



**SREYAS INSTITUTE OF ENGINEERING AND
TECHNOLOGY**

HYDERABAD

REPORT ON

**One day Guest Lecture on
Enhancement of Bio-Methane Production from Bio-
Degradable Kitchen Waste
(26-09-2019)**

Organized by

DEPARTMENT OF MECHANICAL ENGINEERING



SREYAS

INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi | Affiliated to JNTUH, Hyderabad | Accredited by NAAC)Hyderabad | PIN: 500068

24-09-2019

CIRCULAR

This is to inform all staff and students that, Department of Mechanical Engineering is organizing a one day Guest Lecture on “**Enhancement of Bio-Methane Production from Bio-Degradable Kitchen Waste**” on 26-09-2019.

So, All Mechanical staff and students requested to attend the guest lecture and get benefited.

A. O. K.
HOD

Copy to:

1. Chairman's desk
2. Secretary desk
3. Principal

Some of the important aspects of the Lecture

Guest Lecture was delivered by Dr. Muhammad Rashed Al Mamun. Dr. Rashed sir is faculty of Department of Farm Power and Machinery, Sylhet Agricultural University, Bangladesh. He has been working extensively on bioenergy, solar energy, agricultural machinery, precision agriculture, remote sensing, image processing, solid wastes management.

This guest lecture is focused on enhancement of biogas production from rumen digesta by anaerobic co-digestion process.

Exhaustion of fossil fuels and the global warming situation are strong motivating factors for alternatives fuels research. Many countries are showing their interest in sustainable renewable energy sources, one such energy source is biomass energy. Biomass energy is environmentally friendly and requires less production energy. Various biomasses derived from the carbonaceous waste of human, animals and natural resources could be utilized as renewable energy resources. Rumen digesta is mainly animal waste is useful to produce renewable energy. The environmental pollutions can be prevented by recycling rumen digesta. One of the key methods to recycle rumen digesta is to produce biogas as a renewable energy source and can also produce bio-fertilizer and feeder by recycling rumen digesta.

Biogas can be defined as a mixture of different gases which are produced by the breakdown of organic matter in the absence of oxygen in closed system is called an anaerobic digester, biodigester or a bioreactor. Biogas a gaseous mixture which is mainly composed of methane and carbon dioxide through the concerted action of a close-knit community of bacteria. The process of biogas production is divided into four steps. Hydrolysis is a reaction with water.

Acid and base are used to accelerate the reaction, and this is also occurring in enzymes. The cellulose, starch, and simple sugars can be broken down by water and enzymes. During acidogenesis, soluble monomers are converted into small organic compounds, such as short chain (volatile) acids (propionic, formic, lactic, butyric, succinic acids, ketones (glycerol, acetone), and alcohols (ethanol, methanol). The acidogenesis intermediates are attacked by acetogenic bacteria; the products from acetogenesis include acetic acid, CO₂, and H₂. The last phase of anaerobic digestion is the methanogenesis phase. Several reactions take place using the intermediate products of the other phases, with the main product being methane.

Procedure for collection of raw material, sample preparation and production of biogas from several combination of animal waste were analysed.

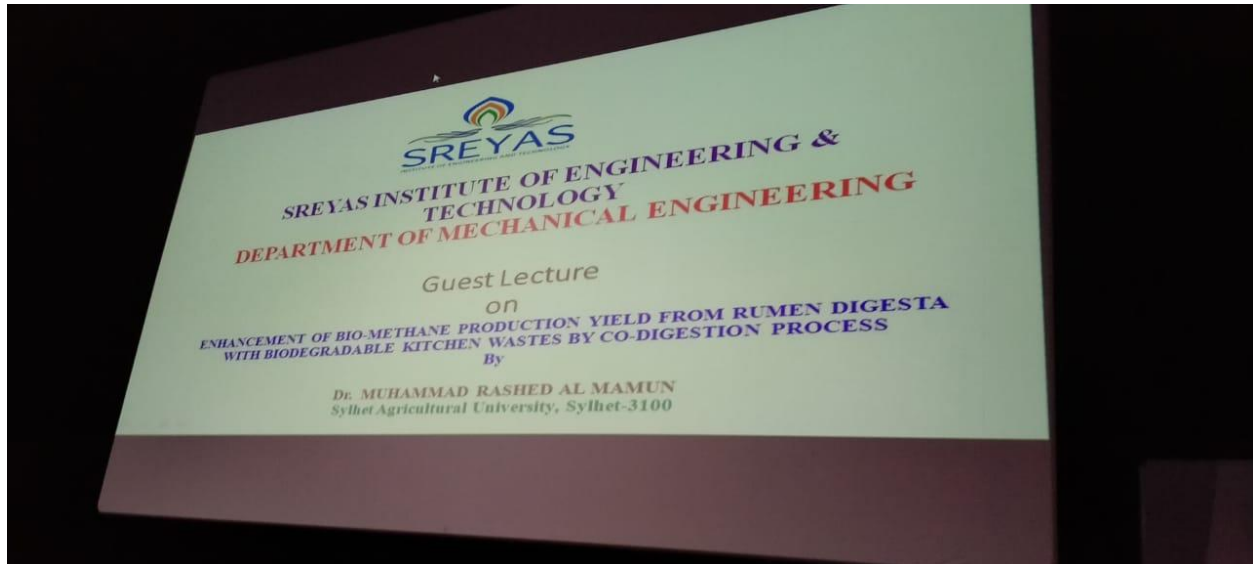


Figure : Dr. Muhammad Rashes Al Mamun sir starting the guest lecture



Figure: Participants assembled at the auditorium for the guest lecture



Figure: Department of Mechanical Engineering faculty with the guest speaker Dr. Al Mamun sir.