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ANTIMICROBIAL ACTION OF THE LEAF EXTRACT OF *MORINGA OLEIFERA* LAM.

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ABSTRACT: *The ethnolic extract of the leaves of Moringa oleifera Lam. (Fam. Moringaceae) was tested for antimicrobial activities against Gram Positive – Bacillus cereus, Bacillus subtilis Staphylococcus aureus, Sarcina lutea: Gram negative – Escherichia coli and Acid fast Mycobacterium phlei. Significant antimicrobial activity of the extract was found in this study.*

INTRODUCTION

Moringa oleifera Lam. (Family Moringaceae) is well – known for its various medicinal properties (1). The powdered seeds were traditionally utilized for water purification purpose (2) and juice of leaves are being applied in eye infections (3). Extracts of roots and seeds have shown antimicrobial activity (4). The present investigations were undertaken to test the antimicrobial activity of the leaf extract of this plant of some gram positive, gram negative and acid – fast bacteria.

MATERIALS AND METHODS

Plant Material:

Fresh leaves of the plants were collected and identified in Botanical Survey of India, Shibpur, Howrah. The leaves were shade – dried, pulverized and passed through a 60 Mesh sieve.

Preparation of leaf extract:

The dried leaves (720 gms) were extracted in soxhlet extraction apparatus with ethanol and the solvent was removed under vacuum to yield a crude extract. This extract was tested for antimicrobial activity on various microorganisms like *B. cereus, B. subtilis, E. coli, Straph. Aureus, S. lutea* and *M. phlei.*

The micro organisms were collected from the microbiology divisions of the department of Pharmaceutical Technology, Jadavpur University.

Determination of zone of inhibition

A 55 w/v test solutions of the extract was prepared by dissolving 250 mg of the extract in 5 ml of sterile dimethyl formamide (DMF). A 0.1% w/v solution of chloramphenicol prepared by dissolving 100 mg of chloramphenicol in 100 ml of sterile water was used as standard. Antimicrobial activity was tested by disc diffusion assay method (DDA) (5) employing 24 hours cultures of six test organisms. The test organisms were seeded into sterile nutrient agar medium by uniformly mixing one ml of the inoculums with 20 ml co-sterile melted nutrient agar cooled to 48 – 50^0C in the sterile petridish. When the agar solidified

eight filter paper disks (Whatman no.1) of 5 mm diameter soaked in the test solution (Chloramphenicol solution) and the blank (DMF) were placed on the agar surface separately under aseptic conditions and the plates were then maintained at room temperature for 2 hours to allow the diffusion of the solutions into the medium. The plates were incubated at 37^0C for 48 hours and the zones of inhibition were measured.

RESULTS AND DISCUSSION

Results of antimicrobial screening of the leaf extract of *M.oleifera* were measured in terms of zone of inhibition (Table 1). It is revealed that the ethanolic extract shows antimicrobial properties on the above mentioned gram positives, gram negative and acid – fast bacteria. The effect of this extract was found to decrease in the following order against different test organisms *E. coli, B. subtilis, M. phlei. B. cereus, S. lutea* and *S. aureus.*

The antimicrobial activity shown by the extract might be due to some antimicrobial substances present in *M. oleifera.* The isolation of antimicrobial substances is underway in our laboratory.

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TABLE – 1

Antimicrobial screening of leaf extract of *M.oleifera* in terms of average zone of inhibition

Name of the organism	Average zone of inhibition (in mm)		
	Ethanolic extract	Standard	Blank
Bacillus cereus	15	27	00
Bacillus subtilis	18	28	00
Staphylococcus aureus	13	25	00
Sarcina lutea	14	27	00
Escherichia coli	19	29	00
Mycobacterium phlei	16	28	00

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