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Study of Antimicrobial activities of Actinomycetes Obtained From River Cauvery (Karnataka) Terrestrial Soil and River Sediments

Prof. Kosanam Divakar[1]*, Dr (Prof) P.Ellaiah[2]

1.Noble College of Pharmacy, Junagadh, Gujarat, INDIA,
2. Director, Jeypore College of Pharmacy, Jeypore, Orissa, INDIA.

Email: divakar.kosanam@gmail.com

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ABSTRACT

This study screened antagonistic actinomycetes isolated from terrestrial soil and river sediment isolates of Cauvery basin, Karnataka, India, for antimicrobial activity. A total of 54 actinomycetes isolates were obtained from the various terrestrial soil and river sediments samples collected and were tested for antagonistic activity against E.coli (NCIM-2563), S.aureus (NCIM-2492), C.utilis (NCIM-3055) and A.niger (NCIM-1222). Results indicated that 14 out of 54 isolates were active against at least one of the test microorganism, 13 isolates were active against at least one of the test bacteria and 4 were active against one of the test fungi. It was noted that the terrestrial site was the richest source of the antibiotic – producing actinomycetes where approximately 40% of isolates were antibacterial and 4% were antifungal. Selected bioactive isolates were chosen for further screened against other strains of the test microorganisms during secondary screening. Resulting mean diameter of inhibition zones revealed isolates SII-45, SIV-05 and RI-12 are the most potent of all remaining isolates with a minimum inhibitory microbial concentrations of 20% (MIC) for SII-45 and 15%(MIC) for SIV-05 and RI-12. Cultural and morphological characterization classified them under the genus Streptomyces. It can be recommended therefore terrestrial soil and river sediment samples from Cauvery basin, Karnataka, India, be further investigated for antibiotic producing actinomycetes. The number of actinomycetes isolated with persistent activity suggests Cauvery basin of Karnataka state may be India's potential source of novel antibiotics.

Keywords: Antimicrobial, Actinomycetes, Cauvery basin, Minimum Inhibitory Concentration.
