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TOXIC EFFECTS OF CHLORANTRANILIPROLE AND FIPRONIL ON *Eisenia fetida*: FROM GROWTH AND REPRODUCTIVE PARAMETERS TO AVOIDANCE BEHAVIOR

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Abstract

Insecticides contaminated soil is an essential environmental issue that has detrimental impacts on the soil biota. The aim of the present study was to evaluate the effects of insecticides chlorantraniliprole and fipronil individually and in combination on growth, reproductive potential and avoidance behavior of earthworm *Eisenia fetida*. Adult earthworms were treated to various sub-lethal concentrations of chlorantraniliprole and fipronil along with their combinations. After exposure for a period of 90 days, growth and reproductive potential of *E. fetida* were determined whereas avoidance test gives significant results within 48 hours. On the 90th day, the lowest survivability was observed (65.57 %) and number of cocoons (39.00) were observed while the most significant decrements in body weight, average daily weight gain, specific growth rate and length were 36.67%, 0.24%, 0.22% and 15.33 % respectively for *E. fetida* exposed to chlorantraniliprole and fipronil (5.00 + 8.34 mg/kg). In avoidance test chlorantraniliprole causes significant highest avoidance behavior (37.78 ± 2.22%) at 10.00mg/kg of the substrate whereas significant lowest avoidance behavior (attraction: -2.22 ± 2.22) towards insecticides when both chlorantraniliprole and fipronil (2.50 + 4.17 mg/kg) were used together. Overall, chlorantraniliprole had a greater impact on *E. fetida* compared to fipronil.

Key words: chlorantraniliprole, cocoons, *Eisenia fetida*, fipronil, survivability

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