

**TITLE:** AGROINDUSTRIAL WASTE FOR CHITIN AND LIPIDS PRODUCTION BY *CUNNINGAMELLA PHAEOSPORA* UCP 1303

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**ABSTRACT:**

Fungal biomass has been the object of investigation in recent years, considering its potential use as a source of chitin, chitosan and lipids. Alternative sources for the production of these biomolecules have been studied in order to reduce costs and take advantage of the organic residues, which are excellent means for the cultivation of fungi. In this work, the influence of temperature and alternative media on the growth of *Cunninghamella phaeospora* was studied and the biomass, chitin, chitosan and total lipids production were evaluated. It was used as a medium: hydrolyzate of tomato residue (HT) and tomato juice (TJ), plus 4% sugar cane molasses (HTM and TJM). The Hesseltine & Anderson (H&A) medium was used as a standard. *C. phaeospora* were inoculated ( $10^7$  sporangioles/mL) in Erlenmeyer flasks containing 150 mL of culture medium (standard and alternative) and incubated for 120 hours in a rotary shaker at 28°C and 35°C. Then, the cultures were collected, filtered and the biomass washed, lyophilized and weighed. The temperature of 28°C was more favorable to the growth of *C. phaeospora* (4.44 g/L biomass in the H&A medium and 2.65 g/L in the HTM medium). Considering these results, the alternative medium was tested for chitin, chitosan and lipids production. According to the results, in the alternative TJM medium, *C. phaeospora* presented better results for biomass production (8.67 g/L) and total lipids (67.99%). TJ medium was better to chitin ( $0.81 \text{ g/g}^{-1}$  of biomass) and chitosan ( $0.11 \text{ g/g}^{-1}$  of biomass) production. The HT and HTM medium presented lower values when compared to the TJ and TJM medium. Considering the results, *C. phaeospora* showed high biotechnological potential in the production of versatile bioproducts, such as chitin and lipids, through the conversion of agroindustrial wastes into nutrients.

**Keywords:** Chitin, Chitosan, Lipids, *Cunninghamella phaeospora*.

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