

Intisari

Penelitian ini bertujuan untuk mengetahui peran cacing tanah terhadap laju dekomposisi bahan organik dan ketersediaan unsur hara. Rancangan penelitian yang digunakan adalah rancangan acak lengkap (RAL) dengan 3 faktor, yaitu jenis bahan organik, jenis cacing tanah dan jumlah populasi cacing tanah. Jenis bahan organik yang digunakan adalah limbah kubis, serasah bambu dan jerami padi. Jenis cacing tanah yang digunakan adalah *Lumbricus* sp. dan *Pheretima* sp. Jumlah populasi cacing tanah yang digunakan adalah 10, 15 dan 20 ekor dalam 1 ember. Kombinasi perlakuan pada penelitian ini adalah 18 perlakuan dengan 4 ulangan. Penelitian ini dilakukan selama 30 hari masa inkubasi. Hasil penelitian menunjukkan bahwa penambahan cacing tanah selama proses dekomposisi mampu mempercepat laju dekomposisi bahan organik. Bahan organik dengan kandungan air dan nitrogen yang tinggi akan terdekomposisi lebih cepat daripada bahan organik dengan kandungan air dan nitrogen yang rendah. Kombinasi perlakuan bahan organik kubis terdekomposisi sempurna dalam interval waktu 10 – 18 hari masa inkubasi sedangkan bahan organik serasah bambu dan jerami padi belum terdekomposisi sempurna sampai masa inkubasi 30 hari. Hasil analisis sidik ragam (ANOVA) menunjukkan bahwa penambahan cacing tanah memberikan pengaruh nyata terhadap ketersediaan P ($Pr(>F) = 0,0023$), amonium ($Pr(>F) = 0,0174$) dan nitrat ($Pr(>F) = 0,0166$) serta memberikan pengaruh tidak nyata terhadap ketersediaan K ($Pr(>F) = 0,41152$) di dalam tanah.

Kata kunci: cacing tanah, laju dekomposisi, ketersediaan unsur hara

ABSTRACT

The aims of this research were for understanding the role of earthworms to organic matter decomposition rate and nutrient availability in soil system. Experimental design that applied was completely randomized design with 3 factors. The factors were organic matter, earthworms and population of earthworms. The first factors were cabbage, rice straw and bamboo litter. The second factors were *Lumbricus* sp. and *Pheretima* sp. The third factors were 10, 15 and 20 earthworms. The combination of this treatments were 18 treatments with 4 replication. The incubation for this research was conducted during 30 days. The results of this research showed that adding earthworms during decomposition process could accelerate decomposition rate of organic matter. Organic matter with high content of water and nitrogen would be decomposed faster than other organic matters with low content of water and nitrogen. All treatments of cabbage had been decomposed perfectly in 10 – 18 days. The other organic matters (bamboo litter and rice straw) had been not decomposed perfectly in 30 days. The results of analysis of variance (ANOVA) showed that adding earthworms made a significant effect to phosphorous availability ($Pr(>F) = 0,0023$), ammonium ($Pr(>F) = 0,0174$), nitrate ($Pr(>F) = 0,0166$) and did not make a significant effect to potassium availability ($Pr(>F) = 0,41152$) in soil system.

Keywords: earthworms, decomposition rate, nutrient availability