Biospectra : Vol. 11(2), September, 2016, pp 55-56

An International Biannual Refereed Journal of Life Sciences

Plant Science

ISSN : 0973-7057

Evaluation of antimicrobial activity of *Oscimum sanctum* plant 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 present study was conducted to investigate antimicrobial activity of Oscimum sanctum methanolic extract against strains of gram positive and gram negative bacteria. The extract was tested for its antimicrobial activity against gram positive bacteria like Bacillus subtilis and gram negative bacteria like Escherichia coli. Inhibition of microbial growth was investigated using agar well diffusion method.

Keywords : Antimicrobial, Oscimum sanctum, well diffusion method.

INTRODUCTION

Oscimum sanctum L. , known as 'Tulsi' in Hindi, is a erect softly hairy aromatic herb or under shrub found throughout India. Tulsi is commonly cultivated in gardens. Different parts of Tulsi plant eg. leaves, flowers, stem, root, seeds etc. are known to possess therapeutic potentials and have been used, by traditional medical practitioners as expectorant, analgesic, anticancer, antidiabetic, antimicrobial. The aim of this study was the antimicrobial activities of methanolic extract of Oscimum sanctum against bacteria, evaluating zone of inhibition.

MATERIALS AND METHODS

Plant material - The whole herb of Oscimum sanctum was collected. The shade dried, powdered whole herb (250 gm) of Oscimum sanctum were extracted with petroleum ether (60-800 C), followed by extraction with methanol using soxhlet extractor. The methanolic extract was then concentrated using rotary flash evaporator to a syrupy consistency. The residual solvent was removed by drying.

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

Microorganisms - The following bacterial strains were used in the antimicrobial tests. Gram positive bacteria Bacillus subtilis, Gram negative bacteria Escherichia coli. Antimicrobial activity was determined by using nutrient agar. Each medium was at 1210 C, 15 psi for 15 minute before inoculation. The bacteria used in the tests were obtained from 24 hour cultures.

ANTIMICROBIAL ACTIVITY

Antimicrobial activity of methanolic extract was determined using agar well diffusion method. About 15 ml of sterilized selective agar based medium were added aseptically to sterile plates to prepare a basal layer was seeded the next day with 7 ml of sterilized selective agar based medium containing 1 ml of suspension of standard inoculums. The plates were allowed to set. Each Petri dish was divided into four sectors, and in each sector a base of 6 mm diameter was made using sterilized borer in the solidified medium. Using sterilized dropping pipettes, each bore in different sector was carefully loaded with 75 µl of methanolic extract of Oscimum sanctum and allowed to diffuse at room temperature for 2 hrs. The plates were then incubated at 370 C for 24 hrs. for bacteria The zone of inhibition of growth of microorganisms around the well was measured in cm, with the help of a scale.

RESULTS AND DISCUSSION

The minimum inhibitory concentration (MIC) of the methanolic extract against different microorganisms is tabulated. The studied concentration of the methanolic extract was 5 mg exhibited antimicrobial activity against the test microorganisms with zone sizes 2.5 cm and 2.3 cm respectively. The minimum inhibitory concentration of the methanolic extract was found 65 & 64 mg respectively against the different test organisms.

Antimicrobial Activity of Methanolic extract of Oscimum sanctum against test organisms.

Organism	Zone of Inhibition (cm) at MIC	Minimum inhibition concentration (MIC) mg/ml
Bacillus subtities	2.5 cm	65
Escherichia coli	2.3 cm	64

REFERENCES

1) Almas, K. Ansal Labi, T.R. (1995) The natural toothbrush. World health forum 16:206-210
2) Sonia Bajaj, Srinivasan B.P (1999) Investigation into the Anti bacterial activity of Azadirachta indica. Indian Journal of pharmacology 31:138-141.
3) Faiza Aslam, Khalil Ur. Rahman, Mohammad Asgar and Muhammad Sarwar (2009) Antibacterial activity of Various Phytoconstituents of Neem. Vol. 46 (3), 456-463.
4) Md. Mahshine Bhuiyan, Michiko Nishimura Seishi Matsumura and Tsutomu Shimono (1997) Antibacterial effects of the crude Azadirachta indica, Pediatric dental journal 7(1):61-64.