C Etim. Antimicrobial activity of ethanolic and aqueous extracts. Journal of Medicinal Plants Research 2009, 3(9); 621-624.
3. B Auer A W, Kirby W M, Sherris J C, Turck M. Antibiotic susceptibility testing by a standardized single disc method. 1996 Apr; 45(4): 493-496.