PEMANFAATAN *BIOSLURRY* BIOGAS SEBAGAI MEDIA KULTUR TERHADAP LAJU PERTUMBUHAN, PRODUKSI BIOMASSA DAN METABOLIT PRIMER MIKROALGA *Euglena* sp.

INTISARI

Windri Riansyah
23/527184/PPT/01305

Penelitian ini bertujuan untuk mengetahui pemanfaatan penggunaan *bioslurry* biogas sebagai media pertumbuhan mikroalga *Euglena* sp. Perlakuan konsentrasi kontrol 0% media (*Cramer Myers*), 10%, 20%, dan 30% *bioslurry* dianalisis menggunakan laju pertumbuhan, produksi biomassa dan metabolit primer. Budidaya *Euglena* sp. dalam medium *bioslurry* dilakukan dalam fotobioreaktor skala lab (5 L), pH 4, cahaya terkontol, suhu 24°C selama 16 hari kultivasi. Rancangan percobaan yang digunakan pada penelitian ini adalah Rancangan Acak Lengkap (RAL) dengan 4 perlakuan dan 3 ulangan. Data penelitian dianalisis dengan menggunakan metode *Analysis of Variance* (ANOVA) dengan taraf signifikan 5% dan jika terdapat perbedaan antara perlakuan dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT) pada taraf signifikan a = 0,05. Hasil penelitian menunjukkan bahwa penambahan *bioslurry* berpengaruh nyata ($p<0,05$) terhadap laju pertumbuhan, produksi biomassa dan lipid, sedangkan pada kandungan protein dan karbohidrat tidak berpengaruh nyata. Penambahan *bioslurry* dengan konsentrasi 10% dapat meningkatkan laju pertumbuhan (48,33 10^4 sel/ml), produksi biomassa (8,00 mg/L), kandungan protein (49,05 mg/L), kandungan karbohidrat (0,40 mg/L), dan kandungan lipid (8,00 mg/L). Penambahan *bioslurry* dengan konsentrasi 10% dapat menurunkan C/N dan P/N sebesar 2,73 mg/L dan 0,58 mg/L. Berdasarkan hasil penelitian dapat disimpulkan bahwa *bioslurry* dapat mempengaruhi pertumbuhan mikroalga *Euglena* sp. seiring dengan peningkatan konsentrasi bioslurry.

Kata kunci**:** Biogas, *Bioslurry*, *Euglena* sp., Laju pertumbuhan, Metabolit primer

UTILIZATION OF BIOSLURRY BIOGAS AS A CULTURE MEDIA ON GROWTH RATE, BIOMASS PRODUCTION AND PRIMARY METABOLITES OF MICROALGAE *Euglena* sp.

ABSTRACT

Windri Riansyah
23/527184/PPT/01305

This study aims to investigate the utilization of biogas bioslurry as a growth medium for the microalga *Euglena sp.* The treatments consisted of control (0% bioslurry), 10%, 20%, and 30% bioslurry concentrations, which were analyzed for growth rate, biomass production, and primary metabolites. *Euglena sp.* cultivation in bioslurry medium was carried out in a laboratory-scale photobioreactor (5 L) with a pH of 4, controlled light conditions, and a temperature of 24°C for 16 days. The experimental design used in this study was a Completely Randomized Design (CRD) with 4 treatments and 3 replications. The data were analyzed using Analysis of Variance (ANOVA) at a significance level of 5%, and if significant differences were found between treatments, Duncan's Multiple Range Test (DMRT) was applied at a significance level of $\alpha = 0.05$. The results showed that the addition of bioslurry had a significant effect ($p<0.05$) on the growth rate, biomass production, and lipid content, while no significant effect was observed on protein and carbohydrate contents. The addition of 10% bioslurry increased the growth rate (48.33 x 10^4 cells/ml), biomass production (8.00 mg/L), protein content (49.05 mg/L), carbohydrate content (0.40 mg/L), and lipid content (8.00 mg/L). Furthermore, the addition of 10% bioslurry decreased the C/N and P/N ratios by 2.73 mg/L and 0.58 mg/L, respectively. Based on the results, it can be concluded that bioslurry can influence the growth of *Euglena sp.* in a concentration-dependent manner.

Keywords: Biogas, *Bioslurry, Euglena* sp., Growth rate, Primary metabolites