Bacterial diversity in halophilic environments of northern Peru with biotechnological activity.

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The Salinas of Peru originate from the geomorphic formations, also called depressions, which are defined as sinking of the coast of the Pacific Ocean, being of the type Endorreica basin, that is to say, a watershed in which the water does not have exit to the sea. Considering that the formation of depression was initiated after a marine abrasion in the quaternary period, is considered one of the largest depressions of the Peruvian northwest since the Pleistocene[1,2] Fig.1.

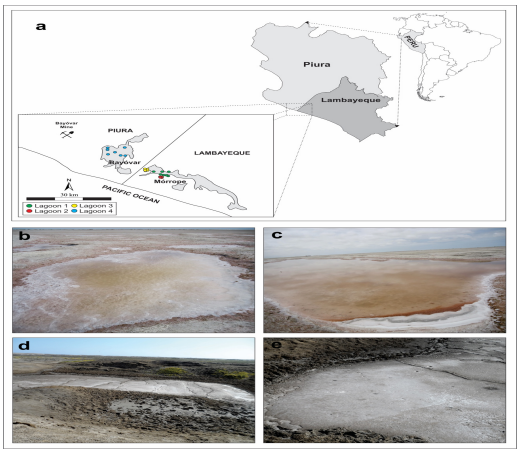


Fig. 1. Study location a). Map showing location of sampling locations; b and c=lagoons 1 e 2 (District Morrope); d and e=lagoons 3 and 4 (District Bayovar).

The objective of this work was to evaluate the bacterial diversity of two types of extremophile environments (Salinas Morrope) and (Salinas de Bayovar), from which a diversity of three different phyla of bacteria Filum Firmicutes, Filum Proteobacteria and Filum Actinobacteria were obtained with representative genera such as Streptomyces, Pseudonocardia, Staphylococcus, Bacillus and Pseudomonas. From what resulted most representatives to the genus Streptomyces with proximate similarities according to the EZBIOCLUD to *Streptomyces olivaceus*, *S. griseorubens*, *S. tunisiensis*, *S. labedae*, *S. griseoincarnatus*, S. *variabilis*, *S. luteus*, *S. mutabilis*, *S. koyangensis* and *S. hydrogenans* this analysis resulted from sequencing and phylogenetic analysis of the 16S rRNA gene.

For the biotechnological analysis they were led to produce gross statements of each of the representative genera resulting in the three most promising genus; Streptomyces, Pseudonocardia and Pseudomonas for the antiproliferative test Sulphorhodamide B against 3 tumor cell lines U251 glioma; MCF7 breast; NCI-H460 lung of the non-small cell type. The results obtained in this study demonstrated that the halophilic environment represents a promising source of microorganisms efficient of producing new compounds with antiproliferative potential [3,4,5]

Recent Publications

1.Guevara, José; Orlieb, Luc y Machare José. (1991). Geological evolution of the Salina Grande depression, Sechura desert; preliminary study. VII Peruvian Congress of Geology.

2. Institute of the Sea of Perú. (2007). Baseline Study of the Marine Environment of Sechura Bay.

3. Fiedler H. P.; Bruntner, et al., (2005). Marine actinomycetes as a source of novel secondary metabolites. Antonie van Leeuwenhoek. 87: 37–42.

4. Albarracin, V. H., W. Gartner and M. E. Farias (2016) Forged under the sun: Life and art of extremophiles from Andean Lakes. Photochem. Photobiol.92,14–28.

5. Braña, A.F.; Vizcaíno, A.S.; Osset, M.; Victoria, I.P.; Martín, J.; Pedro, D.N.; Mercedes de la Cruz, M.; Díaz, C.; Vicente, J.; Reyes, F.; García, L.A. and Blanco, G. (2017). Lobophorin K, a New Natural Product with Cytotoxic Activity Produced by Streptomyces sp. M-207, associated with the Deep-Sea Coral Lophelia pertusa. Marine Drugs. 15(5):144.



Biography

Doctorate in Genetics and Molecular Biology from the State University of Campinas (UNICAMP), with work performance in the Microbial Resources Division of the Multidisciplinary Center of Chemical, Biological and Agricultural Research (CPQBA) where he developed a project in the area of microbial systematics with emphasis in molecular methods for characterization and identification of metabolites with anticancer activity; acting in the area of applied microbiology vising the prospecting of secondary metabolites with biotechnological potential acting in research areas such as: Microbial diversity under the aspect of biogeography and structural organization of genomes, Molecular typing and epidemiological characteristics.

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