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Effect of substrate on organic matter degradation by earthworms (*Pheretima posthuma*) on red yellow latosol soils

The earthworms *Pheretima posthuma* were studied in the laboratory to determine their effects on decomposition of different organic waste and paper wastes with or without

earthworms were arranged in a factorial experiment with 3 replicates. Representative samples were obtained from cultures at 15 days interval for 75 days period. The effect of organic matter content, nitrogen content, organic matter degradation and C: N ratio was studied. The earthworm clearly for substrate with and without earthworm after 60 days was 38.1% and 22.6% respectively for cow dung, 29.3% and 12.0% respectively for vegetable waste and 21.3% and 8.3% respectively for paper waste. Loss of carbon as percentage of initial carbon was significantly higher ($p<0.05$) in earthworm incorporated wastes compared to that of waste without earthworm. The decomposition was significantly lower in paper waste compared to that of cow dung and vegetable waste treatments. There was a significant increase in loss of carbon with time in all treatments. There was a significant increase in loss of carbon with time in all treatments however, the difference was not significant in loss of carbon content and C:N ratio of substrate. Earthworm enhanced the degradation of waste materials, cow dung vegetable waste degradated rapidly. Optimum duration for decomposition of cow dung and vegetable waste as accelerated by earthworm was 60 days.