

Ch-2 MICROORGANISMS

Harmful Microorganisms:-

Some microbes cause disease in human beings, plants and animals. Such disease causing microbes are called pathogens or germs.

Communicable Diseases:-

Diseases that microbes spread from an infected person to healthy person through air, water, food, or direct contact are called communicable diseases.

For examples: Tuberculosis, HIV and AIDS, Flu, measles etc.

Some common diseases caused by micro-organisms

Causative microbes	Diseases
Bacteria	Tuberculosis, tetanus, cholera, typhoid, diphtheria, pneumonia, leprosy
Fungi	Athlete's foot, ringworm or Eczema
Viruses	Polio, chicken pox, measles, hepatitis, common cold, conjunctivitis, AIDS
Protozoa	Amoebic dysentery, sleeping sickness, leishmaniasis (kala azar), malaria, dengue

Causative microbes	Diseases
Bacteria	Citrus canker, black rot of cabbage, fire blight of pear
Algae	Red rust of tea and coffee
Fungi	Rust of wheat, smut of wheat, powdery mildew of cucurbits, blight of potato
Viruses	Yellow vein mosaic of lady's finger, tobacco mosaic virus

Some common animal diseases caused by microorganisms

Causative microbes	Diseases
Bacteria	Anthrax
Fungi	Aspergillosis
Viruses	Foot and mouth disease

P.T.O

Food Preservation :- <sup>(2)</sup> Microorganisms easily grow in the presence of moisture and suitable temperature. Hence they grow easily on food. They may produce some toxic substances. Such food may cause food poisoning.

### Methods of food preservation :-

Different methods are employed to preserve food.

(i) Deep freezing :- In deep freezing the food material are frozen or cooled much below  $0^{\circ}\text{C}$ . This method is used for storing fresh fruits, vegetables, meat and fish.

(ii) Using salt and sugar :-

The method of adding sufficient amount of salt to preserve food is called salting. It is employed for the preservation of raw mango, amla, beans, fish, meat etc.

A sugar syrup containing more than 68% sugar content has very little moisture in it and therefore bacteria can not grow in it.

(iii) Using oil and vinegar :-

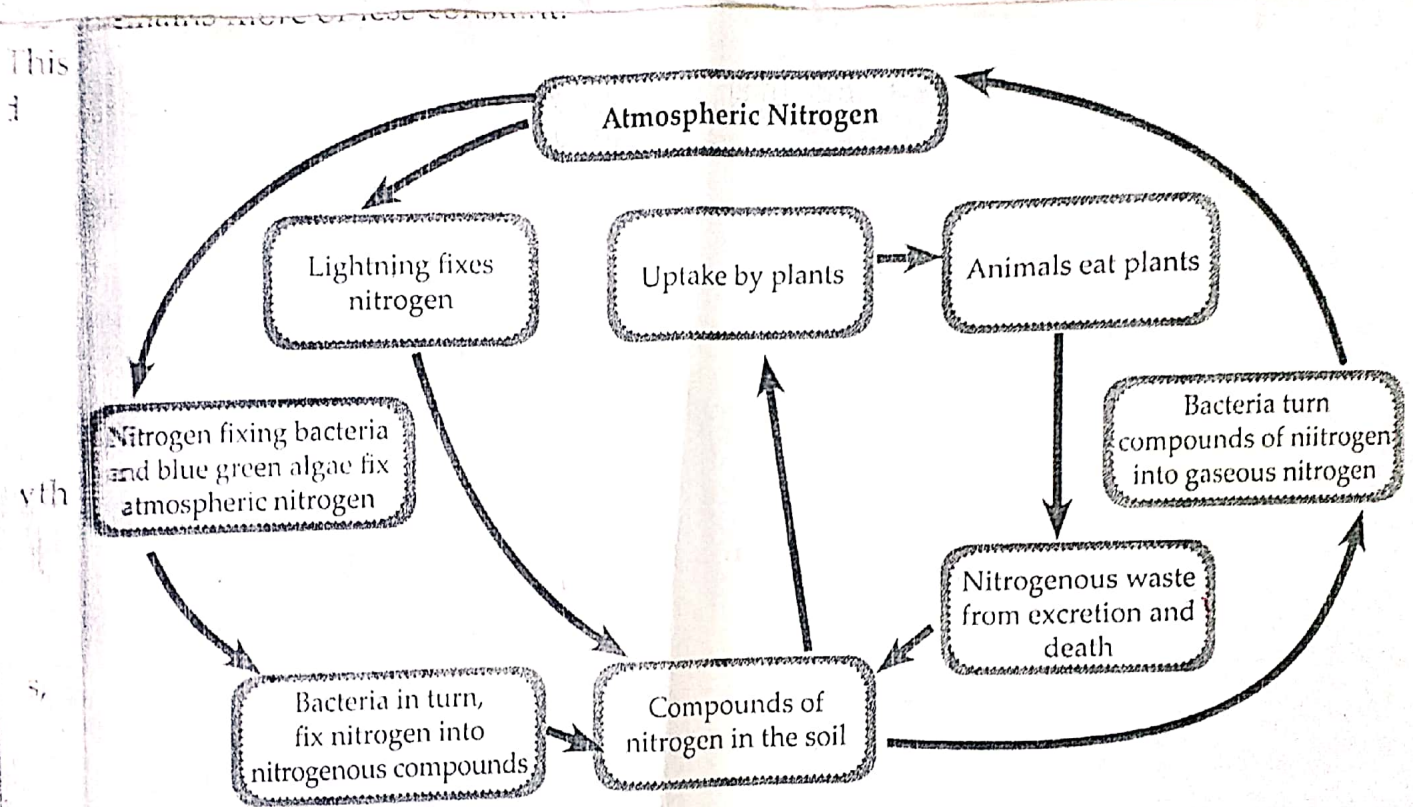
Use of oil and vinegar prevents spoilage of pickles because bacteria cannot live in such environment. Vegetables, fruits, fish etc are preserved by this method.

(iv) Using chemical :- The commonly used preservatives are sodium benzoate and potassium meta bisulphate. This method is employed in the preservation of juice, jams, fruits etc.

(v) Irradiation :- The food materials to be preserved are exposed to gamma rays or x-rays. These powerful radiation completely destroy the harmful micro-organisms present in food.

Pasteurization :- It is mainly used for the preservation of milk. Milk is heated to about  $70^{\circ}\text{C}$  for 15 to 20 seconds and is then suddenly cooled at  $30^{\circ}\text{C}$ . It kills most of the bacteria. The process is called Pasteurization.

Nitrogen cycle - Nitrogen is an essential <sup>(3)</sup> component of protoplasm, it is constituent of amino acids, proteins and nucleic acid. Plants get nitrogen from the soil in the form of nitrogen compounds, called nitrates. But animals can not take it directly from the soil or atmosphere, 78% of nitrogen present as in gases form.



### HOME-ASSIGNMENT:

- (i) Choose the correct option from brackets and fill in the blanks.  
(ii) viruses remain - - - outside the host cells. (Active/Inactive)
- (ii) Fungi are - - - plants (green/Non green)
- (iii) Penicillium comes from a species of - - - (mould/Alga)
- (iv) Dengue is - - - disease. (Viral/Bacterial)
- (v) Anthrax is a disease of - - - (Plants/Animals)

(2) Write True or False :-

(4)

- (i) Bacteria are single celled organisms -----
- (ii) Vibrio are comma-shaped bacteria. -----
- (iii) Aedes act as a carrier of malaria -----
- (iv) Algae contain chlorophyll. -----
- (v) Pasteurized milk is safe to drink -----

(3) Answer the following questions in brief.

- (i) What is pathogen? How does it gain entry into the body of living organisms?
- (ii) What is pasteurisation? How is it useful?
- (iii) What is food preservation?
- (iv) Define communicable diseases, give some examples.

