



Lecture No.:21

Date: 23rd May, 2020

CORE CONCEPT OF

SUB./GEN. - PART 1

Group A - Algae

## ECONOMIC IMPORTANCE OF BACTERIA

Bacteria are of major importance to mankind. Activities of many bacteria have been harnessed for various industrial purposes to produce valuable chemical, medicines and various other products essential for human society.

1. Bacteria and soil fertility - Of all the living organisms found in soils, bacteria are among the most active ones. They are especially abundant in the surface layers of soil. These organisms play a dominant role in soil fertility of the essential elements secured by the green plants from the soil nitrogen and are next to hydrogen and oxygen. The one which is needed in the largest quantities of all the waste products from domestic animals containing much of the nitrogen of the food which they have eaten and utilised in their metabolism are in part returned to the soil as fertilizer, much of the nitrogen of the crops removed from the soil is never returned to it. Certain groups of



bacteria are involved in the decomposition of nitrogenous organic compounds of both animals and plant bodies and the nitrogenous waste excreted by animals and nitrogen transformation in the soil and thereby play an important role in the maintenance of soil fertility. They are ammonifying bacteria, nitrifying bacteria and nitrogen fixing bacteria. Nitrogen fixing bacteria assimilate atmospheric nitrogen and convert into organic compounds which are subsequently decomposed by other bacteria and transformed through a series of a stage into nitrates. This process is called nitrogen fixation. They are of two types non symbiotic and symbiotic.

2. Bacterial metabolism - Its commercial importance - The metabolic process and their products of bacteria have been utilised in many industries.

A. Source of antibiotics - Soil is perhaps the most important source of bacteria which produce antibiotic substances. These include filamentous bacteria. The modern period of antibiotics began in 1939 with the finding of tyrothricin produced by a soil bacterium.

Prominent among the antibiotics from actinomycities are - streptomycin, chloromycetin, neomycitin, aureomycitin,



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terramycin.

B. Fermentation - Its industrial application - In Dairy industry, in retting of fibres

C. Other fermentation process - Certain Streptococci and aroma

D. Bacteria as human symbionts.

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