

Microalgae Biomass production using brewery wastewater

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The issue of greenhouse gases among others, lead the search for alternative energy, less aggressive. Depending of the origins these energies can compete with the production of food. This study aims to produce microalgal biomass with wastewater from the brewing process. The wastewater after characterization of the parameters Nitrite, Nitrate, Orthophosphate and Total Phosphorus Dissolved (TP) suffered three dilutions in T1 (10%), T2 (30%) and T3 (50%) and three replicates. The production system was built with fiberglass box in semi-intensive in indoor production system with capacity of 100 liters. The algal population assessment was made determining the nutrients content, biomass dry weight, oil content and fatty acid profile. The experiment took place during 25 days. As result, the chemical characterization showed the following results TN (0.051 mg / L), nitrate (3.163 mg / L), TP (2.312 mg / L) and orthophosphate (1.693 mg / L). And the biomass dry weight was 12.999 mg with productivity of 0.25 mg / L in T1, 14, 617 mg with 0.35 mg / L in T2 and 16.402 mg (0.36 mg / L) in T3. The oil analysis showed on average 3.84% (T1), 3.01% (T2) and 3.07% (T3). The growth curves in the three medium showed the following determination coefficients: $R_1^2 = 0.67$, $R_2^2 = R_3^2 = 0.98$ and 0.97 . The oil profile was composted by 15, 11 and 14 different types respectively with a predominance of linolenic acid 57.24% and 45.37% in T1 and T3, Oleic Acid 24.99% in T2. With these results the brewery wastewater is feasible way to microalgae biomass production, however, it is necessary to optimize the method of cultivation since the medium of 10% had a higher number of fatty acid and a lower coefficient of determination.

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