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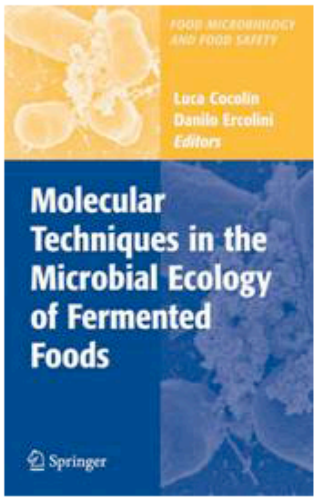

Molecular Techniques in the Microbial Ecology of Fermented Foods

Series: Food Microbiology and Food Safety

Edited By:
Luca Cocolin, Dipartimento di Valorizzazione e Protezione delle Risorse Agroforestali, University of Turin, Italy
Danilo Ercolini, School of Biotechnological Sciences, Department of Food Science, University of Naples Federico II, Italy

Among the Contributors:
Cocolin, L., Comi G., Coppola S., Ercolini D., Gálvez A., Giraffa G., Guyot J.-P., Mills D.A., Rantsiou K., Rudi K., Tannock G., Vogel R.F., Zagorec M.

Molecular Techniques in the Microbial Ecology of Fermented Foods is the first book of its kind, reporting new developments in the microbiology of fermented foods arising from the use of molecular approaches.

It is well recognized by researchers world-wide that traditional microbiological methods often fail to characterize minor populations or microorganisms for which a selective enrichment is necessary. Moreover, stressed and injured cells need specific culturing conditions to recover and become cultivable on agar media. Lastly, conventional microbiological techniques are not able to detect viable but not culturable cells. The use of molecular techniques allows the precise study of the microbial populations involved in the food fermentation, avoiding the biases related with the traditional methods. Culture-dependent techniques, defined as identification, molecular characterization and typing of microbes isolated from the food, and culture-independent methods, as description of the microbial populations present (at DNA level) and/or active (at RNA level) without the need of traditional isolation, are taken into consideration.

This book is devoted to providing not only a current look at this rapidly-developing field, but also lends some foresight to the future of the subject. It serves as a guide for students, researchers, and professionals on the most advanced techniques in identifying bacteria and studying fermented food from a microbiological point of view.

Content: Molecular techniques in food fermentation: principles and applications- Dairy products- Fermented meat products- Sourdough fermentations- Vegetable fermentations- Wine fermentation- Beer production- Other fermentations- Probiotics: lessons learned from nucleic acid-based analysis of bowel- B ioinformatics for DNA sequence-based microbiota analyses- Role of bacterial 'omics' in food fermentation.

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