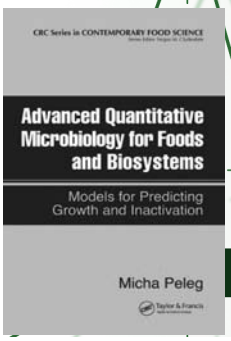
New!



PREDICT MICROBIAL GROWTH IN REAL TIME

Advanced Quantitative Microbiology for Foods and Biosystems

Models for Predicting Growth and Inactivation

Micha Peleg
University of Massachusetts, Amherst, USA

A volume in the ***Contemporary Food Science*** series
Edited by Fergus M. Clydesdale,
University of Massachusetts, Amherst, USA

Explore how patterns can be more accurately predicted

Presenting a novel view of the quantitative modeling of microbial growth and inactivation patterns in food, water, and biosystems, **Advanced Quantitative Microbiology for Foods and Biosystems: Models for Predicting Growth and Inactivation** describes new models for estimating microbial growth and survival. The author covers traditional and alternative models, thermal and non-thermal preservation, water disinfection, microbial dose response curves, interpretation of irregular count records, and how to estimate the frequencies of future outbursts. He focuses primarily on the mathematical forms of the proposed alternative models and on the rationale for their introduction as substitutes to those currently in use.

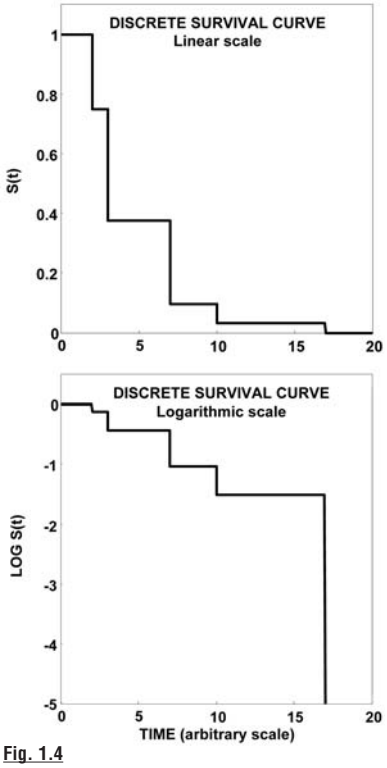


Fig. 1.4

Schematic view of the survival curve of a microbial population having a discrete spectrum of heat resistances.

The book provides examples of how some of the methods can be implemented to follow or predict microbial growth and inactivation patterns, in real time, with free programs posted on the web, written in MS Excel®, and examples of how microbial survival parameters can be derived directly from non-isothermal inactivation data and then used to predict the efficacy of other non-isothermal heat treatments. Featuring numerous illustrations, equations, tables, and figures, the book elucidates a new approach that resolves several outstanding issues in microbial modeling and eliminates inconsistencies often found in current methods.

Features

- Covers how to use the new approach to predict the outcome of anti-microbial treatments and estimate the potential frequencies of future safety problems in foods and water
- Includes numerous schematic drawings that allow you to grasp the new methods and underlying concepts
- Provides a critical assessment of the discrepancies between theory and reality and fosters an alternative interpretation of the literature and experimental results
- Includes demonstrations with actual data that illustrate how microbial systems often respond in ways that differ from that implied by the standard theories
- Explores how growth and mortality patterns can be more accurately predicted with modern mathematical procedures and software

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CRC Press
Taylor & Francis Group

**Catalog no. 3645, April 2006
408 pp., ISBN: 0-8493-3645-7
$159.95 / £92.00**

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