

History and sensitivity comparison of two standard whole-sediment toxicity tests with crustaceans: the amphipod

The review first details the development of the test procedures with *Hyalella azteca* which historically emerged as one of the recommended test species for whole-sediment assays and its gradual standardization and endorsement by national and international organizations. The sensitivity and precision of the *H. azteca* test for application on chemicals and on real world sediments is discussed. The review subsequently addresses the development of the whole sediment microbioassay with the ostracod crustacean *Heterocypris incongruens* with larvae of this test species hatched from dormant eggs (cysts), rendering this assay stock culture/maintenance free. The application of the 6-day ostracod microbioassay on sediments in Canada and in Belgium is discussed, as well as its endorsement by the ISO subsequent to an extensive international interlaboratory ring test. The sensitivity of the amphipod and ostracod tests is compared by data from studies in which both assays were applied in parallel. A comparison of more than 1000 ostracod/amphipod data pairs of a 12-year river sediment monitoring study in Flanders/Belgium confirmed that both whole-sediment assays have a similar sensitivity and that the 6-day ostracod microbioassay is a valuable and cost-effective alternative to the 10–14 day amphipod test for evaluation of the toxic hazard of polluted sediments.

Auteurs du document : W. De Cooman, C. Blaise, C. Janssen, L. Detemmerman, R. Elst, G. Persoone

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