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Antibacterial activity of blue green algae

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Abstract:- In this study two blue green algae *Microcystis aeruginosa* and *Anabaena orizae* were tested in compliance with the agar well diffusion method for their anti-bacterial activity against two gram negative bacteria obtained from local pathological lab.

Key words: Metabolites, antibacterial, gram negative, algal extract.

INTRODUCTION

Blue green algae produces a variety of remarkable compounds collectively referred as secondary metabolites. They are synthesized by algae in culture at the end of the primary growth phase and in stationary phase.

Two types of secondary metabolites viz. cytotoxin and biotoxin are known to be produced by BGA. Of these cytotoxin shows toxicity to algae, fungi and bacteria. Various cyanophycean flora are known to produce intracellular and extracellular metabolites with diverse biological activity such as anti-algal, anti-fungal, anti-bacterial and anti-viral activities.

The aim of the present work was to study anti-bacterial activity of blue green algae(BGA) against gram negative bacteria[1,2].

MATERIALS & METHODS

Culture and growth of algae: Two BGA Anaebaenaoryzae and Microcystis aeruginosa were grownin wood hole MBL Medium under controlled laboratory condition.

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Test organism: The test organism selected in this work were two gram negative bacteria Kleibsellapnuemnae and Proteus vulgaris which were collected from local pathological labs.

All bacterial strains were cultured in mcConkey agar for 24 hours at 37p C. Next day they were inoculated in in peptone broth and incubated for 24 hours at 37p C.

Preparation of algal extract: The algal culture which is 15 days old was centrifuged and the pellets were collected. 5mg of each algae from each culture were extracted in 3 different solvents – ethyl alcohol, acetone and ethanol.

Antibacterial effect of algae by agar well diffusion method: Antibacterial activity of algae was tested by agar diffusion method. 100 µl of each broth culture of bacteria was inoculated in culture plates. Two wells of 6mm were made and filled with 100 µl extract. The inoculated plates were incubate for 24 hours at 37p C. after incubation the diameter of inhibition zone was measured with calipers and the result were recorded in mm.

ETHYL ALCOHOL		
Algae	Gram Negative Bacteria	
	Kleibsellapneumonae	Proteus vulgaris
Nostocrizae	14.8	15
Microcystis aeruginosa	15.2	15.6
Acetone		
Nostocorizae	14.1	14.8
Microcystis aeruginosa	14.4	14.2
Methanol		
Nostocorizae	14.6	14.6
Microcystis aeruginosa	14.5	14.2
Antibiotics		
O. floxacin	16.3	15.5
L. floxacin	14.8	14.5

DISCUSSION

The result obtained from present study concerning the biological activity of antibacterial agents produced by selected BGA were recorded in table.

It is clear from the table that the diameter of inhibition zone depends mainly on algal species and the solvent used.

The result clearly indicates that ethyl alcohol extract of *M. aeruginosa* gave the highest biological activity against gram negative bacteria. The extract in acetone and methanol was less effective[3,4].

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