

## Preface

With the increasing resistance exhibited by undesirable microorganisms to traditional antibiotics, the need to discover alternative (or, at least, supplementary) treatments to combat chemically resistant microbes is becoming urgent. Quorum sensing (QS) refers to a novel microbial communication system for monitoring cell density and regulation of a network of gene expression that is mediated by a group of signaling molecules called autoinducers (AIs). QS-regulated multicellular behaviors include biofilm formation, horizontal gene transfer, and antibiotic synthesis, which are demonstrating increasing pathogenicity to plants and aquacultural animals as well as contamination of wastewater treatment devices. To inhibit QS-regulated microbial behaviors, the strategy of quorum quenching has been developed. Different quorum quenchers interfere with QS through different mechanisms, such as competitively inhibiting AI perception (e.g., by QS inhibitors) and AI degradation (e.g., by quorum quenching enzymes). In this book, we aim to collect research dealing with the innovative microbial disease biocontrol strategies via QS that have relevance in microbiology, biochemistry, molecular biology, genetics, pathology, chemistry, and all omics-based sciences. Reaching a great combination of the recent studies on the microbial disease biocontrol strategies and their multifaceted applications, this book is one of the most practical and up-to-date references available on the subject. This allows the knowledge of quorum sensing accessible to a wider range of audiences, and also introduces new thoughts and new methods for researchers, practitioners in dealing with biocontrol or related issues. The fundamental concepts, experimental process, statistical analyses, and comprehensive discussions are covered in detail, providing the readers a systematic understanding of the field.