Microplastics in the Gut Contents of Salt-Dried Smoothbelly Sardinella (*Amblygaster leiogaster*) from Kalpitiya and Trincomalee, Sri Lanka

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Microplastics (MP) are fragments of plastics less than 5mm in size, which may pose a threat to human health through the ingestion of contaminated food. As MP could bioaccumulate in the digestive tract and other tissues of marine organisms, it is important to understand the current status of MP contamination in Sri Lankan seafood. Therefore, this study assessed the MP in the gut contents of salt-dried smoothbelly sardinella (*Amblygaster leiogaster*) produced in Sri Lanka using samples collected from secondary wholesalers in Kalpitiya and Trincomalee. Two methods of organic digestion; wet peroxide oxidation (WPO) and alkaline digestion (AD) using 10% KOH, were used to determine the best-suited method to be used for salt-dried fish. Based on the amount of MP recovered, the WPO is preferable to AD. Microscopy and ATR-FTIR spectroscopy were used for the identification and quantification of microplastics. Dried fish samples from both locations were contaminated with items that are identified as MP. However, only microfibers (fibers that are less than 5mm in length) were identified in all the samples. There was a significant difference between the levels of microplastics in samples from the two locations ($P<0.05$). Specifically, dried fish from Kalpitiya reported a significantly ($P<0.05$) higher amount of MP (12,031.55 ± 5,059 items/kg) with a higher color variation; black (50%), transparent (14%), white (10%), blue (10%), red (7%), green (5%), yellow (4%), compared to dried fish from Trincomalee (2,129.41 ± 925 items/kg) which had fewer color variations; black (46%), blue (31%), green (15%), red (8%). The current study results provide preliminary evidence for the need of quantification of microplastics assimilated in the edible content of the salt-dried smoothbelly sardinella in Sri Lanka. As the fish gut is rarely removed during dired fish production and consumption, these may contribute to the MP ingestion by Sri Lankan consumers.

Keywords: Anthropogenic activities, Dried fish, Microplastics, Organic digestion, Polymer types

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