

Ad hoc support : EcotoxicoMic 2020

2nd International Conference on Microbial Ecotoxicology

ABSTRACT

The dissemination in the environment of chemical compounds resulting from human activities requires urgent responses to the effects of this pollution on the health of human populations and ecosystems. Reducing the toxic effects of exposure to these pollutants and cleaning up the biosphere are major challenges of the Anthropocene, for which it is essential to improve our understanding of the fate of these molecules in the environment and their effects on living organisms. Microbes are essential to life on earth and play a key role in the major biogeochemical cycles.

Essential players in the ecodynamics of pollutants, via their role in the transport, transformation or degradation of these molecules, microbial communities exposed to pollutants are nonetheless impacted in their structure and functions. The diversity of the microbial world, in terms of its nature, its functions and the environments it occupies, offers the possibility of studying a wide range of situations with increasing levels of complexity, from the fine mechanisms of expression and attenuation of toxicity in model organisms to the complex interactions within microbial communities in the environment. As early warning signs of chemical stress in the environment, they are used as model organisms in experimental studies or bioremediation processes. Microbial ecotoxicology is a field where the scientific fields are necessarily decompartmentalized: theoretical and experimental ecology, population dynamics, microbiology, soil physics, hydrology, hydrodynamics, analytical chemistry, bioprocesses, agronomy, etc. These fields represent only a small part of the disciplines used to understand the relationships between microorganisms and the pollutants they are exposed to. Scientists from different backgrounds are brought together and collaborate to produce new knowledge that will help to better understand and control the impacts of pollution on microorganisms and their consequences on the functioning of ecosystems and to propose solutions to control these impacts.

For the past 5 years, the scientific community dealing with microbial ecotoxicology has been structured, under French leadership, within the EcotoxicoMic network, first at the national level, then by opening up to international partners and colleagues (<https://ecotoxicomic.org/>). The network brings together many French and foreign researchers and teacher-researchers. A first international congress, EcotoxicoMic 2017 took place in Lyon in November 2017 and brought this community together for the first time. With more than 200 participants from 22 countries, and 120 oral and poster communications, this event demonstrated the richness and diversity of the research conducted in microbial ecotoxicology, and stimulated numerous debates and new research perspectives, in particular to better take into account the complexity of the systems studied and to assess the risks due to the emergence of new contaminants.

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Flagship project : no

Project leader : Dominique Patureau

Project leader's institution : INRA-INRAE

Project leader's RU : LBE

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