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ABSTRAK

Kali Surabaya merupakan badan air yang beberapa kali dilaporkan mengalami pencemaran akibat sampah plastik. Pencemaran sampah plastik yang terjadi di Kali Surabaya tersebut menyebabkan dugaan bahwa Kali Surabaya terkontaminasi mikroplastik di air dan sedimen. Penelitian ini bertujuan untuk mengetahui jenis, kelimpahan, serta distribusi mikroplastik di sedimen Kali Surabaya. Pengambilan sampel sedimen dilakukan dengan metode *composite sample* menggunakan *ponar grab* pada area sampling sepanjang 12 km yang telah dibagi menjadi 4 segmen. Sampel dikeringkan pada suhu 90°C selama 24 jam. Proses oksidasi bahan organik pada sampel dengan metode *Wet Peroxide Oxidation* menggunakan H₂O₂ 30% sebanyak 150 mL. Penyaringan sampel menggunakan ayakan ukuran 5, 60, dan 200 *mesh*. Pemisahan sampel mikroplastik dilakukan menggunakan larutan *sodium chloride* dengan perbandingan *sodium chloride* : akuades adalah 6 g : 20 mL. Sampel disaring lagi menggunakan *microfiber filter* (Whatman GF/C) ukuran 1,2 µm yang disambungkan dengan pompa penghisap. Identifikasi sampel dan perhitungan kelimpahan setiap jenisnya menggunakan mikroskop binokuler Olympus CX21, Dino-Eye (*Microscope EyePiece Camera*), dan *software DinoCapture 2.0* dengan perbesaran 40x. Hasil penelitian menunjukkan bahwa ada empat jenis mikroplastik yang ditemukan di sedimen Kali Surabaya, yaitu fragmen, filamen, film, dan granul. Kelimpahan masing-masing jenisnya, yaitu fragmen sebesar 32.720 partikel/kg, filamen sebesar 7.560 partikel/kg, film sebesar 860 partikel/kg, dan granul sebesar 220 partikel/kg yang terdistribusi ke empat area pengambilan sampel.

Kata Kunci: Distribusi, Jenis, Kali Surabaya, Kelimpahan, Mikroplastik

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ABSTRACT

Kali Surabaya has been reported several times due to pollution from plastic waste. Plastic waste pollution that occurred in Kali Surabaya led to allegations that Kali Surabaya was contaminated with microplastic in water and sediment. This research was aimed to determine of types, abundance, and microplastic distribution in Kali Surabaya sediments. The sediment samples were taken using ponar grab in a sampling area along 12 km that has been divided into 4 segments. The samples were oven dried at 90°C for 24 hours. The oxidation process of organic matter in the sample by the Wet Peroxide Oxidation method using by added 150 mL of H₂O₂ 30%. The samples were filtered using sieves 5, 60, and 200 mesh. Separation of microplastic samples was carried out using a sodium chloride solution with a ratio of sodium chloride: distilled water is 6 g: 20 mL. The sample was filtered again using a 1.2 µm pore size microfiber filter (Whatman GF / C), which was connected with a vacuum pump. Identification of samples and calculation of abundance of each type using the Olympus CX21 binocular microscope, Dino-Eye (Microscope EyePiece Camera), and DinoCapture 2.0 software with 40x magnification. The results showed that there were four types of microplastics found in Kali Surabaya sediments, namely fragments, filaments, films, and granules. Abundance of each type, namely fragments of 32.720 particles/kg, filaments of 7.560 particles/kg, films of 860 particles/kg, and granules of 220 particles/kg which were distributed to four sampling areas.

Keywords: *Abundance, Distribution, Kali Surabaya, Microplastics, Types*