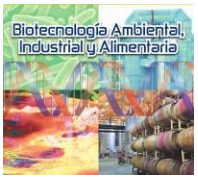
Poster



Study of scale-up and productivity of an acidotolerant and halotolerant microalgae (Coccomyxa onubensis) as a function of light exposure.

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ABSTRACT

The inherent need to feed a growing population that is more aware of the importance of the nutritional quality of food in health has led nutraceutical products to an increasingly relevant position in the food industry. In this context microalgae acquire an essential role, due to their high nutrient content, being rich in various biomolecules, minerals, vitamins and antioxidant compounds[1] . The main challenge in large-scale microalgae production is to achieve robust and economically viable growth, even under non-laboratory conditions such as those found outdoors. One promising alternative is extremophilic microalgae that have developed mechanisms that allow them to withstand these conditions[2]. Among them, *Coccomyxa onubensis* ACCV1, isolated from the acidic pH water of Río Tinto (Huelva), stands out. It is a halotolerant and acid-tolerant microalgae capable of growing in a wide range of pH values (2.5-9)[3] , which potentially allows production while avoiding contamination by other microorganisms. This, together with its ability to accumulate antioxidant compounds such as carotenoids, polyphenols and polyunsaturated fatty acids make it an interesting candidate to study its scale-up for production. Thus, this project focuses on one of scale up stages by studying the variation of the productivity of this microalgae as a function of the different light exposure that occurs as a result of the different optical density of the cultures in 10 L bags. Thus, the trial consists of 3 bags maintained at different optical density (2-4, 6-8 and 10-12, respectively) by means of a repeated bath culture, with constant gassing and illumination. The incident radiation is progressively increased. In this way, the aim is to observe how productivity varies as a function of the different light exposure of the cells in each of the bags, as well as to observe their response to the increase in incident light, in terms of growth, photosynthetic efficiency and accumulation of bioactive compounds. To this end, growth is being evaluated through the quantification of parameters such as dry weight and optical density, while the measurement of quantum yield informs us of their photosynthetic state. The cell content in lipids, chlorophylls, carotenoids, flavonoids and polyphenols is being quantified.

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SE ENTREGA CON EL VISTO BUENO DE MIS TUTORES: ALEJANDRO CUETOS MENÉNDEZ Y CARLOS VÍLCHEZ LOBATO.