

# MOLECULAR CHARACTERIZATION OF STREPTOMYCES SPECIES: AN EFFECTIVE BIO CONTROL AGENTS OF STEM ROT DISEASE IN GROUNDNUT

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## ABSTRACT

Biological control with potential actinomycetes is receiving greater attention all over the world. Roving survey was conducted and 180 soil samples were collected from groundnut rhizosphere and 50 actinomycete isolates were isolated from soil samples. Twenty actinomycete isolates were tested for their growth rate and anti fungal activity against groundnut stem rot pathogen, *S. rolfsii* under *in vitro* conditions using dual culture method. Among twenty isolates of actinomycetes, five isolates namely Ggd (73.72 %), Kdr (71.44 %), Kyd (70.61 %), Lrp (61.33 %) and Mkc (52.06 %) showed maximum inhibition of *S. rolfsii*. These five isolates were characterized based on cultural, biochemical and molecular characters. Molecular characterization of effective actinomycetes isolates was carried out using 16s rRNA sequencing. The sequencing results showed that these isolates belong to *Streptomyces* spp. viz., *Streptomyces roseolus* strain Mkc (MN186832), *Streptomyces roseofulvus* strain Kdr (MN186828), *Streptomyces phaeochromogenes* strain Lrp (MN186829), *Streptomyces laurentii* strain Kyd (MN186822) and *Streptomyces lateritius* strain Ggd (MN186840). The phylogenetic analysis was carried out between the effective actinomycete isolates and previously available sequences in NCBI. The results revealed that the five identified *Streptomyces* species clustered with the *Streptomyces* reported from different parts of the world.

**Key words:** Actinomycetes, Biological control, Molecular Characterization, *Streptomyces*, rRNA analysis

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