Abstract

In this study described the results of a predictive model of biogas production using a batch-type reactor. In this study, the main substrate in the production of biogas is a glucose substrate which has a value of the initial concentration of 500 $gCODm^{-3}$ and a biogas production carried out for 106 hours. In this study also described the substrate concentration and microbes involved in the planning of the anaerobic, determining the accuracy of the results of the concentration of methane in the simulation and the experiment has been done on the study of reference [2], the influence of the value of the divisor interval versus time calculation process, and also the influence of the initial concentration of glucose and microorganisms on the results of the methane concentration. In predicting the production of biogas we need a model that is Anaerobic Digestion Model 1 (ADM1) because in the model ADM1 include particle disintegration kinetics of carbohydrates, proteins, lipids, hydraulic, and amino acids. To get the high accuracy models have used numerical methods Milne-Simpson Predicor-Corrector. Modeling results methane content of biogas production on this research trend has increased in value until it reaches the concentration 417.51573 $gCODm^{-3}$ and the concentration of microbes is the largest of the production of microbial concentration of glucose reached 77.67351 $gCODm^{-3}$.

Keywords: Biogas, ADM1, Method Milne-Simpson Predictor-Corrector.