

ABSTRACT

Sarah Fadhilah Bintoro. 24020121140126. **Struktur Komunitas Diatom sebagai Bioindikator Kualitas Air di Ekosistem Mangrove Pantai Sigandu, Batang, Jawa Tengah.** *Laboratorium Ekologi, Departemen Biologi, Fakultas Sains dan Matematika, Universitas Diponegoro, under supervisor of Riche Hariyati dan Hernanda Afra Haniyyah.*

*Mangrove ecosystems in coastal areas are increasingly subjected to anthropogenic pressures that gradually alter water characteristics. This study employed diatoms as bioindicators to assess water quality in the Sigandu coastal mangrove ecosystem. The objectives of this study were to examine the Shannon-Wiener diversity index, uniformity index, and dominance index in the diatom community structure as bioindicators of water quality and to examine the water quality in the mangrove ecosystem of Sigandu Beach, Batang, Central Java. Community structure was analyzed using three ecological indices: the Shannon Wiener diversity index, dominance index, and evenness index. Data were collected using a purposive sampling method at two stations. Sediment cores were obtained using a Russian corer and subsequently sectioned at 1 cm intervals to capture vertical variations reflecting temporal environmental changes. Sample preparation involved chemical digestion followed by microscopic identification, while community analysis was conducted based on diversity, evenness, and dominance indices. A total of 88 species from 13 families were identified, including dominant taxa such as *Fragilaria nanana*, *Tryblionella granulata*, and *Hantzschia amphioxys*. Stratigraphic patterns revealed a gradual shift from oligotrophic conditions toward higher nutrient levels, as indicated by changes in the dominance of diatom indicator species across sediment layers, corresponding with increasing anthropogenic activity in the coastal area. Overall, water quality remains relatively good, as reflected by moderate to high diversity, high evenness, and low dominance values, although early signs of environmental pressure have begun to emerge. These findings demonstrate that diatoms are effective bioindicators for reflecting changes in water quality through variations in community composition.*

Keywords : *Diatoms, Mangrove Ecosystem, Water Quality*