

**KULTUR CAMPURAN KONSORSIUM STRAIN GLAGAH DENGAN  
*Euglena* sp. UNTUK OPTIMASI PRODUKSI BIOMASSA, LIPID,  
KARBOHIDRAT, DAN PROTEIN SEBAGAI SUMBER BIODIESEL**

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**INTISARI**

Seiring dengan perkembangan ekonomi dunia melalui industrialisasi, urbanisasi dan modernisasi, konsumsi energi global telah meningkat secara signifikan. Penelitian mengenai energi terbarukan yang ramah lingkungan seperti biodiesel sangat dibutuhkan. Salah satu konsorsium mikroalga yang telah dieksplorasi dari alam adalah Konsorsium Strain Glagah. Selain itu, *Euglena* sp. merupakan salah satu mikroalga yang berpotensi tinggi untuk dimanfaatkan sebagai biodiesel. Penelitian ini bertujuan untuk mengetahui produksi total biomassa, lipid, karbohidrat, dan protein kultur campuran Konsorsium Strain Glagah dan *Euglena* sp. sebagai substrat biodiesel. Pengujian biomassa diukur dengan metode DW, lipid diukur dengan metode Blight & Dryer, karbohidrat diukur dengan metode Asam Sulfur-Fenol, dan protein diukur dengan metode Bradford. Hasil total produksi biomassa, lipid, karbohidrat dan protein menunjukkan bahwa kultur campuran Konsorsium Strain Glagah dengan *Euglena* sp. meningkatkan dua kali lipat dibandingkan dengan monokultur Konsorsium Strain Glagah. Berturut-turut mencapai 0,410 g/L; 0,253 g/L; 0,856 g/L; dan 0,623 g/L. Oleh karena itu, dapat disimpulkan bahwa kultur campuran Konsorsium Strain Glagah dengan *Euglena* sp. dapat meningkatkan produksi metabolit pada Konsorsium Strain Glagah, sehingga perlakuan kultur campuran ini dapat digunakan sebagai acuan pembuatan biodiesel.

Kata kunci: Konsorsium Glagah, *Euglena* sp., Kultur Campuran, Optimalisasi *Yield* Mikroalga

**MIXED CULTURE GLAGAH STRAIN CONSORTIUM WITH  
*Euglena* sp. FOR OPTIMIZATION OF BIOMASS, LIPID,  
CARBOHYDRATE, AND PROTEIN PRODUCTION AS  
BIODIESEL SOURCE**

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**ABSTRACT**

Along with the development of world economy through industrialization, urbanization and modernization, global energy consumption has increased significantly. Research on environmentally friendly renewable energy such as biodiesel is needed. Microalgae is a promising source of biodiesel, especially in the form of mixed culture. One of the microalgae consortium that has been explored from nature is the Glagah strain consortium. In addition, *Euglena* sp. is one of the microalgae with high potential to be used as biodiesel. This study aimed to determine the total production of biomass, lipids, carbohydrates, and proteins of mixed culture of Glagah strain consortium and *Euglena* sp. as biodiesel substrate. The test of biomass was measured using the DW method, lipids were measured using the Blight & Dryer method, carbohydrates were measured using the Sulfur Phenol Acid method, and proteins was measured using the Bradford method. The results of the total production and productivity of biomass, lipids, carbohydrates, and proteins showed that the mixed culture of Glagah strain consortium with *Euglena* sp. was higher than Glagah strain consortium. It reached 0.410 g/L; 0.253; 0.856 g/L; and 0.623 g/L. Therefore, it could be concluded that the mixed culture of Glagah strain consortium with *Euglena* sp. could increase the production of biomass, lipids, carbohydrates, and protein up to two times of Glagah strain consortium, so that this mixed culture treatment could be used as a reference in microalga cultivation for biodiesel.

**Keywords:** Glagah Consortium, *Euglena* sp., Mixed Culture, Optimization of Microalgae Yield