

Preface

Lactic acid bacteria (LAB) are food-grade microorganisms that play an essential role in the fermentation of animal and vegetable raw materials. Their ability to ferment carbohydrates and to a lesser extent to degrade the proteins and the fat present in those substrates leads to the synthesis of a broad range of compounds, such as organic acids, peptides, antimicrobial and aromatic compounds, and exopolysaccharides. Vitamins, low-calorie sugars, and bioactive peptides are also produced by LAB. These metabolites may contribute to the organoleptic, technological, and nutritional characteristics of fermented food products. Moreover, certain LAB strains, the so-called probiotics, display beneficial health properties and may be involved in the production of specific functional foods.

Ongoing research on LAB and their applications is at a very exciting stage worldwide. This book encompasses a wide range of topics in the area of LAB, including basic issues (metabolism, biodiversity, and transport systems), comprehensive information on new advanced approaches (genomics and proteomics), human-health LAB-related aspects, and LAB safety, as well as traditional and novel biotechnological applications. We feel this book may serve as an essential reference for established researchers and scientists, doctoral and postdoctoral students, university professors and instructors, and food technologists working on food microbiology, physiology, and biotechnology of LAB.



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