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Entitled

*ASSESSMENT OF MICROPLASTICS CONSUMED BY FISHES IN THE UNITED ARAB EMIRATES
WATERS OF THE ARABIAN GULF*

by

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Date & Venue

11:00AM

Friday, 09 Jun 2023

Abstract

Microplastics are plastic particles that are between 1 μm to 5 mm in size. Microplastics are currently threatening the marine ecosystems, including the water, sediments, and biota. Due to microplastics being relatively mobile, evidence of microplastic pollution is found in all water bodies, even in remote places such as the Antarctica. Although the Arabian Gulf is subjected to a number of anthropogenic stressors, to date, only few studies on the presence of microplastics have been carried out. This study assesses the microplastic presence in 60 fish samples from the emirates Abu Dhabi, Sharjah, and Ras Al Khaimah. The 5 fish species included in this study were the malabar trevally (*Carangoides malabaricus*), the orange-spotted grouper (*Epinephelus coioides*), the spangled emperor (*Lethrinus nebulosus*), the gold-spot mullet (*Liza parsia*), and the pin-spotted spinefoot (*Siganus canaliculatus*). Samples of fish gastrointestinal (GI) tracts were removed and subjected to digestion using potassium hydroxide (KOH) followed by filtration. Through visual identification, the mean abundance of microplastics accumulated in fish GI tracts was found to be 1.12 ± 1.38 particles/fish. The highest microplastic abundance of 1.33 ± 1.87 particles/fish was found in *Siganus canaliculatus*, and the lowest microplastic abundance of 0.45 ± 0.52 particles/fish was found in *Liza parsia*. The most dominant physical characteristics of microplastics included blue (71.6%) in colored particles, small in size $< 100 \mu\text{m}$ (38.8%), that were mostly fibrous (89.6%) in shape. Despite the rapid industrialization of the UAE coast, the abundance of microplastics is relatively low as compared to fish investigated in other countries surrounding the Arabian Gulf. Since various pollutants adsorb onto microplastics, further research should look at the relationship between these pollutants and the presence of microplastics. Efforts should be directed towards reducing the plastic pollution that is threatening the Arabian Gulf.

Keywords: Microplastics, United Arab Emirates, Fish, Arabian Gulf