

# CHAPTER – 2 (CH-2)

WK -2 SCIENCE

## MICRO-ORGANISMS

Organisms can be seen only under the microscope are called **microorganisms**. They exist in vast numbers all around us – in the air, soil, water bodies, and even inside our bodies. They can survive in all kinds of environment – in deserts, polar regions, seas, marshes or salt water lakes. Some of them form spores to survive unfavourable conditions.

Micro-organisms are a diverse group of organisms. Some are helpful, while others cause diseases. They are classified into five major groups—

### ALGAE, BACTERIA, FUNGI, PROTOZOANS & VIRUSES.

#### ALGAE

Algae are simple plant like organisms. They vary in size, shape and habitat. They have chlorophyll and can reproduce sexually and asexually.

#### USEFUL ALGAE

- 1) A gummy substance called algin, obtained from kelp is used to thicken ice creams, cosmetics and shaving cream.
- 2) It is used in the preparation of medicines and synthetic fibres.
- 3) Certain red algae are eaten in China and Japan. They are dried and eaten as vegetables or used to make soups.
- 4) EUTROPHICATION-- The enrichment of water bodies by plant nutrients. This happens when sewage and fertilizers drain into water bodies. It leads to an unnaturally rapid growth of algae known as ALGAL BLOOM.

#### BACTERIA

Bacteria involved in the making of cheese, pickles and many other food items. An important ingredient of rava, idlis and bhaturas is curd. Curd contains several microorganisms. The bacterium

Lactobacillus promotes the formation of curd. Bacteria and yeast are helpful for fermentation of rice idlis and dosa batter. They are used in the preparation of bread and cake.

## COMMERCIAL USE OF MICROORGANISMS

Microorganisms are used for the large scale production of alcohol, wine and acetic acid.

## MEDICINAL USE OF MICROORGANISMS

Whenever you fall ill the doctor may give you some antibiotic tablets, capsules or injections such as penicillin. These medicines kill or stop the growth of disease causing microorganisms. Such medicines are called antibiotics. Streptomycin, tetracycline, erythromycin etc.

Pathogens enter our body through the air we breathe, the water we drink or the food we eat. They can also get transmitted by direct contact with an infected person or carried by an animal. Microbial diseases that can spread from an infected person to a healthy person through air, water, food or physical contact are called **communicable diseases**. E.g. cholera, common cold, chicken pox etc.

## FOOD POISONING

Food poisoning could be due to the consumption of food spoiled by some microorganisms. Microorganisms that grow on our food produce toxic substances. These make the food poisonous causing illness and even death.

## FOOD PRESERVATION

There are many ways of preserving food. Most of these involve steps to create conditions in which it is difficult for harmful organisms to grow. These organisms require a moist environment and a range of temperature close to room temperature. Some methods to preserve food are-

a) STORING FOOD b) DRYING c) FREEZING d) ADDING  
PRESERVATIVES e) HEATING f) PASTEURISATION g) CANNING h)  
VACCUM-PACKING

## Exercises

### Question 1:

Fill in the blanks:

- (a) Microorganisms can be seen with the help of a \_\_\_\_\_.
- (b) Blue green algae fix \_\_\_\_\_ directly from air to enhance fertility of soil.
- (c) Alcohol is produced with the help of \_\_\_\_\_.
- (d) Cholera is caused by \_\_\_\_\_.

### Answer 1:

- (a) Microorganisms can be seen with the help of a *microscope*.
- (b) Blue green algae fix *nitrogen* directly from air to enhance fertility of soil.
- (c) Alcohol is produced with the help of *microorganisms*.
- (d) Cholera is caused by *bacteria*.

### Question 2:

Tick the correct answer:

- (a) Yeast is used in the production of
  - (i) sugar
  - (ii) alcohol
  - (iii) hydrochloric acid
  - (iv) oxygen
- (b) The following is an antibiotic
  - (i) Sodium bicarbonate
  - (ii) Streptomycin
  - (iii) Alcohol
  - (iv) Yeast
- (c) Carrier of malaria-causing protozoan is
  - (i) female Anopheles mosquito
  - (ii) cockroach
  - (iii) housefly
  - (iv) butterfly
- (d) The most common carrier of communicable diseases is
  - (i) ant
  - (ii) housefly
  - (iii) dragonfly
  - (iv) spider
- (e) The bread or idli dough rises because of
  - (i) heat
  - (ii) grinding
  - (iii) growth of yeast cells
  - (iv) kneading
- (f) The process of conversion of sugar into alcohol is called
  - (i) nitrogen fixation
  - (ii) moulding
  - (iii) fermentation
  - (iv) infection

### Answer 2:

- (a) Alcohol
- (b) Streptomycin
- (c) Female Anopheles mosquito
- (d) Housefly
- (e) Growth of yeast cells
- (f) Fermentation

**Question 3:**

Match the organisms in Column I with their action in Column II.

Column I

- (i) Bacteria
- (ii) Rhizobium
- (iii) Lactobacillus
- (iv) Yeast
- (v) A protozoan
- (vi) A Virus

Column II

- (a) Fixing Nitrogen
- (b) Setting of curd
- (c) Baking of bread
- (d) Causing Malaria
- (e) Causing Cholera
- (f) Causing AIDS
- (g) Producing antibodies

**Answer 3:**

- (i) Bacteria
- (ii) Rhizobium
- (iii) Lactobacillus
- (iv) Yeast
- (v) A protozoan
- (vi) A Virus

- (e) Causing Cholera
- (a) Fixing Nitrogen
- (b) Setting of curd
- (c) Baking of bread
- (d) Causing Malaria
- (f) Causing AIDS

**Question 4:**

Can microorganisms be seen with the naked eye? If not, how can they be seen?

**Answer 4:**

No, microorganisms cannot be seen by naked eye as they are very small and are called microbes. They can be seen with the help of *microscope*.

**Question 5:**

What are the major groups of microorganisms?

**Answer 5:**

Microorganisms are classified into four major groups are bacteria, fungi, protozoa and some algae.

**Question 6:**

Name the microorganisms which can fix atmospheric nitrogen in the soil.

**Answer 6:**

Bacteria such as rhizobium and certain blue-green algae present in the soil can fix atmospheric nitrogen and convert into usable nitrogenous compounds, which are used by plants for the synthesis of plant proteins and other compounds.

**Question 7:**

Write 10 lines on the usefulness of microorganisms in our lives.

**Answer 7:**

Microorganisms are too small to be seen through naked eyes. However, they are vital to plants and the environment.

