

ABSTRACT

SIMULTANEOUS LIPID PRODUCTION AND REDUCTION OF COD LEVELS BY GREEN ALGAE GROWING IN FRUIT INDUSTRY WASTE WATER

The depletion of fossil fuels and the release of large amounts of industrial effluents are two common environmental problems. The fossil fuels are also known to emit carbon-dioxide, causing a large amount of pollution. This study was focused on reducing the chemical oxygen demand in waste water, simultaneously trying to accumulate the oil for biodiesel production in algae grown in waste water. The effect of the different concentrations of waste water in the growth and lipid producing efficiency of the algae was studied. Two species of algae, *Nannochloris oculata* and *Scenedesmus dimorphus*, were investigated. It was found that *Nannochloris oculata* was capable of accumulating lipid in lower concentrations (25%) of fruit industry waste water, though a higher growth rate was achieved in 50% of waste water. It was also observed that the 100% waste water did not support the growth of *Nannochloris oculata*. However, *Scenedesmus dimorphus* was capable of producing a large biomass coupled to increased production of lipid in higher concentration of waste water; however, it had a decreased growth after 180 hours. It was also found to reduce 60% COD from the waste water.

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