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## Characterization of Soil Actinomycete isolate (AI-2) against Gram-positive and Gram-negative food borne bacteria

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Soil microorganisms are the rich source for the isolation and identification of antimicrobial compounds. Among them, Actinomycetales are an important group. The present study was performed to isolate actinomycete from soil samples having potential activity against the bacteria isolated from food samples. Five soil samples were collected from different places around Dehradun, Uttarakhand. Potential actinomycete colonies were isolated in pure culture from five soil samples using actinomycete isolation agar. Actinomycete isolate named as AI-2 was identified based on the morphological and biochemical test carried out. A total of ninety one food samples were collected in sterilized container. Fifteen Gram-positive bacteria and twenty gram-negative bacteria were isolated using standard methodology. The bacteria isolated were morphologically and biochemically identified. The Actinomycete isolate (AI-2) was found to have moderate to high activity against fifteen gram-positive and twenty gram-negative bacteria. The hexane, ethyl acetate, methanol extracts and mycelium were tested against all bacteria. The ethyl acetate extract showed more potent activity against *S. aureus* and *E. coli*. Mycelium of AI-2 isolate did not exhibit any sort of antibacterial activity against any food borne isolates. MIC values of ethyl acetate extract were found in the range of 512-2048 µg/ml. Since extract showed inhibitory activity against food borne bacteria, it is suggestive that Uttarakhand soil could be an interesting source to explore for antibacterial secondary metabolites.

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