

Programme:F.Y.B.Sc

Subject: Microbiology

Paper Code: MIG 101

Paper Title: Introduction and Scope of Microbiology

Unit: 01

Module Name: Development in the field of soil microbiology

Module No:09

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Notes

Development of the field of Soil Microbiology

Sergei N. Winogradsky (1800)

The Russian Microbiologists,Sergei Winogradsky made many contributions to soil microbiology.

He showed the importance of soil bacteria in taking Nitrogen from atmosphere ,combining with other elements ,and making it available as Plant food as well as Animal food

He also isolated anaerobic Nitrogen fixing soil bacteria , ***Clostridium pasteurienum***

He discovered a Physiological group of bacteria known as Chemoautotrophs eg:

Thiobacillus , *Nitrobacter* , *Ferrobacillus*

Martinus Beijerinck (1901)

Discovered the role of microorganisms in Nitrogen fixation

He isolated Aerobic nitrogen fixing bacterium ,*Rhizobium* from the root nodules of leguminous plants.

He also found free living Nitrogen fixing bacteria,Azotobacter and described its usefulness in

promoting soil fertility, now being used as biofertilizers.

Showed that bacteria present in the root nodules of leguminous plants were derived from the soil

H.Hellriegel and H.Wilfarth (1888)

Mutually beneficial relationship between Bacteria (Rhizobium) and leguminous Plant (Alfafa and Clover

Selman Waksman

He described the antibiotic Streptomycin produced by ***Streptomyces griseus*** , a filamentous bacteria found in soil.He received nobel prize in 1952 for his discovery.

Enrichment culture Technique

Winogradsky and Beijerinck developed **Enrichment** culture technique and use of **Selective** media, for study of distinct physiological groups of bacteria present in soil e.g Cellulose digesters.

Reference :

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Online Resources:

<https://www.sciencedirect.com/science/article/abs/pii/S0016706101000295>

