

Efficient Production of Methane from Cow Dung by External Voltage Supply

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Methane is the active component of biogas. Research has shown that methanogens can use supplied voltage to acquire the electrons for better the production of methane from CO₂. In this process, methanogens reduce CO₂ to CH₄ utilizing electrons from externally supplied voltage on integrating with anaerobic digestion. Microbial electrochemical cells (MEC) was developed employing

biocompatible fibrous graphite electrodes. Cow manure was assessed for the anaerobic digestion combined with MEC. The objectives of the study were to use manure waste and to enrich methane in biogas even at low temperature condition. The biogas produced contains mainly methane, hydrogen sulphide and carbon dioxide. The maximum gas production was at 37°C. However, biogas could be produced at 18°C with supply of 2V external power. There was found 65 times increment in biogas production with external power supply at 18°C. Besides methanogens, two other bacterial species identified were *Serratia liquefaciens* and *Zobellella taiwanensis* respectively.

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