Effects of temephos on survival and reproductivity of Moina macrocopa / Satminder Kaur d/o Kawan Singh.

Lihat sebelah

EFFECTS OF TEMEPHOS ON SURVIVAL AND REPRODUCTIVITY OF *Moina macrocopa*

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ABSTRACT

Acute and chronic toxicity tests with the organophosphate insecticide; temephos were conducted to examine the effects of the insecticide on the survival and reproduction of the freshwater cladoceran *Moina macrocopa*. The 48-hour LC_{50} value for temephos was 9.0×10^{-6} μg L^{-1}. Chronic toxicity test was carried out using temephos concentration at 1.0×10^{-8} μg L^{-1}, for two weeks. The effect of temephos on survival and reproduction were studied. Survivorship and average longevity days of *Moina macrocopa* were affected by exposure to 1.0×10^{-8} μg L^{-1}. Exposure to temephos had no effect on the time of first reproduction but the number of offspring produced by a female during its entire life span was reduced at 1.0×10^{-8} μg L^{-1}. The intrinsic rate of population growth and the generation time were not affected much by exposure to temephos. The observed toxicity of temephos to *Moina macrocopa* indicates that this substance may cause adverse effects on the aquatic zooplankton.

ABSTRAK

Ujian ketoksikan akute dan kronik dengan menggunakan temephos iaitu sejenis 'organophosphate insecticide' telah dilakukan ke atas *Moina macrocopa*. Kajian ini dijalankan untuk mengenalpasti kesan temephos ke atas kadar kemandirian dan kadar pembiakan kladosera air tawar, *Moina macrocopa*. Nilai 48-hour LC_{50} untuk temephos adalah $9.0 \times 10^{-6} \mu g\ L^{-1}$. Ujian ketoksikan kronik telah dijalankan dengan menggunakan kepekatan temephos sebanyak $1.0 \times 10^{-8}\ \mu g\ L^{-1}$ selama dua minggu. Kesan temephos ke atas kadar kemandirian dan pembiakan telah dikaji. Kadar kemandirian dan jangka hayat telah dipengaruhi oleh kepekatan temephos pada $1.0 \times 10^{-8}\ \mu g\ L^{-1}$. Pendedahan kepada kepekatan $1.0 \times 10^{-8}\ \mu g\ L^{-1}$ temephos tidak memberi kesan kepada hari pertama pembiakan *M. macrocopa*, akan tetapi bilangan individu yang dihasilkan oleh seekor betina sepanjang riwayat hidupnya berkurangan. Nilai kadar intrinsik peningkatan populasi dan masa generasi tidak banyak dipengaruhi oleh temephos. Melalui pemerhatian ketoksikan terhadap *Moina macrocopa*, dapat disimpulkan bahawa temephos boleh membawa kesan negatif yang serius kepada organisma akuatik.