
OP-APR12-C15**Dissolved oxygen effect on microbial lipids production by *Yarrowia lipolytica* from volatile fatty acids**

S.M. Miranda, A.S. Pereira, M. Lopes, I. Belo*

CEB - Centre of Biological Engineering, University of Minho, Braga, Portugal

Volatile fatty acids (VFAs) can be obtained from organic wastes through acidogenic fermentation and the yeast *Yarrowia lipolytica* can use those VFAs for the biosynthesis of lipids. Oxygen is an important factor of the bioconversion process of VFAs into microbial lipids by *Y. lipolytica*, thus the effect of oxygenation was evaluated in batch cultures of the yeast for two different strains, varying the stirring and air flow rates. The increase of dissolved oxygen concentration improved lipid production by *Y. lipolytica* W29 and *Y. lipolytica* NCYC 2904 in glucose and VFAs (acetate, propionate and butyrate) medium. The strain NCYC 2904 accumulated higher intracellular lipids (22%, w/w) than strain W29 (12%, w/w) with differences in lipids composition. Lipids of strain W29 were mainly composed by linoleic acid (up to 47%) and oleic acid (up to 31%) and NCYC 2904 accumulated predominantly oleic acid (around 56%). For both strains, the unsaturated fraction (> 70%) exceeded the saturated one. Since fatty acid composition in *Y. lipolytica* are similar to common vegetable oils (usually used for biodiesel production), these lipids are a potential feedstock for biofuels production.

Acknowledgements

Projects TUBITAK/0009/2014; UID/BIO/04469/2019, grant SFRH/BD/129592/2017. BioTecNorte (NORTE-01-0145-FEDER-000004).

<https://doi.org/10.1016/j.jbiotec.2019.05.036>
