

Analisis kelimpahan mikroplastik pada air, insang dan saluran pencernaan ikan mujair *Oreochromis mossambicus* (Peters, 1852) di Danau Kenanga dan Danau Agathis Universitas Indonesia, Depok, Jawa Barat = Analysis of microplastics abundance in water, gills and digestive tract of tilapia fish *Oreochromis mossambicus* (Peters, 1852) at Kenanga Pond and Agathis Pond, University of Indonesia, Depok, West Java.

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Abstrak

Mikroplastik didefinisikan sebagai partikel plastik dengan ukuran <5 mm. Mikroplastik dapat masuk ke dalam tubuh organisme air khususnya ikan melalui oral dan insang. Penelitian ini bertujuan untuk mengetahui bentuk dan kelimpahan mikroplastik pada air, insang dan saluran pencernaan ikan mujair *Oreochromis mossambicus* (Peters, 1852) serta menguji perbedaan kelimpahan mikroplastik pada ikan mujair di Danau Kenanga dan Danau Agathis Universitas Indonesia. Penelitian dilakukan di Departemen Biologi FMIPA UI, Depok. Sampel ikan mujair diperoleh sebanyak total 20 ekor dari kedua danau dengan panjang tubuh relatif antara 16--19 cm. Insang dan saluran pencernaan dari 20 sampel ikan mujair diisolasi, kemudian diekstraksi dan dihancurkan menggunakan larutan asam nitrat (HNO₃) 65%. Sampel yang telah diekstraksi kemudian diberi larutan NaCl jenuh agar mikroplastik mengapung ke permukaan. Sampel diteteskan sebanyak 1 ml pada Sedgwick Rafter Chamber kemudian diamati di bawah mikroskop dan dihitung jumlah mikroplastik berdasarkan bentuk partikelnya. Total kelimpahan rata-rata mikroplastik pada air Danau Kenanga sebesar $1.766,6 \pm 40,11$ partikel/L, sementara total kelimpahan rata-rata mikroplastik air pada Danau Agathis sebesar $1.885,53 \pm 106,27$ partikel/L. Total kelimpahan rata-rata mikroplastik ikan mujair pada Danau Kenanga di insang sebanyak $6.232 \pm 1.898,66$ partikel/ind dan di saluran pencernaan sebanyak $9.108 \pm 4.027,14$ partikel/ind, sementara total kelimpahan rata-rata mikroplastik ikan mujair pada Danau Agathis di insang sebanyak $6.716 \pm 2.467,67$ partikel/ind dan di saluran pencernaan sebanyak $4.038 \pm 2.180,75$ partikel/ind. Persentase komposisi bentuk mikroplastik yang ditemukan dominan pada Danau Kenanga terdapat bentuk fragmen sebesar 40% di air; fiber 80% di insang dan fiber 75% di saluran pencernaan, Sementara komposisi bentuk mikroplastik yang ditemukan dominan pada Danau Agathis terdapat bentuk fiber sebesar 43% di air; 75% di insang dan 67% di saluran pencernaan. Hasil analisis statistik Uji Mann-Whitney menunjukkan adanya perbedaan secara signifikan kelimpahan mikroplastik pada ikan mujair di Danau Kenanga dan Danau Agathis, Universitas Indonesia.

.....Microplastics are define as plastic particles with a size of <5 mm. Microplastics can enter the body of aquatic organisms, especially fish through the mouth and gills. This study aims to determine the shape and abundance of microplastics in water, gill and digestive tract tilapia fish *Oreochromis mossambicus* (Peters, 1852) at Kenanga Pond and Agathis Pond, University of Indonesia and to analyze and examine differences in the abundance of microplastics in tilapia fish at Kenanga Pond and Agathis Pond, University of Indonesia. The study was conducted at Department of Biology FMIPA UI, Depok. Total 20 tilapia fish from the two lakes with relative length between 16--19 cm. Gills and digestive tract samples were obtained of tilapia fish were isolated, extracted and then crushed using a saturated solution of nitric acid (HNO₃) 65%.

The extracted sample is then given NaCl solution so that the microplastic floats to the surface. As much as 1 ml NaCl were dropped in the Sedgwick Rafter Chamber then observed under a microscope. The number of microplastic was calculated based on the type. The average total abundance of microplastics in the water of Kenanga Pond was $1.766,6 \pm 40,11$ particles/L, meanwhile the average total abundance of microplastics in the water of Agathis Pond was $1.885,53 \pm 106,27$ particles/L. The average total microplastics in tilapia gill at Kenanga Pond was $6.232 \pm 1.898,66$ particles/ind and in the digestive tract was $9.108 \pm 4,027.14$ particles/ind, meanwhile the average total abundance microplastics in tilapia gill at Agathis Pond was $6.716 \pm 2.467,67$ particles/ind and in the digestive tract was $4.038 \pm 2.180,75$ particles/ind. The percentage composition of the microplastic form that was found dominant at Kenanga Pond were as much as 40% fragments in the water; 80% fiber in the gills and 75% fiber in the digestive tract. Meanwhile, the percentage composition of the microplastic form that was found dominant at Agathis Pond were as much as 43% fiber in the water; 75% in the gills and 67% in the digestive tract. The results of the Mann-Whittney test statistical analysis showed that there was significant difference between abundance of microplastics in tilapia fish at of Kenanga Pond and Agathis Pond, University of Indonesia.