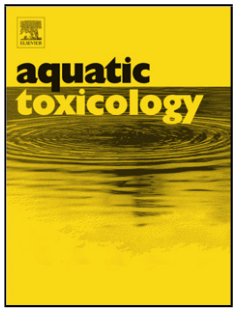

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Adverse effects of the insecticides chlordecone and fipronil on population growth and expression of the entire cytochrome P450 (*CYP*) genes in the freshwater rotifer *Brachionus calyciflorus* and the marine rotifer *Brachionus plicatilis*

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Highlights

- We examined effects of two insecticides on population growth and expression of the entire *CYP* genes in rotifers
- In *B. calyciflorus*, a LC50-24 h of chlordecone and fipronil was determined as 193.8 μg/L and 2033.0 μg/L.
- In *B. plicatilis*, a LC50-24 h of chlordecone and fipronil was 291.0 μg/L and 5735.0 μg/L.
- Modulation in the expressions of the entire *CYP* genes were demonstrated in response to chlordecone and fipronil at 24 h period.

Abstract

Chlordecone and fipronil are used as an insecticide and have been widely detected in the aquatic environments. However, their toxicity is still poorly investigated in aquatic invertebrates. In this study, we examined effects of chlordecone and fipronil on population growth and transcriptional regulation of the entire cytochrome P450 (*CYP*) genes in the freshwater rotifer *Brachionus calyciflorus* and the marine rotifer *B. plicatilis*. In *B. calyciflorus*, a 24 h-no observed effect concentration (NOEC-24 h) and a 24 h-median lethal concentration (LC50-24 h) of chlordecone were determined as 100 μg/L and 193.8 μg/L, respectively, while NOEC-24 h and LC50-24 h of fipronil were determined as 1000 μg/L and 2033.0 μg/L, respectively. In *B. plicatilis*, NOEC-24 h and LC50-24 h of chlordecone were 100 μg/L and 291.0 μg/L, respectively, while NOEC-24 h and LC50-24 h of fipronil were determined as 1000 μg/L and 5735.0 μg/L, respectively. Moreover, retardation in the