METAL ACCUMULATION IN THE TISSUES AND SHELLS OF THE RAPANINE WHELK *INDOTHAIS GRADATA* ALONG AN ACIDIFIED ESTUARINE GRADIENT

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Acidification of estuaries results from microbial CO2 generation, acid sulphate groundwater discharge, and anthropogenic activities, in the context of weak buffering potential of hyposaline waters. The resulting acidification introduces an additional yet poorly studied factor influencing the ecology and distributions of biological populations and species. Furthermore, it has a complex influence on estuarine chemistry, including altering the speciation of metals and potentially their availability to the biotic component. With the aim of providing baseline information for metal accumulation in the shells and tissues of organisms inhabiting acidified turbid tropical Asian estuaries, we studied the rapanine whelk *Indothais gradata* from the mineral-acidified Sungai Brunei estuary (Brunei Darussalam, Borneo). This snail inhabits hard (rock or wood) and soft (sediment) substrata further allowing the assessment of habitat type effects. We predicted (1) that Fe should predominantly accumulate (high Fe exposure from acid sulphate discharge), (2) that metal accumulation should decrease seawards (dilution and acid buffering effects), (3) that soft sediment habitats should present a greater burden (sinks for metals and increased contact with animals), and (4) that accumulation in shells and tissues should be similar (null hypothesis). Our findings based on seven localities and eight metals were largely consistent with these predictions. However, distribution patterns varied among metals, and shell metal accumulation vastly exceeded tissue accumulation per unit mass. Preliminary work suggests that shell metal accumulates mainly in the outer layer, rather than being an effect of sequestration. Shell analyses appear to be an effective approach to assessing sediment and water metal exposure, though the influence of acid dissolution in altering shell surface properties and their metal capturing capacity could introduce a bias.