

**PENGARUH INSEKTISIDA TERHADAP MORTALITAS, BOBOT TUBUH,
DAN AKTIVITAS CACING *Lumbricus rubellus* PADA PROSES
DEKOMPOSISI BAHAN ORGANIK DI TANAH SAWAH**

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ABSTRAK

Penggunaan insektisida oleh petani untuk memberantas hama pada tanaman umumnya hanya mengira-ngira tanpa menggunakan dosis rekomendasi, sehingga dapat menyebabkan pencemaran lingkungan. Beberapa organisme dapat dijadikan sebagai indikator tercemarnya suatu lingkungan. Diantara organisme tersebut adalah cacing tanah. Penelitian bertujuan untuk mengetahui pengaruh insektisida terhadap mortalitas, bobot tubuh dan aktivitas cacing *Lumbricus rubellus* pada proses dekomposisi bahan organik (C/N rasio) di tanah sawah. Penelitian menggunakan Rancangan Acak Lengkap (RAL) pola split plot dengan 3 kali ulangan. Sebagai main plot adalah Karbofuran 3% dari insektisida *Furadan* 3GR yang terdiri dari 5 dosis 0, 25, 50, 75, 100 mg/kg (berat kering tanah) dan sebagai sub plot yaitu bahan organik yaitu kotoran sapi dan sampah pasar. Parameter yang diamati sebelum perlakuan yaitu tingkat mortalitas dan bobot tubuh cacing *Lumbricus rubellus*, C-organik, N-total, C/N rasio, BV, BJ, dan porositas tanah. Parameter yang diamati setelah perlakuan yaitu tingkat mortalitas dan bobot tubuh cacing (kematian) cacing *Lumbricus rubellus*, C-organik, N-total, C/N rasio, pH, suhu, BV, BJ, dan porositas tanah. Analisis data menggunakan sidik ragam (ANOVA) dan diikuti dengan uji lanjutan menggunakan Duncan Multiple Range Test (DMRT) pada taraf uji 5%. Hasil penelitian menunjukkan bahwa pemberian Karbofuran berpengaruh nyata terhadap mortalitas, bobot tubuh cacing *Lumbricus rubellus*, pH, suhu, tetapi tidak berpengaruh nyata terhadap C-organik, N-total, BV, BJ, porositas. Penambahan bahan organik berpengaruh nyata terhadap mortalitas, bobot tubuh cacing *Lumbricus rubellus*, C-organik, N-total, tetapi tidak berpengaruh nyata terhadap BV, BJ, porositas, pH, dan suhu. Pemberian Karbofuran 100 mg/kg berat tanah menyebabkan mortalitas cacing tertinggi dan penurunan bobot tubuh cacing tertinggi. Penambahan bahan organik sampah pasar menghasilkan hasil yang lebih baik dari pada penambahan bahan organik kotoran sapi.

Kata kunci: karbofuran, *Lumbricus Rubellus*, mortalitas, bobot tubuh, C/N rasio

**EFFECT OF INSECTICIDES ON DISABLED MORTALITY, BODY
WEIGHT AND ACTIVITIES *Lumbricus rubellus* IN DECOMPOSITION
PROCESS OF ORGANIC MATERIALS IN LAND SOIL**

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ABSTRACT

The use of insecticides by farmers to eradicate pests in plants generally only estimates without using dose recommendations, so that it can cause environmental pollution. Some organisms can be used as an indicator of the pollution of an environment. Among these organisms are earthworms. This research was aimed to know the effect of insecticides on disabled mortality, body weight and activities *Lumbricus rubellus* in decomposition process of organic materials (C/N ratio) in land soil. Research method that was used in this research was Complete Randomized Design split plot pattern with 3 replications. As the main plot is 3% Carbofuran from Furadan insecticide 3GR which consists of 5 doses of 0, 25, 50, 75, 100 mg/kg (dry weight of soil) and as sub-plots of organic matter of cow faeces and market trash. Parameters that was analyzed before treatments are total mortality and body weight *Lumbricus rubellus*, C-organic, N-Total, C / N ratio, BV, BJ, and soil porosity. Soil analysis after treatment including are total mortality and body weight *Lumbricus rubellus*, C-organic, N-Total, C / N ratio, pH, temperature, BV, BJ, and soil porosity. Analysis data (ANOVA) was used followed by advanced test using Duncan Multiple Range Test (DMRT) on 5% level. The result of the research showed that by giving Carbofuran has a significant effect total mortality and body weight *Lumbricus rubellus*, pH, temperature, but non-significantly give effect to C-organic, N-total, BV, BJ, porosity. Addition of organic matter has a significant effect on total mortality and body weight *Lumbricus rubellus*, C-organic, N-total, but non-significantly give effect to BV, BJ, porosity, pH, dan temperature. Giving Carbofuran 100 mg / kg of soil weight caused the highest worm mortality and decreased body weight of the highest worms. The addition of organic matter market trash produces better results in the reform of organic matter compared to cow feces.

Keywords: Carbofuran, *Lumbricus rubellus*, mortality, body weight, C/N ratio