



Detection and Identification of Rare Actinomycetes in Egyptian Soil using Conventional and Molecular Methods

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SUMMARY

A screening program for isolation of rare actinomycetes from Egyptian soil was constructed by collecting ten soil samples (each represent the sum of five locations) collected from five different Governorates (Alexandria, Qalubiya, Giza, Asuit and Sinai). A total of 1191 actinomycetes were isolated using various pretreatment procedures and different media to assess the optimal conditions for the isolation of rare actinomycetes from soil. Isolates belonged to genus *Streptomyces* represent (84.5%) of the total actinomycetes. The remaining (15.5%) isolates belonged to rare actinomycetes genera, based on morphological features and microscopic characterization.

The selected physical and chemical pretreatment techniques applied to the soil suspension before cultivation, including dry heat treatment at 120°C for 1 hour, dry heat treatment at 110°C for 1 hour and phenol (1%), phenol treatment (1.5%), SDS (0.05%) and yeast extract (5%) treatment and sucrose gradient centrifugation (240 xg ,30 min) of the samples. These pretreatments increase the recovery of rare actinomycetes and decrease the competition of fast growers as streptomycetes, bacterial and fungal colonies. Dry heat at 120°C for 1 hour was the most effective method using starch casein agar medium.

**This dissertation has not been previously
submitted for any degree at this or at any other
university**

Dina Hatem Mohamed Amin Riad

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