

Benha university
Faculty of department
Botany department
4th (micro&chem.students)

Date :14/1/2015
Time : 1 hour

Soil microbiology

Answer questions

1- the missing words

1- Humus,microflora .

2- Heterogenous group of substances .

3- Mycorrhizal fungus .

4- Organic matter .

5- Photoautotrophic

6- Carbon , 40-50 % .

7- CO_2

8- Nitrogen mineralization .

9- Microbial immobilization .

10- Denitrification .

Answer questions 2 (short notes)

A-Environmental condition influencing soil bacteria :

1- moisture : the maximum bacterial density is found in regions of high moisture content (50-70%)

2- Water-logging : the change from aerobic to a anaerobic is affected by the disappearance of free O_2

3- Temperature : there are 3 kind of temperature :

A - Psychrophilic : ranges from 0-20 C .

B - Mesophilic : ranges from 25-35 C .

C- Thermophilic : ranges from 45-65 C .

D- Highly acid or alkaline

(1- 6) acidity

7- neutral

(8-14) alkaline

5- organic carbon and plowing and tillage causes marked bacteriological alternation .

B- Activity and function of fungi:

- 1- Formation of humus from fresh organic residues.
- 2- Fungi not contain chlorophyll, must obtain nutrients from organic molecules.
- 3- Some species are requiring B vitamins and amino acids .
- 4- Certain fungi dependence on plants in their nutrition.
- 5- The uptake of N_2 , S, Zn is promoted by mycorrhizal fungus in many plant species .

C- Nitrogen fixation :

This is a process that is carried by certain microorganisms , sometimes in symbiosis with higher plant to transform N_2 gas into organic compounds in the cell by these reactions , the subterranean microflora regulates the supply and governs the availability and chemical nature of the nitrogen in soil .