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The Synthesis of Silver Nanoparticals from Streptomyces sp. with Antimicrobial Activity

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Abstract: In the present work, Ten Actinomycetes strains isolated from Egyptian soil were screened for their antimicrobial activity against the selected pathogen microorganisms. Five Actinomycetes strains showed mild to moderate antimicrobial activity and One isolate (No. 6) showed broad spectrum of activity against all tested microbial pathogens. The culture filtrate and the mycelium of the Ten Actinomycetes isolated strains were also screening for the biosynthesis of silver nano-particles. Three isolate strains are helpful in the biosynthesis of silver nano-particles. The most potent isolate No. 6 AgNPs producer strain and that achieved the highest antimicrobial activity was identified by molecular identification and it was Streptomyces coerulescens. The filtrate and the mycelium containing silver nano-particals were characterized by using the UV-Vis spectrum and showed a sharp narrow absorption spectrum located between 420-440 nm for both respectively. Also, the Fourier Transform Infrared Spectroscopy (FTIR) analysis was studied.
Keywords : Actinomycetes, Antimicrobial activity, AgNPs, UV-visible, FTIR analysis.

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