

## Isolation and Identification of Actinomycetes from Soil and Their Evaluation for Production of Antimicrobial Metabolites Against Some Pathogenic Microorganisms

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**Background & Objectives:** Major purpose of this study was isolation of Actinomycetes from soil samples and their evaluation for production of antimicrobial metabolites.

**Methods:** To perform the present study, 80 strains of Actinomycetes were isolated from 300 soil samples and evaluated for production of antimicrobial products. Isolation and identification of soil Actinomycetes were carried out using soybean – casein agar and API Coryne kit (bioMerieux) respectively. In addition, production of antimicrobial metabolites was assessed by Well Diffusion Agar (WDA) Methods against some pathogenic bacteria and fungi vis, Escherichia coli, Entrobacter aerogenes, Pseudomonas aeruginosa, Klebsiella pneumonia, Listeria monocytogenes, Salmonella typhi, Shigella dysenteriae, Corynebacterium glutamicum, Bacillus cereus, Staphylococcus aureus, Candida albicans, Aspergillus niger, Cladosporium sp., Penicillium sp., Rhizopus oryzae and Mucor hiemalis.

**Results:** The results obtained indicated that five strains of Actinomycetes isolates were able to produce antimicrobial metabolites. Furthermore these metabolites showed antimicrobial activity against Gram negative and Gram positive bacteria such as Escherichia coli, Entrobacter aerogenes, Klebsiella pneumonia, Salmonella typhi, Shigella dysenteriae, Corynebacterium glutamicum, Bacillus cereus and Staphylococcus aureus as well as various fungi vis, Candida albicans and Aspergillus niger. However, these metabolites had not antimicrobial activity against Pseudomonas aeruginosa, Listeria monocytogenes, Cladosporium sp., Penicillium sp., Rhizopus oryzae and Mucor hiemalis.

**Conclusion:** In general overused of antibiotics culminated in developing antibiotic resistant and therefore, introduce new remedy for treatment of patients suffering from infections could be considered special area of investigation. Thus antimicrobial metabolites produced by Actinomycetes might be used for elimination of different infections.

**Keywords:** Actinomycetes; Antimicrobial Metabolites; Soil