

ATOMIC ENERGY CENTRAL SCHOOL

SUBJECT: BIOLOGY

CLASS: XII

MODULE = 5/7

UNIT- VIII

CHAPTER-10-MICROBES IN HUMAN WELFARE

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Biogas is a mixture of gases like Methane, Carbon dioxide, Hydrogen sulphide and Hydrogen, produced by the microbial activity and which may be used as fuel.

Animal excreta, food scraps, wastewater, and sewage etc. are organic matter that can produce biogas by anaerobic digestion. Microbes produce different types of gaseous end-products during growth and metabolism. Certain bacteria, which grow anaerobically on cellulosic material, produce large amount of methane along with  $\text{CO}_2$ , Hydrogen sulphide and Hydrogen gas. These bacteria are collectively called methanogens, and one such common bacterium is Methanobacterium. These bacteria are commonly found in the anaerobic sludge during sewage treatment.

Methanobacteria are also present in ruminants digest cellulose anaerobically and produce biogas. The dung of cattle, commonly called gobar, is rich in these bacteria is used for generation of biogas, commonly called gobar gas.

The biogas plant consists of a concrete tank (10-15 feet deep) in to which bio-wastes are collected. This is called as a digester. Surry is fed into it through an inlet. A floating dome shaped cover called gas holder is placed over the digester, which

keeps on rising as the gas is produced in the tank due to the microbial activity. The biogas plant has an outlet from the top of the floating cover or gas holder, which is connected to a pipe to supply biogas to nearby houses. The digested slurry is removed through another outlet. This is called sludge.

Biogas is a renewable. It is a clean, source of energy. Gas generated through biodigestion is non-polluting.

The technology of biogas production was developed in India mainly due to the efforts of Indian Agricultural Research Institute (IARI) and Khadi and Village Industries Commission (KVIC)

## REFERENCE

- 1) NCERT TEXT BOOK FOR CLASS XII, BIOLOGY
- 2) TODAR,S ONLINE TEXTBOOK OF BACTERIOLOGY, BY KENNETH TODAR
- 3) MODERN'S ABC BY Dr. B B ARORA & A K SABHARWAL
- 4) GOOGLE IMAGES
- 5)WIKIPEDIA