

## SUMMARY

Mangrove waters are highly productive coastal ecosystems that support the balance of the aquatic environment. Microalgae play an important role as primary producers in the food chain, carbon cycle, and as indicators of water quality. The diversity and abundance of microalgae reflect the environmental conditions of a water body and are influenced by physicochemical factors such as pH, salinity, and temperature. Ulujami Pemalang and Randusanga Brebes were selected as research sites because both experience ecological pressure but have different environmental characteristics. These differences are suspected to influence the structure of microalgae communities. This study aims to determine the diversity, abundance, and differences in microalgae communities related to environmental conditions in Ulujami Pemalang and Randusanga Brebes.

This research used a survey method with purposive sampling conducted at four stations in each study site: Ulujami Pemalang and Randusanga Brebes. Microalgae samples were collected using a plankton net No. 25, and environmental parameters such as pH, salinity, and temperature were measured in situ. The collected water was filtered and preserved with formalin and Lugol solution, then analyzed microscopically at the Aquatic Biology Laboratory, Faculty of Biology, Universitas Jenderal Soedirman. Microalgae were identified to the species level, and abundance was calculated using the field of view method, while diversity was analyzed using the Shannon-Wiener index ( $H'$ ). Community differences between sites were assessed using Bray-Curtis similarity analysis and SIMPER analysis with PAST version 4.03 software to determine species contribution to community dissimilarity.

A total of 18 species were identified in Ulujami Pemalang and Randusanaga Brebes, with Shannon-Wiener diversity index of 2.777 in Ulujami and 2.803 in Randusanga, indicating moderate ecological diversity. Although Randusanga had a higher total abundance (1,601.000 Ind) than Ulujami (1,463.000 Ind), the average abundance per liter was slightly higher at Randusanga reaching 55 Ind/L compared to Ulujami Pemalang with 52 Ind/L. Ulujami most abundant species consisted of *Ceratium furca*, *Euglena viridis*, and *Tetmemorus granulatus*, while Randusanga most abundant species consisted of *Thalassionema nitzschioides*, *Nitzschia* sp., and *Noctiluca scintillans*. Dissimilarity of 47.06% between sites, suggesting that differences in environmental parameters such as pH, salinity, and temperature significantly affect the composition and structure of microalgal communities.

**Keywords:** abundance, diversity, mangrove waters, microalgae, similarity.