Produksi biomassa dan lipid mastigocladus hs-46 pada medium npk dengan penambahan variasi konsentrasi ekstrak tauge dalam sistem flat photobioreactor = biomass and lipid production of mastigocladus hs-46 on npk medium with the addition of variations the concentration of bean sprout extract in a flat photobioreactor system

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Abstrak

Penelitian mengenai produksi biomassa Mastigocladus HS-46 pada medium NPK dengan penambahan variasi konsentrasi ekstrak tauge dalam sistem flat photobioreactor telah dilakukan. Optimalisasi kandungan makronutrien medium NPK sebagai pengganti Bold's Basal Medium (BBM) untuk menumbuhkan cyanobacteria dapat melalui penambahan kandungan ekstrak tauge. Mastigocladus HS-46 diisolasi dari sumber air panas Maribaya pada suhu lingkungan 42 oC. Medium yang digunakan untuk menumbuhkan Mastigocladus HS-46 terdiri atas medium BBM sebagai kontrol dan medium NPK 350 ppm dengan penambahan konsentrasi ekstrak tauge 1%, 2%, dan 3%. Penelitian bertujuan untuk mengetahui pengaruh penambahan variasi konsentrasi ekstrak tauge dalam medium NPK 350 ppm dan medium BBM terhadap produksi biomassa Mastigocladus HS-46. Selain itu, penelitian bertujuan untuk mengetahui perbedaan kadar lipid Mastigocladus HS-46 dalam medium. Hasil penelitian menunjukkan medium NPK 350 ppm dengan penambahan ekstrak tauge 3% menghasilkan berat biomassa dan lipid tertinggi Mastigocladus HS-46 dibandingkan dengan medium BBM dan NPK 350 ppm dengan penambahan ekstrak tauge 2% dan 1%. Medium NPK 350 ppm dengan penambahan ekstrak tauge 3% menghasilkan berat biomassa tertinggi sebesar 0,1632 g/mL dengan kadar lipid tertinggi sebesar 62 %.

.....Research on Mastigocladus HS-46 biomass production on NPK medium with the addition of bean sprout extract with varying concentrations in flat photobioreactor system has been done. Optimization of the macronutrient content as a replacement to the Bold's Basal Medium (BBM) for cyanobacteria cultivation can be done with the use of bean sprout extract. Mastigocladus HS-46 was isolated from Maribaya Hot Spring at the temperature of 42 °C. The mediums used for Mastigocladus cultivation are BBM as control, and NPK mediums with the addition of bean sprout extract of 1%, 2% and 3% concentrations for the experimental group. The purpose of his research is to understand the effect of BBM and bean sprout extract addition with varying concentrations in 350 ppm NPK medium on Mastigocladus HS-46 biomass production. This research also aims to determine differences in the lipid content of Mastigocladus HS-46 in mediums. The results showed that 350 ppm NPK medium with 3% bean sprout extract addition produces the highest amount of biomass and lipid compared to the BBM and 350 ppm NPK medium with 2% and 1% bean sprout extract addition, producing 0,1632 g/ml of biomass and containing 62% lipid.