**المحاضرة 1**

 **Soil is an excellent culture media for the growth and development of various microorganisms. Living organisms present in the soil are grouped into two categories as Soil and Soil fauna. Soil is not an inert static material but a medium pulsating with life. Soil is now believed to be dynamic or living system. Soil provides shelters for many animal types, from invertebrates such as worms and insects up to mammals like rabbits, , foxes and et al.. The objective of learning this module is to know about all these aspects, in addition to the understanding of the biological components present in the soil.**

**The soil is not a mass of dead debris, merely resulting from the physical and chemical weathering of rocks; it is a more or less homogeneous system which has resulted from the decomposition of plant and animal remains. A normal soil is made up of so: The soil is not lid, liquid, and gaseous constituents. These can be broadly divided into five groups a mass of dead debris, merely resulting from the physical and chemical weathering of rocks; it is a more or less homogeneous** **system which has resulted from the decomposition of plant and animal remains.**

**A normal soil is made up of solid, liquid, and gaseous constituents. These can be broadly divided into five groups:**

1. **Mineral Particles. 2. Plant and Animal Residues. 3. Living Systems. 4. Water.** **5. Gases. , Living systems is also plays a major role in soils .**

**Soil microbiology**

**Soil microbiology is the study of organisms in soil, their functions, and how they affect soil properties. Soil microbiology is the scientific discipline that is concerned with the study of all biological aspects of the life that exist in the soil environment.**

**Microorganisms in soil are important because they affect soil structure and fertility. Soil microorganisms can be classified as bacteria, actinomycetes, fungi, algae and protozoa. Each of these groups has characteristics that define them and their functions in soil.**

**Soil is a dynamic habitat for an enormous variety of life-forms.**

**Soils give a mechanical support to plants from which they extract nutrients. Soil provides shelters for many animal types, from invertebrates such as worms and insects up to mammals like rabbits, moles, foxes and badgers.**

**It also provides habitats colonised by a staggering variety of microorganisms.**

**All these forms of life interact with one another and also interact with the soil to create continually changing conditions. This allows an on-going evolution of soil habitats. Distribution of Microorganisms in soil is an important aspect in soil studies.**

**Microorganisms constitute < 0.5% (w/w) of the soil mass, yet they have a major impact on soil properties and processes. About 60-80 % of the total soil metabolism is due to the microflora. These are the smallest organisms (<0.1 mm in diameter) and are extremely abundant and diverse.**

1. **They include algae, bacteria, cyanobacteria, fungi,**
2. **yeasts, and actinomycetes. Most of them are able to decompose almost any existing natural material.**

 **Micro-organisms transform organic matter into plant nutrients that are assimilated by plants. Soil organisms**