
Optimizing the Performance of the Amphipod, *Hyalella azteca*, in Chronic Toxicity Tests: Results of Feeding Studies with Various Foods and Feeding Regimes

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The freshwater amphipod, *Hyalella azteca*, is a common organism used for sediment toxicity testing. Standard methods for 10-d and 42-d sediment toxicity tests with *H. azteca* were last revised and published by USEPA/ASTM in 2000. While *Hyalella azteca* methods exist for sediment toxicity testing, there is a need for water-only standardized chronic toxicity test methods for water-borne exposures (e.g., criteria development). With the increase in the use of the growth and reproduction test (10-d, 28-d, or 42-d tests), we have identified refinements needed in the method. Presently a single fixed ration of the yeast-wheatgrass-trout food (YCT) is recommended for both the 10-d and the 42-d tests. Recently, we began a series of studies evaluating different foods, combinations of foods, and feeding rates. Quartz sand is used as the substrate to insure that all nutrition came from the food added rather than from sediment. In 42-d chronic amphipod tests, we compared various foods, including two types of diatoms, wheatgrass, TetraMin®, YCT and several of these foods in combination. We monitored survival, growth, and reproduction at intervals of 7, 10, 14, 21, 28, 35, and 42-d of exposure. The ration of 1 ml YCT/beaker/d limited amphipod growth and reproduction in the latter portions of the 42-d exposure; higher growth and reproduction was achieved with a variety of alternate foods or feeding schedules. Now, 42-d weights of *Hyalella* have been in excess of 0.8 mg dwt/individual and reproduction over 10 young per female. As a result, modifications to the method have been developed that better define the composition requirement for the exposure water and improve the growth with various foods and rations of the foods. Results of several experiments will be presented. In an effort to evaluate the improved diets and waters, an interlaboratory study of the proposed water and sediment toxicity test methods will be starting in March. *This abstract does not necessarily reflect US EPA policy.*

Key words: sediment toxicity, *Hyalella*, interlaboratory study, diets

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