

## KELIMPAHAN MIKROPLASTIK PADA BERBAGAI TEGAKAN MANGROVE DI PANTAI BAROS, KABUPATEN BANTUL

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### INTISARI

Mikroplastik dapat tersebar ke lingkungan perairan dan mengendap di sedimen, sehingga memberi dampak buruk bagi lingkungan seperti termakan oleh biota yang dapat menyebabkan terganggunya proses pencernaan hingga kematian. Tujuan dari penelitian ini adalah untuk mengetahui kelimpahan dan tipe mikroplastik di berbagai tegakan mangrove Baros serta untuk mengetahui pengaruh kerapatan mangrove dengan kelimpahan mikroplastik.

Penelitian ini dilakukan di ekosistem mangrove Pantai Baros, Kalurahan Tirtohargo, Kecamatan Kretek, Kabupaten Bantul. Penelitian ini menggunakan metode *stratified random sampling* berdasarkan jenis tegakan mangrove. Pengambilan data kerapatan vegetasi dilakukan dengan membuat plot berukuran 10 m x 10 m dan untuk pengambilan sampel sedimen dibuat plot berukuran 5 m x 5 m di dalam plot vegetasi. Pengambilan sampel sedimen dilakukan di kedalaman 0–5 cm sebanyak 500 g di setiap plot. Selanjutnya, dilakukan tahap pemisahan partikel mikroplastik yaitu tahap pengeringan, tahap penyaringan sedimen, penimbangan sedimen kering, tahap pemisahan endapan organik dan partikel mikroplastik, tahap penyaringan mikroplastik, dan tahap identifikasi mikroplastik menggunakan mikroskop. Analisis uji non parametrik menggunakan uji Kruskal Wallis guna mengetahui perbedaan kelimpahan mikroplastik, kemudian dilakukan Uji Regresi Linier Sederhana untuk mengetahui pengaruh kerapatan mangrove terhadap kelimpahan mikroplastik.

Penelitian ini menemukan tiga jenis mikroplastik: *film* (40%), *fiber* (12%) dan *fragmen* (25%). Ada perbedaan kelimpahan mikroplastik antar tegakan yang berbeda (Sig. 0,035). Uji lanjut menunjukkan adanya perbedaan kelimpahan mikroplastik antara tegakan *Rhizophora mucronata* dan *Avicennia marina* serta antar tegakan *Rhizophora apiculata* dan *Avicennia marina*. Pengaruh kerapatan mangrove terhadap kelimpahan mikroplastik bersifat negatif. Semakin tinggi kerapatan mangrove maka semakin rendah kelimpahan mikroplastik ( $R^2=0,0006$ ).

Kata Kunci: Kelimpahan Mikroplastik, Sedimen, Mangrove, Baros

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## **ABUNDANCE OF MICROPLASTICS IN SEVERAL MANGROVE STANDS ON BAROS BEACH, BANTUL REGENCY**

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### ***ABSTRACT***

Microplastics can spread to the aquatic environment and settle in sediments, thus harming the environment such as being eaten by biota which can disrupt the digestive process to death. This study aimed to determine the abundance and type of microplastics in various Baros mangrove stands and the effect of mangrove density on microplastic abundance.

This research was conducted in the mangrove ecosystem of Baros Beach, Tirtohargo sub-district, Kretek district, Bantul regency. This study used a stratified random sampling method based on mangrove stand type. Data collection of vegetation density was done by making a plot measuring 10 m x 10 m and for sediment sampling a plot measuring 5 m x 5 m was made in the vegetation plot. Sediment sampling was carried out at 0-5 cm depth in each plot of as much as 500g. Furthermore, the separation stage of microplastic particles was carried out, namely the drying stage, the sediment screening stage, the weighing of dry sediments, the separation stage of organic sediment and microplastic particles, the microplastic screening stage, and the microplastic identification stage using a microscope. Non-parametric test analysis was applied to analyse the differences in microplastic abundance using Kruskal Wallis test, then Simple Linear Regression Test was conducted to determine the effect of mangrove density on microplastic abundance.

This study found three types microplastic: *film* (40%), *fiber* (12%), and *fragments* (25%). The abundance of microplastic among different mangrove stands was statistically significant (Sig. 0,035). Post Hoc test showed the abundance of microplastic were different between *Rhizophora mucronata* and *Avicennia marina* stands and between *Rhizophora apiculata* and *Avicennia marina* stands. The higher the mangrove density, the lower the abundance of microplastics ( $R^2=0.0006$ ).

*Keywords: Microplastic Abundance, Sediment, Mangrove, Baros*

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