

## **ABSTRACT**

This research was conducted to make the model predictions against biogas results obtained by using batch reactor type. The simulation of the process can use the Anaerobic Digestion Model No 1 (ADM1) using the initial concentration of glucose is 500 mgCOD/l and initial concentration of each microbes is 30 mgCOD/l for 106 hours. This research aims to know the profile of the kinetics reaction is involved, the determination of the accuracy of the simulation to experiment, the influences of the interval divider values to time simulation and the influence of the initial concentration of the substrate of glucose and microbial. The method used to modeling the biogas production is Runge Kutta Gill. The simulation results show that the methane produced from the process is 417,49250 mgCOD/l using interval divider values as much as 197.003. In addition, the amount of microbial concentration of glucose is the biggest to compared the other microbes, that are 77,66615 mgCOD/l. Parameter values suggested in ADM1 only suitable for simulation biogas production less than 29 hours. The initial concentration of the substrate of glucose and microbes have an effect to obtained the methane production. But at the initial concentration of microbes more than 30 mgCOD/l will produce the concentration of methane that is likely to be constant

Keyword : Biogas, ADM1, Runge Kutta Gill Methods