

Microplastics in Sediment, Water and Giant Freshwater Prawn (*Macrobrachium rosenbergii*) in Ridiyagama and Muruthawela Reservoirs of Sri Lanka

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Abundance of micro plastics (MPs) in sediment, water and *Macrobrachium rosenbergii* from Ridiyagama (R) and Muruthawela (M) dry zone reservoirs in Sri Lanka was studied. Gills, gastro-intestinal tract (GIT), and hepatopancreas of prawns were acid digested using nitric acid and analyzed for the abundance of MPs. Sediment samples of reservoirs were acid digested using hydrogen peroxide. MPs were detected in gills, GIT, and hepatopancreas of prawns from both reservoirs. MPs were abundant in hepatopancreas compared to gills and GIT. The occurrence of MPs was 18.4 ± 7.4 MPs/individual in Ridiyagama reservoir, significantly higher than the Muruthawela reservoir (8.4 ± 1.6 MPPs per individual). The abundance of MPs in the sediment of Ridiyagama reservoir was 97 ± 20.8 MPs/kg, being significantly higher than the Muruthawela reservoir (39 ± 7.4 MPs/kg). However, the occurrence of MPs in water was not significantly different between the reservoirs. The mean abundance of MPs in water of Ridiyagama and Muruthawela reservoirs were 26.3 ± 5.8 MPs/L, and 17.7 ± 7.4 MPs/L respectively. MPs were mainly in the form of fibers and the rest was as fragments in both reservoirs. Common colours of MPs were identified as blue, red, and black whereas the white colour fibers, and fragments could only be found in *M. rosenbergii*, sediment, and water from the Ridiyagama reservoir. The study suggests that, even in un-urbanized freshwater habitats intensive agricultural and fisheries activities lead to MPs pollution. However, further studies are required to evaluate the potential pathways, sources, and impacts of MPs and their affiliates within these freshwater systems.

Keywords: Microplastic particles, *Macrobrachium rosenbergii*, Gills, Gastro-intestinal tract, Hepatopancreas