

Intisari

Analisis Kualitas Perairan Kali Kuning Kabupaten Sleman Berdasarkan Komposisi dan Kelimpahan Fitoplankton

Kali Kuning merupakan salah satu sungai yang melewati wilayah Kabupaten Sleman yang berpotensi mengalami perubahan kualitas air akibat aktivitas manusia seperti aktivitas pertanian, perikanan, peternakan, dan limbah rumah tangga. Penelitian ini bertujuan untuk mengetahui kelimpahan dan komposisi fitoplankton, serta mengetahui kualitas perairan berdasarkan struktur komunitas fitoplankton di Kali Kuning. Penelitian ini menggunakan metode survei dengan pengambilan sampel menggunakan metode *purposive sampling*. Penelitian dilakukan di dari bulan Oktober-Desember 2024 di Kali Kuning dengan pengambilan sampel dilakukan seminggu sekali. Sampel diambil dari 5 stasiun yang mewakili berbagai kondisi lingkungan. Pengambilan sampel fitoplankton dilakukan menggunakan *Plankton net* no. 25 dengan *mesh size* 64 μ m, diawetkan menggunakan larutan formalin 4%. Pengamatan fitoplankton menggunakan mikroskop dan *sedgewick rafter* dengan bantuan alat *optilab*. Data yang dianalisis terdiri dari indeks keanekaragaman, indeks keseragaman, dan indeks dominansi, serta parameter kualitas air yang diukur yaitu suhu, pH, kedalaman air, kecepatan arus, nitrat, dan fosfat. Kelimpahan fitoplankton setiap stasiun berkisar antara 231-584 ind/L. Berdasarkan penelitian yang dilakukan ditemukan sejumlah 45 genus yang masuk kedalam 9 kelas dan 27 famili. Nilai indeks keanekaragaman *Shannon-Wiener* (H') berkisar antara 2,58-3,04 di seluruh stasiun, yang menunjukkan bahwa kualitas air di Kali Kuning tergolong tercemar sedang.

Kata kunci: fitoplankton, indeks keanekaragaman, Kali Kuning, kualitas air, pencemaran sedang

Abstract

Analysis of Water Quality Based on the Composition and Abundance of Phytoplankton in Kali Kuning Sleman Regency

Kali Kuning is one of the rivers that flows through Sleman Regency and has the potential to experience water quality degradation due to anthropogenic activities such as agriculture, aquaculture, livestock farming, and domestic waste. This study aims to determine the abundance and composition of phytoplankton and assess water quality based on phytoplankton community structure in the Kali Kuning River. The research was conducted from October to December 2024 using a survey method with purposive sampling. Sampling was carried out weekly at five stations representing different environmental conditions. Phytoplankton samples were collected using a plankton net no. 25 with a mesh size of 64 μm and preserved with 4% formalin solution. Observations were conducted using a microscope and a Sedgewick Rafter counting cell with the aid of an Optilab device. The data analyzed included diversity index, evenness index, dominance index, and water quality parameters such as temperature, pH, water depth, current velocity, nitrate, and phosphate. Phytoplankton abundance ranged from 231 to 584 individuals/L across stations. A total of 45 genera were identified, belonging to 9 classes and 27 families. The Shannon-Wiener diversity index (H') ranged from 2.58 to 3.04, indicating that the water quality of the Kali Kuning River is categorized as moderately polluted.

Keywords: diversity index, Kali Kuning, phytoplankton, water pollution, water quality