# SCIENCE

# CLASSIFICATION OF ORGANISMS

# KINGDOM-MONERA

It is a kingdom of prokaryotes. Monera is therefore, also called prokaryota.

## Characteristics:

- (i) Prokaryotic Nature
- (ii) Membrane Bound Cell Organelles are absent
- (iii) Unicelluar Nature: Monerans are basically unicellular
- (iv) Flagella: Flagella, if present are single stranded
- (v) Cell Wall : It is absent in some e.g. (Mycoplasma) and present in others (e.g., bacteria, cyanobacteria). Basic structure of cell wall is made of murein or peptidoglycan (instead of cellulose).
- (vi) Nutrition: Both autotrophic and heterotrophic modes of nutrition.
- (vii) Nitrogen Metabolism: All nitrogen fixing organisms belong to monera (e.g., Rhizobium in root nodules of legumes). Some monerans take part in ammonification, nitrification and denitrification.

Examples: Mycoplasma (produces diseases in humans, animals and plants), bacteria (e.g., Vibrio cholerae, Clostridium botulisum, Escherchia coli) and blue-green algae or cyanobacteria (e.g., Anabaena, Nostoc.)

### CLASS XI



## Do you Know:

All nitrogen fixing organsims belong to kingdom Monera. For example, Rhizobium is found in the root nodules of legumes.

## KINGDOM-PROTISTA

It is the kingdom of unicellular (and colonial) eukaryotes.

#### Characteristics:

- (i) **Organisation:** Protists have simple unicellular and eukaryotic organisation.
- (ii) Locomotion: Locomotion is generally present. It occurs with the help of flagella (e.g., *Euglena*), cilia (e.g., *Paramecium*) and Pseudopodia (e.g., *Amoeba*). Flagella and cilia have 11-stranded sturcture.
- (iii) Cell Wall : Some protists are covered with cell wall (most photosynthetic protists) while others do not possess it (e.g., protozoan protists).
- (iv) Mode of nutrition is either autotrophic (algae and diatoms) or heterotrophic (protozoans). Some organisms have hair like cilia (e.g. *Paramecium*); whip like flagellum (e.g. *Euglena*) and pseudopodia (e.g. *Amoeba*) for locomotion.

### CLASS XI

Examples: Diatoms (e.g., Navicula), Euglena, Protozoans (e.g., Amoeba, Paramecium).



## KINGDOM-FUNGI

Fungi are achlorophyllous, heterotrophic spore producing, cell wall containing.

## Characteristics:

- (i) **Mycelium**: The body of fungi is called **mycleium**. It is made of a number of fine threads called hyphae (singular hypha).
- (ii) Multicellular Nature: Fungi are basically multicellular. Yeast is an exception in being unicellular.
- (iii) Cell Wall: It contains a tough complex sugar called chitin or fungus cellulose.
- (iv) Nutrition: Fungi are heterotrophic with absorptive nutrition. Most of them are decomposers (hence kingdom of multicellular decomposers) or saprophytes which feed on organic remains by first secreating digestive enzymes and then absorbing the digested materials. A few fungi are also parasitic.
- (v) **Resverve Food:** It is glycogen and oil.

**Examples**: Yeast (Baker's Yeast, Brewer's Yeast), Agaricus (Mushroom), Penicillium (source of penicillin), Aspergillus, Rhizopus (Bread Mould).



# Do you Know:

Penicillium was the source of the first discovered antibiotic, penicillin. Yeasts (Saccharomyces) are widely used in baking bread and in wine making, etc.

# Lichens

- They are dual organisms which have been formed by **permanent symbiotic association** between **an alga** (generally a cyanobacterium or blue green alga) and **a fungus** (generally and ascomycete).
- The alga manufactures food not only for itself but also for the fungus. Fungus provides protection to alga, helps in fixation and absorption of water as well as minerals.
- Lichens can tolerate prolonged drought and drastic variations in temperature.
- They occur in hostile habitats like barren rocks, walls, tree trunks, icey regions where they can be seen as slow growing large coloured patches.
- Lichens are sensitive to air pollution. They are the source of dhoop and havan samagri, some medicines (Usnea, Cladonia, Cetraria, Lobaria) and dyes (orcein, orchil, litums).



Lichen

