

PENGARUH SALINITAS TERHADAP DAYA BIOFLOKULASI *Navicula* sp. PADA KONSORSIUM GLAGAH

Intisari

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Mikroalga merupakan organisme yang berpotensi digunakan dalam produksi produk biologis bernilai tinggi. Konsorsium Glagah merupakan salah satu strain yang berpotensi dimanfaatkan sebagai sumber *biofuel*. Kendala utama dalam produksi biomassa mikroalga adalah biaya proses *harvesting* tinggi. Solusi permasalahan ini adalah proses *bioflocculation*, penggumpalan partikel kecil membentuk *floc* melalui ko-kultur mikroalga dengan mikroorganisme autoflokulasi, seperti *Navicula* sp.. Penelitian ini dilakukan untuk mengetahui pengaruh salinitas dan rasio pencampuran pada bioflokulasi Konsorsium Glagah dan *Navicula* sp. Kultivasi Konsorsium Glagah dilakukan dalam *Bold's Basal Medium* (BBM), sementara kultivasi *Navicula* sp. dilakukan dalam medium F/2 dengan modifikasi penghilangan silikat dan perlakuan salinitas 30 g/L, 40 g/L, dan 50 g/L dalam botol kultur 500 mL. Kultivasi dilakukan selama 8 hari, dengan pemanenan pada hari ke-3 kultivasi Konsorsium Glagah dan hari ke-6 kultivasi *Navicula* sp. Bioflokulasi dilakukan dengan pencampuran Konsorsium Glagah dan *Navicula* sp. dengan rasio 1:1, 1:0.5, dan 1:0.25. Daya bioflokulasi diukur pada saat dan 24 jam setelah pencampuran Konsorsium Glagah dan *Navicula* sp. Uji proksimat dilakukan pada kandungan karbohidrat dan lipid hasil bioflokulasi. Analisis data dilakukan dengan *one way* ANOVA dan DMRT. Hasil uji menunjukkan pengaruh tidak signifikan variabel salinitas terhadap daya bioflokulasi dan karbohidrat, dan pengaruh signifikan pada kandungan lipid; Perlakuan rasio pencampuran mengakibatkan peningkatan signifikan daya bioflokulasi Konsorsium Glagah dan *Navicula* sp., serta peningkatan kandungan karbohidrat dan lipid pada campuran.

Kata Kunci : Konsorsium Glagah, *Navicula*, bioflokulasi, salinitas, *floc*

EFFECTS OF SALINITY ON *Navicula* sp. BIOFLOCCULATION IN GLAGAH CONSORTIUM

Abstract

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Microalgae are organisms with the potential to produce high value biological products. One strain of beneficial microalgae is the Glagah Consortium, which has the potential to be used as a biofuel source. The main problem of microalgal biomass production is the high cost of the biomass harvesting process. This problem can be mitigated using a method called bioflocculation, small particle aggregation which form flocs by co-culturing microalgae with other autoflocculating microorganisms, such as *Navicula* sp.. This research aims to identify the effect of salinity and mixing ratio of Glagah Consortium and *Navicula* sp. on bioflocculation and carbohydrate and lipid content. Cultivation of Glagah Consortium was done in Bold's Basal Medium (BBM) while cultivation of *Navicula* sp. was done in a modified F/2 medium with silicate removal, and salinity treatment of 30 g/L, 40 g/L, and 50 g/L. Cultivation process was done in 500 mL culture bottles. Cultures were grown for 8 days, with harvesting period done at day-3 of Glagah Consortium and day-6 of *Navicula* sp. cultivation. Bioflocculation was done by mixing the Glagah Consortium and *Navicula* sp. with a ratio of 1:1, 1:0.5, and 1:0.25. Bioflocculation rate were measured before and after 24 hours of mixing. Proximate tests were done on carbohydrate and lipid content of the co-culture. Data analysis was conducted using one way ANOVA and DMRT. Result showed significant difference of salinity on lipid content, and a significant difference of mixing ratio to bioflocculation rate, carbohydrate and lipid content.

Key Words : Glagah Consortium, *Navicula*, bioflocculation, salinity, floc