

Enhancement of Bio-methane Production Yield from Rumen Digesta by Co-digestion Process

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Abstract

In the next few decades energy crisis will be faced by the world at a great extent due to diversified use of non-renewable energy (fossil fuel). Resulting, it is high time to think about alternative source of fossil fuel. In this regard, biogas a renewable and effective energy source which can be a great replacement of fossil fuel can be produced through anaerobic digestion is one of the best options for rumen digesta management which will lead to production of energy-rich biogas, reduction in GHGs emissions and effective pollution control in butchery. The study was investigated to enhance biogas production from rumen digesta by anaerobic co-digestion process at mesophilic condition. The experiment was carried out in 3000 ml batch type digester. The mixing ratio used was 1:1 for 40 days hydraulic retention time. Produced gas was measured by water replacement method. The result showed that co-digestion of rumen digesta with vegetables increased the biogas production. The maximum biogas generation from rumen digesta of chicken and goat, cow and chicken, cow and goat and co-digestion of four substrates were 93.5, 131.1, 36.1, and 107.2 ml/day at the 14th, 13th, 24th, and 7th day respectively. The average biogas generation was found for the above samples were 3.35, 96.80, 11.09, and 137.12 ml/day respectively. The higher cumulative production of biogas was found from co-digestion of rumen digesta with vegetables. Therefore, the study is suggested that optimum co-digestion mixing ratio which produced biogas might be holds promise for the future energy crisis recovery.

Technology, Bangladesh Agricultural University, Mymensingh, Bangladesh in 2004 and 2007 respectively, which was established with academic support from the Texas A&M University during 1961. Dr Al Mamun is an ASSOCIATE PROFESSOR in the Department of Farm Power and Machinery, Faculty of Agricultural Engineering and Technology in Sylhet Agricultural University, Sylhet, Bangladesh. Prior to this position, he worked as an ASSISTANT PROFESSOR AND LECTURER for the same University and AGRICULTURAL ENGINEER at the Department of Agricultural Extension in Ministry of Agriculture, Dhaka, Bangladesh.

Speaker Publications:

1. "Present Status of Manufacturing and Importing Agricultural Machinery in Bogura" Journal of Advanced Agricultural Technologies/2020/ 7(1):14-19.
2. "Enhancement of bio-methane production yield from rumen digesta with biodegradable kitchen wastes by co-digestion process"
3. "Application of Advanced Back Propagation Algorithm in Electric Load Forecasting" Journal of Mathematics and Statistical Science (ISSN 2411-2518), Vol.6, 95-102
4. "Present livelihood Status of Farmers Following Technological Development in Some Selected Areas of Sylhet Division"; Journal of Advanced Agricultural Technologies/ 2019/ Vol 6, Issue no-4.

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Biography:

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