

Growth and Production Performance of Earthworm Cocoons (*Eisenia Foetida*) After Exposure to Herbicides

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ABSTRACT

Herbicides are toxic substances used to kill weeds on agricultural land. In general, the character of herbicides is broad-spectrum, so that it can cause death in other organisms that are not the target of its use. Earthworms are one of the soil organisms that are often found on agricultural land, so they have the opportunity to be exposed to herbicides which can result in death or disability. This study aims to determine the ability of earthworms to survive, grow and produce cocoons as a manifestation of their sustainable life, due to exposure to herbicides.

This experimental research will be carried out using a one-factor completely randomized design. There are 2 herbicides used with active ingredients *Isopropylamine glyphosate* and *Paraquat dichloride*. The research will take place in two stages, namely looking for lower threshold values, upper limits and LD50-48 hours and testing the performance of earthworms when exposed to doses below LD50-48 hours. All treatments will be repeated 5 times. The dependent variable to be measured is the increase in the mass of worms, the increase in the number of worms,. The design of data analysis was in the form of one-way analysis of variance followed by a mean difference test using the SPSS program.

The results showed that exposure to herbicide doses below LD 50 affected the increase in biomass and the number of earthworms (*Eisenia foetida*). For the earthworm *Eisenia foetida*, exposure to the herbicide *Isopramilina glysophate* was more toxic than *paraquat dichloride* indicated by higher LD50 values, upper and lower limits. Earthworms showed adequate growth efforts as a result of exposure to herbicide doses below the LD50, through feeding behavior, movement and morphological changes.

Kata Kunci: *Eisenia foetida*, *Isopropylamine glyphosate*, *Paraquat dichloride*, *growth*