Modeling in Food Microbiology: From Predictive Microbiology to Exposure Assessment (Modeling and Control of Food Processess Set)

By Jeanne-Marie Membré, Vasilis Valdramidis

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Predictive microbiology primarily deals with the quantitative assessment of microbial responses at a macroscopic or microscopic level, but also involves the estimation of how likely an individual or population is to be exposed to a microbial hazard.

This book provides an overview of the major literature in the area of predictive microbiology, with a special focus on food. The authors tackle issues related to modeling approaches and their applications in both microbial spoilage and safety.

Food spoilage is presented through applications of best-before-date determination and commercial sterility. Food safety is presented through applications of risk-based safety management. The different modeling aspects are introduced through probabilistic and stochastic approaches, including model and data uncertainty, but also biological variability.

- Features an extensive review of modelling terminology
- Presents examples of all available microbial models (i.e., growth, inactivation, growth/no growth) and applicable software
- Revisits all statistical aspects related to exposure assessment
- Describes realistic examples of implementing microbial spoilage and safety modeling approaches

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Editorial Review

About the Author
Jeanne-Marie Membré is Senior Research Scientist at the French National Institute for Agricultural Research in Nantes, France. Her research focuses on aspects of preservation, safety, microbiology and engineering of food.

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microbiology and modeling and food safety and preservation using natural antimicrobials, non-thermal technologies and disinfection.

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