Santiti Kaewsri 2006: Utilization of Wastewater Treatment Plant Sludge in Vegetable Garden Plot. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Chart Chiemchaisri, D.Eng. 140 pages.
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This research work examined the utilization of raw, digested and compost sludge from wastewater treatment plant in vegetable garden plot. Three vegetable plants were used, i.e. water convolvulus (*Ipomoea aguatica Forsk*), tomato (*Lycopersicon esculentum Mill*) and shallot (*Allium ascalonicum Linn.*). Sludge was added at a rate equal or double of that required for plant growth. The first experiment examined nitrogen mineralization rate of 3 sludges in laboratory and garden plot at sludge application rate of 0-37.7 and 0-18.9 ton/ha respectively. In laboratory scale experiment, the mineralization rate was determined as 44.6%, 38.0% and 20.3% of organic nitrogen in sludge whereas and they were 45.0%, 38.4% and 18.2% of organic nitrogen in plot experiment respectively. Subsequent experiment was conducted to investigate the effect from sludge application on vegetable growth. It was found that all three plants were growing well in plot with compost sludge application. However, adverse effect of raw and digested sludge on plant growth was observed. The accumulation of heavy metals, i.e. chromium and cadmium, in consumable part of plants were also studied. In experiment plot with chromium concentration of 100 mg/kg dry soil and cadmium concentration of 3 mg/kg dry soil, accumulated chromium were 471.0, 156.6 and 29.4 mg/kg dry weight whereas accumulated cadmium were found only in water convolvulus case at 23.9 mg/kg dry weight respectively.

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