

## Dinamika Populasi *C. vulgaris* Dalam Paparan Logam Berat Timbal (Pb)

### Dengan Konsentrasi Yang Berbeda Skala Laboratorium.

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#### ABSTRAK

Peningkatan konsentrasi logam berat dalam air laut menyebabkan racun bagi organisme laut jika berlangsung secara terus menerus. Peran *chlorophyceae* sebagai bioindikator terhadap perubahan lingkungan fisik dan khemis dalam badan air akan mempengaruhi populasi, struktur dan komposisi komunitas plankton dalam badan air. *Chlorella sp.* merupakan mikroalga yang termasuk dalam kelas alga hijau atau *Chlorophyceae*. *Chlorella sp.* bereproduksi secara aseksual yang melalui 4 tahap yaitu; Fase lag (istirahat), fase logaritmik (log) atau eksponensial, fase penurunan laju pertumbuhan, fase stasioner, fase kematian. Tujuan penelitian ini adalah untuk menganalisis pengaruh, MTC dan perbedaan kandungan klorofil-a pada populasi *Chlorella sp.* yang ditambahkan logam berat Pb dengan konsentrasi yang berbeda dalam skala laboratorium.

Analisis statistik yang dilakukan adalah Rancangan Acak Lengkap (RAL) dengan empat perlakuan konsentrasi Pb yang berbeda yaitu : 5 ppm, 10 ppm, 15 ppm dan setiap perlakuan terdapat 3 ulangan. Parameter yang diamati adalah jumlah sel, kualitas air harian meliputi DO, pH, suhu, salinitas, dan kandungan klorofil-a. Data jumlah sel yang diperoleh dianalisis menggunakan ragan (ANOVA), apabila hasil ragam menunjukkan pengaruh nyata, dilanjutkan menggunakan uji BNT.

Hasil penelitian ini menunjukkan paparan konsentrasi logam berat timbak (Pb) yang berbeda berpengaruh signifikan terhadap populasi sel *C. vulgaris* ( $P < 0,2$ ). Kandungan klorofil-a berbanding lurus dengan jumlah populasi sel *C. vulgaris*. Kisaran parameter kualitas air meliputi suhu 30,15 - 32,24<sup>o</sup>C, pH 8,4 - 9,0, Salinitas 28,0 - 35,8 ‰. DO 5,15 - 6,06 ppm Kisaran kualitas air media kultur selama penelitian masih layak digunakan.

**Kata Kunci :** *C. vulgaris*, logam berat Timbal (Pb), populasi sel, Klorofil-a

## Dynamics Population *C. vulgaris* On Explanation Heavy Metal (Pb) With Difference Concentration Laboratorium Scale

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### ABSTRACT

Enhancement of heavy metal concentration in sea water causing poison to sea organism which is happened continuously. Chlorophyceae role as bioindicator toward physical environment change and chemical inside water body will affect population, structure and the composition of plankton community inside water body. *Chlorella* sp. is microalga which is included into three class of green algae or chlorophyceae. *Chlorella* sp. reproduced asexually that pass four phases, those are; lag phases (rest), logarithmic phase (log) or exponential, decline phase of growth rate, stationary phase, mortality phase. The purpose of study is to analyze the influence of MTC and the difference of chlorophyll-a content toward *Chlorella* sp. Which is added heavy metal Pb with different concentration in laboratorium scale.

Statistical analysis that performed is Completely Randomized Design (CRD) by four treatments of different Pb concentration, those are : 5 ppm, 10 ppm, 15 ppm and every treatments acquire 3 repetitions. Parameter that observed are cell amount, daily water quality involving DO, Ph, temperature, salinity and chlorophyll-a content. The data or cell amount that acquire analyzed by using variety (ANOVA), if the result of variety shows the real influence, it is able to be next by using Least Significance Different (LSD) test.

The result of this study shows that the explanation of different heavy metal Pb concentration, significantly influenced toward *Chlorella vulgaris* ( $P < 0,2$ ) cell population. Chlorophyll-a content compared linear with amount of cell population. The parameter estimation of water quality including temperature 30,15 – 32,24 C, Ph 8,4 – 9,0, Salinity 28,0 – 35,8‰. DO 5,15 – 6,06 ppm. estimation of water quality towards culture media during study still worth to used.

**keywords** : *C. vulgaris*, heavy metal (Pb), cell population, chlorophyll-a