Modified Atmosphere And Active Packaging Technologies Contemporary Food Engineering

Recent Packaging and Logistics of Fresh and Processed Foods
Modified Atmosphere Packaging and Storage of Indian Jujube Fruit
Active and Intelligent Food Packaging
Advances in Meat, Poultry and Seafood Packaging
Guidelines for packaging in modified atmosphere : microbiological and nutritional aspects
Intelligent and Active Packaging for Fruits and Vegetables
Smart Packaging Technologies for Fast Moving Consumer Goods
Modified Atmosphere Packaging of Foods
Biopackaging
Advanced Packaging Technologies For Fruits and Vegetables
Modified Atmosphere Packaging of Foods

Advances in microbial food safety
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Food Packaging
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Innovations in Food Packaging
Minimally Processed Foods
Active Packaging for Various Food Applications

HILLARY LIU

CRC Press

The book will be focused on the three most important aspects of food packaging: Modeling, Materials and Packaging Strategies. The modeling section will provide a complete overview of mass transport phenomena in

polymers intended for food packaging applications. The materials section will cover the most interesting problem-solving solutions in the field of food packaging, i.e., low environmental impact active films with antimicrobial activity. Lastly, the packaging section will provide an overview of the most recent approaches used to prolong the shelf life of several food products. Recent Packaging and Logistics of Fresh and Processed Foods John Wiley & Sons Investigation on Effect of active modified atmosphere packaging and storage temperature on shelf life and quality of Indian jujube (Ziziphus mauritiana Lamk.) cv. Gola fruit was carried out with 21 treatment combinations. Two concentrations of oxygen (2% and 5%), three concentrations of carbon dioxide (5%, 10% and 15%) and one control (environmental gaseous composition with 21% O2 and 0.03% CO2) were used in packages. Fruits were stored at ambient, 12ºC, or 6ºC temperatures. Treatment combination 5% O2 & 5% CO2 at 6ºC was found best for maintaining qualitative and physiological attributes and increased the shelf life up to 35 days, however, chilling injury on fruits were seen. Better retention of color coordinates (L*, a*, b*, hº and C*), higher TSS and firmness, retention of higher ascorbic acid, acidity, phenol and moisture content, lower water loss and highest scores for overall orgenoleptic attributes were found in MAP with low temperatures. Finally this study indicated that Indian jujube fruit could be stored at 6ºC for 35 days with MAP (5%

O2 and 5% CO2) allowed conservation of ber fruits with highest quality parameters and minimal risk of disorder development.

Modified Atmosphere Packaging and Storage of Indian Jujube Fruit

Modified Atmosphere and Active Packaging Technologies

A complete guide to the principles and practical application of modified atmosphere packaging Modified atmosphere packaging (MAP) is one of the most cost-effective, versatile, and commonly used methods of preserving food products available today. Employed in both ambient and chilled conditions, it can prolong shelf-life and preserve the quality of a wide array of items via careful processes of atmospheric engineering. The essential scientific principles underlying this technology can, however, be difficult to grasp and effectively apply. With Modified Atmosphere Packaging of Foods, esteemed food science professor Dong Sun Lee provides a thorough and practical explanation of all aspects of MAP. Chapters covering the development, impact, and day-to-day application of the technique give a well-rounded understanding of its pivotal role in the food industry, while accounts of other active packaging methods help to provide broader context. This important new book includes: Detailed guidance on all aspects of MAP – from its scientific background to its practical application Information on how specific MAP products may be developed according to their particular engineering principles

Coverage of the related active and intelligent packaging techniques Discussion of relevant food safety issues and regulations Containing vital information for industry professionals and food science researchers alike, Modified Atmosphere Packaging of Foods is an essential text for all those working to improve the quality and shelf-life of the food we eat.

Active and Intelligent Food Packaging CRC Press

Consumers are switching to fresh, minimally processed foods, creating challenges in terms of ensuring food safety. The shift in food production from local to global has led to a complex logistics chain. These trends and challenges have lead to the development of packaging materials with better barrier properties, and active and intelligent packaging. A recent trend is the increasing sustainability of food packaging. Modified atmosphere or vacuum packaging gives a longer shelf life by reducing the growth of spoilage microorganisms and/or oxidation processes. This chapter focuses on modified-atmosphere packaging (MAP). The effects of high and low O2, elevated CO2 concentrations and equilibrium modified-atmosphere packaging (EMAP) are considered. The influence on food infectants, toxin-producing bacteria and mycotoxins is discussed. Recent studies on MAP have had contradictory results, mostly owing to differences in experimental design and materials.

Advances in Meat, Poultry and Seafood Packaging John Wiley & Sons

This book examines the whole range of modern packaging options. It covers edible packaging based on carbohydrates, proteins, antioxidative and antimicrobial packaging, and the chemistry of food and food packaging, such as plasticization and polymer morphology. Issues related to shelf life and biodegradability are also discussed, in addition to newly discovered processing and preservation techniques, most notably modified atmosphere packaging (MAP) and active packaging (AP).

Guidelines for packaging in modified atmosphere : microbiological and nutritional aspects Council of Europe

Modified Atmosphere and Active Packaging TechnologiesCRC Press

Intelligent and Active Packaging for Fruits and Vegetables Elsevier

A complete guide to the principles and practical application of modified atmosphere packaging Modified atmosphere packaging (MAP) is one of the most cost-effective, versatile, and commonly used methods of preserving food products available today. Employed in both ambient and chilled conditions, it can prolong shelf-life and preserve the quality of a wide array of items via careful processes of atmospheric engineering. The essential scientific principles underlying this technology can, however, be difficult to grasp and effectively apply. With Modified Atmosphere Packaging of Foods, esteemed food science professor Dong Sun Lee provides a thorough and practical explanation of all aspects of

MAP. Chapters covering the development, impact, and day-to-day application of the technique give a well-rounded understanding of its pivotal role in the food industry, while accounts of other active packaging methods help to provide broader context. This important new book includes: Detailed guidance on all aspects of MAP – from its scientific background to its practical application Information on how specific MAP products may be developed according to their particular engineering principles Coverage of the related active and intelligent packaging techniques Discussion of relevant food safety issues and regulations Containing vital information for industry professionals and food science researchers alike, Modified Atmosphere Packaging of Foods is an essential text for all those working to improve the quality and shelf-life of the food we eat.

Smart Packaging Technologies for Fast Moving Consumer Goods CRC Press Microbial attacks occur on food surfaces even when the food is packaged. This can be attributed to moisture permeability in the packaging materials and other environmental conditions. Therefore, active agents like antimicrobial components and antioxidants must be incorporated into the packaging system; these active agents function by enhancing the stability of the product to a greater extent. Implementing an active packaging system ensures the safety and quality aspects of packaged foods so that consumers may use the products

without worry. Active Packaging for Various Food Applications addresses the significance of active packaging for enhancing the quality and safety of various packaged foods. This book discusses extending the shelf life of various food products by incorporating various active packaging systems. It also addresses bioactive materials used for packing food products and applications of nanomaterials in an active packaging system. Key Features: Describes the uses of active packaging materials for various food processing industries like dairy, cereals, fruits and vegetables, meat, etc. Explains the application of biosensors for the detection of spoilage of active packed food products Discusses the importance of active packaging techniques for retaining antioxidants and micro as well as macronutrients Highlights the importance of active packaging of foods and its advantages This book is a great source for academicians, scientists, research scholars, and food industry personnel because it sheds light on the recent techniques used in active packaging systems for enhancing quality aspects.

Modified Atmosphere Packaging of Foods

LAP Lambert Academic Publishing

The key requirements for chilled food products are good quality and microbiological safety at the point of consumption. The first edition of Chilled foods quickly established itself as the standard work on these issues. This major new edition strengthens that reputation, with extensively revised and expanded coverage (including more than

ten new chapters) and significant participation from those in the chilled food industry to increase the publication's relevance to practitioners. The introduction discusses key trends and influences in the chilled foods market. Part one explores the critical importance of raw material selection and packaging materials in final product quality, with expanded coverage of particular ingredients such as fish, cheese and poultry and a new contribution on chilled food packaging materials and technologies. Part two focuses on technologies and processes in the supply chain, with entirely new chapters on refrigeration, storage and transport and non-microbial hazards such as allergens, among others. Alongside are updated chapters on the important topics of hygienic design, cleaning and disinfection and temperature monitoring and measurement. Part three covers microbiological hazards, with new chapters on predictive microbiology and conventional and rapid analytical microbiology. The final part contains three new chapters devoted to essential issues in safety and quality management, such as shelf-life, quality and consumer acceptability. A wholly updated chapter on legislation and criteria completes the volume. Extensively revised and expanded, the third edition of Chilled foods is an essential reference for professionals involved in the manufacture of chilled food products. Reviews key trends and influences in the chilled food market

Explores the importance of raw material selection and packaging materials in final product quality Discusses technologies and processes in the supply chain, focusing on refrigeration, storage and transport

Biopackaging Wiley-Blackwell

Packaging plays an essential role in protecting and extending the shelf life of a wide range of foods, beverages and other fast-moving consumer goods. There have been many key developments in packaging materials and technologies in recent years, and Trends in packaging of food, beverages and other fast-moving consumer goods (FMCG) provides a concise review of these developments and international market trends. Beginning with a concise introduction to the present status and trends in innovations in packaging for food, beverages and other fast-moving consumer goods, the book goes on to consider modified atmosphere packaging and other active packaging systems, including smart and intelligent packaging, and the role these play in augmenting and securing the consumer brand experience. Developments in plastic and bioplastic materials and recycling systems are then discussed, followed by innovations and trends in metal, paper and paperboard packaging. Further chapters review international environmental and sustainability regulatory and legislative frameworks, before the use of nanotechnology, smart and interactive packaging developments for enhanced communication at the packaging/user interface are explored.

Finally, the book concludes by considering potential future trends in materials and technologies across the international packaging market. With its distinguished editor and international team of expert contributors, Trends in packaging of food, beverages and other fast-moving consumer goods (FMCG) is an important reference tool, providing a practical overview of emerging packaging technologies and market trends for research and design professionals in the food and packaging industry, and academics working in this area. Introduces the present status, current trends and new innovations in the field whilst considering future trends in materials and technologies Considers modified atmosphere packaging and other active packaging systems including smart and intelligent packaging Discusses developments in plastic and bioplastic materials and recycling systems

Advanced Packaging Technologies For Fruits and Vegetables Elsevier

Food packaging performs an essential function, but packaging materials can have a negative impact on the environment. This collection reviews bio-based, biodegradable and recycled materials and their current and potential applications for food protection and preservation. The first part of the book looks at the latest advances in bio-based food packaging materials. Part two discusses the factors involved in choosing alternative packaging materials such as consumer preference, measuring the environmental

performance of food packaging, eco-design, and the safety and quality of recycled materials. Part three contains chapters on the applications of environmentally-compatible materials in particular product sectors, including the packaging of fresh horticultural produce, dairy products and seafood. This section also covers active packaging, modified atmosphere packaging and biobased intelligent food packaging. The book finishes with a summary of the legislation and certification of environmentally-compatible packaging in the EU. With its distinguished editor and contributors, Environmentally-compatible food packaging is a valuable reference tool for professionals in the food processing and packaging industries. Reviews bio-based, biodegradable and recycled materials and their current and potential applications Discusses consumer preference, environmental performance, eco-design and the quality of recycled materials as factors involved in choosing alternative packaging materials Summarises EU legislation and certification of environmentally compatible packaging

Modified Atmosphere Packaging of Foods

Springer Science & Business Media

With a wealth of illustrations, examples, discussion questions, and case studies, the Food Packaging Science and Technology covers basic principles and technologies as well as advanced topics such as active, intelligent, and sustainable packaging with unparalleled depth and breadth of scope.

Emphasizing the application of relevant scientific

Advances in microbial food safety CRC Press

This volume addresses the challenges of the short shelf life of fruits and vegetables. Innovative packaging technologies are the most promising strategies for overcoming these limitations. This book provides a host of sustainable packaging solutions that deliver protection, branding, consumer attractiveness, and speed to market in a competitive retail environment. Key features of the book: • Provides an informative overview of fruit and vegetable requirements and available packaging materials and systems • Provides an understanding of the fundamentals of the impact of packaging on the quality and safety of fruits and vegetables • Covers the fundamental aspects of packaging requirements, including mathematical modeling and mechanical and engineering properties of packaging materials • Presents an in-depth discussion of innovative packaging technologies, such as MA/CA packaging, active packaging, intelligent packaging, and eco-friendly materials applied to fruit and vegetables • Looks at packaging design for better environmental and economic performance

Active Food Packaging CRC Press

Now in a fully revised and updated second edition, this volume provides a contemporary overview of food processing/packaging technologies. It acquaints the reader with food

preservation processes, shelf life and logistical considerations, as well as packaging materials, machines and processes necessary for a wide range of packaging presentations. The new edition addresses environmental and sustainability concerns, and also examines applications of emerging technologies such as RFID and nanotechnology. It is directed at packaging technologists, those involved in the design and development of packaging, users of packaging in food companies and those who specify or purchase packaging. Key Features: An up-to-date and comprehensive handbook on the most important sector of packaging technology Links methods of food preservation to the packaging requirements of the common types of food and the available food packages Covers all the key packaging materials - glass, plastics and paperboard Fully revised second edition now covers sustainability, nanotechnology and RFID

Innovative Packaging of Fruits and Vegetables: Strategies for Safety and Quality Maintenance Springer Science & Business Media

Food packaging materials have traditionally been chosen to avoid unwanted interactions with the food. During the past two decades a wide variety of packaging materials have been devised or developed to interact with the food. These packaging materials, which are designed to perform some desired role other than to provide an inert barrier to outside influences, are termed 'active packaging'. The benefits

of active packaging are based on both chemical and physical effects. Active packaging concepts have often been presented to the food industry with few supporting results of background research. This manner of introduction has led to substantial uncertainty by potential users because claims have sometimes been based on extrapolation from what little proven information is available. The forms of active packaging have been chosen to respond to various food properties which are often unrelated to one another. For instance many packaging requirements for post harvest horticultural produce are quite different from those for most processed foods. The object of this book is to introduce and consolidate information upon which active packaging concepts are based. Scientists, technologists, students and regulators will find here the basis of those active packaging materials, which are either commercial or proposed. The book should assist the inquirer to understand how other concepts might be applied or where they should be rejected.

Modified Atmosphere and Active Packaging Technologies Elsevier

Packaging continues to be one of the most important and innovative areas in food processing. Edited by a leading expert in the field, and with its distinguished international team of contributors, Novel food packaging techniques provides an authoritative and comprehensive review of the key trends. Part one discusses the range of active packaging techniques such as the use of

oxygen and other scavengers, moisture regulation and antimicrobial packaging in food preservation. It also covers the use of intelligent systems such as time-temperature and freshness indicators to assess food quality. Part two reviews developments in modified atmosphere packaging (MAP) and its role in enhancing product safety and quality. Part three describes packaging applied in practice to particular products such as meat and fish. Part four covers other key issues such as packaging optimisation, the legislative context, sustainable packaging and consumer attitudes. Novel food packaging techniques is a standard reference for the food industry in optimising the use of packaging to improve product safety and quality. Provides an authoritative and comprehensive review of the key trends of food packaging Discusses the range of active packaging techniques such as the use of oxygen and other scavengers, moisture regulation and antimicrobial packaging in food preservation Covers packaging optimisation, the legislative context, sustainable packaging and consumer attitudes

Rebloom and Display Color Stability of Beef and Pork Packaged in an Ultra-low Oxygen Modified Atmosphere Active Packaging System Nordic Council of Ministers

A comprehensive and accessible textbook, Food Packaging: Principles and Practice, Second Edition presents an integrated approach to understanding the principles underlying food packaging and their applications. Integrating

concepts from chemistry, microbiology, and engineering, it continues in the fine tradition of its bestselling predecessor - and has been completely updated to include new, updated, and expanded content. The author divides the book's subject matter into five parts for ease-of-use. The first part addresses the manufacture, properties, and forms of packaging materials, placing emphasis on those properties that influence the quality and shelf life of food. The second part then details the various types of deteriorative reactions that foods undergo, examines the extrinsic factors controlling their reaction rates, and discusses specific factors influencing shelf life and the methodology used to estimate that shelf life. Chapters on the aseptic packaging of foods, active and intelligent packaging, modified atmosphere packaging, and microwavable food packaging are explored in the third part, while the fourth part describes packaging requirements of the major food groups. The final section examines the safety and legislative aspects of food packaging. The book also includes over 300 industry abbreviations, acronyms, and symbols, and an expansive index. What's New in the Second Edition: Includes five new chapters and diagrams that explain recent developments in packaging materials and processes Provides the latest information on new and active packaging technologies Presents new, updated, and expanded references Adhering to the highly organized format that made the first

edition so straightforward and informative, this latest edition of Food Packaging: Principles and Practice presents students with the most essential and cutting-edge information available. The author maintains a website with more information.

Active Food Packaging John Wiley & Sons

Modified atmosphere packaging may be defined as an active packaging method in which an altered atmosphere is created in the headspace that retards chemical deterioration while simultaneously retarding growth of spoilage organisms. Shelf lives of perishable products, such as dairy products, meat, poultry, fish, fruits and vegetables, and bakery items are limited by biochemical changes in the product catalysed by exposure to the normal atmosphere (21 % oxygen, 78% nitrogen and less than 0. 1 % carbon dioxide) and growth of spoilage organisms. Modification of the atmosphere within a package containing these products helps to better maintain the quality of the food under longer storage conditions and retards the growth of undesirable organisms. Of course, deterioration is also slowed by chilling, which is required for the transport to market of highly perishable items like meat, poultry and fish that would either spoil or have the potential for contamination by certain food pathogens. Chilling plus a modification of the atmosphere optimizes the keeping quality of food. Modification of the atmosphere has been known for over a century as a means of food preservation and has become a

very popular means of food preservation in the latter part of the 20th century. Modified atmosphere packaging (MAP) is practised extensively in Europe, Canada and the USo Both vacuum packaging (rem oval of air from the package) and addition of gases within the package are considered MAP.

MAP Plus Springer

Many factors are relevant in making the proper choice of food packaging material, including those related to shelf life and biodegradability. To meet these demands, new processing and preservation techniques have arisen, most notably modified atmosphere packaging (MAP) and active packaging (AP). Modified Atmosphere and Active Packaging Technologies

Novel Food Packaging Techniques

GRIN Verlag

Packaging plays an essential role in protecting and extending the shelf life of a wide range of foods, beverages and other fast-moving consumer goods. There have been many key developments in packaging materials and technologies in recent years, and Trends in packaging of food, beverages and other fast-moving consumer goods (FMCG) provides a concise review of these developments and international market trends. Beginning with a concise introduction to the present status and trends in innovations in packaging for food, beverages and other fast-moving consumer goods, the book goes on to consider modified atmosphere packaging and other active packaging systems, including smart and intelligent

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