PENGARUH PERBEDAAN SUMBER KARBON DALAM MEDIUM TERHADAP KANDUNGAN PARAMYLON (β-1,3-GLUCAN) PADA KULTUR *Euglena* sp. STRAIN 2 SKALA LABORATORIUM

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INTISARI

Euglena sp. merupakan salah satu jenis mikroalga yang banyak dikenal karena mengandung senyawa bernilai tinggi bernama paramylon. Paramylon merupakan polisakarida yang berperan sebagai cadangan makanan pada sel *Euglena* sp. Paramylon diketahui memiliki berbagai manfaat untuk kesehatan. Medium merupakan salah satu faktor penting dalam keberhasilan kultivasi mikroalga. Komposisi medium memiliki efek yang signifikan terhadap produksi biomassa mikroalga, sehingga optimalisasi medium perlu dilakukan untuk memaksimalkan produksi biomassa dan metabolit spesifik yang ditargetkan. Diketahui bahwa *Euglena* sp. dapat memproduksi paramylon dalam jumlah lebih besar jika dikultivasi dalam medium dengan sumber karbon yang tepat. Sebagai upaya untuk mendapatkan hasil paramylon yang maksimal, perlu dilakukan optimasi komposisi medium yang digunakan. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian sumber karbon glukosa dan asam glutamat dalam medium terhadap laju pertumbuhan, biomassa, dan kandungan paramylon (β-1,3-Glucan) pada kultur *Euglena* sp. skala laboratorium. Pada penelitian ini, glukosa (CM+Glukosa) dan asam glutamat (CM+Asam glutamat) masing-masing ditambahkan sebanyak 1 g/L kedalam medium CM (Cramer dan Myers). Hasil penelitian ini menunjukkan bahwa nilai *specific growth rate*, biomassa, dan kandungan paramylon tertinggi terdapat pada perlakuan CM+Glukosa dengan nilai berturut-turut sebesar 2,902±0,338 (OD680/h x 10^{-1}), 0,476±0,023 g/L, dan 2,416±0,129 mg/mL.

Kata kunci: *Euglena* sp., paramylon, sumber karbon, biomassa, kultivasi

EFFECT OF DIFFERENT CARBON SOURCE IN THE MEDIUM ON PARAMYLON (β-1,3-GLUCAN) CONTENT IN LABORATORY-SCALE *Euglena* sp. STRAIN 2 CULTURE

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ABSTRACT

Euglena sp. is a type of microalgae that is well-known with a high value compound, namely paramylon. Paramylon is a polysaccharide that acts as a food reserve in *Euglena* sp. cells. Paramylon is widely used as an additive in food products and medicines, because of its benefits as an immunostimulant, antimicrobial, and various other benefits that are good for health. Medium is an important component in the success of microalgae cultivation. Hence, it is important to optimize the medium to maximize cell growth and the production of specific targeted metabolites. *Euglen*a sp. can produce paramylon in greater quantities if cultivated in a medium with the right carbon source. From the explanation above, it is known that a success factor of cultivation is the composition of the growth medium. Therefore, it is important to conduct research on the *Euglena* sp. growth behaviour on synthetic media to find out which carbon source is the most appropriate for mass production of paramylon. This research aimed to determine the effect of two different types of carbon source, namely glucose and glutamic acid in the medium on growth rate, biomass, and paramylon (β-1,3-Glucan) content in *Euglena* sp. culture. In this research, CM culture medium (Cramers and Myers) was added with different organic carbon sources, such as glucose (1 g/L) and glutamic acid (1 g/L) to determine the effect of the addition of these organic carbon sources on growth rate, biomass, and paramylon content in *Euglena* sp. culture. This research indicated that the highest specific growth rate, biomass, and paramylon content were found in the CM medium treatment with glucose added (CM+Glucose) with values of 2,902 ± 0,338 (OD680/d x 10^{-1}), 0,476±0,023 g/ L, and 2,416±0,129 mg/mL respectively.

Keywords: *Euglena* sp., paramylon, carbon source, biomass, cultivation