



Final exam of Microbial Ecology

1) Short notes :

A- Basis of classification of bacteria :

Bacteria can be classified on three basis

- 1- utilization of carbon source
- 2- utilization of nitrogen
- 3- growth in presence or absence of oxygen

B- Environmental influences on bacterial flora:

The primary environmental variables influencing soil bacteria include moisture , aeration , temperature , organic matter , acidity and inorganic nutrient supply .

optimum level for the activities of aerobic bacteria is at 50 to 75 percent of soil moisture . the change from aerobic to anaerobic flora is affected by the disappearance of free O_2 as a result of the utilization by O_2 requiring microorganisms

C- Nutrition of dominant flora of bacteria :

The bacteria are divided into groups that require the following for maximum growth . one or several amino acid , that require the amino acids , B vitamins , both amino acids and B vitamins and complex mixture of growth factors one tenth of bacteria in certain sites are able to grow readily in minimal media . Remaining nine tenths requiring growth substances for maximum development .

D - Actinomycetes :

Despite their placement together with bacteria the relation of actinomycetes to fungi is apparent in three properties : 1- The mycelium of higher actinomycetes has branching



characteristic of fungi , 2- many actinomycetes from aerial mycelium as well as conidia , the growth of actinomycetes in liquid culture occurs as pellets .

other unique points for taxonomic placement with bacteria are the presence of some genera of flagella that resemble those of true bacteria

E- Distribution of actinomycetes :

actinomycetes are numerous and widely distributed not only in soil but in a variety of their habitats including composts , river muds and lake bottoms . they are present in surface soil and in the lower horizons to considerable depths . in abundance they are second only to the bacteria useful selective media for enumeration are those containing chitin

F- Function and activity of fungi :

The fungi contain no chlorophyll and they must obtain carbon for cell synthesis from performed organic molecules. Predation is not rare among fungi various protozoa are especially susceptible to the active species fungi can utilize and degrade the major plant constituents , cellulose , hemicelluloses , plant constituents , cellulose , hemicelluloses , pectin , starch and lignin , the utilization of proteinaceous substances is another common characteristic