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Track: Aquatic Toxicology and Ecology

Session1: Refining methods for conducting laboratory whole-sediment toxicity tests

Abstract Title:

Inter-lab Testing of *Hyalella azteca* Water and Sediment Methods: 3 Results from 10- to 42-d tests Conducted with the New Water-Only Method

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Abstract:

Over the past four years, USEPA-Duluth, USGS-Columbia, the Illinois Natural History Survey, and Environment Canada have been conducting studies to refine the USEPA and ASTM International methods for conducting 10- to 42-d water or sediment toxicity exposures with the amphipod *Hyalella azteca*. Notable among these changes is the development of alternate feeding regimes to provide more robust growth and reproduction, as well as specifications on the composition of overlying water. To evaluate the effectiveness of these methods across laboratories, an inter-laboratory study with 25 laboratories was organized with goals to: 1) Determine whether the proposed new diets and water requirements will result in strong growth/reproduction of *H. azteca* in exposures across a range of laboratories; 2) Determine whether use of the new diets/water will support increases in minimum control performance criteria in water or sediment exposures for weight and reproduction; and 3) Determine if there are other diets or waters that are better than those being proposed. To accomplish this, a multi-laboratory study with 25 volunteer laboratories tested two recommended diets over quartz sand using an overlying water containing ≥15 mg Cl/L and ≥0.02 mg Br/L. All labs were asked to prioritize testing two treatments using the water-only method with two feeding regimes: 1) a diet of diatoms (*Thalassiosira weissflogii*) and and flaked fish food (Tetramin®) with rations of both increased weekly; and 2) a diet of the same rations of Tetramin® combined with a fixed ration of yeast/cereal grass leaves/trout chow (YCT). Participants chose whether to renew the overlying water daily or use a 3X week water replacement. Beyond these two basic treatments, participating labs were also encouraged to test alternate substrates, diets, or waters of interest to the participating laboratory. Data on survival and growth were collected at a minimum on days 10, 28 and 42 and reproduction was monitored through day 42. This presentation will summarize performance of *H. azteca* in water-only studies conducted by 25 laboratories. In turn, these results will be included in the update to the USEPA/ASTM sediment toxicity test method guidance and to develop new guidance in USEPA/ASTM for water testing. *This abstract does not necessarily reflect US EPA policy.*