Biomass Production Potential of *Aphanothece microscopica* Nägeli (RSMAN92) in Wastewater from Milk Processing

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Dairy industries are associated with large wastewater generation, whose chemical composition is characterized by high content of organic matter and nutrients. Inefficient waste treatment results in negative environmental impact in receiving water bodies. Conventional treatment systems convert these pollutants into more manageable forms, but do not allow their reuse. An alternative directed to the development of sustainable agricultural practices is related to the use of wastewater as a culture medium in bioprocesses in which these pollution forms are biologically converted into intermediates or end products of varied application. Therefore the study aimed to evaluate the potential of biomass production by *Aphanothece microscopica* Nägeli in wastewater from milk processing, aiming at their application in inputs production. Wastewater was characterized for organic matter content as COD, total nitrogen and P-PO$_4^{-3}$. Growth kinetics of this microorganism in the considered medium was also assessed. Experiments were conducted heterotrophically in bubble column bioreactors using dairy effluents as culture medium and under the following conditions: initial cell concentration of 0.2 g.L$^{-1}$, pH adjusted to 7.6, isothermal reactor operating at a temperature of 30°C, absence of light and 1 VVM continuous aeration. Results of dairy effluents characterization (organic matter 2193.3 mg/L, Nitrogen 56.60 mg/L and P-PO$_4^{-3}$ 10.06 mg/L) as well as kinetics ($X_{\text{max}}$ of 1045 mg/L, TR 12 h, $\mu_{\text{max}}$ of 0.25 h$^{-1}$, tg of 2.06 h, $Y_{\text{X/S}}$ of 0.56 mg biomass/mg COD and 44.52 mg biomass/mg NTK and biomass productivity of 70.42 mg/L.h), demonstrates that wastewater from milk processing has significant potential for biomass production by *Aphanothece microscópica* Nägeli.