UG CBCS Semester-I
Kingdom: Monera

When Linnaeus began classifying living things, he used only two kingdoms, plant and animal. With the technology of microscopes, new living things were discovered. Differences could be seen inside their cells. Two kingdoms were not enough. Most scientists today use either a five kingdom or six-kingdom classification system.

Whittaker in 1969 proposed a five-kingdom system that soon became widely accepted. Whittaker grouped all the bacteria together in one kingdom (i.e. Monera), because of their similar cell structure. The five-kingdom system is divided into animal, plant, fungi, protist, and monera. The monera kingdom is made up of one-celled organisms, which are all bacteria. None of the organism have a true nucleus. One-celled (unicellular) organisms whose DNA is not contained inside a nucleus are called prokaryotes.

More recently, a six-kingdom classification system has been used. The six divisions are animal, plant, fungi, protist, eubacteria, and archaebacteria. The last two divisions are used based on the type of cells the organism has, whether or not it can make its own food, and the number of cells in each organism. Because some bacteria are chemically different, the monera kingdom was separated into the two new kingdoms i.e. eubacteria and archaebacteria

The word archaebacteria means "ancient bacteria." Scientists think that modern-day archaebacteria were similar to Earth's early life forms, existing on Earth billions of years before the dinosaurs lived. Some archaebacteria can make their own food (autotrophic). Some must get their food from other organisms (heterotrophic). These "extremophiles" who live in extremely hot, acidic, or anaerobic environments have been separated in the classification system from the eubacteria. Their cell membrane and RNA are also chemically different from the eubacteria.

Most bacteria is classified in the kingdom of eubacteria. They are also one-celled prokaryotes. Some make their own food. These bacteria, scientists believe, added oxygen to the Earth's atmosphere billions of years ago. Most eubacteria do not live in extreme environments.

Bacteria are large group of unicellular microorganism microscopic in size typically a few micrometers varies between 0.5 – 5 μm in length and 0.2 – 2 μm in width, have many different shapes and widespread on earth. Bacteria are grouped under four categories based on their shape: the spherical Coccus (i.e. cocci), the rod-shaped Bacillus (i.e. bacilli), the comma-shaped Vibrium (i.e. vibrio) and the spiral Spirillum (i.e. spirilla).

General characters of bacteria

1. Bacteria are microscopic, unicellular organisms and multiply by binary fission.
2. They live everywhere in nature in water (fresh, salty) soil and air.
3. Some types live as saprophytes while others are parasites on plants, animals and human causing diseases.
4. They can form spores which are resistant to harsh condition like heat, rays, temperature and dryness.
5. Pathogenic bacteria are only a small proportion but many of bacteria are positively useful of human for example some of them producing antibiotics like erythromycin and tetracycline others used as microbial insecticides protecting crops from certain insects pests.
6. Some bacteria contribute a lot of food industry for example in the manufacture of butter, cheese and yoghurt by using certain bacteria to convert milk sugar lactose to lactic acid as well as the vinegar is produced from ethanol by bacteria action in addition to helping in kept the balance of ecosystem .