Treatment of rice parboiling wastewater by cyanobacterium *Aphanothece microscopica* Nägeli with potential for biomass products

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**ABSTRACT**

Cyanobacterium *Aphanothece microscopica* Nägeli has been used in research for the removal of nitrogen and organic matter in order to associate single-cell protein production with wastewater treatment. These micro-organisms use photosynthesis as the main metabolic way, although some strains are able to grow in absence of light in heterotrophic cultures. Therefore, the main purpose of the work was to evaluate the growth kinetics of unicellular cyanobacterium *A. microscopica* in rice parboilization effluent without light source. Experimental conditions were 100 and 300 mg L\(^{-1}\) inoculum concentration at 25 and 35°C. Results showed that biomass production with maximum nitrogen and organic matter removal at 12 h of batch time was 300 mg L\(^{-1}\) inoculum concentration at 35°C. Our results demonstrate that *A. microscopica* shows high yield of nitrogen and organic matter removal from rice parboilization effluent, promising of potential for biomass products and wastewater treatment.

**Keywords:** COD removal; Nitrogen removal; Rice parboiled effluent; Single-cell protein; Heterotrophic cultures

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