

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-phosphorus-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, 40°C 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

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