**Evaluate The Effect of Using Liquid Waste Biogas Systems Make from Rice Traw to macrobenthic nutrients(N-P-K) on Soil Rice Cultivation in Hau My Bac B, Cai Be, Tien Giang, Viet Nam**

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**Abstract**

Nowadays the conversion from conventional to organic agriculture, specifically for rice cultivation, greatly increases sustainability of agriculture. Therefore, mineral fertilisers should be partly replaced with organic fertilisers, e.g. by using of organic residues as liquid waste from biogas plants, which produces biogas from rice straw and cow dung. A field ex- periment was designed with three different mineral and organic fertiliser treatments (MF and OF), using different proportions of Nitrogen source: (1) 100 % mineral fertiliser, (2) 100 % bio-fertiliser, (3) 50 % mineral fertiliser plus 50 % bio-fertiliser, (4) 75 % mineral fertiliser plus 25 % bio-fertiliser. Experimental period from January to April 2018 in Hau My Bac B ward, Cai Be, Tien Giang, Viet Nam. Folloing parameters were determined Nitrogen­total(%), Potassiumtotal(%) and Phosphorustotal(%). The results showed that after the experiment, the Ntotal content in the soil was higher than intial (0.12%). Specifically, Ntotal value of mode 1 0.31%; value of Mode 2 and Mode 3 were 0.36% and the value of mode 4 is 0.18%. This suggests that, using fertiliser has increased the total nitrogen in soils, in which, mode 2 and mode 3 were the most efficient. For total phosphorus, the experiment showed that, total phosphorous was increased slightly total phosphorus(0.07% - 0.09%) compared to intial total phosphorous (0.06%). And the total value of Phosphorus is highest in mode 2 (0.09%). Before experiment, total potassium in soil was poor (0.07%). After experiment, the total potassium in soil was increased (0.086% - 0.104%) and the highest increase was in mode 2(0.104%). In general, the amount of macronutrients in the soil was improved in all treatments and mode 2 (Ntotal:0.36% - Ptotal:0.09% - Ktotal:0.104%), mode 3(Ntotal:0.36% - Ptotal:0.08% - Ktotal:0.089%) are two treatments that using bio-fetiliser has brought good effect.

**Keywords:** Bio-fertiliser, biogas, liquid waste Biogas systems, Macronutrients