Case study of biogas production from various feedstocks

Shivani¹ and Bashir Misbah^{2*}

¹Department of Civil engineering, Lovely Professional University ²Department of Environment Engineering, Lovely Professional University, Phagwara 144 411, Punjab, India

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ABSTRACT

Waste is one of the foremost and environmental anxieties in most of evolving countries. In rapidly developing world problems and issues of waste are increasing day by day. The objective of this paper is to give the insight details of different wastes which can help in the production of biogas. It has been perceived from past few researches that biogas production can be increased efficiently. This paper gives an overview about the biogas production by using different substrates and methods to overcome from the problem of pollution caused by waste. Biogas is generated by the bioconversion of treated and untreated biomass under solid state fermentation. Biogas does not have limitations nor does it require advanced technology for producing energy. An attempt is made to compare the biogas formation from different wastes used as a feedstock. Most of the researches were done before using these as a feedstock so in this paper some of the results are analyzed and discussed as biogas production is the economical as well as the easiest way to utilize the waste and convert into energy solutions.

Key words : Biogas, Feedstock, fermentation.

Introduction

There has been an enormous increase in the global demand for energy in the recent years due to our increasing demands as well as new living standards. Supply of energy is far more less than the actual demand. This demand supply gap indicates the growing energy crisis in various fields such as oil shortage, coal shortage, power shortage etc.

In India there is emerging shortage of various non renewable resources as 65% of power generation in India is done with the help of oil, coal etc. Hike in petrol and diesel prices is due to the excessive unnecessary use. Power is used for every little work such as cooking, heating and water supply.

There are many ways through which energy is being produced, biogas is one of them which is generated by anaerobic digestion of various materials such as cow dung, vegetable remains, animal remains, leftover foods etc.

It is in the form of various gases like methane, carbon dioxide, nitrogen, hydrogen, hydrogen sulfide, oxygen etc. produced by the fermentation of organic matter as discussed and their values are shown below in the table in which they are present. Biogas can be used in different ways such as for power production, heating, cooking gas, in vehicle transportation etc. Various concentrations of biogas components as discussed above are summed up in the table given below

Environmental impacts of wastes

• Wastes produced from different industries are dumped on fertile lands or in the water bodies

^{*}Corresponding author's email : shivanibhardwaj2210@gmail.com; misbahbashir121@gmail.com