

Accepted Manuscript

Microalgae cultivation in urban wastewater: *Coelastrum cf. pseudomicroporum* as a novel carotenoid source and a potential microalgae harvesting tool.

Bárbara Úbeda, José Ángel Gálvez, Mónica Michel, Ana Bartual

PII: S0960-8524(16)31773-4
DOI: <http://dx.doi.org/10.1016/j.biortech.2016.12.095>
Reference: BITE 17471

To appear in: *Bioresource Technology*

Received Date: 9 November 2016
Revised Date: 13 December 2016
Accepted Date: 22 December 2016



Please cite this article as: Úbeda, B., Ángel Gálvez, J., Michel, M., Bartual, A., Microalgae cultivation in urban wastewater: *Coelastrum cf. pseudomicroporum* as a novel carotenoid source and a potential microalgae harvesting tool., *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.12.095>

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.

Microalgae cultivation in urban wastewater: *Coelastrum* cf. *pseudomicroporum* as a novel carotenoid source and a potential microalgae harvesting tool.

Authors: Bárbara Úbeda, José Ángel Gálvez, Mónica Michel, Ana Bartual^{*}.

Affiliations

Department of Biology, Faculty of Marine and Environmental Sciences.
University of Cádiz. Avda. República Saharaui s/n, 11510, Puerto Real, Cádiz,
Spain.

*corresponding author: ana.bartual@uca.es

Abstract

The aim of this work was to study the optimal growth and high value-added production of the microalgae *Coelastrum* cf. *pseudomicroporum* Korshikov cultivated in urban wastewater. It was observed that *C. cf. pseudomicroporum* grew ideally in this medium, acting as an efficient nutrient starver. Additionally, the obtained biomass increased carotenoid cell content after saltwater stress. The effects of light intensity and salt stress on its growth rate were analysed. The results showed that this alga can grow very fast using wastewater as culture medium, reaching maximum growth rates of $1.61 \pm 0.05 \text{ day}^{-1}$, and tolerating strong irradiances. It was also found that under salt-stress this species could accumulate carotenoids (range $1.73\text{--}91.2 \text{ pg cell}^{-1}$). Moreover, a good harvesting efficiency (96.84%) was observed using *Coelastrum* exudates

Download English Version:

<https://daneshyari.com/en/article/4997743>

Download Persian Version:

<https://daneshyari.com/article/4997743>

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