

Screening Microalgae Strains Which Were Isolated from Agriculture and Municipal Wastewater Drain, Reno, Nevada and Reuse of Effluent Water from Municipal Wastewater Treatment Plant in Microalgae Cultivation for Biofuel Feedstock

Authors : Nita Rukminasari

Abstract : The aim of this study is to select microalgae strains, which were isolated from agriculture and municipal wastewater drain, Reno, Nevada that has highest growth rate and lipid contents. The experiments in this study were carried out in two consecutive stages. The first stage is aimed at testing the survival capability of all isolated microalgae strains and determining the best candidates to grow in centrate cultivation system. The second stage was targeted at determination the highest growth rate and highest lipid content of the selected top performing algae strain when cultivated on centrate wastewater. 26 microalgae strains, which were isolated from municipal and agriculture waste water, were analyzed using Flow cytometer for FACS of lipid with BODIPY and Nile Red as a lipid dyes and they grew on 96 wells plate for 31 days to determine growth rate as a based line data for growth rate. The result showed that microalgae strains which showed a high mean of fluorescence for BODIPY and Nile Red were F3.BP.1, F3.LV.1, T1.3.1, and T1.3.3. Five microalgae strains which have high growth rate were T1.3.3, T2.4.1, F3.LV.1, T2.12.1 and T3.3.1. In conclusion, microalgae strain which showed the highest starch content was F3.LV.1. T1.3.1 had the highest mean of fluorescence for Nile Red and BODIPY. Microalgae strains were potential for biofuel feedstock such as F3.LV.1 and T1.3.1, those microalgae strains showed a positive correlation between growth rate at stationary phase, biomass and meant of fluorescence for Nile Red and BODIPY.

Keywords : agriculture and municipal wastewater, biofuel, centrate, microalgae

Conference Title : ICSBBE 2017 : International Conference on Systems Biology and Biomedical Engineering

Conference Location : Venice, Italy

Conference Dates : June 21-22, 2017