

TITLE: SOPHOROLIPIDS PRODUCTION BY CANDIDA BOMBICOLA IN DIFFERENT SOURCES OF CARBON

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ABSTRACT:

Sophorolipid is one extracellular biosurfactant belongs to the glycolipid group. It consists of a dimeric glucose (sophorose) linked by a glycosidic bond through a hydroxyl an 18-carbon fatty acid. It is produced by different microorganisms, in special the yeast *Candida bombicola*. This surfactant has large potential for industrial applications due its tensoactive characteristics. However, the high cost of sophorolipid production constitute one barrier for make it economically competitive, and the use of low cost substrates derived from industrial waste could represent one alternative for production of this biosurfactant. Thus, this study aimed to investigate the production of sophorolipids by *Candida bombicola* ATCC 22214 using three different hydrophobic carbon sources: canola and sunflower oils and chicken fat. The fermentation media used contained 77.5 g L⁻¹ of glucose, 2.5 g L⁻¹ of yeast extract and one of the hydrophobic sources (75 g L⁻¹). The fermentations were conducted in duplicate in 125 ml Erlenmeyer flasks containing 25 ml of production medium for 120h at 30°C in a rotary shaker at 150rpm. The fermentations were interrupted and the cultures were harvest by centrifugation, biomass was determined by gravimetric and of the supernatant was extracted and quantified the sophorolipids. The results showed that the production of sophorolipids using medium containing chicken fat (37.13 g L⁻¹) was higher when compared to the production using canola oil (28,67gL⁻¹) and sunflower oil (5,12 gL⁻¹). The results suggest that chicken fat could be used as hydrophobic carbon source to produce sophorolipid by *Candida bombicola* ATCC). It is possible to conclude that the production of sophorolipids with industrial residue, such as chicken fat, is viable and future studies that aim the sophorolipids production in large scale are of main importance.

Keywords: biosurfactant, chicken fat, fermentation, *Candida bombicola*

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