ANAEROBIC DIGESTION OF MARKET GARBAGE AND PADDY STRAW AS AN OPTION TO PRODUCE EFFICIENT BIOGAS AND FERTILIZER WHILE ACTING AS AN ENVIRONMENTAL FRIENDLY TECHNIQUE TO MANAGE SOLID WASTE.

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Present research is a search of possible avenues in biogas technology to obtain biogas from agricultural wastes such as paddy straw and market garbage to prevent environmental pollution while using biogas to compensate rural energy needs and residues as a fertilizer.

The objectives of the study were to analysis the chemical composition of market garbage and paddy straw and assess the gas production pattern and the volume in biomethanation of market garbage and paddy straw. Two Sri Lankan batch type biogas digesters were used with a volume of $5m^3$ and charged with market garbage and paddy straw.

Carbon, Nitrogen, Potassium and Phosphorous in raw materials were analyzed. Daily gas liberation in each digester was measured. Dry matter percentage of market garbage and paddy straw were 19.27% and 85.69% respectively. The carbon, nitrogen, potassium, phosphorus and C: N ratio of market garbage was 34.66%, 1.57%, 1.66%, 0.311%, and 22.07 respectively. In paddy straw, carbon, nitrogen, potassium, phosphorus and C: N ratio was 46.8%, 0.69%, 0.098%, 0.16% and 67.82 respectively. Total gas production from market garbage and paddy straw were164.20 $m^3$and 156.20 m^3 during the 228 days and 142 days respectively. Average daily gas productions of market garbage and paddy straw were $0.72m^3$ and 1.10 m^3 respectively.