

TESTING OF ALTERNATIVE CULTURE MEDIA FOR THE PRODUCTION OF EXOPOLYSACCHARIDE BY FUNGUS ISOLATED FROM BRAZILIAN SOIL

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Exopolysaccharides (EPSs) are extracellular polysaccharides that may be produced by some fungi and bacteria. They can be found in capsule form around the cell, or in the form of slime (mucus) that are secreted to the extracellular medium causing viscosity changes in the culture medium. The EPSs are used in food processing with the function to change texture characteristics such as body, viscosity and consistency. Its production by fungi using submerged culture provides a potential increase in the production of mycelial biomass and allows the use of regional raw materials and industrial byproducts. This study aimed to evaluate the EPSs production using a fungus isolated from soil of the Campus of the UFSJ (temporary named F10), subjected to alternative culture media composed of inexpensive ingredients and industrial byproducts. It were tested seven combination of alternative culture media using alternative compounds: commercial sugar, whey, crude glycerin derived from biodiesel production, refined glycerin derived from biodiesel production and tailing brewer's yeast. As reference (positive control) it was used a medium composed of standard analytical reagents: 3.0g NaNO₃; 1.0g KH₂PO₄; 0.5g MgSO₄.7H₂O; 0.5g KCl; 1,0g yeast extract; 30.0g glucose; 1L deionized water, pH 7. For the definition of alternative culture media the glucose and yeast extract were replaced by the cited alternative compounds. In the experiments, the fungus F10 grew in Erlenmeyer flasks containing 50mL of culture media during 25 days at 28°C and shaking at 120rpm. The content of the flasks was centrifuged at 4000rpm during 30min. for cell removing. For the EPS extraction the supernatant was added in four parts ethanol and the clotted EPS was removed and dried in frost-free freezer before being weighed. All assays were performed in triplicate. The results showed that the most promising alternative culture media for the production of EPS by fungus F10 was the one who combine whey and yeast extract (3.0g NaNO₃; 1.0g KH₂PO₄; 0.5g MgSO₄.7H₂O; 0.5g KCl; 1.0g yeast extract; 625mL whey; 375mL deionized water; pH 7.), considering that it has achieved the highest yields, not differing from the reference culture medium, besides representing the possibility of using by-products that can be purchased at low cost, making them of great interest to use as primary source of carbon for the production of fungal EPSs.

Keywords: *fungi, soil, exopolysaccharide, culture media*

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