ACTINOBACTERIAL DIVERSITY FROM A SEDIMENT SAMPLE COLLECTED IN BAHÍA DE LOS SANTOS, MEXICO

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Introduction. *Actinobacteria* are Gram positive filamentous bacteria that are distributed in terrestrial and aquatic ecosystems. The ecology and diversity of this vast bacterial group is still not well understood in particular in aquatic marine habitats (1). However, it has been shown that the marine ecosystem is a source for untapped actinobacterial diversity with bioprospecting properties (1,2).

Methods. In the present work a strategy on the isolation of actinobacterial diversity from a sub-tropical sediment collected at 10 meters depth in Bahía de los Santos, Baja California Sur, Mexico, was carried out. The isolation strategy consisted in serial dilutions from wet marine sediment (10^{-1} to 10^{-4}), two different media (GYM and GYEA) and two different dilutions (1:10 and 1:100) from each media, respectively. 100 milliliters from each dilution were distributed onto the surface of Petri dishes and incubated at 30° for 2 weeks.

Results. Three hundred and thirty eight colonies with typical morphology of actinobacteria growing on the Petri dishes were selected for isolation. Two hundred and seven were purified and preserved for further studies. The isolates were grouped according to a combination of morphological and genetic features such as molecular fingerprinting and gene sequencing (Figure 1). Thirty four groups were created and one member of each group was selected for a partial molecular identification. Based on the 16S rRNA gene sequences of 17 isolates and their fingerprinting patterns, all of them are members of the class *Actinobacteria* but none are marine obligates or halophilic. Two different groups of isolates contain mycolic acids and have *meso*-DAP and OH-DAP which suggest they might be part of the so-called “rare” actinobacteria. Molecular fingerprinting patterns of the isolates supported the grouping of the isolates into their morphological groups and antimicrobial activity is observed from many of the isolates (data not shown).

Fig. 1. Morphological diversity of the isolates.

Conclusions. The number of actinobacteria isolated from the marine sediment was astonishing. At least eight different genera were isolated and some of them constitute the first report of its kind in a sample from the Bahía de los Santos. The marine sediment studied in the present work is a source for actinobacteria species for bioprospecting purposes.

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