

Saksan Phinkeaw 2012: Effects of Biodegradable Organic Wastes and Earthworm Species on Properties of Vermicompost for Marigold Planting. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Assistant Professor Kannika Sajjaphan, Ph.D. 81 pages.

Study of effects of biodegradable organic wastes and earthworm species on properties of vermicompost for marigold planting was divided into two parts. The first trial, using of three earthworm species, *Eudrilus eugeniae*, *Perionyx excavates* and *Pheretima peguana* to turn biodegradable organic wastes of leafy vegetable waste, tuber vegetable waste, fruit scraps and food scraps respectively into vermicomposts. The experimental design was 3x4 factorial in RCB with 3 replications. The finding results showed that the vermicompost produced by *Eudrilus eugeniae* and leafy vegetable waste had the highest OM content (45.58%). The all earthworm species have pH value at 5.8-7.5 and the highest total P_2O_5 (3.35%) when the fruit scraps and tuber vegetable waste were used for feeding respectively. The vermicompost from *Pheretima peguana* and fruit scraps had the highest K_2O content (1.67%) while the electrical conductivity was not significantly affected by all earthworm species and organic waste types. The second trial was to evaluate affect of vermicompost produced by *Eudrilus eugeniae* and *Perionyx excavates* species on growth and yield of marigold. The statistical design was using RCB with three replications. Fourteen fertilization rates consisted of no fertilization, vermicompost produced by *Eudrilus eugeniae* and *Perionyx excavates* species fed by leafy vegetable waste, tuber vegetable waste, fruit scraps and food scraps at 100, 150 and 200 g/pot of 8 kg soil respectively and chemical fertilizer of 16-16-16 at 20 g/pot were applied. The results indicated that vermicompost from *Eudrilus eugeniae* applied at all rates showed more effective in supporting growth and yield of marigold than no fertilization and chemical fertilization application. Moreover, the vermicompost from *Eudrilus eugeniae* showed better results in supporting growth and yield of marigold compared to *Perionyx excavates*.

Student's signature

Thesis Advisor's signature