



water

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Antibiotics and Antibiotic Resistant Genes in Aquatic Environments: Occurrence, Toxicity, and Fate

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Message from the Guest Editor

The water pollution crisis threatens human, animal and environmental health globally, with pollutants such as environmental antimicrobials and antibiotic-resistant genes (ARGs) emerging worldwide in different aquatic compartments. Among other stress factors, subinhibitory concentrations of antimicrobials can induce stress responses, increase mutation rates and accelerate evolution. An increasing number of bacterial species, including waterborne pathogens, are developing protective mechanisms and acquiring novel genes capable of producing drug resistance. In water environments, biofilms are hot spots for horizontal gene transfer, contributing to the increase in ARG abundances in bacterial communities, as well as in their dissemination. Therefore, besides the emergence of antibiotics and ARGs in aquatic environments, novel insights concerning the ARG transfer mechanisms, rates and pathways are required urgently.

This Special Issue aims to present novel research evaluating the emergence, evolution and spread of antibiotics, antibiotic-resistant bacteria and ARGs in aquatic environments, as well as their associated risks to human, animal and environmental health.



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Message from the Editor-in-Chief

In the context of global changes, the sustainable management of water cycles, going from global and regional water cycles to urban, industrial and agricultural water cycles, plays a very important role on the water resources and on their relationships with food, energy, biodiversity, ecosystem functioning and human health. *Water* invites authors to provide innovative original full articles, critical reviews and timely short communications and to propose special issues devoted to new technological and scientific domains and to interdisciplinary approaches of the water cycles. We ensure a critical review process and a quick turnaround between submission and final decision.

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