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Antimicrobial properties of Actinomycetes

V. Duraipandiyan
King Saud University, Saudi Arabia

The need of new antimicrobial agents is greater than ever because of the emergence of multidrug resistance in common pathogenic microbes, the rapid emergence of new infectious diseases and the use of multidrug resistant pathogens in bioterrorism. Resistance of microbes to the effects of antibiotics has been a major problem in the treatment of diseases. Infectious diseases are still the second leading cause of death worldwide. Natural products are the main source of antibiotics. Actinomycetes are useful biological tools for the production of antimicrobials against bacteria and fungi. The actinomycetes are gram positive bacteria having high G+C (>55%) content in their DNA. They have provided many important bioactive compounds of high commercial value and continue to be routinely screened for new bioactive compounds. These searches have been remarkably successful and approximately two thirds of naturally occurring antibiotics, including many of medical importance have been isolated from actinomycetes. Especially, *Streptomyces* are prolific and can produce a great many antibiotics and other class of biologically active secondary metabolites. They cover around 80% of total antibiotic products.

The present report describes the isolation and characterization of antimicrobial metabolites producing actinomycetes from soil samples of Western Ghats, Tamil Nadu, India. Primary screening revealed that actinomycetes strains ERI-26, ERINLG-204, ERICAR-099 and ERINLG-26 exhibited good antimicrobial activity against tested pathogenic bacteria and filamentous fungi. Morphological, biochemical and molecular characterization studies confirmed that these strains belonged to *Streptomyces* species. A novel anthraquinone (1, 5, 7- trihydroxy-3-hydroxy methyl anthraquinone) isolated from ERI-26 and also a known anthraquinone (9,10-anthraquinone) found in ERINLG-26. These two compounds showed good activity against clinically important microbes.

Biography

V. Duraipandiyan has completed his Ph.D. at the age of 34 years from University of Madras and postdoctoral studies from the Entomology Research Institute, Loyola College, Chennai. Presently he is working as Assistant Professor in Department of Botany and Microbiology, King Saud University, Saudi Arabia. He is very interested into isolating bioactive molecules from plants and microbes against pathogenic microbes, diabetes and cancer. He has published more than 45 papers in reputed journals and serving as an editorial board member of reputed *Journal Medicinal & Aromatic plants and International Journal of Fundamental and Applied Science.* He also acts as reviewer in many journals.

avdpandiyan@yahoo.co.in