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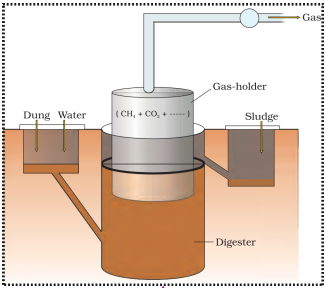
Class : 12th Biology
Chapter- 10 : Microbes in Human Welfare



Bacteria involved is Methanobacterium

Microbes in Production of Biogas

Microbes in Human Welfare

Microbes in household products

- Saccharomyces cerevisiae
- Lactobacillus Or LAB
- Propionibacterium sharmanii
- Curd
- Bread
- Toddy
- Swiss Cheese

Microbes as biocontrol agents

- Bacillus thuringiensis: Control butterfly caterpillar
- Tichoderma sp.
- Baculoviruses (esp. genus Nucleopolyhedrovirus): Controls insect and arthropods

Microbes in Industrial Products

- Organic acids
- Fermented beverages
  - Saccharomyces cerevisiae
- Enzymes
  - Lipases
  - Pectinases and proteases (To clarify bottels juices)
  - Streptikinase (Streptococcus- used as clot buster)
- Antibiotic Penicillin
  - Penicillium notatum
- Bioactive molecules
  - Aspergillus niger Acetobacter aceti Clostridium butylicum Lactobacillus (a fungus): Citric acid (a bacterium): Acetic acid (a bacterium): Butyric acid (a bacterium): Lactic acid
  - Statins- Monascus purpureus used as blood-cholesterol lowering agents
  - Cyclosporine A- Trichoderma polysporum used as an immunosuppressive drugs

Microbes as bio-fertilizers

- Fungi
  - Mycorrhiza- Association of Glomus with plants
- Cynobacteria
  - Symbiosis: Anabaena in Azolla
  - Free living: Nostoc, Oscillatoria and blue green algae
- Bacteria
  - Rhizobium (Symbiotic bacteria)
  - Azospirillum and Azotobacter (free living bacteria)

Microbes in Sewage Treatment

- Secondary Sewage Treatment
  - Involves removal of coarse solid materials
- Primary Sewage Treatment
  - Involves the action of microbes

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