

ABSTRACT

THE EFFECT OF ENDOSULFAN ON GROWTH AND FECUNDITY OF
FRESHWATER SNAILS, *Thiara granifera* and *Melanoides tuberculata*
(GASTROPODA : PROSOBRANCHIA : THIARIDAE) IN THE
RIO COBRE RIVER SYSTEM, JAMAICA, W.I.

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This study investigated the relative susceptibility of the snails, *Thiara granifera* and *Melanoides tuberculata* to endosulfan and in the laboratory and the field, sublethal effects of endosulfan on growth, fecundity and density of snails.

Morphometrics of snails were recorded.

Laboratory studies (acute toxicity tests) showed the 24 hour LC_{50} values to be 5.352 and 7.741 $mg L^{-1}$ for *Thiara* and *Melanoides*, respectively. The 96 hour LC_{50} values were 1.741 and 2.301 $mg L^{-1}$, respectively. Exposure of the snails to sublethal concentrations (0.128 or 0.0128 $mg L^{-1}$) of endosulfan, showed the absolute growth rates for *Thiara* and *Melanoides* in the 0.128 $mg L^{-1}$ treatment to be 0.18 and 0.59 mm per month respectively and 0.26 and 0.63 mm per month

respectively, in the 0.0128 mg L^{-1} treatment. Endosulfan caused a decrease in the absolute growth rate of *Thiara* but *Melanooides* was unaffected.

Instantaneous growth rates were unaffected. Endosulfan caused a reduction in the number of hatchlings produced, but had no effect on the size of the hatchlings.

Field studies showed that endosulfan had no effect on the population growth rates, which were approximately 2.2 mm per month for *Thiara* and 1.8 - 2.4 mm per month for *Melanooides*. Endosulfan delayed the release of hatchlings from the brood pouch, but had little or no effect on the number of hatchlings produced..

Positive linear relationships were found between shell and aperture lengths and between shell length and weight of soft tissue for both species. At all sampling sites, there was a strong correlation between shell and aperture lengths ($r = 0.975$ to 0.992) and between shell length and weight of soft body tissue ($r = 0.974$ to 0.993)

Key words : *Thiara granifera*, *Melanooides tuberculata*, endosulfan, acute toxicity, growth, fecundity, sublethal concentration, shell length, aperture length, weight of soft tissue.