ANALYSIS AND EXTRACTION OF PURE METHANE FROM BIOGAS PRODUCED USING BIODEGRADABLE WASTE OF CITY MARKET AND PRODUCTION OF ELECTRICITY USING IC ENGINE AND EXTRACTED PURE METHANE AS FUEL

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A PROJECT REPORT

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ABSTRACT

With environmental issues such as the greenhouse effect and correct waste disposal methods gaining much attention throughout the community, the concept of controlled anaerobic digestion is perhaps a much overlooked example of a way to reduce greenhouse gas emissions and provide a better waste disposal method for organic waste.

Waste management problem has raised a huge attention from many authorities. Besides that, non-renewable energy depletion caused awareness to the society on curbing the issue. Due to these current issues, biogas production from municipal waste was being introduced. The method to produce the biogas was anaerobic digestion. Anaerobic digestion is a digestion process of organic wastes without the presence of oxygen. A lab scale anaerobic digester was designed and built using HDPE. Methane production from municipal waste was conducted. The digestion process was done by the aid of inoculums which was cow dung as the amount of methanogens is high.

Biogas is a clean environment friendly fuel. Raw biogas contains about methane (CH_4), carbon dioxide (CO_2), traces of hydrogen sulfide (H_2S) and fractions of water vapour. Presently, it can be used only at the place where it is produced. There is a great need to make biogas transportable. This can be done by compressing the gas in cylinders which is possible only after removing its CO_2, H_2S and water vapour components. There are many methods to upgrade biogas which are currently in practice. But these methods are uneconomical. There is a lot of potential if biogas could be made viable as a transport vehicle fuel like CNG by compressing it and filling into cylinders after scrubbing and drying. Thus the need emerges for a unified approach for scrubbing, compressing and subsequent storage of biogas for wider applications.This project is an effort to improve the quality of biogas by scrubbing CO_2, removing H_2S and by removing water vapour to run a petrol engine using upgraded biogas as fuel and to generate electricity by using Puttur town waste as source of biogas digester.