Special Issue for CURRENT BIOTECHNOLOGY

Biotechnology for Wastewater Treatment

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Aims & Scope:
At the beginning of the 21st century, the world faces a water crisis caused by continuous population growth and urbanization, expanding and intensifying food production, land use change, and industrialization. These numerous human activities are all putting pressure on water resources and increasing the unregulated or illegal discharge of contaminated water within and beyond national borders, which represents a serious threat for the well-being of the human population and the environment. A stunning 80-90% of all wastewater generated in developing countries is discharged directly into surface water bodies. Consequently, wastewater is one of the greatest global challenges for the sustainable development of our society. For this reason, a paradigm shift towards new approaches and technologies is required for the treatment of wastewater produced from multiple municipal, industrial and agricultural sources.

In recent years, numerous biotechnological advances are providing efficient, economical and reliable methods for the clean water challenge. This special issue will illustrate the current technological applications of microorganisms and enzymes in wastewater treatment, with special emphasis on anaerobic/aerobic microbial treatment, combination of photochemical and biological treatment, phytoremediation and algae-based remediation, as well as innovative technologies currently investigated, such as enzyme-based treatment, bioelectrochemical treatment, recovery of nutrients, waste valorization, and reuse of cleaned water. With the advent of genetic engineering, microorganisms can be designed and tailored to degrade specific types of wastes, which is also a topic of particular interest for this special issue.

Our aim is to provide a concise and reliable reference on the state-of-the-art application of biotechnology in wastewater treatment, with a collection of papers written by authors who are leading experts in the field.

Keywords: environmental biotechnology, innovative technologies, bioprocesses, bioreactors, microorganisms, enzymes, sustainable development

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