

Pure Sciences

Poster

Abstract ID: 87

Assessment on the bioavailability of rare earth elements in rocky shore organisms and their potential effects on human health

Mohd Fuad Miskon^a | Fikriah Faudzi^a | Kamaruzzaman Yunus^a | Md. Mokhlesur Rahman^b

^a*Kulliyah of Science, International Islamic University Malaysia*

^b*Kulliyah of Pharmacy, International Islamic University Malaysia*

Introduction: This study focuses on the distribution of rare earth elements in rocky shore ecosystem along east coast of Peninsular Malaysia coastal waters using the soft tissue of *Saccostrea cucullata*, *Thais clavigera* and *Nerita chameleon* as bioindicator, and deliberating on interspecies variability. The results were examined in relation to human health as well. **Methods:** Samples were treated using Teflon Bomb technique and concentrations of 14 naturally occurring REEs were measured using ICP-MS technique, along with selected trace metals for added data. **Results:** The results were certified using standard reference material BCR 668 with quality control practices. Constant REEs abundance patterns were found in all samples, with enrichment of LREEs over HREEs, which suggests that REEs are transported as a coherent group through aquatic ecosystems. There are variations in the REEs abundance for every site, however, they reveal connections in their REEs distribution patterns, which suggest that they are of parallel origins. As no data on the permissible limits of REEs in biota reported, assessment with permissible limits are quantified by comparing with Hg, Pb and Cd data as REEs concentrations seems to be lower compared with these metal values. **Conclusions:** Results showed that the values are considerably below the safety limit, with the exception of Ce and Nd in the soft tissue of *S. cucullata*.

KEYWORDS: rare earth elements, rocky shore organisms, permissible limits, human health