

## **Comparative studies of concentrations of Cu and Zn in the surface intertidal sediments collected from east, south and west coasts of Peninsular Malaysia**

### **ABSTRACT**

Malaysia is one of the fast economic developing nations in the region. From the ecotoxicological points of view, many environmental concerns are expected to continually rise up due to the potential anthropogenic inputs such as industries and urbanization. Although the heavy metal concentrations had been reported in the sediments from the west coast of Peninsular Malaysia, the east coast receives lesser attention since it is not as populous and industrialized as in the west coast. In this study, concentrations of Cu and Zn for surface sediments were determined and the samples were collected between 2002 and 2004, from west (five sites), south (five sites) and east (10 sites) intertidal area of Peninsular Malaysia. Total Cu concentrations ranged from 3.80 to 117 g/g dry weight with south coast recording the highest mean concentration (38.8 g/g dry weight), followed by west (31.13 g/g dry weight) and east coasts (12.96 g/g dry weight). Total Zn concentrations ranged from 36.6 to 395 g/g dry weight with west coast recording the highest mean concentration (137 g/g dry weight), followed by south (111 g/g dry weight) and east coasts (73.8 g/g dry weight). Apart from the comparison based on the conventional total concentrations of metals, three geochemical fractions (EFLE, acid-reducible and oxidisable-organic) were also useful in identifying the polluted sites in which the three geochemical fractions in the sediments of the west and south coasts of Peninsular Malaysia had significantly ( $P < 0.05$ ) higher concentrations of Cu and Zn when compared to those in the east coastal sediments. This had strengthened our previous assumption that the east coast is less polluted by anthropogenic Cu and Zn when compared to the west and south coasts of Peninsular Malaysia.

**Keyword:** West and east coasts of Peninsular Malaysia; Cu and Zn concentrations; Surface sediments