

SRI BHARATHI ARTS AND SCIENCE COLLEGE FOR WOMEN
(Affiliated to Bharathidasan University)

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DEPARTMENT OF BIOTECHNOLOGY
CLASS – I B.Sc., BIOTECHNOLOGY
SUBJECT - APPLIED MICROBIOLOGY

SUB.CODE:16SACMB2

1. Isolation

Isolation is one of the aspects which make bio-separations unlike commodity chemical separations. Isolation involves taking a highly dilute aqueous feed and removing most of water. The resulting concentrate can be purified by a variety of methods

2. Upstream process:

The Upstream process defined as the entire process from early cell isolation and cultivation, to cell banking and culture expansion of the cells until final harvest.

3. Fermentation

Fermentation is the process in which a substance breaks down into a simpler substance. Microorganisms like yeast, bacteria usually play a role in the fermentation process

4. Strain improvement

The science and technology of manipulating and improving microbial strains, in order to enhance their metabolic capacities for biotechnological applications are referred to as strain improvement

5. Sterilization

Sterilization is essential for preventing the contamination with any undesired microorganisms.

6. Catabolism

Catabolism includes all reactions that result in the breakdown of large organic molecules into simpler ones (usually involving the release of energy, i.e. are exergonic).

Example: Glycolysis is the catabolic breakdown of glucose that releases energy

7. Chemolithotrophy

Chemolithotrophs are organisms that obtain energy from the oxidation of inorganic compounds. Although lacking photosynthetic pigments, they use CO₂ as their sole carbon source. Most chemolithotrophic bacteria are also autotrophs.

8. Photosynthesis

Photosynthesis is the conversion of light energy to chemical energy, Phototrophs carry out photosynthesis. Most phototrophs are also autotrophs. Photosynthesis requires light-sensitive pigments called chlorophylls. Photoautotrophy requires ATP production and CO₂ reduction

9. Polymers

A longer a larger molecule consisting of or network of many repeating units, formed by chemically bonding together many identical or similar small molecule called monomers when small organic molecule are joined together can form giant molecules or polymers.

10. Hydrocarbons

A hydrocarbon is an organic molecule that consists of carbon and hydrogen atom. They are interconnected by covalent bonding. A host of bacteria can also use other hydrocarbons like alkenes, cyclic and aromatic compounds.

11. Food poisoning:

The illness resulting from eating food or drinking water containing poisonous substances including bacteria, viruses, pesticides, or toxins. Symptoms generally begin within 2 to 6 hours and include abdominal cramping, diarrhea, fever, headache, nausea, vomiting, and weakness.

12. Food toxins:

Food toxins are natural substances covering a large variety of molecules, generated by fungi, algae, plants, or bacteria metabolism with harmful effects on humans or other vertebrates even at very low doses

13. Drying:

Drying is a method of **food preservation** in which **food** is **dried** (dehydrated or desiccated). **Drying** inhibits the growth of bacteria, yeasts, and mold through the removal of water

14. Food additives:

Food additives are substances added to food to preserve flavor or enhance its taste, appearance, or other qualities. Some additives have been used for centuries; for example, preserving food by pickling, salting, as with bacon, preserving sweets or using sulfur dioxide as with wines

15. Food safety:

Food safety refers to the proper handling, cooking, and preservation of **food** in order to protect people from food borne illnesses caused by microbes such as bacteria, fungi, parasites, and viruses.

16. Antibiogram

A profile of the antimicrobial resistance and susceptibility of a particular microorganism. A laboratory procedure in which samples of a bacterium are treated with a variety of antibiotics.

17. *E.coli*:

Escherichia coli, also known as *E. coli*, is a Gram-negative, facultative anaerobic, rod-shaped, coliform bacterium of the genus *Escherichia* that is commonly found in the lower intestine of warm-blooded organisms

18. Hepatitis:

Inflammation of the liver, irrespective of the cause. Hepatitis is caused by a number of conditions, including drug toxicity, immune diseases, and viruses. There are several types of viral hepatitis, the most common of which are hepatitis A, B, and C

19. Mycosis

Mycosis is a fungal infection of animals, including humans. *Mycoses* are common and a variety of environmental and physiological conditions can contribute to the development of fungal diseases.

20. *Entamoeba histolytica*

The agent of amebic dysentery, a disorder with inflammation of the intestine and ulceration of the colon. *Entamoeba histolytica* is a single-celled parasite that is transmitted to humans via contaminated water and food. It can also infect the liver and other organs

21. Biofertilizer

A biofertilizer (also bio-fertilizer) is a substance which contains living micro-organisms which, when applied to seeds, plant surfaces, or soil, colonize the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary nutrients to the host plant

22. Microbial leaching

Bacterial leaching is the extraction of metals from their ores using microorganisms. Microbial technology offers an economic alternative for the mining industry, at a time when high-grade mineral resources are being depleted

23. Biogas

Biogas is methane gas produced from organic material such as leftovers, sewage sludge, manure and plants. Biogas is formed when the material is broken down by microorganisms in an oxygen-free environment. This process is called digestion and takes place in a digester.

24. Biodegradation

Biodegradation is the process by which organic substances are decomposed by microorganisms (mainly aerobic bacteria) into simpler substances such as carbon dioxide, water and ammonia

25. Waste water treatment methods

- Physical water treatment,
- Biological water treatment,
- Chemical treatment, and
- Sludge treatment