

Comparisons of Acute Toxicities of Heavy Metals to the Midge *Chironomus riparius* between Bioassay Methods

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Acute toxicity of two heavy metals, cadmium and lead, was determined for sediment-dwelling larvae (3rd instar) of the midge *Chironomus riparius*. Two exposure methods, water-only and water-sediment systems, were designed and all systems were static systems. Serial dilutions of each heavy metal were prepared in water for water-only system, while various concentrations of heavy metals were spiked for 48h in water-sediment. Effects of cadmium and lead on the midge *Chironomus riparius* were determined in the laboratory during different exposure times (48 and 96h). Mortality was assessed 48 and 96 h after exposure of heavy metals. Swimming behavior also was evaluated at each treatment. Clear dose-response relationships for mortality and swimming activity were observed. Between exposure systems (water-only system and water-sediment system), exposure times (48 and 96h) and endpoints (mortality and swimming activity), significant differences in toxicity of heavy metals were observed.