

## EXOPOLYSACCHARIDE PRODUCTION UNDER DIFFERENT CONDITIONS BY BACTERIA ISOLATED FROM ANTARCTIC SOIL

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Exopolysaccharides (EPSs) are secondary metabolites produced by some fungi and bacteria in stationary phase of growth. They are found around the cell in capsule form. EPSs have been used on a large scale in food branch, cosmetics, biofilms and gels. The objective of this work was to compare the EPS production under different conditions by selected bacteria isolates from Antarctic soil. We used two bacteria (BASO60 and BACO40) that were selected in previous study due to this higher productivity of EPS. We performed two assays where bacteria were grown in Erlenmeyer containing 50mL of medium during 17 days. Then, the culture was centrifuged at 4000rpm during 30min. for cell removing. For the EPS extraction the supernatant was added in four parts ethanol and stored during 24 hours in refrigerator at 4°C for the EPS precipitation. After, the content was centrifuged at 4000rpm at 30min. and the supernatant was discarded. The pelletized EPS was removed and dried in frost-free freezer before being weighed. All assays were performed in triplicate. In the first assay we tested the EPS production of BASO60 growing in MP medium (3.0g NaNO<sub>3</sub>, 1.0g KH<sub>2</sub>PO<sub>4</sub>, 0.5g MgSO<sub>4</sub>.7H<sub>2</sub>O; 0.5g KCl, 1.0g yeast extract, 30,0g glucose, 1L of deionized water) in three conditions: at 15°C with manual shaking once a day; at room temperature (25 ± 3°C) with manual shaking once a day; at room temperature (25 ± 3°C) with constant shaking at 120rpm. In the second assay we tested the EPS production of BACO40 growing in Nutrient Broth medium (3g beef extract, 5g meat peptone, 1L deionized water) with manual shaking once a day and four temperatures (5°C, 10°C, 15°C and 20°C). The results showed that the best growing conditions for the EPS production were at 15°C with manual shaking once a day for BASO60 (25.1 ± 2.9mg) and at 20°C with manual shaking once a day for BACO40 (11.6 ± 1.8mg). These bacteria are being characterized for taxonomic classification and tested for determining the best conditions of medium, temperature and agitation for the maximum EPS production. In further works the produced EPSs will be characterized and their potential biotechnological utilization will be investigated.

Keywords: *bacteria*, *Antarctica*, *exopolysaccharide*

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