

Book reviews

Fruit quality and its biological basis

M. KNEE (Ed.)

Sheffield Academic Press Ltd., Sheffield, UK, 2002, ISBN 1-84127-230-2, 279 pages
CRC, Boca Raton, FL, USA, ISBN-0-8493-9781-2

This book reviews important aspects of fruit physiology and summarises the state of knowledge of major types of fruit. Fruit growing has not been immune from the challenges of an increasingly globalised market. The growth in understanding of fruit development at the molecular level has contributed to the overall development of plant science, particularly in the areas of cell wall metabolism, ethylene synthesis and action. This volume synthesises our knowledge on the biological basis of fruit, and the controlling possibilities in the post-harvest operations. The chapters are the followings: (1) Fruit in the global market; (2) Inorganic nutrients and fruit quality; (3) Fruit texture, cell wall metabolism and consumer perceptions; (4) Fruit flavor, volatile metabolism and consumer perceptions; (5) Temperature management; (6) Atmosphere control using oxygen and carbon dioxide; (7) Mechanical injury; (8) Ethylene synthesis, mode of action, consequences and control; (9) Management of postharvest diseases; (10) Genetic control of fruit ripening.

The opening chapter classifies the botanical nature of different fruits. The second chapter is related to mineral uptakes during growth. The next two chapters address important aspects of fruit quality as perceived by the consumer texture and flavour. The following three chapters consider how various factors influence fruit physiology after harvest. Two chapters consider how fruit quality can be adversely affected by mechanical damage and pathogen attack. The book concludes with a review of the potential for genetic control of fruit physiology and development. Each chapter contains a valuable list of references, and an index at the end of book helps the reader to find interesting subjects.

The authors – and reviewer – recommend this book to specialist, students in post-harvest physiology.

E. KOVÁCS

Food process modelling

L.M.M. TIJSENS, M.L.A.T.M. HERTOOG and B.M. NICOLAI (Eds)

CRC Press Boca Raton Boston, New York, Washington, DC
Woodhead Publishing Ltd., Cambridge, England, 2001, ISBN 1-85573-533-4, 496 pages

Food process modelling provides an authoritative review of one of the most exciting and influential developments in the food industry. The modelling of food processes allows analysts not only to understand food processes more clearly but also to control them more closely and make predictions about them. Modelling thus provides the foundation for future improvements in food quality. Written by a distinguished international team of experts, *Food process modelling* covers both the range of modelling techniques and their practical applications across the food chain.

The first two parts of the book introduce the two main approaches to modelling. Part 1 considers fundamental modelling techniques based on an understanding of basic chemical, biological and physical processes. Part 2 covers empirical approaches which develop models based solely on the analysis of experimental data. With this grounding in modelling principles, the remaining three parts of the book provide case studies of modelling in action. Part 3 looks at agricultural production with chapters on the modelling of fruit and vegetable cultivation, dairy and beef production. Part 4 shows modelling at work in a range of process technologies from heating and chilling to modified atmosphere packaging. Finally, Part 5 looks at broader aspects of food quality and safety in the entire food chain as well as the role of modelling in optimising storage and distribution.

The contents of the book: Part I The principles of modelling: fundamental approaches: (1) The power and pitfalls of deductive modelling; (2) Problem decomposition; (3) Kinetic modelling; (4) The modelling of heat and mass transfer; (5) Combined discrete/continuous modelling, Part II The principles of modelling: empirical approaches; (6) The power and pitfalls of inductive modelling; (7) Data mining; (8) Modelling and prediction in an uncertain environment, Part III Applications: agricultural production; (9) Yield and quality prediction of vegetables: the case of cucumber; (10) Modelling and management of fruit production: the case of tomatoes; (11) Dairy production; (12) Beef cattle production, Part IV Applications: processing technologies; (13) The use of models in process development: the case of fermentation processes; (14) Improving modified atmosphere packaging through conceptual models; (15) Modelling thermal processes: cooling and freezing; (16) Modelling thermal processes: heating, Part V Applications: safety and quality in the food chain; (17) Modelling food quality; (18) Modelling microbiological safety; (19) Modelling the use of time-temperature indicators in distribution and stock rotation; (20) Modelling the management of distribution centers; (21) Concepts of chain management and chain optimization.

Each chapter contains list of references and at the end of the book an index helps the reader in orientation.

The authors – and the reviewer – recommend this book to specialists, engineers dealing with the modelling of food processes and their practical applications across the food chain. Further this book gives a detailed overview on the theory of food processes modelling.

E. KOVÁCS

Handbook of herbs and spices

K.V. PETER (Ed.)

CRC Press, Boca Raton, USA, ISBN 0-8493-1217-5
Woodhead Publishing Ltd, Cambridge, England, 2001, ISBN 1-85573-5628, 319 pages

Herbs and spices are among the most versatile and widely used ingredients in food processing. As well as their traditional role in flavouring and colouring foods, they have increasingly been used as natural preservatives and for their potential health-promoting properties, for example as antioxidants. Edited by a leading authority in the field, and with a distinguished international team of contributors, the *Handbook of herbs and species* provides an essential reference for manufacturers wishing to make the most of these important ingredients.

A first group of chapters looks at general issues including quality indices for both conventional and organically produced herbs, spices and their essential oils. However, the main body of the handbook consists of over twenty chapters covering key spices and herbs from aniseed, bay leaves and black pepper to saffron, tamarind and turmeric. Chapters cover key issues from definition and classification to chemical structure, cultivation and post-harvest processing, uses in food processing, functional properties, regulatory issues, quality indices and methods of analysis.

Contents: (1) Introduction; (2) Quality specifications for herbs and spices; (3) Quality indices for spice essential oils; (4) Organic spices; (5) Aniseed; (6) Bay leaves; (7) Black pepper; (8) Capsicum, chillies, paprika, bird's eye chilli; (9) Cardamom (small); (10) Cardamom (large); (11) Cinnamon; (12) Clove; (13) Cumin; (14) Curry leaf; (15) Dill; (16) Garlic; (17) Ginger; (18) Kokam and cambodge; (19) Marjoram; (20) Nutmeg and mace; (21) Onion; (22) Poppy; (23) Rosemary and sage as antioxidants; (24) Saffron; (25) Tamarind; (26) Turmeric.

Each chapter generally contains a short introduction, cultivation, production, extraction methods, summarise the functional, antimicrobial and antioxidant properties of herbs and spices, chemical structure (and toxicity), therapeutic properties, uses in traditional medicine as well as in the every day practices (household and industrial).

Each chapter contains list of references and there is the useful index at the end of the book.

The authors – and the reviewer – recommend this book to specialists in food manufacturing using natural preservatives and health-promoting substances. Further this book recommends to specialists in growing of herbs and spices; – and for every day people who are interested in natural products.

E. KOVÁCS