

Toxicity of chlorpyrifos, carbofuran, mancozeb and their formulations to the tropical earthworm *Perionyx excavatus*

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Abstract

Effects of chlorpyrifos, carbofuran, mancozeb and their formulated products on survival, growth and reproduction of the tropical earthworm *Perionyx excavatus* were investigated in standard artificial soil. The toxicity of the three chemicals decreased in the order carbofuran > chlorpyrifos > mancozeb. In general, formulations were more toxic than the active ingredients, but differences in LC₅₀ and EC_x values were significant only in two cases and not more than a factor of 2.0. This could mainly be due to masking of the effects of additives in the soil. Comparison with available survival data revealed that *P. excavatus* is more sensitive than the standard test species *Eisenia andrei* or *E. fetida*. The use of tropical species in the risk assessment of pesticides in tropical regions should therefore be encouraged.

Full paper available at <http://www.sciencedirect.com/science/article/pii/S0929139309001747>