

RATNA PUTRI MUSTHIKASARI. NIM. 22.03.4.1.1.00009. Bioakumulasi Logam Berat Timbal (Pb) Pada Air, Sedimen, Serta Kerang (*Anadara Granosa* Dan *Perna Viridis*) Di Perairan Desa Sembilangan, Bangkalan. Dibawah bimbingan dosen **Jihannuma Adibiah Nurdini, M.T.**

ABSTRAK

Perairan Desa Sembilangan, Kabupaten Bangkalan merupakan kawasan pesisir yang berpotensi tercemar logam berat timbal (Pb) akibat aktivitas pelayaran, pemukiman, dan galangan kapal. Penelitian ini bertujuan untuk menganalisis konsentrasi Pb pada kerang darah (*Anadara granosa*), kerang hijau (*Perna viridis*), air laut, dan sedimen, menentukan batas aman konsumsi kerang (*Maximum Tolerable Intake/MTI*), serta menganalisis bioakumulasi menggunakan *Biota Sediment Accumulation Factor* (BSAF) dan *Biota Water Accumulation Factor* (BWAf). Penelitian menggunakan metode kuantitatif dengan pendekatan deskriptif komparatif, pengambilan sampel secara purposive sampling, dan analisis menggunakan *Atomic Absorption Spectrophotometer* (AAS). Hasil penelitian menunjukkan rata-rata konsentrasi Pb pada kerang darah sebesar $0,293 \pm 0,029$ mg/kg, kerang hijau $0,265 \pm 0,020$ mg/kg, air laut $0,0023 \pm 0,0006$ mg/L, dan sedimen $4,962 \pm 0,129$ mg/kg, yang seluruhnya masih berada di bawah baku mutu. Nilai MTI kerang hijau sebesar 5,66 kg/minggu dan kerang darah 5,12 kg/minggu untuk orang dewasa berbobot 60 kg. Nilai BSAF pada kerang hijau dan kerang darah masing-masing sebesar 0,053 dan 0,059, sedangkan nilai BWAf sebesar 0,009 dan 0,008, yang menunjukkan kemampuan bioakumulasi Pb tergolong rendah. Berdasarkan hasil tersebut, kedua jenis kerang di Perairan Desa Sembilangan masih memenuhi baku mutu, aman dikonsumsi sesuai batas yang direkomendasikan, serta memiliki kemampuan bioakumulasi Pb yang rendah.

Kata kunci: logam berat Pb, kerang darah, kerang hijau, bioakumulasi, BSAF, BWAf, MTI.

RATNA PUTRI MUSTHIKASARI. NIM. 22.03.4.1.1.00009. Bioaccumulation of Heavy Metal Lead (Pb) in Water, Sediment, and Shellfish (*Anadara Granosa* and *Perna Viridis*) in Sembilangan Village Waters, Bangkalan. Under the supervision by **Jihannuma Adibiah Nurdini, M.T**

ABSTRACT

The coastal waters of Sembilangan Village, Bangkalan Regency, are potentially contaminated by lead (Pb) due to shipping, residential, and shipyard activities. This study aimed to analyze Pb concentrations in blood cockles (*Anadara granosa*), green mussels (*Perna viridis*), seawater, and sediments, determine the safe consumption limit using the Maximum Tolerable Intake (MTI), and evaluate Pb bioaccumulation using the Biota Sediment Accumulation Factor (BSAF) and Biota Water Accumulation Factor (BWAf). A quantitative method with a descriptive comparative approach was employed, using purposive sampling and analysis with an Atomic Absorption Spectrophotometer (AAS). The results showed that the average Pb concentrations were 0.293 ± 0.029 mg/kg in blood cockles, 0.265 ± 0.020 mg/kg in green mussels, 0.0023 ± 0.0006 mg/L in seawater, and 4.962 ± 0.129 mg/kg in sediments, all of which were below the applicable quality standards. The MTI values were 5.66 kg/week for green mussels and 5.12 kg/week for blood cockles for a 60-kg adult. The BSAF values were 0.053 and 0.059, while the BWAf values were 0.009 and 0.008 for green mussels and blood cockles, respectively, indicating low Pb bioaccumulation. These findings indicate that both shellfish species from the coastal waters of Sembilangan Village comply with the applicable quality standards, are safe for consumption within the recommended limits, and exhibit low Pb bioaccumulation potential.

Keywords: lead (Pb), blood cockle, green mussel, bioaccumulation, BSAF, BWAf, MTI.