Analisis Kelimpahan Mikroplastik pada Air, Sedimen, dan Ikan Cere Gambusia affinis (Baird & Girard, 1853) di Situ Kenanga dan Situ Mahoni, Universitas Indonesia, Depok, Jawa Barat = Analysis of Microplastics Abundance in Water, Sediment, and Mosquitofish Gambusia affinis (Baird & Girard, 1853) in Situ Kenanga and Situ Mahoni, Universitas Indonesia, Depok, West Java

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Abstrak

Mikroplastik diketahui telah tertelan oleh berbagai taksa biota. Penelitian ini dilakukan untuk menganalisis kelimpahan, bentuk, dan warna mikroplastik yang terdapat pada air, sedimen, dan ikan cere Gambusia affinis di Situ Kenanga dan Situ Mahoni, Universitas Indonesia, Depok, Jawa Barat. Seluruh sampel diambil di 3 stasiun yaitu inlet, midlet, dan outlet. Sampel air 20 L disaring menggunakan plankton net 350 mesh, sampel sedimen diambil 250 mL menggunakan Ekman grab, ikan cere diambil secara acak menggunakan dip net sebanyak 20 individu dari tiap situ. Sampel ikan diawetkan dengan alkohol 70% dan diekstraksi menggunakan 10 mL NaOH 1 M. Sedimen dikeringkan pada oven 65°C dan dihaluskan. Seluruh sampel dilarutkan dengan NaCl jenuh. Larutan dihomogenisasi sebanyak 20 mL dan 1 mL diteteskan Sedgewick Rafter Chamber untuk diamati di bawah mikroskop cahaya. Hasil pengamatan menunjukkan total rata-rata kelimpahan mikroplastik di Situ Kenanga pada air sejumlah 434,33 ± 23,51 partikel L-1, pada sedimen sejumlah 45.837,04 ± 36.305,97 partikel kg-1, pada ikan cere sejumlah 287, 67 ± 95,65 partikel ind-1 atau 212,28 ± 61,88 partikel gram-1. Sementara itu, pada air di Situ Mahoni sejumlah 437,67 ± 30,21 partikel L-1, pada sedimen sejumlah 36.237,04 ± 16.702,59 partikel kg-1, dan pada ikan cere sejumlah 275 ± 95,82 partikel ind-1 atau 654,28 ± 279,71 partikel gram-1. Hasil analisis Uji T Dua Sampel menunjukkan tidak terdapat perbedaan nyata pada sampel air, sedimen, dan ikan cere (partikel ind-1), tetapi terdapat perbedaan nyata pada ikan cere (partikel g-1) dari kedua situ. Fiber dan warna hitam merupakan bentuk dan warna mikroplastik yang mendominasi keseluruhan sampel.

.....Microplastics have been ingested by various biota taxa. This study was aimed to analyze the abundance, shape, and color of microplastic found in water, sediment, and mosquitofish Gambusia affinis in Situ Kenanga and Situ Mahoni, University of Indonesia, Depok, West Java. All samples were taken at 3 stations, namely inlet, midlet, and outlet. Water samples (20 L) were filtered using a 350 mesh plankton net, sediment samples (250 mL) were taken using an Ekman grab, mosquitofish were taken randomly using a dip net, and 20 individuals from each situ (total of 40 individuals). Fish samples were preserved in 70% alcohol and extracted using 10 mL of 1 M NaOH. Sediments were dried in an oven at 65°C and pulverized. All samples were dissolved with saturated NaCl. The solution (20 mL) was homogenized, then 1 mL of solution was taken to the Sedgewick Rafter Chamber and then observed under a light microscope. The results showed that the average total of microplastics in Situ Kenanga in water was 434,33 ± 23,51 L-1 particles, in sediments were 45.837,04 ± 36.305,97 kg-1 particles, and in fish were 287, 67 ± 95,65 ind-1 particles or 212,28 ± 61,88 gram-1 particles. Meanwhile, the average total of microplastics in Situ Mahoni in water were 437,67 ± 30,21 L-1 particles, in sediments were 36.237,04 ± 16.702,59 kg-1 particles, and in fish were 275 ± 95,82 ind-1 particles or 654,28 ± 279,71 gram-1 particles. The results of the Two Sample T-Test analysis

showed that there was no difference in water, sediment, and mosquitofish (ind-1 particles) between the two situ, but there was a significant difference in mosquitofish (g-1 particles) from the two situ. Fiber and black were respectively the predominant shapes and colors of microplastics in all samples.