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[Research article]

Antibacterial activity on leaf extracts of *Syzgium jambalonam*

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ABSTRACT

The purpose of this investigation was to extract the bioactive agents from the Methanol, Acetone extracts were examined for their activities against pathogenic microorganism (Proteus vulgaris, Staphyloccus aureus, Bacillus subtilis and E.coli). The most of the incidence of infections caused by pathogenic microorganism in our routine life and the importance of using novel synergistic drug has become important. In the present study enhanced inhibitory effects were achieved by employing solvent extracts of Syzgium jambalonam. These MIC were compared with well known antibacterial plant of Neem extract (Biological source-Azadirachta indica, Family-Meliaceae).

KEY WORDS: Syzgium jambalonam, Methanol extracts, acetone extracts, Neem extract, MIC, Pathogenic Microorganisms.

INTRODUCTION

During the past 20 years, antibacterial resistance among gram positive bacteria has become an increasingly serious problem. At the same time serious infections caused by gram positive and gram negative bacteria have become more wide spread.

Syzgium jambalonam (Lank) is a species in the family myrtaceae widely cultivated in India, Burma, Ceylon and Andaman Island. The leaves and fruits are employed in worshipping the elephant headed god Ganesha (or) Vinayaka. The personification of "Pranava" (or) "Om" the apex of Hindu religion and philosophy . There are about 60 species in this grows worldwide. The Bureau of plant industry of the U.S department of agriculture received jambolan seeds from the Philippines in 1911, from java in 1902, from Zanzibar and again from the Philippines in 1920.

Syzgium jambalonam having the activity of astringent, carminative, antiscorbatic and diuretic. In this time evaluated the in -vitro antibacterial activities of a variety of antibacterial agents against of the methanol, acetone extracts from *Syzgium jambalonam*.

MATERIALS AND METHODS

Extraction and isolation

The plant leaves of *Syzgium jambalonam* and Neem were collected from khammam district, Andhra Pradesh. Dried leaves of *Syzgium jambalonam* and Neem (25) were taken, Fix the flask to Soxhlet extraction equipment, proceed the extraction for 24 hours then remove the flask, condense the liquid to 50 ml.

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Test organism and medium

A panel of micro organisms that are potentially pathogenic for human was used to assess the antibacterial activities of the extracts. The nutrient agar medium was used for the all micro organisms. The three bacteria used were kept in our laboratory and included Proteus vulgaris, Escheria coli, Staphylococcus aureus, Bacillus subtilis. The following media was used for each of the organisam.1g of Peptone,0.6g of Meat extract, 1g of Nacl, 5g of agar and 200 ml of distilled water, adjusted pH7.0 before autoclaving.

Antimicrobial Activity

In brief the concentrations of the Neem and antipathogenic agents tested ranges from 25-50 µg /ml. Colony suspensions equal to 0.5 Mcfarland standard were prepared and inoculated on to the antibiotic containing medium using a cathra systems to yield to final inoculum of 10 cfu/spot. The plates were incubated in ambient air at 35ºc for 24 hours. The MIC was defined as the lowest antibiotic concentrations showing no growth.

RESULT AND DISCUSSION

Acetone extracts was more highly active against Proteus vulgaris, Staphylococcus aureus, Bacillus subtilis, and Escheria coli. Then alcohol and aqueous extracts were tested. The Minimum Inhibitory Concentration values for the acetone extracts against these bacteria were 18.5±0.3,18±0.2,16±0.2,17.5±0.3 (Table 1,Fig 1A). Activity against Proteus vulgaris moderate with an MIC value of 25±0.5µg/ ml. a particularly strong antibacterial activity, comparable to that of clinically used antibiotics was observed for the Acetone, Alcohol and Neem extracts.

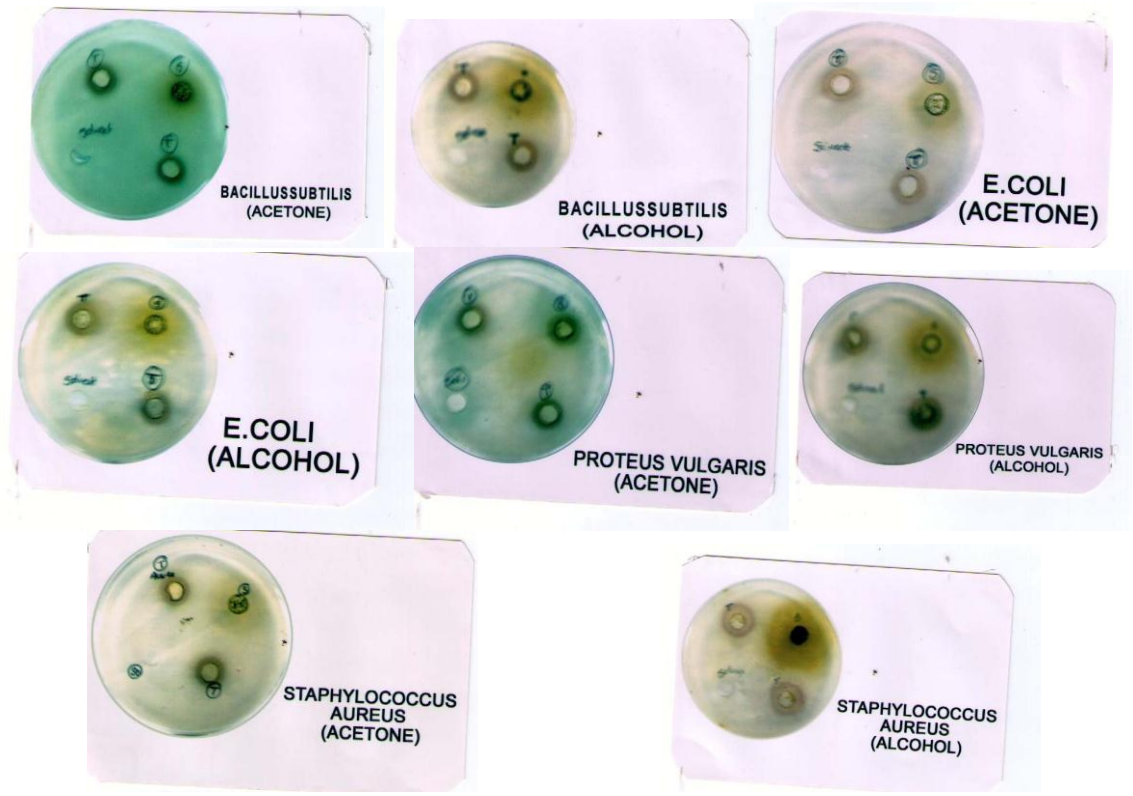
Acetone extract was highly active against Proteus vulgaris , Staphylococcus aureus, Escheria coli, strains where the MICs were 20±0.5µg/ml. It also showed moderate activities against Bacillus subtilis. Alcohol extract was highly active against Staphylococcus aureus, Proteus vulgaris strains where the MICs were 20±0.5µg/ml. It also showed moderate activities against Escheria coli and Bacillus subtilis. The standard of Neem extract were showed highly active against all pathogenic microorganisms when the extract was tested.

Syzgium jambalonam is fast growing astringent and flavor varies from acid to fairly sweet that is a member of the Clove family (Myrtaceae). The tree is cultivated in India, Burma, Ceylon, Andaman Island, Malaya and various South Asia. In this study we show marked activity of the acetone and alcohol extract against pathogens. The pathogenic microbial susceptibility tests from for acetone, alcohol extracts were performed against broad range microorganisms. The current results demonstrate that the all extracts had an antibacterial that may have significant potential as a possible therapy for a broad of microbial infections. In this study, we discovered that *Syzgium jambalonam* tree has potent antibacterial activity against pathogenic micro organisms.

Table;1 Minimal Inhibitory Concentration (MIC) of the Acetone and Methanol extracts from *Syzgium jambalonam* as well as Neem extract toward pathogenic micro organisms.

Test organisam	Acetone extract	Methanol extract	Neem extract
P.vulgaris	18.5±0.3	17±0.1	17±0.3
S.aureus	18±0.2	18±0.5	18±0.3
B.subtilis	16±0.2	15±0.2	19±0.3
E.coli	17.5±0.3	16±0.3	18±0.2

Fig: 1 Antibacterial activity



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