EFEK CAMPURAN TEMBAGA (Cu) DAN KADMIUM (Cd) TERHADAP LAJU PENYERAPAN DAN AKUMULASI INTRASELULAR *Chlorella pyrenoidosa* H.Chick

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INTISARI

Mikroalga merupakan organisme uniseluler fotosintetik dan berperan dalam rantai makanan bagi organisme di lingkungan. Limbah selalu dianggap sebagai faktor utama pencemaran yang terjadi. Limbah dapat dengan mudah menimbulkan kerusakan lingkungan karena limbah dibuang di lingkungan perairan seperti sungai. Logam berat berbahaya karena bersifat toksik dan sulit untuk diuraikan atau didegradasi contohnya *Cuprum* (Cu) dan *Cadmium* (Cd). Masuknya bahan-bahan pencemar tersebut ke dalam air tentu saja akan menurunkan kualitas air dan akan berakibat terganggunya organisme di dalam air, salah satunya mikroalga. Penelitian ini bertujuan untuk mempelajari efek campuran Cu dan Cd pada pertumbuhan, laju penyerapan, dan akumulasi internal logam pada *Chlorella pyrenoidosa*. Penelitian diawali dengan uji pendahuluan kemudian dilakukan uji kombinasi *C.pyrenoidosa* diinkubasi selama 72 jam dengan diberi kombinasi logam (Cu : Cd) = (13,5:6,4) ; (18,9:6,1) ; (24.4:5,8) ppm, kemudian dilakukan pencucian, destruksi dan analisis data dengan two-way anova. Hasil penelitian menunjukkan bahwa, kombinasi Cu dan Cd menyebabkan penurunan densitas mikroalga selama 72 jam, bersifat sinergisme, laju penyerapan Cu dan Cd terus meningkat selama perlakuan, dan kombinasi Cu 18% dan Cd 82% menunjukkan akumulasi logam paling besar.

Kata Kunci : *Chlorella pyrenoidosa*, Toksisitas, Cu dan Cd

MIXTURED EFFECTS OF CUPRUM (Cu) AND CADMIUM (Cd) ON UPTAKE RATE AND INTRACELLULAR ACCUMULATION *Chlorella pyrenoidosa* H.Chick

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ABSTRACT

Microalga**e** is photosynthetic unicellular organism and play a role in the food chain for organisms in aquatic environments. Waste is always considered as a major factor in pollution. Waste can easily cause environmental damage because waste is disposed in aquatic environments such as rivers. Heavy metals are dangerous because they are toxic and difficult to be decomposed or degraded such as *Cuprum* (Cu), and *Cadmium* (Cd). The entry of pollutants into the water will certainly reduce the quality of water and will result in disruption of organisms in the water, one of them is microalgae. This research aimed to study the effects of Cu and Cd mixture on growth, absorption rate, and internal accumulation of metals in *Chlorella pyrenoidosa*. The research began with a preliminary test and then was tested with combination test *C.pyrenoidosa* was incubated for 72 hours with a combination of 10% Cu metal: 90% Cd; Cu 14%: Cd 86%; Cu 18%: Cd 82% (13.5: 6,4); (18.9: 6,1); (24.4: 5,8) ppm, then washing, destruction and data analysis with two-way anova. The results showed that the combination of Cu and Cd caused a decrease in the density of microalgae for 72 hours, charactered with synergistic, the absorption rate of Cu and Cd continued to increase during treatment, and the combination of Cu 18% and Cd 82% showed the largest metal accumulation.

Keywords : *Chlorella pyrenoidosa,* Toxicity, Cu and Cd