

Analysis of Generated Biogas from Anaerobic Digestion of Piggery Dung

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Abstract : The use of energy is paramount to human existence. Every activity globally revolves round it. Over the years, different sources of energy (petroleum fuels predominantly) have been utilized. Animal waste treatment on the farm is a phenomenon that has called for rapt research attention. Generated wastes on farm pollute the environment in diverse ways. Waste-to-bioenergy treatments can provide livestock operators with multiple value-added, renewable energy products. The objective of this work is to generate methane (CH₄) gas from the anaerobic digestion of piggery dung. A retention time of 15 and 30 days and a mesophilic temperature range were selected. The generated biogas composition was methane (CH₄), carbon dioxide (CO₂), hydrogen sulphide (H₂S) and ammonia (NH₃) using gas chromatography method. At 15 days retention time, 60% of (CH₄) was collected while CO₂ and traces of H₂S and NH₃ accounted for 40%. At 30 days retention time, 75% of CH₄, 20% of CO₂ was collected while traces of H₂S and NH₃ amounted to 5%. For on and off farm uses, biogas can be upgraded to biomethane by removing the CO₂, NH₃ and H₂S. This product (CH₄) can meet heating and power needs or serve as transportation fuels

Keywords : anaerobic digestion, biogas, methane, piggery dung

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