

Abundance and characterization of microplastics in *Dawkinsia filamentosa* inhabiting the Kothmale reservoir, Mahaweli upper catchment in Sri Lanka

Jayasekara H. N. L.¹, De Silva D. S. M.^{1*}, Amarathunga A. A. D.², Walpita C. N.³,
and Narangoda S. R. C. N. K.²

¹ Department of Chemistry, University of Kelaniya, Kelaniya, Sri Lanka.

² Environmental Studies Division, National Aquatic Resource Research and Development Agency (NARA),
Crow Island, Sri Lanka.

³ Department of Livestock Production, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka,
Belihuloya, Sri Lanka.

* sujeewa@kln.ac.lk

Microplastics (MP) are plastic particles less than 5 mm in size, and it is an emerging pollutant with a rising global concern. Reservoirs are considered an enclosed aquatic environment, and the presence of MP in the freshwater environment poses a serious risk to its biota. Recent studies have used fish species as bio-indicators to monitor microplastic contamination in reservoirs. Most such studies have been conducted based on marine habitats, while limited research has been done in freshwater environments. In this study, 78 samples from the *Dawkinsia filamentosa* (in Sinhala “Pulli tittaya”) fish species caught by the local fishermen from Kothmale reservoir in Sri Lanka, in July and October 2024 were analyzed. MPs extracted from gastrointestinal tracts (GI) and the gills (GL), were digested in KOH and vacuum filtered. Stereomicroscope equipped with a micro-imaging software was employed for the analysis of the isolated MPs. A total of 51 MP particles were detected in the fish samples analyzed, out of which, 28 (54.90%) were in the gills and 23 (45.10%) were in the digestive tracts of the fish samples. The average MP abundance in the gills was 0.72 ± 0.85 items per gram, while that in the digestive tracts was 0.30 ± 0.54 items

per gram. The most abundant shapes of MP particles were fibers found in the gills (89%) and in the digestive tracts (74%) followed by fragments. Among them, the prevailing colours of MPs were blue, black, red and green. Herein, the gills had the highest concentration of MPs in blue (50%), whereas most of the MPs found in the digestive tracts also were in blue (48%). The most frequent size (0.1 - 1 mm) in the gills and digestive tracts were 57% and 48 %, respectively. These findings revealed that a significant microplastic contamination in *Dawkinsia filamentosa* can pose potential risks to its consumers and impact the other aquatic environments.

Keywords:

Microplastics; *Dawkinsia filamentosa*; Kothmale reservoir; digestive tract; gills

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