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**Abundance and microplastic characterization found in the mud crab *Scylla serrata* inhabiting Negombo Lagoon, Sri Lanka**

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Microplastics (MPs) are tiny plastic particles less than 5 mm in size. The danger imposed by MPs continues to rise in the world due to an increase in anthropological pollutants in the environment. The tremendous socioeconomic value and biodiversity of the lagoon have been threatened by a significant accumulation of plastics, particularly MPs. MPs have many negative impacts on the fauna. Herein, the high adsorption capability of MPs increases the toxicity of contaminants as well as oxidative stress that may lead to damaging cell membranes of fauna. Here, we report the investigation on the abundance of MPs in the digestive tract and gills of the mud crab species *Scylla serrata*, which is a prominent edible food source of humans. We collected fifty two (N = 52) individuals of mud crabs from three crab trapping sites in the Negombo Lagoon, Sri Lanka during November 2022 to March 2023. The gills and digestive tract of the crabs were extracted and digested in KOH, and subsequently the putative MPs were separated and imaged using a stereomicroscope (VWR VisiScope 360) for characterization. In the analysis, a total of 455 MP particles were detected in the crabs, out of which, 187 (41.10%) were in the gills and 268 (58.90%) were in the digestive tracts. The average MP abundance in the gills was  $0.70 \pm 0.52$  items per gram, while that in the digestive tracts was  $0.71 \pm 0.52$  items per gram. The most abundant shapes of MP particles were fibers in the gills (54.01%) and in the digestive tracts (85.07%) followed by fragments and films. Further, the prevailing colours of the MPs were blue, transparent, red, black, and purple. Herein, the digestive tract had the highest concentration of MPs in blue (47.38%), whereas the majority of the MPs found in the gills were transparent (51.8%). The range of MP sizes in the crabs was also determined. The most frequent size range in the gills and digestive tracts were 0.002-0.25 mm (39.5%), and 1.0-5.0 mm (48.8%) respectively. Despite the fact that the current study offered details on the presence of MPs in the gills and digestive tract of the mud crab species *Scylla serrata* inhabits in the Negombo Lagoon, it also serves as a benchmark for the quick detection of MPs in mud crabs in the lagoons of Sri Lanka.

**Keywords:** *Scylla serrata*, Negombo Lagoon, Digestive tract, Gill, Microplastics

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