Editorial

Environmental Microbiology in China

by

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Since the new millennia, China has made up about a quarter of global Research and Development funding on science and technology. The funding has significantly promoted China's advances in basic and applied microbiology and biotechnology. China's rapid economy growth has also stimulated environmental microbiology research in various areas such as agriculture, aquaculture, deep sea ecosystems, green bioenergies, and bioremediation.

Environmental microbiology research has a long history in China and it becomes a hot topic over the past decades for three reasons. 1) China's economic boost in the past years left a legacy of environmental pollution, posing a challenge to environmental microbiology. 2) Increasing concerns of environmental quality have been raised from the public and government, and the applications of environmental microorganisms to the protection and improvement of environments, including water, air and soil, have been successfully demonstrated. 3) Both government and research funding bodies strongly supported basic research and application research on environmental microbiology. For example, National Natural Science Foundation of China (NSFC) has funded 613 projects with 347.8 million RMB for environmental microbiology research during the period of 2010-2019, and 141 universities and 69 research institutions were involved. Environmental Microbiology has firmly become an important research area in China, and a special Environmental Microbiology Committee under Chinese Society for Microbiology attracts thousands of members.

As one of the top journals in the field of environmental microbiology, Environmental Microbiology (EMI) and Environmental Microbiology Reports (EMIR) created this special issue, collecting and exampling Chinese contributions to environmental microbiology.

Here in this special issue of '*Advances in Environmental Microbiology in China*', Chinese microbiologists, together with their international collaborators, explored broad topics of environmental microbiology, from microbial ecology, biogeography, microbial physiology, evolution to gene regulations and mining novel enzymes from uncultivable microbial communities. They asked some fundamental questions of environmental microbiology: "*who are there? what are they doing? how they do it? and can we make use of them?*". They investigated microorganisms in different habitats, including the interaction of microbes and viruses in rhizosphere and ocean, CO_2 fixation in paddy soils, salinity control the structure of

microbial community in wetland, biodegradation of polycyclic aromatic hydrocarbon biodegradation in river ecosystem, bacteria impact on microcystis blooms in lake, microbial adaption mechanisms in sediment under seafloor. Studies on biogeochemistry, element cycles, microbial physiology, the interactions between microbes and virus and plants were also documented in this issue. In terms of environmental molecular biology, gene regulations, functional genes and enzyme characterisation, and genetic evolution were elegantly studied. To exploit environmental microorganisms, a study has used uncultured microbial communities as genetic resource to mine functional enzymes.

The contributors of this special issue of Environmental Microbiology (EMI) and Environmental Microbiology Reports (EMIR) are microbiologists from the Chinese Academy of Sciences, research institutes and universities.

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