

KONTAMINASI MIKROPLASTIK DI SUNGAI WINONGO, DAERAH ISTIMEWA YOGYAKARTA: AKUMULASI PADA IKAN DAN PENILAIAN RISIKO KESEHATAN

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INTISARI

Kontaminasi mikroplastik pada ekosistem perairan dapat mengarah pada akumulasi pencemar tersebut dalam tubuh organisme akuatik seperti ikan. Di Sungai Winongo, ikan tersebut juga dikonsumsi oleh masyarakat sekitar sungai. Penelitian ini bertujuan untuk mengevaluasi kontaminasi mikroplastik pada ikan di Sungai Winongo dan menilai risiko kesehatannya. Kontaminasi mikroplastik dievaluasi pada insang, otot, dan saluran pencernaan (GIT) ikan yang ditemukan di 3 stasiun Sungai Winongo, dengan ekstraksi menggunakan larutan KOH 10%. Parameter yang dipelajari adalah konsentrasi, bentuk, ukuran, warna, dan jenis polimer mikroplastik. Kontaminasi mikroplastik pada perairan dianalisis pada sampel air permukaan ($n=3$). Penilaian risiko kesehatan dilakukan berdasarkan nilai *polymer hazard index* (PHI), *pollution load index* (PLI), dan *potential ecological risk index* (PERI). Hasil penelitian menunjukkan adanya kontaminasi mikroplastik pada perairan Sungai Winongo dan spesies ikan yang ditemukan di sungai tersebut. Kontaminasi mikroplastik didominasi oleh mikroplastik berbentuk fiber, berukuran kecil, berwarna hijau, dan polimer berjenis *low-density polyethylene* (LDPE). Akumulasi mikroplastik tertinggi pada ikan terdapat pada organ GIT. Perhitungan nilai PHI, PLI, dan PERI menunjukkan bahwa risiko kontaminasi mikroplastik di Sungai Winongo tersebut tergolong sedang (*medium*).

Kata Kunci: Fiber, GIT, LDPE, Mikroplastik, Sungai Winongo

MICROPLASTIC CONTAMINATION IN WINONGO STREAM, DAERAH ISTIMEWA YOGYAKARTA: ACCUMULATION IN FISH AND HEALTH RISK ASSESSMENT

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ABSTRACT

Microplastic contamination in aquatic ecosystems can lead to the accumulation of these pollutants in the bodies of aquatic organisms such as fish. In the Winongo River, the fish is also consumed by the people around the river. This study aims to evaluate microplastic contamination in fish in the Winongo River and assess its health risks. Microplastic contamination was evaluated on the gills, muscles and digestive tract (GIT) of fish found at 3 stations of the Winongo River, by extraction using 10% KOH solution. Parameters studied were concentration, shape, size, color, and type of microplastic polymer. Microplastic contamination in waters was analyzed in surface water samples (n=3). Health risk assessment was carried out based on the value of the polymer hazard index (PHI), pollution load index (PLI), and potential ecological risk index (PERI). The results showed that there was microplastic contamination in the waters of the Winongo River and fish species found in the river. Microplastic contamination was dominated by fiber-shaped microplastics, small in size, green in color, and low-density polyethylene (LDPE) polymers. The highest accumulation of microplastics in fish is found in the GIT organ. The calculation of the PHI, PLI, and PERI values shows that the risk of microplastic contamination in the Winongo River is classified as medium.

Keywords: Fiber, GIT, LDPE, Microplastics, Winongo River