

## ABSTRACT

Akmal Syahida Febrian Saputra, 24020121140208, **Biodiversity of Epipellic Diatoms as Environmental Indicators in the Padelegan Beach Mangrove Ecosystem, Pamekasan, East Java**. Ecology and Biosystematics Laboratory, Department of Biology, Faculty of Science and Mathematics, Diponegoro University, under the guidance of Tri Retnaningsih Soeprbowati and Lilih Khotimperwati.

Diatoms are unicellular microalgae that are sensitive to environmental changes and can be used as bioindicators to monitor the condition of aquatic ecosystems. This study aims to analyze the structure of the diatom community and assess water quality based on diversity, evenness, dominance, and biostratigraphy indices. Sediment sampling was carried out in the Padelegan Beach mangrove ecosystem using a Russian corer. Samples were cut at 1 cm intervals, followed by a digestion process using a 10% HCl and 10% H<sub>2</sub>O<sub>2</sub> solution. The process continued with preparation and microscopic observation. The results showed that from a depth of 0 cm to 85 cm, the Shannon-Wiener diversity index ranged from 3.64 to 4.09. The evenness index ranged from 0.77 to 0.98. The dominance index ranged from 0.01937 to 0.0330, indicating no species dominance. Stratigraphic and cluster analyses revealed a division between two ecological zones representing historical environmental changes. These findings support the potential of diatoms as bioindicators and for paleoecological studies to monitor environmental quality dynamics in coastal areas.

Keywords: diatoms, mangrove ecosystem, padelegan, vertical distribution