

soil microbiology

week	Lecture topic	Lab.
1	Introduction to soil microorganism and microbiology. historical perspective of soil microbiology.	Introduction
2	microbial growth and metabolism what need microbes to grow (nutrient and growth factor, carbon and energy source)	physical and chemical property of soil
3	aggregation , pores , soil atmosphere, soil surface	methods for studying soil microorganisms direct and cultural methods
4	clay and microorganism , distribution in rhizosphere and phyllosphere	isolation of protozoa from soil most-probable number(MPN)technique
5	microbial environment, soil formation ,morphology	isolation of fungi from soil
6	environment influences , soil water , soil pH temperature	carbon cycle, cellulose decomposition ,hemicelluloses
7	microbial community of soil (type of macrofauna ,earthworm , meiofauna, nematodes) contributes to biomass	degradation of starch
8	types of fungi in soil ,habitat and environment actinomycetes	degradation of pectin
9	protozoa , archaezoa , algae	nitrogen cycle ,nitrogen fixation
10	bacteria, cell structure ,ecology growth of bacteria , distribution , importance of soil	Nitrification ,and denitrification
11	nitrogen cycle, organic nitrogen in soil ,environment affect ,mineralization of organic N .and NH ₄	isolation of microorganisms producing antibiotic from soil
12	,nitrogen fixation ,nitrification ,denitrification the microbes responsible for the processes	soil enzyme :phosphatase
13	nutrient cycle ,carbon cycle, mineralization , cellulose ,starch ,hemicelluloses	soil enzyme: urease
14	continue of carbon cycle , pectin ,lignin ,decomposition hydrocarbon decomposition	mycorrhizae
15	Exam	Exam

Textbook:

1-soil microbiology :an exploratory approach . by Mark Coyne .1999.

2- soil microbiology, ecology ,and biochemistry , third edition .academic press is in imprint of Elsevier . Amsterdam. By .Eldor A . Paul . 2007.

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