

## **C- Biological Water Quality Characteristics**

Whether or not living organisms are present in water is a very useful indicator of water quality. Thousands of biological species spend part, if not all, of their life cycles in water. Most water-borne microbes are beneficial, particularly as food chain decomposers. Only a few microorganism species cause disease in humans or damage to the environment: pathogens are organisms capable of infecting or transmitting diseases to humans and animals. The presence or absence of pathogens in water is of primary importance. Pathogens include species of bacteria, viruses, algae, protozoa, and parasitic worms (helminths). Although they do not naturally occur in aquatic environments, pathogens can be transmitted by natural water systems.

### **1- Bacteria**

Air, water, soil, rotting vegetation, and human and animal intestines all contain bacteria. While most bacteria we encounter are harmless, waterborne pathogenic bacteria transmit diseases that cause common symptoms of gastrointestinal disorder. Eliminating pathogenic organisms through chemical treatment ensures safe drinking water to the consumer.

### **2- Viruses**

Viruses are tiny entities that require a host to live and reproduce. They carry the information they need for replication. Waterborne viral infections generally cause nervous system disorders, not gastrointestinal ones. Because the many varieties of viruses are small in size, unstable in behavior and appearance, and occur in low concentrations in natural waters, testing for viruses in water is difficult, limited identification methods. Add to this concern about disinfection effectiveness.