

Trace metals in the shells of mussels *Perna viridis* transplanted from polluted to relatively unpolluted sites in the Straits of Johore: shells as biomonitoring materials

ABSTRACT

In this paper, the shells of mussels *Perna viridis* were determined for Ag, As, Be, Co, Cr, Cs, Hg, Li, Mn, Se, Sr and V, based on transplanted mussels from a known polluted site at Kg Pasir Puteh (KPP) to two relatively unpolluted sites at Kg Sg Melayu (KSM) and Sg Belungkor (SB). It was found that significant ($P < 0.05$) decreased levels of Ag, Li and Se were found in mussels transplanted to KSM and SB after 2 and 6 weeks. However, significant ($P < 0.05$) increased levels of As, Mn, Sr and V were found in mussels transplanted to KSM. In comparison between KSM and SB, decreased levels of Ag, As, Li, Mn and Sr in SB were found to be more significant ($P < 0.05$) in SB than KSM. Meanwhile there was no significant ($P > 0.05$) changes for Cr, Co and Hg levels for both sites after the transplantation periods. When compared to the trace metals in the total soft tissues previously reported by Eugene Ng et al. (2012), only the increased level of As based on the shells was supported by the total soft tissue of mussels. All the differences of increased and decreased levels of trace metals between soft and hard (shells) tissues after the transplantation periods from KPP to KSM and SB, is thus difficult to explain. Further studies are necessary in the future to understand the differences of metal accumulations between tissues and shells of *P. viridis*.

Keyword: Depuration; Mussels; Trace metals; Transplantation