Luis A Maldonado et. al., J Microb Biochem Technol 2016, 8:5(Suppl)
http://dx.doi.org/10.4172/1948-5948.C1.022

Morphological traits of some actinobacteria and their importance in the genomic era

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Microbes still are a vast and fully unexplored source for novel biologically active compounds and the actinobacteria subgroup (Gram positive bacteria with a 40 to 60% GC content) accounts for nearly 80% of the current medically employed antibiotics. Among the actinobacteria, members of the genus *Salinispora* are a promising source for novel compounds due to their unique ability to solely grow on the presence of sea water, a fact which supports their adeptness to the marine ecosystem. *Salinispora* are still difficult to isolate and characterize as strains usually undergo several chameleonic morphological states. In this study, a collection of 66 isolates recovered from a national resource and assigned to the genus *Salinispora* were screened for their metabolic profiles coupled to both genotypic and morphological properties. Evaluation of the enzymatic profile of the strains for amylases, cellulases, lipases and proteases indicated that all the strains produced amylases and lipases whereas only 7.5% produced proteases; no cellulase activity was found. Also, the 66 strains showed antimicrobial activity against clinical isolates of *Staphylococcus epidermidis*. It is therefore, proposed that genome sequencing, single gene oriented phylogenies and morphological properties should be used in conjunction to construct a robust system to fully comprehend and exploit the biotechnological potential of *Salinispora* since several of the isolates from this study contained sequences not-related to previously reported Rifamycin clusters from *Salinispora* recovered from other regions of the world.

Biography

Luis A Maldonado has completed his PhD at the University of Newcastle, UK in 2002, followed by a Postdoctoral position in Biodiversity and Biogeography of Marine Actinomycetes. He has published more than 30 papers and/or book chapters in the actinobacteria field that have been cited over 1250 times. He is PLOS ONE Academic Editor, constantly reviews manuscripts for other journals and grant funding agencies. He is also a co-author on the latest edition of the *Bergey's Manual* for the genera *Gordonia, Nocardia* and *Salinispora*. His research interests are in improving selective isolation strategies for industrially important actinobacteria notably *Micromonospora*, *Salinispora* and rare *Streptomyces* while exploring their biotechnological applications.

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