

Effect of Salinity Level on the Production of PUFA by *Thraustochytrium* sp. and *Aurantiochytrium* sp.

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The importance and therapeutic value of polyunsaturated fatty acids (PUFA), especially eicosapentaenoic (EPA, 20:5 ω 3) and docosahexaenoic acid (DHA, 22:6 ω 3), is well recognized. Seafood is the major dietary supply of this long chain PUFA. Nevertheless, some microorganisms of the genus *Thraustochytrium* are good new alternatives and sustainable sources for the production of ω 3 PUFA, particularly DHA. The objective of this work was to study the effect of two different salinity levels on the production of PUFA by two different microorganism strains, *Thraustochytrium* sp. ATCC 26185 and *Aurantiochytrium* sp. ATCC PRA-276. These microorganisms were cultured under heterotrophic conditions using a medium similar to that reported¹. Two salinity concentrations (sodium chloride 1.5 and 3.5 %) were used. Biomass production was evaluated by spectrophotometry. Total lipids were extracted and lipid classes and fatty acid profile were evaluated following the methodology described². Regarding the effect of salinity (S), no differences on the biomass production were observed in both microorganisms. Total lipid content of both strains was around 60 % (g/100 g dw) and triacylglycerols was the main lipid class. DHA was the major PUFA obtained by both microorganisms followed by docosapentaenoic acid (DPA, 22:5 ω 6). However, higher levels of these PUFA were achieved in *Aurantiochytrium* sp. with a maximum level of DHA of 24.0 % (1.5 % S) and 17.0 % (3.5 % S) after 3-4 days and the DPA levels were 12.0 % (1.5 % S) and 7.3 % (3.5 % S). For *Thraustochytrium* sp the DHA levels were 14.1 % (1.5 % S) and 12.8 % (3.5 % S) and DPA levels were 9 % (1.5 % S) and 6.5 % (3.5 % S). The increase of salinity led to a decrease of DHA and DPA production in both strains.

1 Chen G., Fan K.-W., Lu F.-P., Li Q., Aki T., Chen F., Jiang Y. 2010. *New Biotechnology*, 27, 4: 382-389.

2 Bandarra N. M., Batista I., Nunes M. L., Empis J. M. 2001. *Eur Food Res Technol*, 212, 535-539.

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