ABSTRAK

ANALISIS *BIOCONCENTRATION FACTOR (*BCF) LOGAM BERAT PLUMBUM (Pb) PADA KERANG DARAH (*Anadara granosa*) DI PULAU PASARAN, KOTA BANDAR LAMPUNG

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Logam berat Plumbum (Pb) di perairan pesisir merupakan pencemar yang bersifat toksik serta berpotensi terakumulasi dalam organisme akuatik. Pulau Pasaran, Kota Bandar Lampung, merupakan kawasan pesisir yang dipengaruhi oleh aktivitas perikanan dan permukiman sehingga berpotensi mengalami pencemaran logam berat. Kerang darah (*Anadara granosa*) sebagai organisme bentik bertipe *filter feeder* mampu mengakumulasi logam berat. Penelitian ini bertujuan untuk menganalisis konsentrasi Pb pada air laut dan kerang darah serta menentukan nilai *bioconcentration factor* (BCF) di perairan Pulau Pasaran. Pengambilan sampel air laut dan kerang darah dilakukan menggunakan teknik *purposive sampling* pada tiga lokasi, yaitu kawasan muara sungai belau, kawasan mangrove, dan kawasan permukiman, pada bulan November - Desember 2025. Analisis konsentrasi Pb dilakukan menggunakan instrumen *Inductively Coupled Plasma - Optical Emission Spectrometry* (ICP-OES) mengacu pada standar SNI 6989 - 82:2018. Hasil penelitian menunjukkan bahwa konsentrasi Pb pada air laut berada pada kisaran 0,018 - 0,043 mg/L dan telah melampaui baku mutu Peraturan Pemerintah Nomor 22 Tahun 2021 Lampiran VIII, sedangkan konsentrasi Pb pada kerang darah berkisar antara 0,291 - 0,525 mg/kg dan masih berada di bawah ambang batas SNI 7387:2009. Nilai BCF Pb tergolong rendah, yaitu 10,34 - 16,16 (BCF <100), dengan nilai tertinggi ditemukan di Kawasan Muara Sungai Belau. Hasil penelitian menunjukkan bahwa meskipun perairan Pulau Pasaran telah melampaui baku mutu logam berat Pb, tingkat bioakumulasi Pb pada kerang darah masih tergolong rendah, sehingga kerang darah berpotensi digunakan sebagai bioindikator kualitas lingkungan perairan.

Kata Kunci: *Bioconcentration factor* (BCF), logam berat Plumbum (Pb), kerang darah, *Anadara granosa*, ICP-OES, Pulau Pasaran, bioindikator.

ABSTARCT

ANALYSIS OF BIOCONCENTRATION FACTOR (BCF) OF HEAVY METAL LEAD (Pb) IN BLOOD COCKLES (Anadara granosa) AT PASARAN ISLAND, BANDAR LAMPUNG CITY

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Plumbum (Pb) in coastal waters is a toxic pollutant with the potential to accumulate in aquatic organisms. Pulau Pasaran, Bandar Lampung City, is a coastal area influenced by fisheries activities and human settlements, which may increase the risk of heavy metal contamination. Blood cockle (*Anadara granosa*), a benthic organism with a filter-feeding behavior, has the ability to accumulate heavy metals from its surrounding environment. This study aimed to analyze Pb concentrations in seawater and blood cockle tissues and to determine the Bioconcentration Factor (BCF) in the waters of Pulau Pasaran. Seawater and blood cockle samples were collected using a purposive sampling method at three locations, namely the belau river estuary, mangrove area, and residential area, during November–December 2025. Pb concentration analysis was conducted using Inductively Coupled Plasma–Optical Emission Spectrometry (ICP-OES) following the SNI 6989-82:2018 standard. The results showed that Pb concentrations in seawater ranged from 0.018 to 0.043 mg/L and exceeded the quality standard stipulated in Government Regulation No. 22 of 2021 Appendix VIII, whereas Pb concentrations in blood cockle ranged from 0.291 to 0.525 mg/kg and remained below the maximum limit set by SNI 7387:2009. The BCF values of Pb were classified as low, ranging from 10.34 to 16.16 (BCF <100), with the highest value observed in the Belau River Estuary area. The results of the study indicate that although the waters of Pasaran Island have exceeded the quality standard of heavy metal Pb, the level of Pb bioaccumulation in blood cockles remains relatively low, so that blood cockles have the potential to be used as bioindicators of aquatic environmental quality.

Keywords: Bioconcentration Factor (BCF), heavy metal Lead (Pb), blood cockle, *Anadara granosa*, ICP-OES, Pasaran Island, bioindicator.