

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

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Microbial ecology is the study of the interactions between microorganisms and their environment. It encompasses a wide range of organisms, from bacteria and archaea to fungi and protists, and their interactions with each other and with their physical and chemical surroundings. Microbial ecology is a fundamental discipline in understanding the role of microorganisms in various ecosystems, from the soil to the human gut.

The study of microbial ecology is essential for understanding the biogeochemical cycles, the carbon cycle, and the nitrogen cycle. Microorganisms play a crucial role in the decomposition of organic matter, the fixation of atmospheric nitrogen, and the production of primary biomass. Understanding the interactions between microorganisms and their environment is also important for the development of sustainable agriculture and the management of natural resources.

Microbial ecology is a rapidly growing field of research, and there are many exciting opportunities for scientists to study the interactions between microorganisms and their environment. The development of new technologies, such as high-throughput sequencing and microfluidics, has opened up new avenues for research in microbial ecology.

1. Ecological and Physiological Adaptations: This section discusses the various ways in which microorganisms adapt to their environment. It covers topics such as the evolution of metabolic pathways, the development of specialized structures, and the role of signaling molecules in microbial communication.

1. Soil Microbiology: This section focuses on the role of microorganisms in the soil. It discusses the interactions between soil microorganisms and plants, the role of microorganisms in the carbon cycle, and the impact of human activities on soil microbial communities.

2. Gut Microbiology: This section explores the complex microbial communities that inhabit the human gut. It discusses the role of the gut microbiome in human health and disease, and the impact of diet and lifestyle on the composition of the gut microbiome.

3. Industrial Microbiology: This section discusses the application of microorganisms in industry. It covers topics such as the production of antibiotics, enzymes, and other bioproducts, and the use of microorganisms in bioremediation and waste management.

Microbial ecology is a fascinating and rapidly growing field of research. It offers a unique perspective on the interactions between microorganisms and their environment, and it has many practical applications in a wide range of fields. We hope that this workshop will provide a valuable opportunity for scientists to share their research and to learn from each other.

International Pre Conference Workshop on

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epigenetic influence through protection and repair—as well as the miraculous ability to identify unrepairable cellular damage and to induce cell death through apoptosis.

Epigenetics and Cancer: Epigenetic modifications play a critical role in many cellular processes, including DNA methylation, histone modification (acetylation, methylation, and phosphorylation), and microRNA expression. Massive deregulation of all components of the epigenetic machinery is a hallmark of cancer. These alterations affect normal gene regulation and impede normal cellular processes including