

Brewing Microbiology

Current Research, Omics and Microbial Ecology



Edited by: **Nicholas A. Bokulich and Charles W. Bamforth**

Center for Microbial Genetics and Genomics, Northern Arizona University, USA and Department of Food Science and Technology, University of California, Davis, USA; respectively

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Research into brewing yeast and other organisms associated with beer and brewing has experienced many important advances in the past decade, propelled by technological advances in tools fundamental to the investigation of microbes and their metabolism.

This volume surveys the most recent discoveries in brewing microbiology, with an emphasis on omics techniques and other modern technologies. Discoveries in these areas have furthered our knowledge of brewing processes, with practical applications from barley growth and malting to yeast management, strain selection, fermentation control, and quality assurance. The chapters, written by experts in the field, aim not only to illuminate recent progress, but also to discuss its impact on brewing practices. Topics covered include the physiology, fermentation, taxonomy, diversity, typing, genetic manipulation, genomics and evolution of brewing yeasts. Further areas covered include the fungal contamination of barley and malt, spoilage by lactic acid bacteria and gram-negative bacteria, and beer-spoiling yeasts.

This volume is highly recommended for anyone involved in the microbiology of brewing.

Chapter 1. Brewing Yeast Physiology (*Chris Boulton*)

Chapter 2. Yeast Stress and Brewing Fermentations (*Katherine A. Smart*)

Chapter 3. Yeast Supply, Fermentation, and Handling Insights, Best Practice and Consequences of Failure (*David E. Quain*)

Chapter 4. Taxonomy, Diversity, and Typing of Brewing Yeasts (*José Paulo Sampaio, Ana Pontes, Diego Libkind and Mathias Hutzler*)

Chapter 5. Genetic Manipulation of Brewing Yeasts: Challenges and Opportunities (*Barbara Dunn, Daniel J. Kvitek and Gavin Sherlock*)

Chapter 6. Genomics and Evolution of Beer Yeasts (*Brigida Gallone, Stijn Mertens, Sam Crauwelse, Bart Lievens, Kevin J. Verstrepen and Jan Steensels*)

Chapter 7. Microbial Ecology of Traditional Beer Fermentations (*Freek Spitaels, Anneleen Diane Wieme, Isabel Snauwaert, Luc De Vuyst and Peter Vandamme*)

Chapter 8. Fungal Contamination of Barley and Malt (*Ludwig Niessen*)

Chapter 9. Investigation of Beer-Spoilage Lactic Acid Bacteria using Omic Approaches (*Jordyn Bergsveinson and Barry Ziola*)

Chapter 10. Brewery- and Beer-Spoilage-Related Gram-negative Bacteria: The Unpleasant, The Malodorous and The Outright Fetid (*Barry Ziola and Jordyn Bergsveinson*)

Chapter 11. Beer-Spoiling Yeasts: Genomics, Detection, and Control (*Chris D. Powell and Daniel W.M. Kerruish*)

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