毒性監測新趨勢：本土微小生物毒性測試套組開發
Emerging Trends in Toxicity Monitoring: Development of Native Microbial Toxkit Microbiotests

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Abstract

Along with serving as pollutant reservoirs, sediments offer habitat for both plants and animals. Chemical analyses can be used to identify these contaminants and validate the type and extent of contamination. Still, they are not capable of predicting the effects of pollutants on biota or providing an ecotoxicological risk assessment of sediment contamination. Therefore, biological risk and integrity methods should be used for the ecotoxicological assessment of sediments in addition to chemical analyses. Various benthic invertebrate larvae (such as *Chironmus ruparius* and *Hyalella azteca*) are used for sediment toxicity testing. However, maintaining cultures is usually a time-consuming process in the laboratory. The attention-grabbing benthic organisms known as ostracods are capable of swimming in the water column as well as crawling on and digging into sediments. The Taiwanese benthic invertebrate ostracod *Stenocypris major* was used in this study. Its ability to hatch from a dormant egg stage and its capacity to withstand external stimulation are advantages that lower the cost of laboratory feeding.

In this study, dormant *S. major* eggs are kept in aerated synthetic freshwater (SFW) with low-medium hardness and fed grated spinach while they are completely dark at 25 °C and hatch after 96-h. This study reveals that the longer the preservation time, the lower the hatching rate (120 days< 90 days<60 days<30 days <14 days< 7 days). The results of the water toxicity test indicate that the reference toxicant, sodium chloride, has an LC50 of 2527±108 mg/L and that the survival rate of the *S. major* larva control group is greater than 80%. These results also demonstrate the stability and repeatability of the water test conditions. It is highly feasible to use *S. major* in the development of a Toxkit microbiotest. Future research will therefore identify the reconstitute water conditions for novel sediment toxicity testing techniques, allowing native species to more thoroughly evaluate pollution across a range of environmental substrates.

關鍵字：底棲無脊椎生物、介形蟲、*Stenocypris major*

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