

THE RECOVERY OF MICROPLASTICS FROM ROCK OYSTERS USING DIGESTION METHOD

Document Type : Research Article

Authors

Azaima Razali ¹ ; Mohd Fuad Miskon ² ; Siti Nursyamsulbahria Che Nan ³

¹ Department of Chemistry, Kulliyah of Science, International Islamic University of Malaysia, Jalan Sultan Ahmad Shah,

² Department of Marine Science, Kulliyah of Science International Islamic University Malaysia (IIUM), Kuantan Campus, 25200 Kuantan, Pahang, Malaysia

³ Department of Chemistry, Kulliyah of Science, International Islamic University Malaysia (IIUM), Kuantan Campus, 25200 Kuantan, Pahang, Malaysia

 10.30492/IJCCE.2022.538088.4911

Abstract

The widespread deposition of microplastics (<5.0 mm) in the marine environment have appeared to be pervasive across the globe. It has led to major attention of many researchers to study this problem. Despite the amount of work conducted to understand these infamous microplastics, there is still no standard procedure for microplastics extraction from marine organism samples. This study investigated three types of digestion treatments; (1) KOH, (2) KOH/H₂O₂, and (3) KOH/NaClO, followed by density separation using 50% KI to extract the spiked microplastics from the rock oyster. Each treatment was tested to study the digestion effectiveness of the organic soft tissue materials while preserving the microplastic particles. Aside from recovering the spiked microplastics, other small contaminants have been detected in each treatment. All the spiked microplastics and the contaminants obtained were analysed using microscope and FTIR for characterisation. From this study, it was observed that each treatment resulted in high microplastics recovery. Among the three treatments, using 10% KOH alone provided the highest digestion rate, but it required more time to digest the oyster soft tissue. The contaminants detected in the oyster suggested the possibility of microplastics accumulation in non-digestion organs through adherence.

Keywords

microplastics ; digestion ; comparison ; oyster ; adherence

Main Subjects

Environmental Chemistry



Articles in Press, Accepted Manuscript
Available Online from 18 January 2022

 **Files**

 XML

 **Share**

 **How to cite**

 **Statistics**

Article View: 59