

# Isolation of Putative Soil *Streptomyces* spp. Showing Antibacterial Activity

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## Introduction

Using the citrate medium that was developed early in this study, tens of diverse putative *Streptomyces* species were obtained. These were assessed based on their characteristic odor, colony appearance, slow growth, and microscopic mycelia. Isolates are being typed using PCR and sequencing of 16S together with another selected locus. In addition, biochemical and morphological characteristics will be applied. Previously, we have identified isolates QUBC50 as *Streptomyces fragilis*, QUBC102 and QUBC103 as *Streptomyces griseus*, QUBC104 as *Streptomyces coelicolor*, and QUBC106 as *Streptomyces mediolani*. Recently, we have identified the marine isolate (obtained from Arabian Gulf soil sample) QUBC96 as *Streptomyces krainskii* which is known to produce valinomycin and other bioactive products. Isolates are being screened for both antibacterial and antifungal activity followed by attempts to isolate, identify, and optimize production of their bioactive compounds. For identification of these bioactive products, we are applying bioassays against different target bacteria and fungi, TLC chromatography, HPLC with UV-visible mass-spectroscopy, mass-spectroscopy, and fluorometry. The identification is based on comparison of the isolated compounds retention time with authentic standards followed by matching with bioactive libraries. Initial bioassay screening of twenty different isolates grown on Citrate Medium lead to the identification of ten isolates that inhibited the growth of *Bacillus spp.* Two isolates were further shown to produce at least two antibacterial compounds as assessed by TLC and bioassay. Currently, we are focusing on isolates QUBC99 and QUBC100 and the compounds they produce.