

Peerada pongtong 2009: Study on Thermophilic Activity in Composting of Organic Garbage in Concrete Tank under Different Watering Periods. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Assistant Professor Suthep Thongpae, Ph.D. 95 pages.

The study on Thermophilic activity in composting organic garbage was done in concrete tank under different watering periods in order to investigate the suitable period of watering to provide appropriate moisture condition for the activity of bacteria, actinomyces and fungi. The study was conducted in CRD with 3 replications and 4 treatments of watering as follows: watering once per week (T_1), watering every week except at the first week (T_2), watering at the first week and follow by every two weeks (T_3), and no watering (T_4). This study was carried out during rainy season from May to June 2009. The results indicated that during the first two weeks which all treatments still contained high moisture content, bacteria (*Bacillus* sp.) showed the highest amount and activity in this period. Thereafter, from the third and the fifth week of composting, the amount and activity of actinomyces (*Streptomyces* sp.) and fungi (*Aspergillus* sp.) were increased respectively. The treatments which less or no watering (T_3 and T_4) seemed to show more activity of actinomyces and fungi. As for the characteristics and properties of compost from each treatment, the results showed no significant differences on organic matter content, pH and N in which the ranges were 24.49-26.58 %, 7.2-8.0 and 1.16-1.53 % respectively. However, the treatment with no watering tended to give the highest value of these parameters. Conversely, there were significant differences for moisture content, EC, P and K. The moisture content varied between 31.64 – 57.60 % and the lowest content was found in treatment with no watering. While EC, P and K were in the ranges of 0.46-0.79 dS/m, 0.13-0.21 % and 0.34-0.39 % respectively and the treatment with no watering gave the highest value of these parameters. From these results, the experiment can be concluded that the composting of organic waste with high moisture content during rainy season, no watering seems to lead more activity of thermophilic microorganisms and higher quality of compost than watering as compare to the standard of compost given by the department of agriculture.

Student's signature

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