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Titolo	Stress Biology of Yeasts and Fungi [[electronic resource]] : Applications for Industrial Brewing and Fermentation / / edited by Hiroshi Takagi, Hiroshi Kitagaki
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ISBN	4-431-55248-0
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Soggetti	Microbiology Biotechnology Biochemistry Eukaryotic Microbiology Biochemistry, general
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	1 The Breeding of Bioethanol-Producing Yeast by Detoxification of Glycolaldehyde, a Novel Fermentation Inhibitor -- 2 Stress Tolerance of Baker's Yeast During Bread-Making Processes -- 3 Yeast mRNA Flux During Brewing and Under Ethanol Stress Conditions -- 4 Mechanism of High Alcoholic Fermentation Ability of Sake Yeast -- 5 Stress Responses of the Yeast <i>Saccharomyces cerevisiae</i> Under High Hydrostatic Pressure -- 6 Environmental Stresses to Which Yeast Cells Are Exposed During Bioethanol Production from Biomass -- 7 Mechanism of Yeast Adaptation to Weak Organic Acid Stress -- 8 Nutrient Stress Responses of the Bottom-Fermenting Yeast -- 9 Unique Metabolic Responses to Hypoxia and Nitric Oxide by Filamentous Fungi -- 10 Cell Wall Biosynthesis in Filamentous Fungi -- 11 Stress Responses of Koji Mold Cells with Highly Polarized and Multicellular Morphology -- 12 Protein Kinase C of Filamentous Fungi and Its Roles in the Stresses Affecting Hyphal Morphogenesis and Conidiation -- 13

Response and Adaptation to Cell Wall Stress and Osmotic Stress in *Aspergillus* Species.

Sommario/riassunto

This book describes cutting-edge science and technology of the characterization, breeding, and development of yeasts and fungi used worldwide in fermentation industries such as alcohol beverage brewing, bread making, and bioethanol production. The book also covers numerous topics and important areas the previous literature has missed, ranging widely from molecular mechanisms to biotechnological applications related to stress response/tolerance of yeasts and fungi. During fermentation processes, cells of yeast and fungus, mostly *Saccharomyces* and *Aspergillus oryzae* spp., respectively, are exposed to a variety of fermentation “stresses”. Such stresses lead to growth inhibition or cell death. Under severe stress conditions, their fermentation ability and enzyme productivity are rather limited. Therefore, in terms of industrial application, stress tolerance is the key characteristic for yeast and fungal cells. The first part of this book provides stress response/tolerance mechanisms of yeast used for the production of sake, beer, wine, bread, and bioethanol. The second part covers stress response/tolerance mechanisms of fungi during environmental changes and biological processes of industrial fermentation. Readers benefit nicely from the novel understandings and methodologies of these industrial microbes. The book is suitable for both academic scientists and graduate-level students specialized in applied microbiology and biochemistry and biotechnology and for industrial researchers and engineers who are involved in fermentation-based technologies. The fundamental studies described in this book can be applied to the breeding of useful microbes (yeasts, fungi), the production of valuable compounds (ethanol, CO₂, amino acids, organic acids, and enzymes) and the development of promising processes to solve environmental issues (bioethanol, biorefinery).