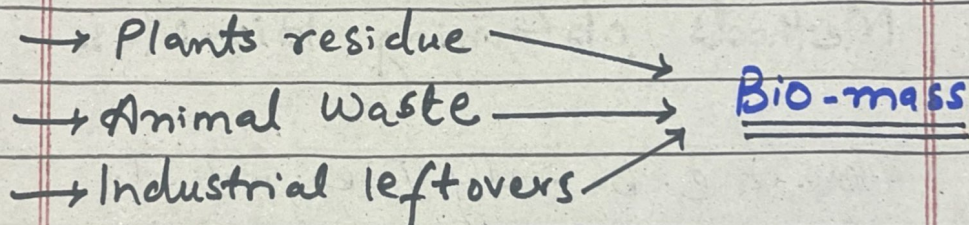


Differentiate between bio mass and biogas. Briefly explain various methods for obtaining bio mass.

Answer :-

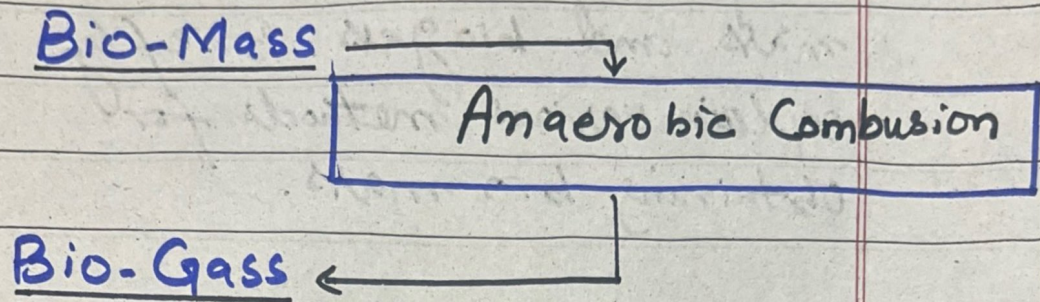
- 1) **Bio-mass:** It is raw organic matter used in various process to obtain energy by replacing fossil fuels.



Bio-mass is an alternative renewable to fossil fuel combustion, with more sustainability.

- 2) **Bio-Gas:** Bio-Gas is a by-product of bio-gas obtained from a specific method called Anaerobic Combustion of bio-mass.

Process of Conversion



Summary: In simple Bio-mass is a raw organic energy form while Bio-gas is the by product of Bio-mass.

3) Methods ^{for} obtaining Bio-Mass

There are basically five methods of obtaining Bio-mass which are:

- 1) Direct Combustion: It is a process of Combustion raw organic matters like plants waste for energy and mechanical usages.

Uses: Kitchen Uses, Mechanical and Industrial uses:-

Example: Rural areas in Pakistan

Uses animal dung after dry process to burn for energy requirements. Cooking, heating, and electricity needs are fulfilled by Direct Combustion.

2) Anaerobic Combustion Method

It is a process of heating biomass in very high temperature with low-oxygen support to obtain bio-gas mainly Methane (CH_4).

Uses: For kitchen needs, industrial and mechanical support.

3) Gasification: Process of obtaining matter called "syngas" by heating bio-gas at very high temperature without oxygen support.

4) Fermentation:- Process of making "Ethanol" by heating bio-mass at very high sensitive place and less oxygen.