TENDER HEART HIGH SCHOOL, SEC-33B, CHD

Class - VII Subject - Biology
Chapter-2 Classification of Plants.
Teacher - Ms. Nidhi Rana

Good Morning children! Hope building up concepts well and gaining knowledge. In the last lecture we have discussed about the need of classification and its advantages. So today we are going to confer on the five kingdoms proposed by Robert Whittaker in detail.

1 Monera. This kingdom includes all prokaryotic (unicellular) organisms that donot contain a well-defined nucleus. Their nuclear material is not enclosed in a nuclear membrane but is organized in a region called a nucleoid.

They may be autotrophic or heterotrophic. Many others live on other living organisms and are called parasites.

Their cells are microscopic and have a rigid outer covering called the cell wall, although not made of cellulose.

Common examples of such organisms are bacteria and blue-green algae.

⇒ Based on the shape, there are four common forms of bacteria

(A) Coccus form - These bacteria are spherical. They occur either as single cells, in groups of two,

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in long chains or in bunches. For example - Streptococcus pneumonia.

(B) Bacillus form - These are rod shaped bacteria with or without flagella. They may occur as single cells or in chains. For example - Lactobacillus
★ Escherichia coli is a rod-shaped bacterium which lives in the intestine of humans.

(C) Spirillum form - These are spiral shaped and exist only as single cells. For example - Treponema.

(D) Vibrio form - These are short, curved or comma shaped bacteria. For example, Vibrio cholerae which cause cholera in humans.

Structure of a Bacterium Cell.

→ A bacterium cell has nuclear material present in the cytoplasm. It is not enclosed in a nuclear membrane. Hence, called nucleoid.
→ Outermost cell wall is made up of largely protein-like material.
→ The cell wall is surrounded by a gelatinous 'capsule'.
→ Reserve food is glycogen.
→ Nucleolus, mitochondria and plastids are absent.

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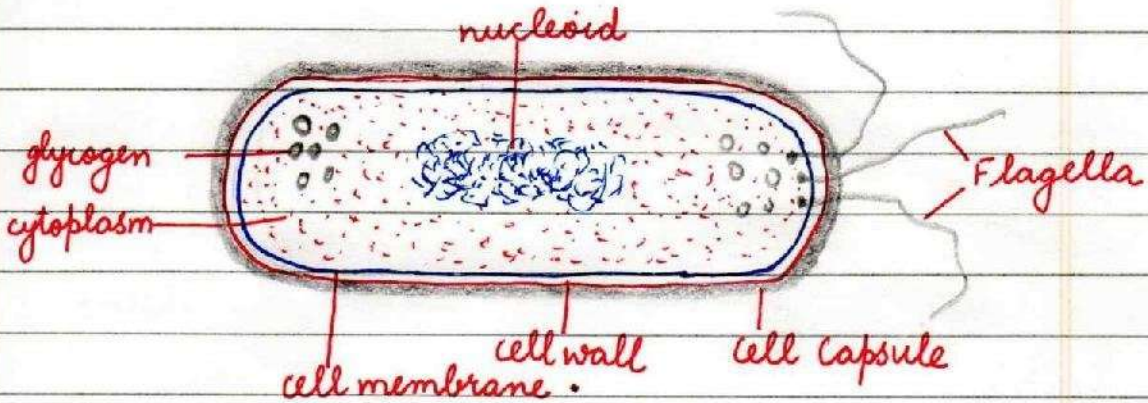

Bacterium Cell.

Useful Bacteria.

1. Medicines - Certain bacteria are used in manufacturing medicines like antibiotics, vitamin B complex tablets and insulin. Killed or weakened disease-causing bacteria are used in the preparation of vaccines against polio, tuberculosis, smallpox.
2. Some bacteria help in making food items like curd, cheese and vinegar. For example Lactobacillus converts lactose (milk sugar) into lactic acid and helps in formation of curd.
3. Citric acid and alcohol are obtained by the action of bacteria.
4. Bacteria is used in tanning of leather (curing of animal hides) and retting of fibres in jute (jute fibres are separated and made softer).
5. Some bacteria are used in sewage disposal plants because they have the ability to decompose organic wastes rapidly.
6. Cow dung, horse dung and agricultural wastes are subjected to bacterial action which causes their decay and produce manure.

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7. Bacteria also help in generating biogas. They decompose wastes of plants, animals and humans to produce it.
8. Certain bacteria live in the digestive tract of animals like cows, goats and buffaloes. These are plant-eating animals and the cell wall of plants is made up of cellulose. These bacteria help the animals to digest cellulose by breaking it down into simpler substances.
9. Saprophytic bacteria decompose the dead remains of plants and animals into simpler substances which are restored in the soil. Thus, the nutrients which were once taken from the soil by plants and animals are returned to the soil and its fertility is maintained. These bacteria are known as decomposers.
10. Although nitrogen is present in abundance in air, it cannot be utilized by plants as such. However, Rhizobium that live in the root nodules of leguminous plants like pea, gram can convert atmospheric nitrogen into nitrates which can be easily absorbed by the plants from the soil along with the water.

☆ Symbiosis - A mutually beneficial relationship between two different organisms living in close physical association. For example Rhizobium bacteria living in root nodules of leguminous plants.

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Rhizobium bacteria trap the atmospheric nitrogen and convert it into nitrates which can be easily absorbed by the plants from the soil. The host plant in turn provides shelter to the bacteria.

Harmful Bacteria.

1. Spoilage of food, rotting of fruits, vegetables and meat and souring of milk.
2. Bacteria causes diseases in animals, plants and humans. Tuberculosis, Tetanus, cholera, leprosy, typhoid, diphtheria and pneumonia are some diseases caused by bacteria in human beings.

Home Assignment.

1. Briefly explain four types of bacteria on the basis of their shape.
2. List out five uses of bacteria.
3. Name any four diseases caused by bacteria in human beings.
4. What name is given to the bacteria found in the root nodules of pea plants? State their importance.

Dear Parents,
Kindly assist your child in reading the chapter thoroughly so that he/she can understand the content of the chapter covered above thoroughly.