ID 87

Occurrence of Microplastics in Sardinella gibbosa and Decapterus macarellus collected from Southern coast in Sri Lanka

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Abstract
Microplastics (MPs<5mm) are transferred through food chains to higher trophic levels and accumulated in food fish which becomes a major health concern worldwide. Two planktivorous pelagic fish species, *Sardinella gibbosa* (SG, 21.95 ± 3.94g) inhabiting coastal waters, and *Decapterus macarellus* (DM, 239.56 ± 47.63g) inhabiting offshore waters, were examined for the presence of MPs in gastrointestinal tract (GIT) and gills. MPs were extracted using acid digestion method, identified using the photomicroscope and categorized according to type, size and color. Occurrence of MP in fish was 100% for both species. Mean (+SD) MP particles/g tissue of GIT and gills in SG (74.20 ± 8.01 and 72.87 ± 16.72) were significantly higher than that of DM (47.26 ± 5.06 and 46.14 ± 7.46), while mean MP (± SD) particles/organ of GIT and gills in SG (64.70 ± 17.59 and 38.20 ± 10.80) were significantly lower than that of DM (350.17 ± 85.47and 333.68 ± 54.54). Mean (± SD) MP particles/individual in DM (683.85 ± 137.10) was significantly higher than SG (102.90 ± 24.98). MP fragments was the most abundant, followed by fibers and beads in both tissues of both species. The prevalence of large MP fibers/individual was significantly higher in SG, while small MP fibers/individual was significantly higher abundance in DM. Red and black color MPs were occurred predominantly than blue, purple, green and pink MPs in both species. Results suggested that there is a risk for the consumers and advanced technologies and further studies are needed to evaluate sources, pathways, contaminants and ultimate effects of MPs on human health.

Keywords: Coastal, Microplastics, Planktivorous, Offshore

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