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

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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±0.05 day^{-1}, and tolerating strong irradiances. It was also found that under salt-stress this species could accumulate carotenoids (range 1.73-91.2 pg $cell^{-1}$). Moreover, a good harvesting efficiency (96.84%) was observed using *Coelastrum* exudates