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Evaluation of microplastics isolated from sea cucumber Acaudina molpadioides in Pulau Langkawi, Malaysia
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Abstract
Plastic pollution is an emerging environmental concern in recent years due to continuous mass production and its slow degradation. Microplastics measuring between 5 mm and 1 μm are being ingested by marine animals and eventually by human consumption in form of seafood. The aim of this research was to evaluate microplastics isolated from sea cucumber Acaudina molpadioides in Pulau Langkawi. A total of 20 animals were collected and their gastrointestinal tract were digested using NaOH. Microplastics were isolated, filtered and identified through microscopic examination based on the colour, shape and size. The chemical composition of microplastics were further analyzed by FTIR to identify the functional group of polymers. A total of 1652 microplastics were found in A. molpadioides. Fibres (99.4%) and black color (54.4%) were the majority of microplastics observed in terms of shapes and colors. The size range within 0.5–1 μm and 1–2 μm were the highest abundance observed. There were two identified polymer types of microplastics obtained through FTIR which were polyethylene (PE) and polymethyl methacrylate (PMMA). In conclusion, microplastics were isolated from the gastrointestinal tract of A. molpadioides indicating that the animals were contaminated. Further research can be done on the toxicity effects of these microplastics towards human upon consumption of these animals as seafood. © 2023

Author Keywords
FTIR analysis; Microplastic; Sea cucumber; Seafood

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