

Intisari

KANDUNGAN LOGAM BERAT Pb PADA SUBSTRAT, DAUN DAN AKAR MANGROVE *Rhizophora mucronata* di KAWASAN MANGROVE PILANG PROBOLINGGO JAWA TIMUR

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Pantai Permata Pilang merupakan wilayah yang dimanfaatkan untuk aktivitas rehabilitasi mangrove. Ekosistem mangrove Pilang dikelilingi oleh berbagai macam aktifitas antropogenik yang berpotensi mengalirkan berbagai jenis polutan, salah satunya logam berat Pb. Penelitian ini bertujuan untuk mengetahui konsentrasi logam berat Pb dalam Substrat, akar dan daun mangrove *Rhizophora mucronata*, menganalisis kemampuan mangrove *Rhizophora mucronata* dalam menyerap logam berat Pb serta menganalisis tingkat pencemaran pada Substrat mangrove di Kelurahan Pilang. Pengamatan dilakukan pada 5 titik yang berbeda di kawasan mangrove Pilang. Metode analisis yang digunakan pada penelitian ini ialah kombinasi dari metode kuantitatif dan kualitatif atau yang biasa disebut dengan *mix method*. Pengujian konsentrasi logam Timbal dilakukan menggunakan *Atomic Absorption Spectrofotometer*. Hasil penelitian ini menunjukkan konsentrasi timbal di Substrat, akar dan daun mangrove pilang berturut-turut berkisar 29,76 - 50,57 ppm, 25,78 -30,81 ppm, dan 26,80 -39,50 ppm. Hasil perhitungan *Bioconcentration Factor* (BCF) menunjukkan nilai berkisar 0,61 – 0,95, dimana nilai BCF terbesar ditemukan pada titik 3 dan terkecil pada titik 2. Adapun nilai *Translocation Factor* (TF) ditemukan berkisar 0,87 – 1,36. Hasil penilaian tingkat kontaminasi menggunakan metode *Concentration Factor* (CF) menunjukkan bahwasanya titik 1,3, 4 dan 5 berada pada tingkat terkontaminasi sedang, sedangkan titik 2 memiliki tingkat kontaminasi cukup tinggi, adapun tingkat kualitas Substrat yang menggunakan metode *Indeks Geoaccumulation* (I_Geo) menunjukkan bahwasanya kualitas Substrat mangrove Pilang di seluruh titik pengamatan masuk dalam kategori tercemar ringan ($0 < I_{Geo} < 1$).

Kata Kunci : Logam Berat Pb, *Rhizophora mucronata*, Faktor Biokonsentrasi, Indeks Geoakumulasi, Mangrove Pilang

Abstract

Pb Heavy Metals content on Substrate, Leaves and Roots Mangrove *Rhizophora mucronata* in Pilang Mangrove Area, Probolinggo, East Java

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Permata Pilang Beach is used for mangrove rehabilitation activities. Domestic and industrial discharges are probably the most main sources of heavy metal contamination in Permata Pilang Beach, one of which pollution is lead (Pb). This study aims to (1) determine the concentration of heavy metal Pb in Substratts, roots, and leaves of *Rhizophora mucronata*, (2) analyze the ability of *Rhizophora mucronata* to absorb the heavy metal Pb, and (3) analyze the level of pollution on mangrove Substratts in Pilang Village. Observations were made at 5 different spots area. This study used a combination of quantitative and qualitative research methods (the mixed method). Lead metal concentration analysis was measured by *Atomic Absorption Spectrophotometer*. The results of this study revealed that the lead concentration in the Substratt, roots, and leaves of the mangrove pilang ranged from 29.76-50.57 ppm, 25.78-30.81 ppm, and 26.80-39.50 ppm, respectively. The results of the *Bioconcentration Factor* (BCF) showed around 0.61 to 0.95, where the largest BCF value was found at spot 3 and the smallest was spot 2. The value of the *Translocation Factor* (TF) is about 0.87 to 1.36. The results of the level of contamination assessment using the *Concentration Factor* (CF) method showed that spots 1,3, 4, and 5 were at a moderate level of contamination, while spot 2 were higher than others level of contamination. The level of Substratt quality using the *Geoaccumulation Index* (I_{Geo}) method showed that the quality of the Pilang mangrove Substratt at all observation spots was in the lightly polluted category ($0 < I_{Geo} < 1$).

Keywords: Pb Heavy Metals, *Rhizophora mucronata*, Bioconcentration Factor, Index Geoaccumulation, Pilang Mangrove