

## Quality Improvement of Liquid Organic Fertilizer from Liquid Waste of Biogas Production

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Indonesia as one of the biggest agriculture country of the world needed fertilizer in big quantity every year. But in Indonesia, fertilizer has high prices and become rare. That's why the improvement of fertilizer production is needed and one of the answers is making liquid organic fertilizer from industrial wastes like organic liquid fertilizer from biogases digester. The purpose of this research is to utilize liquid waste from biogas production as raw material of liquid organic fertilizer, watched the effect of the bone meal and biofertilizer (*Azotobacter chroococcum* dan *Bacillus megaterium*) added to liquid organic fertilizer from liquid waste of biogas and compare the effect of liquid organic fertilizer, liquid organic fertilizer plus biofertilizer (*Azotobacter chroococcum* dan *Bacillus megaterium*), liquid inorganic fertilizer to the growth of test plant which we measure length and height of cabbage and peas. The raw material of this research was from liquid waste of biogas digester. The methods was added bone meal to liquid waste with 4%, 7% dan 10% w/w variables and mixed for a week. Next we filtered and aeration for four days. *Azotobacter chroococcum* as nitrogen fixing bacteria and *Bacillus megaterium* as phosphor solubilizing bacteria each 0, 5 and 10 ml/l added to liquid organic fertilizer (1 ml contain  $10^9$  bacteria). Condition of operation with pH range 6,5-7,5 and temperature range 25-30 °C. We analyze the nitrogen, phosphor and potassium content of raw materials before operation and liquid organic fertilizer on the end of operation. Result of the research are the biggest nitrogen content was from 5 ml *Azotobacter chroococcum* and 5 ml *Bacillus megaterium* variable meanwhile the

biggest phosphates content was from 4% w/w bone meal variable which is 370% and the biggest potassium content was from 7% w/w bone meal which is 640%.

Key word:liquid organic fertilizer, biogas digester, bone meal, Azotobacter chroococcum, Bacillus megaterium