

PARAMYLON AND SUCROSE CONTENT OF *Euglena* sp. UNDER SALINITY STRESS IN SEMI-MASS CULTURE

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ABSTRACT

Microalgae is deemed a potential source for 5Fs of biomass: food, fiber, feed, fertilizer, and fuel. *Euglena* sp. is a notable microalgae species for its huge potential to fulfill all 5Fs of biomass. Paramylon, which is unique to *Euglena* sp., is considered a potential source of food, fiber, drugs, and medicinal nutrients. Various studies have been done to optimize the *production of Euglena* sp. *metabolites*. This research is done to explore the effect of salt stress using $MgCl_2$ and $CaCl_2$ as considerations for mass production in the semi-mass culture of *Euglena* sp. Paramylon, monosaccharide, and disaccharide content are the main parameters measured in this study to compare the effect of the treatment. Paramylon was measured using the phenol-sulfuric acid method using a spectrophotometer with a wavelength of 490 nm. The monosaccharide and disaccharide content was quantified using high-performance liquid chromatography (HPLC). Additional analysis conducted includes monitoring the salinity, growth, and biomass of the cultures cultivated in Research Station Fakultas Biologi Karanggayam II UGM. It was observed that salinity treatment increased the culture growth, biomass, paramylon, and sucrose production in *Euglena* sp. The highest increase in *Euglena* sp. culture growth, paramylon, and sucrose production was achieved in 150 mm $CaCl_2$ salinity stress. Salt stress treatment can be used as a method to increase *Euglena* sp. production on an industrial scale.

KEY WORDS: *Euglena* sp., Paramylon, Salinity, Sucrose.