

**BIOACCUMULATION OF HEAVY METALS IN SOIL INVERTEBRATES: PART 1:
UPTAKE AND ACCUMULATION OF LEAD AND CHROMIUM BY *ACHATINA
MARGINATA* (LINNAEUS) AND *LYMNAEA STAGNALIS*(LINNAEUS).**

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ABSTRACT

Achatina marginata and *Lymnaea stagnalis* were each exposed to 4.15 $\mu\text{g/g}$ and 8.26 $\mu\text{g/g}$ diet of lead and chromium respectively over a period of 28 days. Comparative accumulation studies were carried out on the edible (soft) and gut tissues of both snails. The rates of accumulation of Cr by *L. stagnalis* were 0.025 $\mu\text{g/g/week}$ and 0.084 $\mu\text{g/g/week}$ in the soft tissues for the lower and higher exposure concentrations respectively. The corresponding rates in the gut were 0.290 $\mu\text{g/g/week}$ and 0.537 $\mu\text{g/g/week}$ respectively. However, lower rates of accumulation of Pb were calculated for the tissues of the same species at the two exposure levels. Higher concentrations of Cr and Pb were measured in the gut tissues than the soft tissues. The rates of accumulation of Cr by *A. marginata* were 0.341 $\mu\text{g/g/week}$ and 0.518 $\mu\text{g/g/week}$ for the soft tissues at the lower and higher exposure concentrations respectively while the corresponding rates for the gut were 1.347 $\mu\text{g/g/week}$ (lower) and 1.477 $\mu\text{g/g/week}$ (higher). These values are 13.6 times and 6.2 times greater than those of *L. stagnalis* at the lower and higher concentrations of exposure respectively. A similar trend in the bioaccumulation of Pb by *A. marginata* relative *L. stagnalis* was also observed. Bioaccumulation rates of Pb and Cr were greater in the gut than the soft tissues for both species. The moderate accumulation factors calculated for *L. stagnalis* and high values for *A. marginata* suggest that these species can be used as indicators of metal pollution in field experiments.