

Librería  
**Bonilla y Asociados**  
desde 1950



**Título:** Understanding And Controlling The Microstructure Of Complex Foods

**Autor:** Mcclements, D. Julian

**Precio:** \$4658.00

**Editorial:**

**Año:** 2007

**Tema:**

**Edición:** 1ª

**Sinopsis**

**ISBN:** 9781420065732

With its distinguished editor and array of international contributors, this book provides a review of current understanding of significant aspects of food structure and methods for its control. It begins with coverage of the fundamental structural elements present in foods and the forces which hold them together, discusses novel analytical techniques which can provide information on the morphology and behaviour of food materials, then examines how the principles of structural design can be employed to improve performance and functionality of foods. The book concludes with a discussion of how this knowledge can be implemented to improve properties of foods.

**MICROSTRUCTURAL ELEMENTS AND THEIR INTERACTIONS**

Polysaccharides: Their Role in Food Microstructure, V.J. Morris

Introduction

Food Polysaccharides

Functional Polysaccharides in Food

Microstructural Origins of Functional Properties

Polysaccharide Interactions with Other Food Components

Manipulating Polysaccharide Structure and Function in Foods

Future Trends

References and Further Information

Proteins in Food Microstructure Formation, H.H.J. de Jongh

Introduction

Proteins and Their Functional Groups

Protein Aggregation and Network Formation

Interface Stabilization by Proteins

Application of Protein Functionality

References

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Structure and Function of Fat Crystals and Their Role in Microstructure Formation in Complex Foods, D. Tang and A.G. Marangoni

Introduction

Physical Properties of Fat Crystal Networks

Physical Models of the Microstructure of Fat Crystal Networks

Microstructure of Fat Crystal Networks

Fractal Dimensions Used to Quantify Microstructure of Fat Crystal Networks

Fractal Dimension and Crystallization Kinetics

Future Trends

Sources of Further Information and Advice

References

Effects of Water Distribution and Transport on Food Microstructure, E. Vittadini and Y. Vodovotz

Introduction

Measuring Water Distribution and Transport in Complex Systems and Its Effect on Food Microstructure

Controlling Water Distribution and Transport to Improve the Quality of Complex Foods

Future Trends

Sources of Further Information and Advice

References

Structure and Function of Emulsifiers and Their Role in Microstructure Formation in Complex Foods, N.M. Barfod and F.V. Sparso

Introduction: Emulsifiers in Complex Foods

Structure, Properties and Interactions of Three Important Food Emulsifiers

The Role of Emulsifiers in Microstructure Formation in Complex Foods

Controlling Surfactant Behaviour to Improve Microstructure in Complex Foods

Future Trends

References

Colloidal Systems in Foods Containing Droplets and Bubbles, E. Dickinson

Introduction

Colloidal Particles in Complex Foods

Stabilization of Oil-Water and Air-Water Interfaces

Interactions of Particles, Droplets and Bubbles in Food Colloids

Teléfonos: 55 44 73 40 y 55 44 72 91

[www.libreriabonilla.com.mx](http://www.libreriabonilla.com.mx)

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Structure Formation by Particles, Droplets and Bubbles  
Using Microscopy to Probe Stability and Instability Mechanisms  
Using Microscopy to Monitor Aggregation and Gelation Processes  
Future Trends  
References

Ingredient Interactions in Complex Foods: Aggregation and Phase Separation, V.B. Tolstoguzov  
Introduction  
Macromolecular Ingredient Interactions  
Incompatibility of Biopolymers  
Conclusions  
Future Trends and Sources of Further Information  
References

**NOVEL METHODS TO STUDY FOOD MICROSTRUCTURE**

Atomic Force Microscopy (AFM) Techniques for Characterizing Food Structure, V.J. Morris  
Introduction  
AFM and Other Microscopic Methods  
Applications of AFM in Food Science  
Applications in Food Technology  
Future Trends  
Further Information  
References

Confocal Fluorescence Microscopy (CLSM) for Food Structure Characterisation, N. Lorén, M. Langton and A.-M. Hermansson  
Introduction  
Principles of Modern CLSM  
CLSM and the Study of Food Structure  
Application of CLSM to Food Systems  
Measuring and Modelling Using CLSM Images  
Conclusions and Future Trends  
References

Advances in Image Analysis for the Study of Food Microstructure, J.M. Aguilera and J.C. Germain  
Introduction: Obtaining Quantitative Microstructural Information About Food from Image

Teléfonos: 55 44 73 40 y 55 44 72 91

[www.libreriabonilla.com.mx](http://www.libreriabonilla.com.mx)

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Analysis

Particular Difficulties in Image Analysis

Advances in Image Processing and Measurement Tools

Advances in Image Analysis Techniques

Future Trends

Sources of Further Information and Advice References

Food Characterisation Using Scattering Methods, T Nicolai

Introduction

Techniques and Instruments

Advantages and Disadvantages of Scattering Methods Over Other Methods

Using Scattering Methods to Study Particular Structures and Processes

Future Trends

Sources of Further Information and Advice

References

Acoustic Techniques to Characterize Food Microstructure, M Povey

Introduction: Using Acoustic Techniques to Study Food Microstructure

Techniques and Instruments Used

Using Ultrasonic Techniques to Study Particular Structures and Processes

Advantages and Disadvantages of Acoustic Techniques Over Other Methods

Future Trends

Sources of Further Information and Advice

References

Modelling and Computer Simulation of Food Structures, S.R. Euston, G. Costello, M.A. Naser,  
and M.L. Nicolosai

Introduction

Computer Simulation Techniques

Using Modelling and Computer Simulation to Study Bio-Molecules in Foods

Using Modelling and Computer Simulation to Study Colloidal Phenomena in Foods

Future Trends

Sources of Further Information and Advice

References

**MICROSTRUCTURAL-BASED APPROACHES TO DESIGN OF FUNCTIONALITY IN  
FOODS**

Teléfonos: 55 44 73 40 y 55 44 72 91

[www.libreriabonilla.com.mx](http://www.libreriabonilla.com.mx)

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Creation of Novel Microstructures Through Processing: Structure Formation in (Semi-) Solid Food Materials, A.J. van der Goot and J. Manski

Introduction

The Effect of Processing on Structure and Molecular Properties

Effect of Deformation on Food Structure

Balancing Deformation and Solidification

Improving Structure Formation in (Semi-) Solid Foods

Future Trends

References

Influence of Food Microstructure on Food Rheology, M.A. Rao

Introduction

The Microstructure and Rheology of Foods

Common Rheological Methods: Small-Amplitude Oscillatory, Shear Flow and Large-Deformation Tests

Theoretical Rheological Models and Their Application

Structural Models and Analysis of Rheology

Future Trends

Sources of Further Information and Advice

References

Influence of Food Microstructure on Flavour Interactions, S. Ghosh and J.N. Coupland

Introduction

Thermodynamics of Flavour Interactions

Kinetics of Flavour Release

Experimental Systems to Validate Models

Conclusions

References

Relating Food Microstructure to Sensory Quality, G.A. van Aken

Introduction: Importance of Studying the Relationship Between Food Microstructures and Sensory Properties

Methods to Study the Intra-Oral Behaviour of Emulsions and Other Complex Foods

Understanding the Intra-Oral Behaviour of Foods

Future Trends

References

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Physicochemical and structural aspects of lipid digestion, D.J. McClements, E.A. Decker, and Y. Park

Introduction

Lipids in the Human Diet

Physicochemical and Structural Aspects of Lipid Ingestion, Digestion and Absorption

Experimental Studies of Lipid Digestion and Absorption

Future Trends

Further Information

References

Nanoscale Liquid Self-Assembled Dispersions in Foods and the Delivery of Functional Ingredients, N. Garti and A. Aserin

Introduction

Association Nanocolloids

Micellar Systems and Microemulsions

Lyotropic Liquid Crystals (Lamellar, Hexagonal, Cubic Phase) and Corresponding Dispersions (Cubosomes, Hexosomes, Micellosomes)

Conclusions

References

**MICROSTRUCTURAL APPROACHES TO IMPROVING FOOD PRODUCT QUALITY**

Structure-Engineering of Ice-Cream and Foam-Based Foods, H.D. Goff and C. Vega

Introduction

Description and Formation of Microstructure

Methods to Study the Microstructure of Whipped Cream, Ice-Cream and Other Foam-Based Foods

Future Trends

Sources of Further Information and Advice

References

The Texture and Microstructure of Spreads, A. Bot, E. Flöter, J.G. Lammers, and E.G. Pelan

Introduction

Emulsion Microstructure: Ingredients

Emulsion Microstructure: Processing

Spread Stability During Transport and Storage

Analysing Spread Texture

Future Trends

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



References

Microstructural Approaches to the Study and Improvement of Cheese and Yogurt Products, J.A. Lucey

Introduction

Casein micelles: The Building Blocs of Yogurt and Cheese

Structure Development in Cheese

Structure Development in Yogurt

Methods to Study the Microstructure of Yogurt and Cheese

Future Trends

Sources of Further Information and Advice

Acknowledgment

References

Microstructural Aspects of Protein-Based Drinks, M. Mellema and A.

Introduction

Dairy Drinks: An Introduction

Effects of Processing

Effects of Stabilising Hydrocolloids

Improving the Nutritional Quality of Dairy Drinks

References

The Microstructure of Chocolate, D. Rousseau

Introduction

The Composition of Chocolate

Fat Structure-Function Relationship

Chocolate Making Process

Fat Bloom

Methods to Study the Microstructure of Chocolate

The Microstructure of Chocolate

Effects of Processing on Microstructure

Summary and Future Trends

Sources of Further Information and Advice

Acknowledgements

References

Bubble Formation and Stabilisation in Bread Dough, E.N.C. Mills, L.J. Salt, and P.J. Wilde

Teléfonos: 55 44 73 40 y 55 44 72 91

[www.libreriabonilla.com.mx](http://www.libreriabonilla.com.mx)

*Librería*  
***Bonilla y Asociados***  
*desde 1950*



Introduction  
Bread Foam Formation  
Bread Foam Stabilisation  
Liquid Film Composition and Properties in Bread Foam Stabilisation  
Emulsifiers  
Lipase  
Conversion From Foam to Sponge  
Conclusion  
References

Food Microstructure and Shelf-Life of Emulsion and Gel-Based Products, G. Barker and R. Penfold

Introduction  
Complex Food Materials  
Stability and Control  
Review of Measurement Techniques  
Summary  
References

Appendix: Magnetic Resonance Methods for the Study of Food Microstructure, P.S. Belton

Introduction  
The Basic Concepts  
The Interaction of Distance and Time Scales  
Examining Microstructure by Relaxation Times and Line Shapes  
Microstructure from Diffusion Measurements  
Microstructure from NMR Imaging  
Future Trends  
Sources of Further Information and Advice  
References