

## Abstract

The Effects of bedding materials and feed on the growth of earthworms in addition to the effects of vermicompost application on the growth and yield of vegetable amaranth (*Amaranthus tricolor*) lettuce (*Lactuca sativa*) and hot pepper (*Capsicum annuum*).were studied into 4 experiments : 1) The effects of three bedding materials (coconut coir, spent mushroom compost and *Terminalia ivorensis* leaves) on the growth of earthworms, *Eudrilus eugeniae* and *Pheretima peguana*. The experiment was designed in factorial in CRD (2x3) with 3 replications. 2) The effects of vegetables and fruit wastes on vermicomposting using earthworms, *E. eugeniae* and *P. peguana*. The experiment was designed in factorial in CRD (2x2) with 3 replications. 3) The effects of vermicomposts from *E. eugeniae* at 10 %, 20 % and 30 % (v/v) and from *P. peguana* at 10 %, 20 % and 30 % (v/v) mixed with grown media on the seedling growth of vegetable amaranth, lettuce and hot pepper. The experiment was designed in CRD with 3 replications. 4) The effects of vermicompost ratios of *E. eugeniae* and *P. peguana*, each at 1,000, 2,000 and 4,000 kg/rai on the growth and yield of vegetable amaranth, lettuce and hot pepper. The experiment was designed in CRD with 3 replications.

In the first experiment, results showed that earthworms *E. eugeniae* that were cultured in the bedding material mixed with spent mushroom compost had the highest body weight and number of earthworms per box. The total N and P were highest in the bedding material mixed with spent mushroom compost used for culturing *E. eugeniae*, while the total K was not significantly different among the treatments. Spent mushroom compost, therefore, was a suitable bedding material for the next experiment. In the second experiment, results showed that *E. eugeniae* fed with the fruit waste gave the highest body weight and total number of earthworms and cocoons per box. It was found that the total N was highest in the vermicompost from *E. eugeniae* fed with the fruit waste while the total K was highest in the vermicompost from *E. eugeniae* fed with the vegetable waste. In addition, the total P was highest in the vermicompost from *P. peguana* fed with the vegetable waste, however; the pH and EC were not significantly different between

the two vermicomposts. For the third experiment, results showed that 21 days after sowing, the 20 % vermicompost from *E. eugeniae* gave the best result for all parameters for the seedling growth of vegetable amaranth, while the 10 % vermicompost gave the best result for dry shoot and root weights. The 30 % vermicompost from *P. peguana* gave the best result for the seedling growth of lettuce, but fresh and dry root weights were highest at 20 % vermicompost from *E. eugeniae*. For the hot pepper, the 10 % vermicompost from *E. eugeniae* gave the best result for the seedling growth, fresh and dry weights of shoot and root. The fourth experiment showed that the ratio of vermicompost from *E. eugeniae* at 4,000 kg/rai gave the highest stem height, stem diameter and fresh and dry weights of the vegetable amaranth shoot after planting for 28 days, while in lettuce after planting for 35 days, the ratio of vermicompost from *E. eugeniae* at 2,000 kg/rai gave the best for growth and yield. For the hot pepper after planting for 63 days, the result showed that the vermicompost from *E. eugeniae* at 2,000 kg/rai gave the best results in terms of the growth and total number of fruit. In addition, vermicompost from *P. peguana* at 1,000 kg/rai gave the highest total number of flowers, width and length of fruits as well as fresh and dry fruit weights.