Abstract

The aim of the study was to examine the biogas and methane yield of one species: maize silage which is a wastes in agricultural point of view and compare it to the biogas productivity of commonly used mixture of maize silage and mixed fodder with water. The lab scale experiments was carried out in the anaerobic digester in order to determine the composition of biogas and their efficiency. The gas samples which are collected through gas balloons was used to the laboratory for determination of composition of biogas by using gas chromatography and biogas 5000 analyser. A study on the anaerobic digestion of maize silage was undertaken. Maize silage and mixed fodder were shredded and mixed in water ratios ranging from 2:1 to 3:1 (water to wastes).

In this study, the evaluation of biogas production potential from agricultural wastes: maize silage was investigated. The experimental study was carried out into 2 parts. Firstly, the batch experiment was conducted in Mesophilic conditions (35°C), at five different hydraulic retention times (HRT): 6 days, 11 days 20 days 29 days and 41 days. The results revealed that maize silage was generated the highest biogas yield of 537 mL /241 mL at the HRT of 6days /41 days .Mixed fodder produced the highest biogas yield of 421 mL at the HRT of 6^{th} days and the lowest one was 252 mL at the HRT of 20^{th} days. Finally, the methane, carbon dioxide, hydrogen sulphide and other composition yield of biogas produced from maize silage and mixed fodder were analyzed using a gas chromatography. The results shown that biogas from maize silage precedes the gas less than the mixed fodder. In the field level experiment proved that from mixed fodder produced gas which would be enough for 7members family used 3 months for the purpose of their cooking.

Keywords: Biogas, Agricultural Wastes, Maize Silage, Gas Production.