

## ABSTRAK

### ANALISIS PENGGUNAAN PUPUK ORGANIK CAIR (POC) LIMBAH KULIT PISANG TERHADAP PERTUMBUHAN *Nannochloropsis* sp. PADA KULTUR SKALA LABORATORIUM

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MUHAMAD SURYA PRATAMA

*Nannochloropsis* sp. dijadikan sebagai pakan alami bagi pertumbuhan dan perkembangan larva ikan dan udang. POC limbah kulit pisang dapat digunakan sebagai media alternatif kultur skala laboratorium pengganti pupuk conway. Tujuan dari penelitian ini untuk menganalisis pertumbuhan dan kandungan nutrisi *Nannochloropsis* sp. yang dikultur skala laboratorium menggunakan POC limbah kulit pisang. Rancangan penelitian yang digunakan yaitu, rancangan acak lengkap (RAL) dengan 4 perlakuan dan 3 ulangan meliputi P1 (POC 1ml/l+Urea 16,24g/l+TSP 8,37g/l), P2 (POC 2ml/l+Urea 32,48g/l+TSP 16,74g/l), K- (POC 1ml/l), dan K+ (pupuk conway 1ml/l). Parameter yang diamati pada penelitian ini meliputi kandungan N, P dan K pada POC, pengamatan pertumbuhan, diameter sel dan kandungan nutrisi *Nannochloropsis* sp. serta kualitas air. Kultur *Nannochloropsis* sp. dilakukan selama 8 hari. Hasil penelitian menunjukkan bahwa penggunaan POC limbah kulit pisang dengan dosis 2 ml/l+urea 32,48 g/l+TSP 16,74 g/l menghasilkan pertumbuhan puncak tertinggi ( $P < 0,05$ ), sedangkan ukuran diameter memperoleh hasil yang sama pada setiap perlakuan ( $P > 0,05$ ). Hasil uji proksimat *Nannochloropsis* sp. menunjukkan kandungan air berkisar 10,41-13,30%, abu 0,61-4,79%, protein 20,47-31,33%, lemak 1,67-4,10%, dan karbohidrat 53,29-63,11%. Penggunaan POC limbah kulit pisang pada kultur *Nannochloropsis* sp. skala laboratorium tidak berpengaruh terhadap ukuran diameter dan kepadatan harian sel, serta kandungan nutrisi, tetapi berpengaruh terhadap kepadatan puncak.

Kata kunci : Kepadatan, Kultur Skala Laboratorium, Limbah Kulit Pisang, *Nannochloropsis* sp., POC

## ABSTRACT

### ANALYSIS OF THE USE OF LIQUID ORGANIC FERTILIZER (LOF) FROM BANANA PEEL WASTE ON THE GROWTH OF *Nannochloropsis* sp. IN LABORATORY-SCALE CULTURES

By

MUHAMAD SURYA PRATAMA

*Nannochloropsis* sp. is used as natural feed for the growth and development of fish and shrimp larvae. Banana peel waste LOF can be used as an alternative medium for laboratory-scale culture to replace conway fertilizer. The purpose of this study was to analyze the growth and nutritional content of *Nannochloropsis* sp. cultured on a laboratory scale using banana peel waste LOF the research design used was a completely randomized design (CRD) with 4 treatments and 3 replications, including T1 (LOF 1ml/l+Urea 16.24g/l+TSP 8.37g/l), T2 (LOF 2ml/l+Urea 32.48g/l+TSP 16.74g/l), C- (LOF 1ml/l), and C+ (Conway fertilizer 1ml/l). The parameters observed in this study included N, P, and K content in LOF, growth observation, cell diameter and nutrient content of *Nannochloropsis* sp., as well as water quality. The culture of *Nannochloropsis* sp. was conducted for 8 days. The results showed that the use of banana peel waste LOF at a dose of 2ml/l+Urea 32.48g/l+TSP 16.74g/l produced the highest peak growth ( $P < 0.05$ ), while the diameter size obtained the same results in each treatment ( $P > 0.05$ ). The proximate analysis of *Nannochloropsis* sp. showed water content ranging from 10.41-13.30%, ash 0.61-4.79%, protein 20.47-31.33%, fat 1.67-4.10%, and carbohydrates 53.29-63.11%. The use of banana peel waste LOF in laboratory-scale *Nannochloropsis* sp. culture did not affect cell diameter and daily density, as well as nutrient content, but it did affect peak density.

Keywords: *Banana Peel Waste, Density, Laboratory Scale Culture, LOF, Nannochloropsis* sp.