Microwave, ultrasound, thermal treatments, and bead milling as intensification techniques for extraction of lipids from oleaginous *Yarrowia lypolitica* yeast for a biojetfuel application

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ABSTRACT

In the present work, two different ways of lipids extraction from *Yarrowia lipolytica* yeast were investigated in order to maximize the extraction yield. Firstly, various modern techniques of extraction including ultrasound, microwave, and bead milling were tested to intensify the efficiency of lipid recovery. Secondly, several pretreatments such as freezing/defrosting, cold drying, bead milling, and microwave prior two washing of mixture solvent of chloroform:methanol (1:2, v/v) were study to evaluate the impact on lipid recovery. All these treatments were compared to conventional maceration, in terms of lipids extraction yield and lipid composition analysis. The main result of this study is the large difference of lipid recovery among treatments and the alteration of lipids profile after microwave and ultrasound techniques.

Keywords: lipid extraction, microwave, ultrasound, bead milling, oleaginous microorganisms

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