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**EFFECTS OF INSECTICIDE-ENDOSULFAN ON SURVIVAL AND  
REPRODUCTION RATES OF FRESHWATER CLADOCERAN  
*Moina macrocopa***

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## ABSTRACT

A study was conducted to determine acute and chronic effects of insecticide-endosulfan on the survival and reproduction performance of *Moina macrocopa*. It is found that endosulfan concentration that cause 50% mortality (LC50) after exposure for 24h and 48h were 3.34 and 0.16mgL<sup>-1</sup>, respectively. The survivorship of *M. macrocopa* at 2.0×10<sup>-3</sup>mgL<sup>-1</sup> differed from control, with this cladoceran exhibiting 100% mortality at day 12 and day 15 after being exposed to endosulfan at 2.0×10<sup>-3</sup>mgL<sup>-1</sup> and 0mgL<sup>-1</sup> (control), respectively. Reproductive performance was greatly reduced by about 70% at 4.0×10<sup>-4</sup>mgL<sup>-1</sup> and approximately 97% at 2.0×10<sup>-3</sup>mgL<sup>-1</sup> as compared to control organisms throughout the whole life span of 15 days. If environmental concentration of endosulfan do not exceed 4.0×10<sup>-4</sup>mgL<sup>-1</sup>, application of this insecticide is unlikely to induce detrimental effects on these cladoceran populations in agro-ecosystem.

**KESAN RACUN SERANGGA- ENDOSULFAN TERHADAP DAYA HIDUP  
DAN PEMBIAKAN KLADOCERAN AIR TAWAR,  
*Moina macrocopa***

**ABSTRAK**

Satu kajian telah dijalankan untuk menentukan kesan akut dan kornik racun serangga endosulfan terhadap daya hidup dan pembiakan *Moina macrocopa* dalam keadaan makmal. Kajian ini mendapati bahawa kepekatan endosulfan yang menyebabkan 50% kematian (LC50) selepas pendedahan selama 24 jam dan 48 jam masing-masing ialah 3.34 dan 0.16mgL<sup>-1</sup>. Daya hidup *M. macrocopa* pada 2.0×10<sup>-3</sup>mgL<sup>-1</sup> didapati berbeza daripada kawalan (0mgL<sup>-1</sup>) yang mana kladoceran ini masing-masing mengalami 100% kematian pada hari ke-12 dan hari ke-15 setelah didedahkan dengan endosulfan pada 2.0×10<sup>-3</sup>mgL<sup>-1</sup> dan 0mgL<sup>-1</sup>. Daya pembiakan berkurang sebanyak 70% pada 4.0×10<sup>-4</sup>mgL<sup>-1</sup> dan kira-kira 97% pada 2.0×10<sup>-3</sup>mgL<sup>-1</sup> berbanding dengan organisma kawalan sepanjang tempoh hayat dalam 15 hari. Jika kepekatan endosulfan di persekitaran tidak melebihi 4.0×10<sup>-4</sup>mgL<sup>-1</sup>, penyemburan racun serangga ini tidak mempunyai kemungkinan untuk merangsang kesan bahaya terhadap populasi kladoceran ini di agroekosistem.