

ABSTRAK

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

Oleh

TESA YEMIMA SILALAH

Pulau Pasaran, Bandar Lampung, merupakan kawasan pesisir dengan aktivitas perikanan yang berpotensi terpapar logam berat Cadmium (Cd) yang bersumber dari limbah domestik, residu bahan bakar, aktivitas kapal serta sumber antropogenik lain seperti rokok, pupuk fosfat, dan pestisida, yang bersifat sangat toksik apabila melebihi ambang batas baku mutu. Kerang darah (*Anadara granosa*) sebagai salah satu organisme *filter feeder*, berpotensi mengakumulasi logam Cd dan menjadi indikator pencemaran perairan. Penelitian ini bertujuan untuk menganalisis konsentrasi Cd di air laut dan kerang darah serta menentukan nilai *Bioconcentration Factor* (BCF) di Pulau Pasaran. Sampel diambil secara *purposive sampling* dari tiga lokasi, yaitu muara sungai, mangrove, dan pemukiman, pada Bulan November-Desember 2025. Analisis logam Cd dilakukan menggunakan *Inductively Coupled Plasma-Optical Emission Spectrometry* (ICP-OES) yang mengacu pada SNI 6989-82:2018, dengan validasi akurasi, presisi, dan linieritas. Hasil penelitian menunjukkan bahwa konsentrasi Cd pada air laut di seluruh lokasi melebihi baku mutu PP No. 22 Tahun 2021 Lampiran VII, dengan kisaran 0,004-0,005 mg/L. Konsentrasi Cd pada kerang darah masih berada di bawah ambang batas sesuai SNI 7387:2009, yaitu 0,082-0,160 mg/kg. Nilai BCF tergolong akumulatif rendah (16,8-40), dengan nilai tertinggi ditemukan di kawasan pemukiman. Hasil ini menunjukkan akumulasi Cd pada kerang darah masih terbatas, meskipun perairan telah mengalami pencemaran logam berat Cd.

Kata Kunci: Air Laut, BCF, Cadmium (Cd), ICP-OES, Kerang darah (*Anadara granosa*), Logam berat, Pulau Pasaran

ABSTRAK

ANALYSIS OF THE BIOCONCENTRATION FACTOR (BCF) OF HEAVY METAL CADMIUM (CD) IN BLOOD COCKLE (*Anadara granosa*) AT PASARAN ISLAND, BANDAR LAMPUNG CITY

By

TESA YEMIMA SILALAH

Pulau Pasaran, Bandar Lampung, is a coastal area with intensive fisheries activities that is potentially exposed to the heavy metal cadmium (Cd), originating from domestic waste, fuel residues, shipping activities, and other anthropogenic sources such as cigarette waste, phosphate fertilizers, and pesticides. Cadmium is highly toxic when its concentration exceeds established environmental quality standards. Blood clams (*Anadara granosa*), as filter-feeding organisms, have the potential to accumulate Cd and serve as bioindicators of aquatic pollution. This study aimed to analyze Cd concentrations in seawater and blood clams and to determine the Bioconcentration Factor (BCF) in Pulau Pasaran. Samples were collected using purposive sampling from three locations: river estuary, mangrove area, and residential area, during November–December 2025. Cadmium analysis was conducted using Inductively Coupled Plasma–Optical Emission Spectrometry (ICP-OES) following SNI 6989-82:2018, with validation of accuracy, precision, and linearity. The results showed that Cd concentrations in seawater at all locations exceeded the quality standards stipulated in Government Regulation No. 22 of 2021 (Appendix VII), ranging from 0.004-0.005 mg/L. Cd concentrations in blood clams were below the maximum permissible limit according to SNI 7387:2009, ranging from 0.082-0.160 mg/kg. The BCF values indicated low accumulation (16.8–40), with the highest value observed in the residential area. These findings suggest that Cd accumulation in blood clams remains limited, although the waters have already been contaminated by Cd.

Keywords: Seawater, BCF, Cadmium (Cd), ICP-OES, Blood Cockle (*Anadara granosa*), Heavy Metals, Pasaran Island