

An Antifungal Peptide from Actinobacteria (Streptomyces Sp. TKJ2): Isolation and Partial Characterization

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Abstract : Actinobacteria are of special biotechnological interest since they are known to produce chemically diverse compounds with a wide range of biological activity. This distinct clade of Gram-positive bacteria include some of the key antibiotic producers and are also sources of several bioactive compounds, established commercially a newly filamentous bacteria was recovered from Tikjda forest soil (Algeria) for its high antifungal activity against various pathogenic and phytopathogenic fungi. The nucleotide sequence of the 16S rRNA gene (1454 pb) of Streptomyces sp. TKJ2 exhibited close similarity (99 %) with other Streptomyces 16S rRNA genes. Antifungal metabolite production of Streptomyces sp. TKJ2 was evaluated using six different fermentation media. The extracellular products contained potent antifungal agents. Antifungal protein produced by Streptomyces sp. TKJ2 on PCA medium has been purified by ammonium sulfate precipitation, SPE column chromatography and high-performance liquid chromatography in a reverse-phase column. The UV chromatograms of the active fractions obtained at 214 nm by NanoLC-ESI-MS/MS have different molecular weights. The F20 Peptidic fraction obtained from culture filtrate of Streptomyces sp. TKJ2 precipitated at 30% of ammonium sulfate was selected for analysis by infusion ESI-MS which yielded a singly charged ion mass of 437.17 Da.

Keywords : actinobacteria, antifungal protein, chromatography, Streptomyces

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