

TITLE: UBIQUITY AND DIVERSITY OF MICROORGANISMS WORK IN THE HIGHER EDUCATION PRACTICES

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ABSTRACT:

Microorganisms are the predominant living beings on Earth. Among the beings studied in Microbiology, prokaryotes exemplify the earliest form of life and have existed for billions of years. All the living beings that came later through the evolutionary process did not supplant these first beings, instead, had to adapt to their presence to survive. Due to the long biological history, they present the most varied strategies of adaptation to unusual and inhospitable environments, and play fundamental functions for the maintenance of other life forms. The students' knowledge about the microbial universe acquired in elementary education is restricted. When questioned about microorganisms, students refer mainly to pathogens, with no idea of the metabolic versatility and comprehensiveness of the distribution of these organisms in nature, or of the role they represent. In higher education, Microbiology is approached according to the course in which it is inserted. In Biological Sciences the objectives are broader than in courses such as agronomy or dentistry. Microorganisms are an essential tool for studies in cell, molecular and genetic biology, and are also the main tool in biotechnology. To strengthen the concepts of ubiquity and bacterial diversity in the Microbiology discipline of the Licentiate course in Biological Sciences, classroom practices are organized in a coordinated way to the theoretical classes. This work presents the organization of these classes, structured in a proposal of exploratory experimental practice, with a differential in the established dynamics when the students work with the bacteria of the environment (kitchen sponge, motorcycle helmet, coffee strainer, etc.). Work steps: formation of working groups; collection at the chosen location; isolation of bacteria; macroscopic observation of colonies; microscopic observation; motility test; biochemical tests; effect of sanitizing agents; and behavior when exposed to high temperatures. The results obtained by each group are different from each other. The interpretation of the results requires theoretical research and each group obtains its own answers. Students are instigated to research, making the practices teaching-learning tool more efficient, in addition to the great diversity of results that are generated in the process. The much greater efficiency in the concretization of the concepts of ubiquity and diversity among prokaryotes.

Keywords: prokaryotes, ubiquity, diversity, classroom practices