

ABSTRACT

Most biogas plants' poor performance may be attributed to inadequate stirring strategy. The study evaluated the effect of stirring intervals on biogas production from cow dung and maize silage mixture (at mixed ratio 3:1) digested in a 0.15m³ laboratory digester at 30°C. SIEMENS LOGO PLC and ATV12HU15M2 Drive automatically controlled the stirring of 100 rpm for 3minutes at intervals of 1hour, 2hours, 6hours and 12hours with no stirring as control. The stirring intervals showed a significant effect on biogas production ($P \leq 0.05$) with 6hours and 12hours increased biogas by 3.11% and 1.48%, and the methane increase of 8.77% and 1.75%, respectively. The 2hours and 1hour reduced biogas by 26.5% and 39.35%, and methane decreased by 3.52% and 15.79%, respectively compared to control (implying that the frequent stirring is not good for biogas). The stirring interval of 6hours is thus recommended for 0.15m³ laboratory batch reactor of cow dung and maize silage