TITLE: CULTIVATION OF *CHLORELLA SOROKINIANA* IN WASTEWATER FROM FISH FARMING

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ABSTRACT

Wastewater from fish farming in semi-intensive systems has high concentrations of nutrients harmful to the environment. To reduce the negative impacts of these nutrients to the environment, it is important to integrate them into another production system, such as microalgae production. Microalgae are simple photosynthetic organisms capable of removing and degrading nutrients and heavy metals present in contaminated water. The present paper evaluated the growth rate of the microalgae C*hlorella sorokiniana* cultivated in wastewater from fish farming**.** The microalgae was cultivated for 56 days in wastewater enriched with N:P:K (20-5-20 g/L) and vinasse (0,1 %), in constant aeration, room temperature and photoperiod (12 h light/12 h dark). Conductivity and pH were measured every seven days of culture. The daily growth rates of *C. sorokiniana* were also measured and showed a continuous growth, with a peak of 72.2 ± 6.1 (number of cells x 10^5.mL) in the fifth week, which is close to the best results in the literature. After the fifth week there was a decrease in the cell duplication, however it remained positive in relation to the initial production that points out that the fifth week is the most auspicious moment for the biomass harvest. The pH values of the culture medium ranged from 7.4 to 4.3. The conductivity values of the culture medium were reduced from 1,707 to 604 μS.cm^{-1}. According to the Pearson Correlation Coefficient: microalga density and pH, and microalgae density and conductivity presented a significant negative correlation (r: -0.66 and -0.83, respectively); pH and conductivity presented a significant positive correlation (r: 0.78). Through the presented results it is possible to infer that: (i) the microalgae were able to reduce the concentration of salts of the medium, reducing considerably the conductivity in 56 days of culture; The pH and conductivity were negatively correlated to the density of microalgae, indicating a direct influence of the algal metabolism on the culture medium. In short, the microalgae *C. sorokiniana* presented a high potential to be cultivated in consortium with the process of bioremediation of residual water from fish production.

Keywords: Chlorophyceae; Environmental Biotechnology; Microalgae.

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