

**PENGARUH SALINITAS DAN MEDIA LIMBAH CAIR TAHU  
TERHADAP PERTUMBUHAN, LIPID, PROTEIN,  
KARBOHIDRAT, DAN PIGMEN *Euglena* sp.**

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**INTISARI**

Industri tahu yang dimulai dari skala rumahan hingga pabrikan masih banyak mengalirkan limbah cair tahu ke sungai. Limbah cair tahu mengandung berbagai nutrisi esensial seperti P, N dan C dimana memiliki potensi sebagai medium kultur mikroalga *Euglena* sp. Adapun salinitas memiliki efek dalam fisiologi dan biokimia mikroalga. Penelitian ini bertujuan untuk menentukan pengaruh penambahan limbah cair tahu 0% (CM), 75% (MI) dan 100% (LO) dengan berbagai konsentrasi salinitas 0 g L<sup>-1</sup> (0), 2 g L<sup>-1</sup> (2) dan 4 g L<sup>-1</sup> (4) terhadap kepadatan sel, biomassa, total lipid (*Bligh and Dyar method*), karbohidrat (*phenol-sulfuric acid method*), Total protein (*Bradford method*), klorofil A, klorofil B dan karotenoid pada *Euglena* sp. Berdasarkan penelitian, gabungan limbah cair tahu dan salinitas mampu meningkatkan kepadatan sel tertinggi yaitu  $17,625 \times 10^5 \pm 0.125 \times 10^5$  sel/mL (MI2), Biomassa  $2.77 \pm 0.118$  mg/mL (MI2), total lipid yaitu  $0.81 \pm 0.020$  mg/mL (LO4), total karbohidrat yaitu  $0.48 \pm 0.014$  mg/mL (MI4), total protein yaitu  $0.14 \pm 0.005$  mg/mL (MI4), Klorofil A yaitu  $10.74 \pm 0.14$  mg/L (LO4), Klorofil B yaitu  $2.53 \pm 0.07$  mg/L (LO4) dan karotenoid yaitu  $2.57 \pm 0.003$  mg/L (LO4). Berdasarkan uji Friedman's two-way ANOVA Penambahan limbah cair tahu dan salinitas berdampak signifikan terhadap masing masing pengujian, sehingga dapat disimpulkan bahwa limbah cair tahu berpotensi sebagai medium alternatif yang murah, pada *Euglena* sp. Namun, pengoptimalan antara limbah cair tahu dan salinitas harus sesuai dengan tujuan kultivasi.

*Kata Kunci:* *Euglena* sp., Limbah Cair Tahu, Metabolit primer, pigmen, Salinitas

## EFFECTS OF SALINITY AND TOFU LIQUID WASTE ON THE GROWTH, LIPIDS, PROTEINS, CARBOHYDRATES, AND PIGMENTS OF *Euglena* sp.

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### ABSTRACT

The tofu industry, which starts from a home scale to manufacturers, still flows a lot of tofu liquid waste into rivers. Tofu liquid waste contains various essential nutrients such as P, N, and C, which have the potential as a culture medium for microalgae *Euglena* sp. Salinity affects the physiology and biochemistry of microalgae. This study aims to determine the effect of adding liquid tofu waste 0% (CM), 75% (MI), and 100% (LO) with various concentrations of salinity 0 g L<sup>-1</sup> (0), 2 g L<sup>-1</sup> (2), and 4 g L<sup>-1</sup> (4) on cell density, biomass, total lipid (Bligh and Dyar method), carbohydrates (phenol-sulfuric acid method), total protein (Bradford method), chlorophyll A, chlorophyll B and carotenoids in *Euglena* sp. Based on the research, the combination of tofu wastewater and salinity was able to increase the highest cell density, namely  $17.625 \times 10^5 \pm 0.125 \times 10^5$  cells/mL (MI2), Biomass  $2.77 \pm 0.118$  mg/mL (MI2), total lipid  $0.81 \pm 0.020$  mg/mL (LO4), total carbohydrate was  $0.48 \pm 0.014$  mg/mL (MI4), total protein was  $0.14 \pm 0.005$  mg/mL (MI4), chlorophyll A was  $10.74 \pm 0.14$  mg/L (LO4), chlorophyll B was  $2.53 \pm 0.07$  mg/L (LO4) and carotenoids were  $2.57 \pm 0.003$  mg/L (LO4). Based on Friedman's two-way ANOVA test, the addition of tofu liquid waste and salinity had a significant impact on each test, so it can be concluded that tofu liquid waste has the potential as a cheap alternative medium in *Euglena* sp. However, the optimization between tofu liquid waste and salinity must be under the cultivation objectives.

**Keywords:** *Euglena* sp., Primary metabolites, Pigmentation, Salinity, Tofu Liquid Waste