The Effect of Ibuprofen Contaminated Sediment, Incubated Overtime, on Lumbriculus variegatus's (Small Sediment Worm) Survival, Reproduction, and Avoidance of Contaminated Sediments in Boundary Waters Sediment and Lake Superior Water

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Ibuprofen is a pharmaceutical and Lubriculus variegatus is a freshwater oligochaete (Drewes, 2013). The question is: What effect does Ibuprofen contaminated sediment, incubated overtime, have on Lumbriculus variegatus's (small sediment worm) survival, reproduction, and avoidance of contaminated sediments in Boundary Waters sediment and Lake Superior water? Twelve one-liter plastic colonization chambers [Three chambers for each concentration of (0, 10, 20, and 30 mg/L of Ibuprofen)] were used. Each of the sediment dilutions were incubated for 0, 7, or 14 days for each trial to also test what effect incubation has on sediment worm survival, reproduction and avoidance. A set of three small plastic cups, were glued to the bottom of colonization chamber, two were filled with glass beads and one with sediment. Washed fine sand, was poured around the cups, even with the lip. Each set of three small cups had one filled with sediment contaminated with Ibuprofen. Each lipless cup had ten Lumbriculus variegatus placed inside. After four days (96 hours) the worms were counted. The hypothesis was: If Lumbriculus variegatus is exposed to Ibuprofen contaminated sediment, incubated over time, then survival and reproduction rates will be negatively affected and the sediment worms will avoid the contaminated sediment and move to the substrate without Ibuprofen, yet with sediment incubation avoidance effects will be moderated. The hypothesis was partially supported because when the worms were placed in non-incubated sediment, the higher the concentration, the more worms were found in the glass beads or sand. Yet with sediment incubation, avoidance effects weren't moderated.

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