Thesis Title A Study on Properties of Peat Compost Compared with Water Hyacinth Compost

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ABSTRACT

The composting of peat and water hyacinth, were studied. Peat samples were collected from conservation zone and development zone of Bacho swamp in Amphoe Ba-cho, Narathiwat province. Water hyacinth samples were collected from Maggasun marsh, Bangkok. Composting by using and non-using activator PD-1 and controlled temperature at 50°C along the composting period.

The objectives of the study are firstly to study the time requirement of peat compost and water hyacinth compost, secondly to compare decomposition rate of peat compost and water hyacinth compost and lastly, to

investigate physical,chemical and biological properties i.e. moisture content, pH, quantity of organic carbon, nitrogen, phosphorus, potassium, cellulose decomposing bacteria, cellulose decomposing actinomycetes and cellulose decomposing fungi.

The results indicated that the time requirement for peat compost was longer than 42 days while for water hyacinth compost was only 14 days. Decomposition rate of peat was lower than of water hyacinth. In the study of physical, chemical and biological properties, it was found that peat had suitable physical and biological properties for decomposition but not feasible chemical properties. Peat had only slightly decrease of carbon to nitrogen ratio (47:1 to 43:1 and 47:1 to 46:1, during 42 days of with and without activator PD-1, respectively) and low nitrogen, phosphorus and potassium content (1.10 % nitrogen, 0.05 % phosphorus, 0.02 % potassium and 1.04 % nitrogen, 0.05 % phosphorus, 0.02 % potassium, at 42 days of with and without activator PD-1,respectively). Meanwhile, physical, chemical and biological properties of water hyacinth were appropriate for making compost.

Efficiency of activator PD-1 accelerated the decomposition rate of peat but not of water hyacinth.

The results of the study suggested that it is not feasible to make compost from peat. Due to composting process uses a long time. For the further study, it should be appropriate activator in peat composting and also alternatives for peat utilization may have to be further sought, while water hyacinth ought to be promoted for agriculturist to be used as compost material.