

Biodiesel production from *Scenedesmus bijuga* cultivated in the effluent of anaerobic digested food wastewater

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Fossil fuels are non-renewable resources and going to be exhausted. Thus, a need for finding alternative energy sources is increasing. Biodiesel is one of the substitutes for it and microalgae has been gaining tremendous attentions since those have some advantages to replace petroleum based diesel. This study focused on reducing the cost of biodiesel production in cultivation process by using wastewater as a nutrient source. Even if quite large amount of organic matters in food wastewater can be reduced by the anaerobic digestion step, the effluent from this still have high concentration of nutrients. For this reason, *Scenedesmus bijuga* was cultivated in food wastewater effluent (FWE) to remove the nutrients and produce biodiesel simultaneously. Three different dilution ratios with municipal wastewater were compared to find the influence on biomass and lipid productions and 1/20 diluted FWE showed the largest biomass production (1.49g/L). Lipid content was highest in 1/10 diluted FWE (35.06%), while the maximum lipid productivity was shown in 1/20 diluted FEW (15.59mg/L/d). Fatty Acid Methyl Ester (FAME) compositions were mainly composed of C16~ C18.