

**TITLE:** DIMORPHISM OF *MUCOR CIRCINELLOIDES* UCP 0001 CULTIVATED IN AGROINDUSTRIAL WASTE FOR THE BIOSURFACTANT PRODUCTION.

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**ABSTRAC:**

Surfactants are synthetic tensoactives of petrochemical origin. Biosurfactants are secondary metabolites of microorganism metabolism such as bacteria, yeasts, and filamentous fungi that reduce surface tension. Other properties associated with biosurfactants are increased solubility, emulsification, foaming and dispersion of hydrophobic substrates. Surfactants of biological origin are considered compatible with the environment and may be biodegradable. *Mucor circinelloides* is a dimorphic fungus belonging to the phylum Mucoromycota and the order Mucorales, are organisms used in several studies in the production of biomolecules of industrial interest and have the ability to grow in several alternative substrates. The objective of this work is to evaluate the biotechnological potential of *M. circinelloides*, in the yeast form, for biosurfactant production, using as substrate agroindustrial residues such as sugar cane molasses and post-fry soybean oil. For fungal dimorphism induction a pre-inoculum containing 100 ml of the YPG culture medium (glucose, peptone and yeast extract) was maintained under stirring for 48 hours, 150 rpm at 28 ° C. Then 1 mL aliquots of the pre-inoculum were transferred to Erlenmeyers containing culture medium composed of molasses and post-fry soybean oil according to the RCCD 2<sup>2</sup> factorial design, kept under agitation at 150 rpm at 28 ° C for 96 hours. Cell free metabolic liquids were submitted to surface tension analysis and emulsification index (E24). To analyze the emulsifying capacity were used: post-fry soybean oil, post-fry vegetable fat, motor burned oil, palm oil, rice oil and cotton oil. The best surface tension result was 32.3 mN/m in test 6 (6% cane molasses and 3.41% post-fry soybean oil) in relation to water surface tension (72mN/m). On the other hand, the highest emulsification index (80%) was obtained using engine burned oil in test 1 (8% sugar cane molasses and 3% post-fry soybean oil). All the results obtained demonstrated the importance of the biosurfactant for future applications in several branches of biotechnology.

**Keywords:** *Mucor circinelloides*, dimorphism, biosurfactant, agroindustrial waste.

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