

Benha University
Faculty of science
Botany department
Date: 15/1/2014
Time 1hr
4th Micro and chemistry students

Soil microbiology

The answer of the questions:

1)

A- Some chemical consideration of soil:

- 1- Chemical properties for soil is vary.
- 2- Silicon dioxide account for 70-90%.
- 3- Al. and fe dominant.
- 4- Lesser quantities of ca , K , Mn , Na , P , and S are found .
- 5- Organic matter ranges from 0.5-10% of total weight.

B- Organic fraction of soil:

- 1- Often termed humus is a product of the synthetic and decomposing activities of the microflora .
- 2- The organic fraction contains compounds of carbon , hydrogen , oxygen , nitrogen ,phosphorous and sulphur .
- 3- Humus contains a number of polymerized substances e-g aromatic molecule and polysaccharides of several kinds.

C- Role of fungi in soil.

- 1- Fungi are heterotrophic in soil.
- 2- Fungi increase the fertility of soil.
- 3- The availability of organic matter is affected by the number of fungi in soil
- 4- The number of fungi in soil influenced by temperature, pH, Moisture and aeration.

D- Factors governed in the breakdown of organic matter:

- 1- Temperature: microbial metabolism and carbon mineralization are slower at low or at high temperature.
- 2- Hydrogen ion pH: decomposition of organic matter increased at neutral pH than in acid soil
- 3- Moisture: At optimum moisture, the microbe can be decomposed the organic matter
- 4- O₂: stimulate the carbon mineralization.
- 5- Nitrogen: is a nutrient substance for microbial growth and for organic matter decomposition