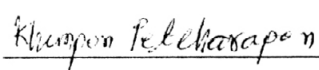


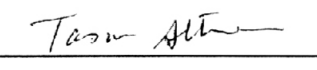
Khempon Petcharapon 2006: Decomposition and Mineralization of Humified Organic Fertilizer in Upland and Paddy Soils. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Professor Tasnee Attanandana, D.Agr. 62 pages
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Decomposition and mineralization of humified organic fertilizer in upland and paddy soils were studied. This study consists of 3 experiments. Exp.1: Investigation on nitrogen mineralization and CO₂ evolution of humified organic fertilizer(HF), sewage sludge(SW) and pellet chicken manure (CM) in Satuk soil were carried out under an incubation condition of 60% water holding capacity (WHC) for 3 months. The results showed cumulative N released from the HF, SW and CM of 23.8, 9.0 and 20.3% total N, respectively, and CO₂ evolution of 28.2, 6.9, and 39.6%total C, respectively.

Exp.2: Study on nitrogen mineralization of HF after being incubated with decomposing microorganisms in Roi-Et soil. The experimental treatments derived from combinations of 2 factors: Factor 1 is moisture levels at 1) submerged condition and 2) 60%WHC, Factor 2 comprises 1) no fertilizer, 2) HF, 3) HF + decomposing microorganisms. The results revealed that N mineralization of the humified organic fertilizer under 60%WHC and submerged conditions were not different with cumulative N released of 23.8 and 22.8%total N, respectively. Incorporation of decomposing microorganisms did not significantly affect N mineralization as compared with the treatment of no decomposing microorganisms incorporation.

Exp.3: Investigation on effect of decomposing microorganisms on nutrient release of HF in rice-cultivated Roi-Et soil was investigated in pot conditions. Chemical fertilizer was applied at 1.14-0.66-0.33 g N-P₂O₅-K₂O/12 kg soil. HF was applied at 119.76 g/12 kg soil or at the nutrient contents of 5.7-10.85-0.6 g N-P₂O₅-K₂O/12 kg soil. The decomposing microorganisms was added one gram a pot. The results showed that the application of HF + chemical fertilizer produced tiller and dry matter superior to the treatments where only organic fertilizer or chemical fertilizer was applied. The treatments of HF + chemical fertilizer + decomposing microorganisms, HF + chemical fertilizer, HF + decomposing microorganisms, HF only, chemical fertilizer only, and control produce rice tiller of 39, 39, 30, 29, 26, and 13 tillers/pot, respectively, and dry matter of 124, 120, 103, 95, 84, and 60 g/pot, respectively. In addition, the application of HF increased total soil nitrogen and extractable phosphorus contents of 1.7-2.7%N and 30-44 mgP/1kg soil, respectively, after harvesting but did not increase extractable soil potassium.


Student's signature


Thesis Advisor's signature

