



Output of the Workshop on the Harmonization of Syllabi of Microbiology Courses in the Philippines

30 August 2018, Chancellor's Hall, University of the Philippines Los Baños

HARMONIZED SYLLABUS/OUTLINE FOR MICROBIAL ECOLOGY (Minimum Course Contents)

LECTURE

- I. Introduction**
 - A. Definition of terms
 - B. Scope
 - C. History
- II. Range of Organisms**
 - A. Microbial diversity
 - B. Functional groups of microorganisms
- III. Distribution of Organisms in the Environment**
 - A. Litho-ecosphere
 - B. Hydro-ecosphere
 - C. Atmo-ecosphere
 - D. Plant
 - E. Animal
 - F. Extreme environments
 - G. Biofilms, etc.
- IV. Methods of Study in Microbial Ecology**
 - A. Sampling
 - B. Processing
 - C. Analysis
 - a. Culture-dependent
 - b. Culture-independent
- V. Biological Interaction**
 - A. Microbe-microbe interaction
 - B. Microbe-animal interaction
 - C. Microbe-plant interaction

- VI. Microbial Activities and Their Applications**
 - A. Biogeochemical cycles
 - B. Bioremediation
 - C. Biofuel production
 - D. Biocontrol, etc.

LABORATORY EXERCISES

- I. Environmental Factors Affecting Microbial Growth**
- II. Soil as an Environment**
- III. Microorganisms in Aquatic Environment (Field work)**
- IV. Microorganisms in Air**
- V. Plants as Microbial Habitats**
- VI. Animal as an Environment**
- VII. Microorganisms in an Extreme Environment (Field work)**
- VIII. Biofilm Formation**
- IX. Demonstration of a Biogeochemical Cycle**
- X. Biodegradation of Petroleum**

SUGGESTED REFERENCES (PARTIAL LIST)

- ATLAS, RM and BARTHA, R. 1998. Microbial Ecology: Fundamentals and Applications. 4th ed. California, USA: The Benjamin/Cummings Publishing Co., Inc. 694 p.
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