

## **Efektivitas Mikroalga *Nannochloropsis Oculata* Sebagai Agen Bioremediasi Polutan Organik Limbah Cair Pabrik Gula**

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### **ABSTRAK**

Total produksi gula di Indonesia mencapai 2,1 juta ton setiap tahunnya. Banyaknya produksi gula di Indonesia menyebabkan limbah cair hasil ekstraksi berdampak pada perairan karena kontaminasi, deoksigenisasi oleh polutan, dan air menjadi keruh. Perlu adanya upaya penanganan limbah cair gula agar tidak mencemari lingkungan dan membahayakan makhluk hidup. Penelitian ini bertujuan untuk mengetahui proses bioremediasi Mikroalga *Nannochloropsis oculata* sebagai upaya penurunan kekeruhan dan kadar polutan pada limbah cair pabrik gula. Metode yang digunakan dalam penelitian ini adalah metode eksperimen yang terdiri dari lima perlakuan dengan perbandingan mikroalga dan limbah cair gula dalam satuan mililiter yaitu P0 (0:1000), P1 (300:1000), P2 (300:800), P3 (300:600), P4 (300:400), dan P5 (300:200). Tahapan penelitian ini adalah pengambilan sampel limbah cair pabrik gula, inokulasi mikroalga *Nannochloropsis oculata* ke dalam Limbah selama 16 hari, dan pengujian hasil inokulasi. Parameter pengujian yang dilakukan meliputi Kekeruhan, TSS, COD, BOD, pH, TP suhu, salinitas dan kepadatan sel. Data dianalisis dengan menentukan persentase penurunan tiap parameter dan perhitungan Indeks Pencemaran (IP) keseluruhan parameter.

**Keywords:** *Nannochloropsis oculata*, bioremediasi, tingkat kekeruhan, penurunan kadar polutan.

## **The Effectiveness of Microalgae *Nannochloropsis Oculata* as a Bioremediation Agent for Organic Pollutants Liquid Waste of Sugar Factory**

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### **ABSTRACT**

Total sugar production in Indonesia reaches 2.1 million tons annually. A large amount of sugar production in Indonesia causes the extracted liquid waste to impact the waters due to contamination, deoxygenation by pollutants, and the water becomes cloudy. Efforts are needed to handle liquid sugar waste so that it does not pollute the environment and harm living things. This study aims to determine the bioremediation process of microalgae *Nannochloropsis oculata* to reduce turbidity and pollutant levels in sugar factory wastewater. The method used in this study was an experimental method consisting of five treatments with a ratio of microalgae and liquid sugar waste in milliliter units, namely P0 (0:1000), P1 (300:1000), P2 (300:800), P3 (300:600), P4 (300:400), and P5 (300:200). The stages of this research were sampling the sugar factory wastewater, inoculating the microalgae *Nannochloropsis oculata* into the waste for 16 days, and testing the inoculation results. The parameters of the tests carried out included turbidity, TSS, COD, BOD, pH, TP temperature, salinity, and cell density. Data were analyzed by determining the percentage of reduction for each parameter and calculating the Pollution Index (IP) for all parameters.

**Keywords:** *Nannochloropsis oculata*, bioremediation, turbidity level, decrease in pollutant levels.