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Miskon, F.[a] , Ghazali, I.N.M.[b] , Faudzi, F.[b] , Yusof, F.[b] , Razali, A.[c] , Ramli, M.Z.[a] , Hassan, N.A.[d] , Kasmuri, N.[e]

Microplastics contamination in bivalves off the island in the strait of malacca and its potential health risks
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[a] Institute of Oceanography and Maritime Studies (INOCEM), International Islamic University Malaysia, Pahang, Kuantan, 25200, Malaysia
[b] Department of Marine Science, Kulliyyah of Science, International Islamic University Malaysia, Pahang, Kuantan, 25200, Malaysia
[c] Department of Chemistry, Kulliyyah of Science, International Islamic University Malaysia, Pahang, Kuantan, 25200, Malaysia
[d] Department of Community Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Pahang, Kuantan, 25200, Malaysia
[e] School of Civil Engineering, College of Engineering, Universiti Teknologi Mara, Selangor, Shah Alam, 40450, Malaysia

Abstract
The widespread presence of microplastics in the ocean is a significant threat to marine life and humans. A study was conducted to investigate the extent of microplastic contamination in the coastal waters of Langkawi and Penang, situated on the northern coast of Peninsular Malaysia. Rock oysters (Saccostrea cucullata) were utilized as bioindicators due to its availability in all sampling sites to evaluate microplastics,by considering its abundance, types, polymer composition, and potential health risks related to consumption. Soft tissues were digested with 10% KOH, and the resulting microplastics were examined using a stereo microscope and microplastics polymer were identified through ATR-FTIR. Kok Beach and Penarak Beach exhibited notably higher microplastic abundance, mainly in the form of filaments with predominant black and red colours. The most common polymer types were cellulose triacetate (CTA) and polycyclohexanedimethylene terephthalate (PCT). Hazard Quotient values, indicating potential health risks from consuming S. cucullata, surpassed a critical threshold at all locations. The study's findings suggest that it serves as a fundamental reference for future research on microplastic contamination in the islands along the northern coast of Peninsular Malaysia.

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Correspondence Address
Miskon F.; Institute of Oceanography and Maritime Studies (INOCEM), Pahang, Malaysia; email: fuadm@iium.edu.my

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