

# Commercially important microbes

- Microorganisms:
- Definition: An organism that is too small to be seen by the unaided eye, especially a single celled organism, such as a bacterium is called microorganism.
- Microorganisms are classified into four major groups. These groups are –
  1. Bacteria
  2. fungi
  3. protozoa
  4. algae

# Bacteria

- Bacteria (singular: bacterium) constitute a large domain of prokaryotic microorganisms
- Typically a few micrometers in length, bacteria have a number of shapes, ranging from spheres to rods and spirals.
- Bacteria were among the first life forms to appear on Earth, and are present in most of its habitats.

# Fungi

- A fungus plural: fungi or funguses) is any member of a large group of eukaryotic organisms that includes microorganisms such as
  - yeasts
  - molds (moulds)
  - as well as the more familiar mushrooms

# Protozoa

- Protozoa are a diverse group of unicellular eukaryotic organisms, many of which are motile.
- Historically, protozoa were defined as unicellular protists with animal-like behavior, such as movement or i.e., motility.

# Algae

- Algae (Latin for "seaweed") are a very large and diverse group of eukaryotic organisms, ranging from unicellular genera such as *Chlorella* and the diatoms to multicellular forms such as the giant kelp, a large brown alga that may grow up to 50 meters in length

# Application of microbes

- Microorganisms play an important role in our lives.
- Some of them are beneficial in many ways whereas some others are harmful and cause diseases.
- Microorganisms are used for the large scale production of –
  - alcohol
  - Wine
  - acetic acid (vinegar).

- Yeast is used for commercial production of alcohol and wine.
- For this purpose yeast is grown on natural sugars present in grains like
  - Barley
  - Wheat
  - Rice
  - crushed fruit juices, etc.

# Microbes used in medical

- For the manufacture of –
- antibiotic tablets
- capsules
- injections (such as of penicillin)