

The Use of *Lumbricus Rubellus* as Bioremediation Agent of Vermicomposting of City Organic Waste Polluted by Lead Metal (Pb)

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Abstract: Landfill (TPA) is a place where waste reaches the last stage in its management since the nascent in its source, collection, transfer / conveyance, treatment and disposal. TPA is a place where trash is isolated safely so as not to cause disturbance to the surrounding environment. Therefore required the provision of facilities and the correct treatment so that security can be achieved well. The aim of this research is to investigate the use of *Lumbricus rubellus* as bioremediation agent of vermicomposting of city organic waste polluted by lead metal (Pb). This research was compiled using a completely randomized design (RAL), with four treatments and replications of three (3) times. Treatment (1) in the form of organic waste + Pb metal as a control (S), treatment (2) organic waste + Pb metal is added by manure (SK), treatment (3) organic waste + Pb metal is added bio-activator (SA), treatment (4) organic waste + Pb metal is added by manure and bio-activator (SKA). Observations were made on days 3, 10, 20 and 30 days after inoculation of earthworms. that the provision of metallic lead (Pb) in an organic medium which has been provided treatment gives effect as follows: (1) Treatment by the addition of amendments material and activators in organic media will provide an increase in the percentage of the death of earthworms, over time the observations were conducted. SKA provides the highest mortality percentage. (2) earthworm *Lumbricus rubellus* have the ability to accumulate Pb metal. Ability to accumulate the lowest Pb metal in the control treatment (29.73 mg kg⁻¹) and the highest contained in the treatment of SKA (33.13 mg kg⁻¹). (3) The results of the analysis of C-organic, N-total and P-available on kascing in all treatments do not provide a real difference. While on the Pb metal content contained real differences in treatment SA the lowest content (20.43 mg kg⁻¹) and highest in the treatment of S (32.05 mg kg⁻¹).

Key words: Organic Waste • Lead Metal (Pb) • *Lumbricus rubellus*

INTRODUCTION

Landfill (TPA) is a place where waste reaches the last stage in its management since the nascent in its source, collection, transfer / conveyance, treatment and disposal. TPA is a place where trash is isolated safely so as not to cause disturbance to the surrounding environment. Therefore required the provision of facilities and the correct treatment so that security can be achieved well. Generally the garbage landfills, waste processing methods such as landfill, but this method still has an impact on environmental pollution in the form of leachate out of the landfill. The presence of high rainfall increases the amount

of leachate formed in the region [1]. Environment that has been contaminated with harmful chemicals, will lead to pollution of soil, water and air in the environment. This will cause environmental damage and disruption. Contaminants that pollute the environment is an environmental hazard to all forms of living organisms. Recovery of environment which has become polluted to be the sort of environment that is free from pollution material is called as a remediation. In the present era remediation technique available is not entirely to eliminate waste polluting the environment, but only lowering the concentration and content of environmental pollutants [2].