

Uthaiwan Kanto 2009: Effect of Pig Manure Extract as Foliar Fertilizer and Soil Drench on Leaf Nutrient Content, Chlorophyll Content and Tuber Yield of Cassava *Manihot esculenta* CRANTZ cv. HUAYBONG 60. Master of Science (Economic Botany), Major Field: Economic Botany, Division of Science. Thesis Advisor: Associate Professor Kanapol Jutanmanee, D.Agr. 153 pages.

Pig manure extract (PME) is a source of plant nutrient. The purpose of the study was to compare the effects of PME as foliar fertilizer or soil application on cassava growth, yield and leaf nutrient content with chemical fertilizer application. The plants were subjected for five treatments as follows. 1. Control, 2. Chemical fertilizer 21-10-10, rate 40 kg/rai applied at 45 days after planting (DAP), 3. Foliar application of PME, 4. Soil application of PME, and 5. Foliar and soil application of PME. PME in both applications was done every month from 45 until 245 DAP. The plants were harvested at age 10 months.

The results showed that stem diameter, plant height, canopy size, chlorophyll a and b content, total chlorophyll content, leaf area index (LAI), fresh tuber yield and starch content of cassava with foliar application of PME was not significant different from no fertilizer treatment. Foliar and soil application of PME plants gave the fresh tuber yield of 12.73 tons/rai followed by those with soil application of PME, no fertilizer, foliar application of PME and chemical fertilizer application which produced 12.73, 12.64, 11.63, 11.07 and 10.26 tons/rai respectively. There were significantly different ($P < 0.05$) in chlorophyll a, chlorophyll b and total chlorophyll content among the fertilizer treatments 4 months after planting. The plants with foliar and soil application of PME showed the highest chlorophyll a, b and total chlorophyll contents at 4 months after planting. Soil and foliar applications of PME provided higher starch content of roots ($P < 0.01$) than those on the other fertilizer applications. The N, P, K and Cu concentration in index leaf trended to decrease during growth period except Ca and Mg which trended to increase toward harvesting. The concentration of Mn, Fe, Zn and S in index leaf fluctuated during growth cycle. There were no significant different in nutrient concentration in index leaf of cassava which was received foliar application compared to control treatment but Cu concentration in index leaf of this treatment was highest at 3 month after planting.

Student's signature

Thesis Advisor's signature