

TITLE: ANTIBACTERIAL AND ANTIPROLIFERATIVE ACTIVITY OF ACTINOMYCETES ISOLATED IN SALINAS OF NORTHERN OF PERU.

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Abstract:

Las Salinas lagoons are geofoms also denominated depressions or subsidence of the coast of the Pacific Ocean. Considering that these were formed after a marine abrasion in the quaternary period, they are also correlated with the northwestern plains (Tablazos) in Peru. Due to the geographic isolation the salts present in water and soil are the chlorides mainly, followed by sulfides, bicarbonates, magnesium bromides, calcium and potassium; sodium chloride, commercially called salt, is exploited from by the population living these areas. These extreme environments favor the development of metabolically competitive microorganisms like Actinobacterias, a group of microorganisms characterized by the production of secondary metabolites with antimicrobial and antitumor activities. This study aimed the evaluation of a collection of bacterias isolated from Las Salinas of Bayovar and Morrope in antibacterial and antiproliferative assays. The crude strains extracts were selected by antiproliferative (sulforhodamine B colorimetric assay) and antimicrobial (disk diffusion method) assays and the active strains were characterized and identified by 16S rDNA. Three strains, isolated from sediment, shown the antiproliferative activity against three human tumor cell lines and were identified as *Streptomyces* sp. *Streptomyces* was reported as a producer of doxorubicin and other antiproliferative compounds used in the cancer treatment. Moreover, from sediment with water, a *Pseudonocardia* sp. strain presented activity against methicillin resistant *Staphylococcus aureus* and *Escherichia coli* extended spectrum β -lactamases (ESBL), both multidrug resistant pathogens, with 40 and 36 mm inhibition halo diameter, respectively. Members of the genus *Pseudonocardia* have been widely reported and recovered from several ecosystems, such as active sludge soil (including those polluted by industrial chemicals) and plant samples (including stems, leaves, root nodules, tree-bark compost and traditional Chinese medicinal plants). We conclude that Las Salinas of northern Peru are a source of actinomycetes diversity with high biotechnological potential of pharmacological interest.

Keywords: Antiproliferative and antibacterial activity, actinomycetes, *Streptomyces*, *Pseudonocardia*, Morrope and Bayovar salinas lagoons.

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