

Parichart Man – on 2009: The Changes of Phorbol Esters Quantity during
Decomposition of Physic Nut (*Jatropha curcas* L.). Master of Science (Agronomy),
Major Field: Agronomy, Department of Agronomy. Thesis Advisor:
Mrs. Ponsiri Leewanich, Ph.D. 102 pages.

The purpose of this research was to study the changes of phorbol esters quantity during decomposition of the several parts of physic nut (*Jatropha curcas* L.) that were used for production of compost. The studies were carried out at research field of Agronomy Department, Faculty of Agriculture at Kamphaeng Saen, Kasetsart University, Kamphaeng Saen campus, Nakhonpathom during September 2007 to December 2008. Four treatments, stem and branch, hull, seed cake and mixed materials (stem and branch: hull: seed cake, 1: 1: 1), were arranged in completely randomized design (CRD) with 3 replications. The samples were randomly collected on 0, 4, 8 and 12 weeks after decomposing. It was found that phorbol esters content in the compost decreased with time. The phorbol esters at 0 week of seed cake compost was DHPB type at the highest content of 1.34 mg g^{-1} and mixed materials compost found TPA at the quantity of 0.82 mg g^{-1} , but after 12 weeks the phorbol esters content from all treatments in the compost were less than 0.11 mg g^{-1} . Only one type of phorbol esters, TPA, was found in the stem and branch and hull compost at 0.03 and 0.03 mg g^{-1} , respectively, while seed cake compost and mixed materials contain only DHPB type at 0.04 and 0.11 mg g^{-1} , respectively. After 12 weeks of decomposing, the temperature within stem and branch and hull compost decreased faster than that of the compost from seed cake and mixed materials. The organic matter in the compost from all treatments extremely decreased at 4 weeks after decomposing and it was stable after 8 weeks. Seed cake compost contained total nitrogen and total phosphorus at 3.29 and 5.51 %, respectively. Hull compost contained the highest total potassium and EC at 10.12 % and 16.06 dS m^{-1} , respectively. The C/N ratio of stem and branch composting decreased faster than those in the compost from other materials. It was 58.21 at 0 weeks and 19.46 at 12 weeks after decomposing.

Student's signature

Thesis Advisor's signature