Food Packaging Solutions

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Extended Shelf-life

Biopolymers for Sustainable and Multifunctional Food Packaging Solutions
CRC Press
Towards more sustainable packaging with biodegradable materials! The combination of the continuously

increasing food packaging waste with the non-biodegradable nature of the plastic materials that have a big slice of the packaging market makes it necessary to move towards sustainable packaging for the benefit of the environment and human health. Sustainable packaging is the type of packaging that can provide to food the necessary protection conditions, but at the same type is biodegradable and can be disposed as organic waste to the landfills in order to biodegrade through a natural procedure. In this way, sustainable packaging becomes part of the circular economy. ?Sustainable Food Packaging Technology? deals with packaging solutions that use engineered biopolymers or biocomposites that have suitable physicochemical properties for food contact and protection and originate both from renewable or non-renewable resources, but in both cases are compostable or edible. Modified paper and cardboard with increased protective properties towards food while keeping their compostability are presented as well. The book also covers natural components that can make the packaging functional, e.g., by providing active protection to the food indicating food spoilage. * Addresses urgent problems: food packaging creates a lot of hard-to-recycle waste - this book puts forward more sustainable solutions

using biodegradable materials * State-of-the-art: ?Sustainable Food Packaging Technology? provides knowledge on new developments in functional packaging * From lab to large-scale applications: expert authors report on the technology aspects of sustainable packaging

Sustainable Food Packaging Technology GRIN Verlag

This comprehensive and authoritative book aims to encompass the best and current practices in the field of contemporary food packaging. It covers various aspects of packaging, including challenges and their solutions, innovations, and environmental concerns. Written by experts working in the field, the content is supported by technical/statistical data, practical examples, case studies, and real-life experiences of academicians and professionals working in the area of food packaging. The book covers challenges in food packaging, systems and materials for packaging, packaging design requirements of the food industry, technology machinery and system, printing and graphics, testing and regulatory aspects, advanced and smart packaging, distribution and logistics in a globalized environment, and sustainable and green packaging. This book will be useful for Packaging Technologists, food scientists, material scientists, policy makers, students, and researchers.

Advanced Packaging Solutions for Shelf Life Management of Fresh Food Springer Science & Business Media

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

Packaging for Food Preservation SANJIVAN SAINI

Food Packaging: Innovations

and Shelf-life covers recently investigated developments in food packaging and their influence in food quality preservation, shelf-life extension, and simulation techniques. Additionally, the book discusses the environmental impact and sustainable solutions of food packaging. This book is divided into seven chapters, written by worldwide experts. The book is an ideal reference source for university students, food engineers and researchers from R&D laboratories working in the area of food science and technology. Professionals from institutions related to food packaging.

Food Packaging Science and Technology CRC Press

This is the second edition of a successful title first published in 1983 and now therefore a decade out of date. The authors consider the development of the right package for a particular food in a particular market, from the point of view of the food technologist, the packaging engineer and those concerned with marketing. While the original format has been retained, the contents have been thoroughly revised to take account of the considerable advances made in recent years in the techniques of food processing, packaging and distribution. While efficient packaging is even more a necessity for every kind of food, whether fresh or processed, and is an essential link between the food producer and the consumer, the emphasis on its several functions has changed. Its basic function is to identify the product and ensure that it travels safely through the distribution system to the consumer. Packaging designed and constructed solely for this

purpose adds little or nothing to the value of the product, merely preserving farm or processor freshness or preventing physical damage, and cost effectiveness is the sole criterion for success. If, however, the packaging facilitates the use of the product, is reusable or has an after-use, some extra value can be added to justify the extra cost and promote sales. Many examples of packaging providing such extra value can be cited over the last decade.

Food Packaging John Wiley & Sons

This book reviews the science and technology of food packaging and covers the potential innovations in the food packaging sector. At the same time, it highlights the issues and prospects for linking the laboratory research to the market. In addition to typical packaging requirements such as food quality, shelf life, protection, communication, and marketing, the book emphasizes the need for novel packaging materials, including biodegradable packaging for a variety of food products. A wide range of food products has been kept in focus and includes animal-based food products such as dairy products and sea foods. The book presents the next level of packaging solutions i.e., smart packaging with the applications of potential tools such as intelligent and active packaging, and includes the latest research on emerging digital technologies for packaging development, assessment, and acceptability. It further highlights the strategies including blends, reinforcing agents, cold plasma, UV

light applications, chemical, and enzymatic methods and explores the new opportunities leading to improvement in the packaging performance. Smart freshness indicator applications, including gas and time-temperature indicators for quality and safety of packaged products, have been covered in detail. The book also includes the functional characteristics of edible films and coatings, including their bioactive characteristics. Finally the book presents the rules and regulation related to packaging.

Food Packaging Technology

Smithers Pira

The book begins with a short narration of current packaging practices followed by present day horticulture industry. After pointing out the disadvantages of some of the current practices, the author categorically states that we do not need to religiously follow traditional packaging practices if we are serious about curtailing the supply chain loss of fruits and vegetables. The author goes on listing out various types of packaging materials that are available today before addressing the major theme of the book, i.e. 'Modern Innovations in Packaging Materials and Packaging Technologies'. MAP films, MIP films and active and intelligent packing materials are described in detail under this topic. Manufacturing process of polymer-based packing materials is also described for the better understanding of the reader. The author then elaborates on how to select a suitable packing material for your horticultural produce. Major two parameters that are to be considered are packing material properties and product-specific properties. The author makes a reference of various packaging designs and packaging standards also for those who are interested in these topics. According to the author advanced packaging technologies such as modified atmosphere packaging,

modified interactive packaging, active and intelligent packaging, TBG technology and packaging technology for microwaveable containers are going to make a big difference in the way how highly perishable fruits and vegetables are packed and consumed. Finally, the author gives a short narration of various types of packaging machines that are available today and also lists out major global suppliers of packaging solutions for horticulture industry.

Food Packaging 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

A Handbook of Food Packaging CRC Press

This book explores the latest advances in the sustainable production of packaged foods. Packaging plays an important role in sustainable food production and consumption in industrialized countries, where there is an increasing pressure to reduce the environmental impact of packaged foods. For example, the European Union recommends packaging from renewable sources, with a focus on bio-based materials. Sustainable packaging processes guarantee the reuse of the entire waste material and at the same time avoid the loss of food safety and quality during storage by preventing food-borne diseases and chemical contamination. Furthermore, the dramatic problem of plastic waste accumulation and the conservation of oil and food resources need to be taken into consideration. This book presents eco-friendly packaging strategies to reduce food and plastic waste and address the end-of-life issues of persistent materials. It particularly focuses on the production of biodegradable microbial polymers and the use of by-products and waste from the agricultural and food industries. These strategies promote an innovative and productive waste-based food packaging economy, separating the food packaging industry from fossil reserves and allowing bio-polymers to return to the soil. Lastly, the book covers life-cycle assessment, life-cycle costing, and externality assessment to help readers understand the economical reliability of the innovations presented.

Sustainable Innovations in Food Packaging John Wiley & Sons

Scrutiny of food packaging

environmental impacts has led to a variety of sustainability directives, but has largely focused on the direct impacts of materials. A growing awareness of the impacts of food waste warrants a recalibration of packaging environmental assessment to include the indirect effects due to influences on food waste. In this study, we model 13 food products and their typical packaging formats through a consistent life cycle assessment framework in order to demonstrate the effect of food waste on overall system greenhouse gas (GHG) emissions and cumulative energy demand (CED). Starting with food waste rate estimates from the U.S. Department of Agriculture, we calculate the effect on GHG emissions and CED of a hypothetical 10% decrease in food waste rate. This defines a limit for increases in packaging impacts from innovative packaging solutions that will still lead to net system environmental benefits. The ratio of food production to packaging production environmental impact provides a guide to predicting food waste effects on system performance. Based on a survey of the food LCA literature, this ratio for GHG emissions ranges from 0.06 (wine example) to 780 (beef example). High ratios with foods such as cereals, dairy, seafood, and meats suggest greater opportunity for net impact reductions through packaging-based food waste reduction innovations. While this study is not intended to provide definitive LCAs for the product/package systems

modeled, it does illustrate both the importance of considering food waste when comparing packaging alternatives, and the potential for using packaging to reduce overall system impacts by reducing food waste.

Nanotechnology-Enhanced Food Packaging CRC Press 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

Practical Guide to Antimicrobial Active Packaging Springer Nature "Packaging" by Sanjivan Saini is a comprehensive book that provides an overview of various aspects of packaging. It covers a wide range of topics related to packaging, including special packaging, safety precautions, exportable goods packaging, dangerous goods packaging, packaging for cold products, freezing products, dairy products, and packaging for hot products. Additionally, the book delves into the cost involved in packaging, its components, and various other relevant subjects. Here is a brief overview of the main units covered in the book: 1. Packaging: This unit likely introduces the fundamentals of packaging, including its purpose, importance, and various applications across industries. It may cover topics such as packaging materials, design, and functions. 2. Special Packaging: The section on special packaging explores specific packaging requirements for products with unique characteristics or needs,

such as medical devices, fragile items, or hazardous substances. 3. Safety Precautions: Safety is paramount in packaging. This unit likely discusses safety measures and guidelines for packaging, including how to handle hazardous materials safely and ensure compliance with regulations. 4. Exportable Goods Packaging: Exporting goods requires careful packaging to withstand the rigors of transportation. This unit would cover the packaging considerations for goods destined for international markets. 5. Dangerous Goods Packaging: This unit delves into the packaging requirements for dangerous goods, including hazardous chemicals, radioactive materials, and other substances that require specialized containment. 6. Packaging for Cold Products, Freezing Products, Dairy Products: These sections likely focus on packaging solutions for perishable goods, such as food items that need refrigeration or freezing to maintain their quality and safety. 7. Packaging for Hot Products: In contrast to the previous unit, this section would cover packaging designed to handle products that require high-temperature resistance, such as hot food items or industrial materials. 8. Cost Involved, Component of Cost Involved: This unit would explore the economic aspects of packaging, including the various costs associated with packaging materials, design, production, and transportation. The book "Packaging" by Sanjivan Saini is likely to be a valuable resource for students, professionals, and anyone interested in gaining a comprehensive understanding of the diverse aspects of packaging. It covers a wide range of topics, providing practical insights into designing effective and safe

packaging solutions for different types of products and industries.

Proactive Waste Management Solutions MDPI

Antimicrobial packaging systems are those that beneficially interact with the food or with the surrounding environment, inhibiting microorganism growth or reducing their counts to improve the quality and extend the shelf-life of industrially produced foods. They have undoubtedly become a fully accepted alternative to the direct addition of preservatives to foods, with excellent future prospects.This book will help develop a working knowledge and understanding of antimicrobial packaging, it includes a description of the antimicrobial agents most commonly used and their mechanisms of action, the manufacturing methods available to fabricate the active system, the critical parameters to make an effective product and the tools to optimise them, and the various in vitro and in vivo methods for measuring the goodness of the antimicrobial system for validation purposes.The reader will develop the ability to understand why a specific agent is selected for a particular food product, or why a specific polymeric material and manufacturing technology are chosen. The reader will also become familiar with the different procedures for improving the activity of the packaging solution that is being developed and ways of testing its efficacy. This will accelerate the formulation of the active packaging concept, reducing development-time with respect to the trial and error processes common in many literature reports. Finally, it will help to identify the best and most cost-effective solutions. This volume is intended to be a practical guide to antimicrobial packaging and a quick reference for students and researchers from both academia and industry.

Food Packaging Elsevier

Innovations in Food Packaging addresses selective topics of functions of food packaging to

modify the traditional notion of this process. This book is organized into five parts. Part I focuses on the fundamental theories covering physical chemistry background and quality preservation of foods. Parts II and III discuss active packaging research and development and modified atmosphere packaging of fresh produce, meats, and ready-to-eat products, respectively. Part IV talks about edible and biodegradable coatings and films, whereas Part V discusses commercialization aspects of packaging technologies. Each part is divided into chapters of subject review and detailed technical information. This text will benefit those who are interested in innovative technology of food packaging in general, and experienced field packaging specialists and graduate-level food scientists in particular. This book will be useful as a textbook not only for extension programs of food packaging development in food industry, but also for advanced graduate-level food packaging courses. Covers four major food packaging topics: * Theories in food packaging * Active packaging * Modified atmosphere packaging * Edible films and coatings

Recent Packaging and Logistics of Fresh and Processed Foods Elsevier

Based on groundbreaking research, this innovative book enables retail and logistics professionals to recognize new opportunities and successfully manage change in their supply chain. Retailing Logistics and Fresh Food Packaging addresses the dramatic changes taking place in modern packaging and logistics, and compares and contrasts international approaches to fresh food retail and supply. The book uses major case studies and supporting illustrations to demonstrate how pioneering packaging solutions are being applied around the world. This book allows retail and logistics professionals as well.

Edible Food Packaging
Springer Nature
Antimicrobial Food Packaging takes an interdisciplinary approach to provide a complete and robust understanding of packaging from some of the most well-known international experts. This practical reference provides basic information and practical applications for the potential uses of various films in food packaging, describes the different types of microbial targets (fungal, bacteria, etc.), and focuses on the applicability of techniques to industry. Tactics on the monitoring of microbial activity that use antimicrobial packaging detection of food borne pathogens, the use of biosensors, and testing antimicrobial susceptibility are also included, along with food safety and good manufacturing practices. The book aims to curtail the development of microbiological contamination of food through anti-microbial packaging to improve the safety in the food supply chain. Presents the science behind anti-microbial packaging and films reflecting advancements in chemistry, microbiology, and food science Includes the most up-to-date information on regulatory aspects, consumer acceptance, research trends, cost analysis, risk analysis and quality control Discusses the uses of natural and unnatural compounds for food safety and defense

Introduction to Food Packaging
CRC Press
There is currently a need for an introductory food packaging textbook which will introduce food science undergraduates to complex food packaging technologies in an understandable and engaging way. As the visual design aspects of packaging are so crucial, the book will be in full colour throughout and feature a number of colour images. The material will be presented in an

interactive way, complete with a companion website which will feature videos, illustrations and graphics to assist with understanding and to make the learning process more appealing to today's students. This book will be a valuable instructional tool for students of food science and packaging as well as a reference book for new food and packaging professionals.

Appropriate Food Packaging Solutions for Developing Countries

AGRIHORTICO

The protection and preservation of a product, the launch of new products or re-launch of existing products, perception of added-value to products or services, and cost reduction in the supply chain are all objectives of food packaging. Taking into consideration the requirements specific to different products, how can one package successfully meet all of these goals? Food Packaging Technology provides a contemporary overview of food processing and packaging technologies. Covering the wide range of issues you face when developing innovative food packaging, the book includes: Food packaging strategy, design, and development Food biodeterioation and methods of preservation Packaged product quality and shelf life Logistical packaging for food marketing systems Packaging materials and processes The battle rages over which type of container should be used for which application. It is therefore necessary to consider which materials, or combination of materials and processes will best serve the market and enhance brand value. Food Packaging Technology gives

you the tools to determine which form of packaging will meet your business goals without compromising the safety of your product.

Sustainable Food Packaging Technology Academic Press

The study was undertaken to serve as a basis for the international congress Save Food!, taking place from 16 to 17 May 2011, at the international packaging industry fair Interpack2011 in Dusseldorf, Germany. Save Food! has been co-organized by Interpack2011 and FAO, aiming to raise awareness on global food losses and waste. In addition, Save Food! brings to the attention of the international packaging industry the constraints faced by the small- and medium-scale food processing industries in developing countries to obtain access to adequate packaging materials which are economically feasible. This revised edition, dated 2014, contains a new section on investment opportunities in developing countries."

Ecosustainable Polymer Nanomaterials for Food Packaging Wiley

Polymer nanotechnology offers exciting benefits to the food industry, including better materials for food packaging and safer foods on supermarket shelves with lower incidences of contamination. Ecosustainable Polymer Nanomaterials for Food Packaging: Innovative Solutions, Characterization Needs, Safety and Environmental Issues examines the complete life cycle of packaging based on polymer nanomaterials. Focusing on current

developments in nanomaterial packaging applications most likely to be accepted by consumers and attract regulatory attention in the immediate future, the book begins with a general introduction to current issues and future trends. The remaining chapters explore: The concept of "ethical design"—putting into practice key ideas such as the precautionary principle and presenting a model for accountability, responsibility, and ethical consideration The evolution of the rheology, structure, and morphology of nanomaterials with regard to processing conditions and constituents The application of plasma technologies for the production of barrier coatings on polymeric materials by nonequilibrium gas discharges Nanomaterials for food packaging developed from oil polymers (polyolefins) and from renewable resource polymers The use of cellulose nanowhiskers for food biopackaging and edible nano-laminate coatings The interactions of nanomaterials with food Examples of degradation under natural weathering, exposure, and recycling The book concludes with a discussion on the use of polymer nanocomposite materials for food packaging applications. From raw material selection to properties characterization to marketing and disposal, the expert contributors consider the balance between cost and performance, risk and benefit, and health and environmental issues. They also identify barriers to

progress that prevent a complete successful development of the new technology and recommend strategies for further advancement.