

Antibacterial Activity of Ethanolic Extract of Black Pepper Against Clinical Isolates of Staphylococcus

Blessy S, Gopinath P¹, Jayalakshmi²

¹Bachelor of Dental surgery, Department of Microbiology,
Saveetha dental college and hospital, Chennai, Tamilnadu, India.

²Professor and head, Department of Microbiology,
Saveetha medical college and hospital, Chennai, Tamilnadu, India.

INTRODUCTION

Staphylococcus aureus is a gram positive bacteria which is responsible for increased morbidity and mortality^[1]. It is one of the leading causes of wide variety of infections of skin, soft tissues, bones and joints, abscesses and hard valves, this may reside in the hospital environment and is associated with blood stream surgical wound infection^[2]. It became a successful nosocomial pathogen. Medicinal plants can be valuable in therapeutic procedures.^[3]

The treatment of infection with plant derived compounds is an age old practise that is being employed throughout the world, particularly in developing countries^[4]. Interest in plant and plant products with antimicrobial properties has been revived as a result of current resistant profiles associated with inappropriate usage of antibiotic^[4,5].

Black pepper is known to inhibit the growth of various microbes such as Staphylococcus aureus, Bacillus subtilis, Pseudomonas aeruginosa, Escherichia coli, Alternaria alternata, Aspergillus niger, Aspergillus flavus and Fusarium oxysporum. Black pepper (Piper Nigrum L.) is an important healthy food owing to its antioxidant, antimicrobial potential and gastro-protective modules. Black pepper with piperine act as an active ingredient, holds rich phytochemistry that also includes volatile oil, oleoresins and alkaloids. Efforts are made to elucidate antimicrobial, antioxidant, anti-inflammatory, gastro protective and antidepressant activities of black pepper^[6].

METHOD :

Antibacterial activity of ethanolic extract of black pepper against clinical isolates of Staphylococcus aureus

A total of 10 clinical isolates of S. aureus were involved in this study. They were isolated from different clinical specimens such as 4/10 (from pus), 3/10 (from wound swab) and 3/10 (from sputum). The antibacterial activity of black pepper against S. aureus was performed by Minimum Inhibitory Concentration (MIC) method followed by Minimum Bactericidal Concentration (MBC)^[3].

The dilution ranging from 4-0.06% (V/V) concentrations. A well without extract served as control for bacterial growth. Culture suspension of S. aureus isolates was adjusted to 0.5 McFarland standard for turbidity and 10 microlitre of culture suspension were inoculated to all wells and assay was performed.

RESULTS AND DISCUSSION

3/10 (30%) were found to be inhibited at > 4% , 2/10 (20%) were found to be inhibited at 0.5% , 4/10 (40%) were found to be inhibited at 0.06% and 1/10 (10%) was found to be inhibited at 0.25% of ethanolic extract of black pepper.

The MIC value of ethanolic extract of black pepper was found to be 0.06 ->4% against our isolates. Study conducted by Phaechamud et al., 2012 from Thailand^[7], have reported an increased percentage of isolated showed activity against S. aureus. In contrast, Ababutain and co-workers in 2011 documented that there were no antibacterial activity against S. aureus^[8].

The ethanolic extract of Black pepper has inhibitory activity against our isolates. Further study need to be conducted in order to find out the active principal that is responsible for the activity against S. aureus.

Strain no:	MIC Values
1	>4%
2	0.5%
3	0.06%
4	>4%
5	>4%
6	0.06%
7	0.06%
8	0.5%
9	0.06%
10	0.25%

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