Bioaccumulation and distribution of heavy metals (Cd, Cu, Fe, Ni, Pb and Zn) in the different tissues of Chicoreus capucinus lamarck (Mollusca: Muricidae) collected from Sungai Janggut, Kuala Langat, Malaysia

ABSTRACT

Knowledge on accumulation and distribution of metals in the soft tissues may help us to understand the processes involved in the uptake and excretion of metals in the different parts of molluscs such as Chicoreus capucinus. Chicoreus capucinus was collected from intertidal areas of Sungai Janggut mudflat, Kuala Langat, Selangor and analysed for heavy metals content in the tissues. The capability of the different parts to accumulate heavy metal from the environment was measured by calculating their Biota-Sediment Accumulation Factor (BSAF) values. From this preliminary investigation, it was found that the highest concentrations of Cu were found in the caecum (194±24.4 µg/g dw), Cd in digestive gland (32.9±0.000 µg/g dw) and Fe in operculum (971±2.50 µg/g dw). For Ni and Pb, high concentrations in shell were observed and Zinc high levels in most of the tissues studied except shell and operculum. On the other hand, highest BSAF values were obtained in caecum for Cu (101.2), Zn (27.4) and Cd (53.1), while highest BSAF values were obtained in shell for Pb (32.6) and Ni (8.88). However, in general, most of the different parts of the gastropod could be suggested as macro concentrator organs, since the BSAF values were greater than 2. More studies should be conducted in the future to determine the potential of C. capucinus as biomonitor.

Keyword: Heavy metals; Sequential extraction; Sediment; Mollusc; Biomonitor