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BIOGAS PRODUCTION AND IT'S ADVANTAGES

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INTRODUCTION

B iogas is the mixture of gases produced by the breakdown of organic matter. Biogas is produced by the anaerobic digestion of organic matter. Anaerobic digestion means the breakdown of organic matter through the microorganism such as bacteria in the absence of Oxygen. Biogas is renewable energy source and an environment friendly it does not harm to ecosystem. Biogas consists of many gases mainly Methane (CH₄) and Carbon dioxide (Co₂) and low amount of other gases such as Nitrogen etc. It is produced by the decomposition of organic matter through the microorganism (organic matter such as food waste, animal waste etc.)

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The process of biogas formation is done in artificial or manmade biogas plant which is constructed in various size and shape. The size depend on the quantity and amount of biomass available and the type of organic waste to be decomposed. Biogas is also known as Gobar gas in India, it is commonly used as cooking in rural areas and also used for electricity, drying, water heating etc. Through which biogas reduce the household expenses.

PREPARATION OF BIOGAS: -



The process of making biogas is simply describe through three tanks-



1) Mixing Tank



2) Digester Tank



3) Outlet Tank

For production of biogas there is mainly two things needed Cow dung (animal waste) and water. First of all, cow dung and water are mixed well in the mixed tank, the quantity of both should be equal then it is put or transfer into the digester tank through the inlet pipe, than the product there start to breakdown or decompose by anaerobic bacteria. Digested sludge or waste contain an association of anaerobic fermentation and methanogenic bacteria producing CO_2 and Methane, then the gas start to form there, which we known as biogas. Biogas is transferred through the biogas outlet pipe to the kitchen or for other uses (a picture given below). Now after the gas formation the slurry that remain at digester tank is transferred to the outlet tank through the outlet pipe, the slurry is stored and collected in the outlet tank or any area which is prepared by the owner. That stored slurry is transferred from there to the field in the month of May or June.



Biogas in Kitchen

Bio slurry or Biogas Digested Slurry play a vital role in Organic Agriculture. Biogas slurry is the source of nutrient for eco-friendly agriculture. It is widely rich in micro and macro nutrient that is required to the plant and essential for plant. In rural areas the digested biogas slurry widely used as bio fertilizer. Farmer also use the bio slurry in their farm for the improvement of soil fertility and it also increase the productivity. Biogas plant produce two main product first is fuel as biogas and fertilizer as slurry.

ADVANTAGES: -

- It is low-cost technology.
- Produce good quality manure to Improve soil fertility.
- Eco-friendly and reduce soil and water pollution.
- Biogas reduce the household expenses.
- Biogas produce in reached organic manure.
- Biogas is used in Cooking, Lighting, used for generate electricity etc.
- It's heating capacity is high.