

Enhancing of Biogas Production from Slaughterhouse and Dairy Farm Waste with Pasteurization

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Abstract : Wastes from slaughterhouses in most towns in Sudan are often poorly managed and sometimes discharged into adjoining streams due to poor implementation of standards, thus causing environmental and public health hazards and also there is a large amount of manure from dairy farms. This paper presents solution of organic waste from cow dairy farms and slaughterhouse the anaerobic digestion and biogas production. The paper presents the findings of experimental investigation of biogas production with and without pasteurization using cow manure, blood and rumen content were mixed at two proportions, 72.3% manure, 21.7%, rumen content and 6% blood for bio digester1 with 62% dry matter at the beginning and without pasteurization and 72.3% manure, 21.7%, rumen content and 6% blood for bio-digester2 with 10% dry matter and pasteurization. The paper analyses the quantitative and qualitative composition of biogas: gas content, the concentration of methane. The highest biogas output 2.9 mL/g dry matter/day (from bio-digester2) together with a high quality biogas of 87.4% methane content which is useful for combustion and energy production and healthy bio-fertilizer but biodigester1 gave 1.68 mL/g dry matter/day with methane content 85% which is useful for combustion, energy production and can be considered as new technology of dryer bio-digesters.

Keywords : anaerobic digestion, bio-digester, blood, cow manure, rumen content

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