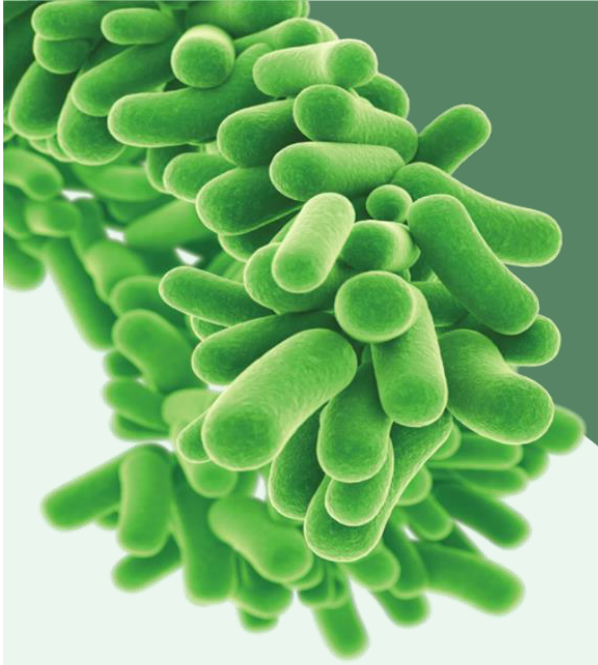

XIII CONGRESO ARGENTINO DE MICROBIOLOGÍA GENERAL

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CHARACTERIZATION OF EXOPOLYSACCHARIDES OBTAINED FROM *Exiguobacterium* sp. S17, A POLYEXTREMOPHILE STRAIN ISOLATED FROM LIVING STROMATOLITES.

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The genus *Exiguobacterium* comprises a group of gram positive bacteria with variable morphology ranging from small bacillus to coccus. These bacteria have the capacity to grow under extreme environmental conditions, including cold and hot environments with temperatures ranging from -12 to 55°C and low nutrient concentrations. *Exiguobacterium* sp. S17, is a polyextremophilic strain isolated from a stromatolite found in Laguna Socompa located at 3,570 m.a.s.l., Salta, Argentina. Biofilm formation by S17 is dependent on different stress factors (arsenic concentration and UV-B) and on the surface used for adhesion. It has been observed that the cells which initiated the adhesion were surrounded by Exopolysaccharides (EPS). EPS are complex molecules formed by sugar monomers, attached by glycosidic bonds forming a linear or branched structure made up of thousands of monosaccharide units. These biomolecules have multiple applications in different industrial sectors (food, pharmaceutical, medical and agriculture) as gelling agents, viscosizers, heavy metal adsorption, etc. The aim of our work was to isolate and characterize the EPS produced by S17 in two different media, and to investigate the influence of arsenic on its production. The S17 strain was grown in LB or MME (minimum basal) medium with 3% glucose supplemented or not with 1 mM arsenic (As) for 48 h. The cultures were centrifuged and the supernatant was precipitated with cold ethanol for 48 h. The obtained EPS were deproteinized with 10% TCA, dialyzed and lyophilized. Samples were weight and diluted in distillated water. The EPS MW and monomeric constituents were determined by chromatography with a HPLC System, equipped with a Waters Ultrahydrogel column using 0.1 M of $NaNO_3$ as eluent at a flow rate of 0.6 mL/min. Different EPS concentrations were observed depending on the growth media used, being approximately 1.9 times higher for LB than for MME. Although EPS concentrations when adding As were similar to those obtained in the control media, in the latter two peaks were detected while only one EPS was observed in the presence of As. The MW observed for the EPS isolated from LB were 188.5 and 44.5 KDa while when As was added a peak corresponding to 44.6 KDa was observed. On the other hand, when S17 was grown in MME two peaks corresponding to MW of 224.0 and 12.8 KDa were detected, while in presence of As only one peak of 246.0 KDa was observed. In all samples, the EPS monomeric structure was composed of glucose and fructose. The ability of *Exiguobacterium* sp. S17 to synthesize EPS and produce biofilm could be in part responsible for the high adaptation capacity of this strain to the adverse environmental factors present in the ANDEAN PUNA. *Exiguobacterium* sp. S17 EPS could be used for biotechnological applications and especially for arsenic bioremediation processes.