



RECENT TRENDS IN BIOFILM SCIENCE AND TECHNOLOGY

Edited by
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Preface

The ability of microorganisms to adhere on surfaces and form biofilms is a privilege. These aggregates of cells enclosed in a matrix of extracellular polymeric substances show a physiology that is distinctly different from that of the same cells in planktonic state. Biofilm growth is arguably the most relevant growth state for the majority of microorganisms, particularly bacteria. Its complexity relative to planktonic growth means that we still have a poor understanding of how microorganisms behave in such a complex structure. Biofilms are as versatile as they are ubiquitous. Intentional and unintentional biofilms concern a broad range of areas, comprising special attention in the industrial/environmental and biomedical areas. As consequence, research on biofilm science and technology is an evolving research area.

This book contributes with new insights regarding the biofilm mode of life, giving the readers a significant content focusing the recent advances on multidisciplinary biofilm research. The book is strategically outlined with data on biofilm formation by diverse microorganisms—bacteria, microalgae, and filamentous fungi. Top-notch methods for biofilm analysis and characterization are described in terms of analytical chemistry and mathematical modeling. Advanced strategies for biofilm control are detailed in several chapters as well as the *in silico* analysis for the development of biofilm-targeting molecules. Biofilms are further conveniently described for their biotechnological potential, particularly for wastewater treatment and for bioenergy production as biofilm fuel cells.

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