World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:8, No:05, 2014

Total Lipid of Mutant Synechococcus sp. PCC 7002

Authors : Azlin S Azmi, Mus'ab Zainal, Sarina Sulaiman, Azura Amid, Zaki Zainudin

Abstract : Microalgae lipid is a promising feedstock for biodiesel production. The objective of this work was to study growth factors affecting marine mutant Synechococcus sp. (PCC 7002) for high lipid production. Four growth factors were investigated; nitrogen-phosporus-potassium (NPK) concentration, light intensity, temperature and NaNO3 concentration on mutant strain growth and lipid production were studied. Design Expert v8.0 was used to design the experimental and analyze the data. The experimental design selected was Min-Run Res IV which consists of 12 runs and the response surfaces measured were specific growth rate and lipid concentration. The extraction of lipid was conducted by chloroform/methanol solvents system. Based on the study, mutant Synechococcus sp. PCC 7002 gave the highest specific growth rate of 0.0014 h-1 at 0% NPK, 2500 lux, 40oC and 0% NaNO3. On the other hand, the highest lipid concentration was obtained at 0% NPK, 3500 lux, 30°C and 1% NaNO3.

Keywords : Cyanobacteria, lipid, mutant, marine Synechococcus sp. (PCC 7002), specific growth rate
Conference Title : ICCBE 2014 : International Conference on Chemical and Biochemical Engineering
Conference Location : Istanbul, Türkiye
Conference Dates : May 22-23, 2014