

Accepted Manuscript

Improvement and modelling of culture parameters to enhance biomass and lipid production by the oleaginous yeast *Cryptococcus curvatus* grown on acetate

Vanessa Béligon, Laurent Poughon, Gwendoline Christophe, André Lebert, Christian Larroche, Pierre Fontanille

PII: S0960-8524(15)00831-7
DOI: <http://dx.doi.org/10.1016/j.biortech.2015.06.041>
Reference: BITE 15120

To appear in: *Bioresource Technology*

Received Date: 5 May 2015
Revised Date: 8 June 2015
Accepted Date: 9 June 2015

Please cite this article as: Béligon, V., Poughon, L., Christophe, G., Lebert, A., Larroche, C., Fontanille, P., Improvement and modelling of culture parameters to enhance biomass and lipid production by the oleaginous yeast *Cryptococcus curvatus* grown on acetate, *Bioresource Technology* (2015), doi: <http://dx.doi.org/10.1016/j.biortech.2015.06.041>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Improvement and modelling of culture parameters to enhance biomass and lipid production by the oleaginous yeast *Cryptococcus curvatus* grown on acetate

Vanessa Béligon^a, Laurent Poughon^{a,b}, Gwendoline Christophe^{a,b}, André Lebert^{a,b},
Christian Larroche^{a,b}, Pierre Fontanille^{a,b*}

^a Université Blaise Pascal, Institut Pascal, UMR CNRS 6602, TSA 60026, CS 60026, F-63178 AUBIERE cedex, France

^b Université Blaise Pascal, LABEX IMobS3, TSA 60026, CS 60026, F-63178 AUBIERE cedex, France

*Corresponding author. Email address: Pierre.FONTANILLE@univ-bpclermont.fr

Abstract: The improvement of culture parameters for lipid production from acetate as carbon source was investigated using the oleaginous yeast *Cryptococcus curvatus*. A new pH regulation system dispensing acetate was developed for fed-batch culture and allowed obtaining nearly 80 g/L biomass within 60 hours with a maximal growth rate of 0.28 h⁻¹. A biological model was developed from experimental data. The influence of three C/N ratios of 300, 500 and 900 were tested during a multi-phases process on lipid accumulation. The C/N ratio of 300 was reported to be the most suitable for lipid storage. No significant increase of lipids content was obtained with higher value. A maximal content of 60% DCW of lipid was obtained. The determination of fatty acids profiles of the microbial oils has confirmed that the valorization of acetate by microbial oils production was a promising perspective.

Keywords: volatile fatty acids – *Cryptococcus curvatus* – microbial lipids – bioconversion – biodiesel

Download English Version:

<https://daneshyari.com/en/article/7074619>

Download Persian Version:

<https://daneshyari.com/article/7074619>

[Daneshyari.com](https://daneshyari.com)