Endophytic Actinomycetes: Prospective Source for New Drug Targets

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ABSTRACT

The constant demand of new and improved vaccines needs to explore new strategies. The development of molecular techniques paved the way for development of new and improved vaccines. Actinomycetes morphologically diverse, Gram positive filamentous bacteria, source of new biologically active compounds which can be used to produce and replace those agents against which pathogens have rapidly acquired resistance. Recently isolated endophtyic actinomycetes mostly belonged to the genera, Actinosynnema, Actinomadura, Microbispora, Micromonospora, Streptomycetes and Nocardia. At the present moment, more than 50 rare actinomycete taxa are reported to be producing 2,500 bioactive compounds. The endophytic actinomycetes in the medicinal plants of Asteraceae family wide spread throughout Pakistan. Hence isolation of endophytic actinomycetes from Asteraceae family of plants in Pakistan was accomplished. Followed by screening and identification of secondary metabolites. Polyketides are a vital group of secondary metabolites comprising of antifungal, antibacterial and anticancer agents. PCR based screening for Polyketide synthase (PKS1) gene from the isolated endophytic actinomycetes will be described.