

Aginda Sahara. NIM 220341100022. Analisis Biokonsentrasi dan Translokasi Logam Berat *Ferrum* (Fe) dari Mangrove *Aegiceras corniculatum* dan *Sonneratia alba* di Perairan Ujung Piring Bangkalan. Dosen Pembimbing **Jihannuma Adibiah Nurdini, S.T., M.T**

ABSTRAK

Ekosistem mangrove berperan penting dalam menjaga kualitas lingkungan pesisir melalui kemampuannya menyerap, mengakumulasi, dan mentranslokasikan logam berat sehingga berpotensi sebagai agen fitoremediasi alami. Peningkatan aktivitas antropogenik di wilayah pesisir, seperti perikanan, permukiman, pelabuhan, dan pembuangan limbah, menyebabkan akumulasi logam berat *Ferrum* (Fe) pada sedimen dan vegetasi mangrove. Meskipun Fe merupakan unsur esensial bagi pertumbuhan tanaman, konsentrasi tinggi dapat bersifat toksik. Penelitian mengenai biokonsentrasi dan translokasi Fe pada *Aegiceras corniculatum* dan *Sonneratia alba* di Perairan Ujung Piring, Bangkalan, masih terbatas. Penelitian ini bertujuan menganalisis kualitas perairan, karakteristik morfologi dan morfometrik mangrove, konsentrasi Fe pada sedimen, akar, dan daun, serta kemampuan biokonsentrasi dan translokasi Fe pada kedua spesies. Penelitian menggunakan metode deskriptif kuantitatif dengan teknik *purposive sampling*. Sampel sedimen, akar, dan daun dianalisis menggunakan *Atomic Absorption Spectrophotometry* (AAS), kemudian dihitung nilai *Bioconcentration Factor* (BCF), *Translocation Factor* (TF), serta diuji menggunakan Mann-Whitney. Hasil menunjukkan kualitas perairan masih mendukung pertumbuhan mangrove. Konsentrasi Fe pada sedimen berkisar 16,34-16,85 mg/L, akar 11,95-16,90 mg/L, dan daun 12,58-15,72 mg/L. Tidak terdapat perbedaan signifikan konsentrasi Fe antarspesies pada sedimen ($p=0,127$), akar ($p=0,127$), dan daun ($p=0,827$). Nilai BCF 0,74-0,95 menunjukkan akumulasi rendah, sedangkan TF 0,75-1,13 menunjukkan translokasi relatif rendah. Kedua spesies berpotensi dimanfaatkan sebagai fitoremediator alami dan bioindikator kualitas lingkungan ekosistem mangrove.

Kata Kunci : *mangrove, logam berat, biokonsentrasi, translokasi, besi*

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ABSTRACT

*Mangrove ecosystems play a crucial role in maintaining coastal environmental quality through their ability to absorb, accumulate, and translocate heavy metals, thereby serving as potential natural phytoremediation agents. Increased anthropogenic activities in coastal areas such as fishing, settlements, ports, and waste disposal lead to the accumulation of the heavy metal iron (Fe) in sediments and mangrove vegetation. Although Fe is an essential element for plant growth, high concentrations can be toxic. Research on the bioconcentration and translocation of Fe in *Aegiceras corniculatum* and *Sonneratia alba* in the waters of Ujung Piring, Bangkalan, remains limited. This study aims to analyze water quality, the morphological and morphometric characteristics of mangroves, Fe concentrations in sediments, roots, and leaves, as well as the ability of both species to bioconcentrate and translocate Fe. The study employed a quantitative descriptive method using purposive sampling. Sediment, root, and leaf samples were analyzed using Atomic Absorption Spectrophotometry (AAS). The Bioconcentration Factor (BCF) and Translocation Factor (TF) were then calculated, and the data were analyzed using the Mann-Whitney test. The results indicate that water quality still supports mangrove growth. Iron concentrations in the sediment ranged from 16.34 to 16.85 mg/L, in the roots from 11.95 to 16.90 mg/L, and in the leaves from 12.58 to 15.72 mg/L. There were no significant differences in Fe concentrations among species in sediment ($p=0.127$), roots ($p=0.127$), and leaves ($p=0.827$). BCF values of 0.74–0.95 indicate low accumulation, while TF values of 0.75–1.13 indicate relatively low translocation. Both species have the potential to be utilized as natural phytoremediators and bioindicators of environmental quality in mangrove ecosystems.*

Keywords: mangrove, heavy metals, bioconcentration, translocation, *Ferrum*