

# SHELF LIFE EVALUATION OF FOODS

Edited by  
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AN ASPEN PUBLICATION

# Shelf Life Evaluation Of Foods

**Dominic Man**



## **Shelf Life Evaluation Of Foods:**

**Shelf Life Evaluation of Foods** Dominic Man, C.M.D. Man, Adrian A. Jones, 2000-07-31 The best selling first edition of this contributed book established itself as a highly practical and authoritative source of information on shelf life evaluation. Every food manufacturer is concerned about shelf life as are the major retailers and ingredient suppliers. Increasing consumer interest in food safety, quality and date marking, competitive pressures from retailers and extensive legislative changes have combined to give this subject new significance. A proper evaluation of shelf life must be grounded on sound scientific principles supported by up to date techniques. This book begins with six chapters reviewing the principles of shelf life evaluation followed by ten chapters on a number of selected food products such as chilled yogurt and other dairy desserts, seafood and meat. The latest edition has been expanded to include new chapters on HACCP preservation technology and shelf life and minimally processed ready to eat ambient stable meat products. Sufficient information on the principles and practice of shelf life evaluation has been included for the beginner as well as for those who are more experienced in this area.

**Shelf Life Assessment of Food** Maria Cristina Nicoli, 2012-05-11 Determining accurate shelf life data for foods is essential for assuring food quality and protecting consumers from the effects of degradation. With a proper balance of theory and practical examples, *Shelf Life Assessment of Food* presents the essential criteria and current methodologies for obtaining accurate and reliable shelf life dating. Defining the process through a series of sequential steps, the book assists and supports researchers and food industry operators in planning a shelf life study that best suits their needs. Offering an integrated view of the present status of shelf life assessment, the book covers definitions, basic concepts and regulatory aspects of food shelf life. The shelf life assessment process including preliminary steps, testing, modeling and monitoring. Methods for determining acceptability limits. Critical indicators in shelf life assessment. Real time and accelerated shelf life testing. Microbial indicators for shelf life prediction and determination. Survival analysis methodologies and their role in modeling shelf life. The effect of packaging materials properties in food shelf life assessment. The book concludes with a series of case studies involving fresh cut apple slices, fruit juices, frozen pasta, cheese breadsticks, coffee, frozen shrimp and fruit based noncarbonated soft drinks. Each case study begins with a brief presentation of the product and the problem most relevant to the product's shelf life. The studies first define acceptability limits and identify the indicators of quality loss. Next, the book examines expiration time assessment by instrumental or sensory tools. Providing researchers and food industry operators with up to date data and procedures, this volume surveys the most critical factors and methods for obtaining accurate and reliable shelf life dating.

**Shelf Life Evaluation of Foods** Adrian Jones, 2012-12-06 The subject of shelf life of foods is not a new one. Increasing consumer interest in food safety, quality and date marking, competitive pressures from retailers and extensive legislative changes, however, have combined to give the subject a new significance. The proper and correct determination of shelf life is of course fundamental to Good Manufacturing Practice (GMP) for the food and drink industry. Manufacturers who aim to

produce safe wholesome and attractive food products right the first time and right every time will already know the importance of proper shelf life evaluation. Incorrect shelf lives can potentially bring about dire legal safety or financial consequences. This is not to belittle the difficulty of failing to meet consumer expectations consistently as a result of shelf lives that have been arrived at unreliably. A proper evaluation of shelf life must be grounded on sound scientific principles supported by up to date techniques in food science and technology. This book therefore begins with five chapters reviewing the principles of shelf life evaluation. These are followed by ten chapters on a number of selected food products. All the authors either have first hand experience on the practice of shelf life evaluation or are involved in research of the subject. Because of the diversity and complexity of food products now available no attempt has been made to cover every product group let alone every product conceivable.

**Shelf Life Evaluation of Foods** Adrian Jones, 1995-12-31 Shelf Life Evaluation of Foods C.M.D. Man, Adrian A. Jones, 1998-12-31 This highly practical important new book summarizes concisely and authoritatively information on the shelf like evaluation of foods. The first part of the book covers basic principles while the remaining chapters cover specific commodities and product groups.

**Understanding and Measuring the Shelf-Life of Food** R. Steele, 2004-05-10 The shelf life of a product is critical in determining both its quality and profitability. This important collection reviews the key factors in determining shelf life and how it can be measured. Part one examines the factors affecting shelf life and spoilage including individual chapters on the major types of food spoilage the role of moisture and temperature spoilage yeasts the Maillard reaction and the factors underlying lipid oxidation. Part two addresses the best ways of measuring the shelf life of foods with chapters on modelling food spoilage measuring and modelling glass transition detecting spoilage yeasts measuring lipid oxidation the design and validation of shelf life tests and the use of accelerated shelf life tests. Understanding and measuring the shelf life of food is an important reference for all those concerned with extending the shelf life of food. Reviews the key factors in determining shelf life and how they can be measured. Examines the importance of the shelf life of a product in determining its quality and profitability. Brings together the leading international experts in the field.

Shelf Life and Food Safety Basharat Nabi Dar, Manzoor Ahmad Shah, Shabir Ahmad Mir, 2022-06-01 The quality and safety of the food we eat deserves the utmost attention and is a priority for producers and consumers alike. Shelf life studies provide important information to manufacturers and consumers to ensure a high quality food product. Various evaluation methods are used for shelf life determination and they are usually performed at the manufacturer level. Moreover various techniques are utilized throughout the food chain that enhance the shelf life of food products. This sensitive issue is reviewed in Shelf Life and Food Safety which brings together a group of subject experts to present up to date and objective discussions on a broad range of topics including food spoilage and safe preservation packaging and sensory aspects. The book presents both traditional and innovative technologies for enhancing food safety and increasing shelf life along with methods for the assessment and prediction of food safety and shelf life.

**Key Features** Overviews the issues associated with

shelf life enhancement and shelf life evaluation of various food products Addresses issues important to maintaining food safety Explains how shelf life depends on factors including ingredients for formulation processing techniques packaging and storage conditions Covers shelf life evaluation methods determinants for shelf life food quality assessment and basic and innovative technologies that will improve the shelf life of food products This book is the first of its kind focusing on issues related to evaluation techniques for shelf life determinants and techniques for shelf life enhancement It is appropriate for students researchers scientists and professionals in food science and technology It is also a helpful source of information for people involved in the food industry food processing sector product development marketing and other associated fields

**Sensory Evaluation of Food** Harry T. Lawless, Hildegard Heymann, 2010-09-27 The field of sensory science has grown exponentially since the publication of the previous version of this work Fifteen years ago the journal Food Quality and Preference was fairly new Now it holds an eminent position as a venue for research on sensory test methods among many other topics Hundreds of articles relevant to sensory testing have appeared in that and in other journals such as the Journal of Sensory Studies Knowledge of the intricate cellular processes in chemoreception as well as their genetic basis has undergone nothing less than a revolution culminating in the award of the Nobel Prize to Buck and Axel in 2004 for their discovery of the olfactory receptor gene super family Advances in statistical methodology have accelerated as well Sensometrics meetings are now vigorous and well attended annual events Ideas like Thurstonian modeling were not widely embraced 15 years ago but now seem to be part of the everyday thought process of many sensory scientists And yet some things stay the same Sensory testing will always involve human participants Humans are tough measuring instruments to work with They come with varying degrees of acumen training experiences differing genetic equipment sensory capabilities and of course different preferences Human foibles and their associated error variance will continue to place a limitation on sensory tests and actionable results Reducing controlling partitioning and explaining error variance are all at the heart of good test methods and practices

**Sensory Shelf Life Estimation of Food Products** Guillermo Hough, 2010-05-25 Complying with food regulations and more importantly quality standards requires practical and reliable methods to estimate a product's shelf life Emphasizing the importance of the consumer's perception of when food has reached the end of its shelf life Sensory Shelf Life Estimation of Food Products provides a tool for adequately predicting shelf life Food Packaging Gordon L. Robertson, 2005-09-22 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

**The Stability and Shelf Life of Food** Persis Subramaniam, Peter Wareing, 2016-05-24 The second edition of The Stability and Shelf life of Food is a fully revised and thoroughly updated edition of this highly successful book This new edition covers methods for shelf life and stability evaluation reviewing the modelling and testing of the deterioration of products as well as the use of sensory evaluation methods for testing food spoilage The first part of the book focuses on deteriorative processes and factors influencing shelf life covering aspects such as chemical deterioration physical instability and microbiological spoilage The effects of process and packaging on the stability and shelf life of products are also covered in this part Part Two reviews the methods for shelf life and stability evaluation These include sensory evaluation methods and instrumental methods to determine food quality deterioration The final section of the book covers stability of important ingredient categories from oils and fats to beverages such as beer wine coffee and fruit juices in addition to bakery products and meats With updated chapters reflecting advances made in the field and with the addition of new chapters covering the stability and shelf life a variety of products this new edition will provide the latest research for both academics working in the field of food quality as well as providing essential information for food scientists working in industry Thoroughly revised and updated edition of a very popular and well regarded book Includes dedicated chapters covering the shelf life and stability of specific products making this book ideal for those working in industry Presents a wide coverage of the processes and factors influencing shelf life the evaluation of stability and shelf life and the stability and shelf life of particular products makes this book valuable for both academics and those working in industry

**Shelf Life** Dominic Man, 2015-03-20 Shelf life a term recognised in EU UK food legislation may be defined as the period of time for which a food product will remain safe and fit for use provided that it is kept in defined storage conditions During this period the product should retain its desired sensory chemical physical functional and microbiological characteristics as well as accurately comply with any nutritional information printed on the label Shelf life therefore refers to a number of different aspects each food product has a microbiological shelf

life a chemical shelf life and a sensory or organoleptic shelf life These categories reflect the different ways in which a food product will deteriorate over time Ultimately the shelf life of a food product is intended to reflect the overall effect of these different aspects Shelf life has always been an important facet of industrial food preparation and production as food and drink are often produced in one area and then distributed to other areas for retailing and consumption Globalised distribution and supply chains make it imperative that food should survive the transit between producer and consumer as a perishable commodity food carries a high risk of spoilage As such a realistic workable and reproducible shelf life has to be determined every time a new food product is developed and marketed shelf life determination of food has become an integral part of food safety quality assurance product development marketing and consumer behaviour Dominic Mans Shelf Life now in a revised and updated second edition encompasses the core considerations about shelf life Section 1 introduces shelf life describes its relationship to food safety and provides answers to the frequently asked questions around shelf life determination and testing which are a manager's chief concerns Section 2 covers the science of the various ways in which food deteriorates and spoils including the physical chemical and microbiological changes Section 3 looks at shelf life in practice using case studies of different products to illustrate how shelf life may be determined in real life settings This book will be invaluable to both practitioners and students in need of a succinct and comprehensive overview of shelf life concerns and topics

**Food Storage Stability** Irwin A. Taub, R. Paul Singh, 1997-12-29 Food Storage Stability addresses one of the foremost problems faced by food processors how to stabilize food once it is harvested Using a holistic approach the book discusses the changes responsible for food quality deterioration and considers strategies for minimizing or eliminating these degradative changes Topics include consumer perceptions and preferences cellular changes conversion of major constituents to more stable products the effect of color and texture packaging issues and practical strategies for storing foods frozen chilled or at ambient temperature Food Storage Stability is the only treatment of this subject that covers the diverse factors that influence quality retention in foods and integrates basic concepts in storage stability with practical applications Food scientists and technologists concerned with changes in food quality are interested in ensuring that safe and appealing food products reach consumers this is the book that will assist them with that important goal

**Food Packaging Science and Technology** Dong Sun Lee, Kit L. Yam, Luciano Piergiovanni, 2008-04-01 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

*Oxidation in Foods and Beverages and Antioxidant Applications* Eric A Decker, Ryan J Elias, D. Julian McClements, 2010-09-27 Oxidative rancidity is a major cause of food quality deterioration leading to the formation of undesirable off flavours as well as unhealthful compounds Antioxidants are widely employed to inhibit oxidation and with current consumer concerns about synthetic additives and natural antioxidants are of much interest The two volumes

of Oxidation in foods and beverages and antioxidant applications review food quality deterioration due to oxidation and methods for its control The first volume focuses on oxidation mechanisms and antioxidant activity Initial chapters in part one describe oxidation processes in foods including the role of metals heme proteins and lipoxygenase The impact of oxidation on food flavour and the health aspects of oxidized fats are also covered Final chapters in part one review the measurement of the extent of lipid oxidation and methods for food shelf life determination Part two discusses the ways in which antioxidants inhibit food oxidation factors affecting antioxidant efficacy methods to measure antioxidant activity and novel antioxidants With its distinguished international team of editors and contributors the two volumes of Oxidation in foods and beverages and antioxidant applications is standard references for R D and QA professionals in the food industry as well as academic researchers interested in food quality Describes oxidation processes in foods including the role of metals heme proteins and lipoxygenase Reviews the impact of oxidation on food flavour and the health aspects of oxidized fats Discusses the ways in which antioxidants inhibit food oxidation factors affecting antioxidant efficacy and methods to measure antioxidant activity

*Food Processing Technology* P.J. Fellows, 2016-10-04 Food Processing Technology Principles and Practice Fourth Edition has been updated and extended to include the many developments that have taken place since the third edition was published The new edition includes an overview of the component subjects in food science and technology processing stages important aspects of food industry management not otherwise considered e g financial management marketing food laws and food industry regulation value chains the global food industry and over arching considerations e g environmental issues and sustainability In addition there are new chapters on industrial cooking heat removal storage and distribution along with updates on all the remaining chapters This updated edition consolidates the position of this foundational book as the best single volume introduction to food manufacturing technologies available remaining as the most adopted standard text for many food science and technology courses Updated edition completely revised with new developments on all the processing stages and aspects of food industry management not otherwise considered e g financial management marketing food laws and food industry regulation and more Introduces a range of processing techniques that are used in food manufacturing Explains the key principles of each process including the equipment used and the effects of processing on micro organisms that contaminate foods Describes post processing operations including packaging and distribution logistics Includes extra textbook elements such as videos and calculations slides in addition to summaries of key points in each chapter **A**

**Handbook for Sensory and Consumer-Driven New Product Development** Maurice O'Sullivan, 2016-09-16 A Handbook for Sensory and Consumer Driven New Product Development explores traditional and well established sensory methods difference descriptive and affective as well as taking a novel approach to product development and the use of new methods and recent innovations This book investigates the use of these established and new sensory methods particularly hedonic methods coupled with descriptive methods traditional and rapid through multivariate data analytical interfaces in the process



of optimizing food and beverage products effectively in a strategically defined manner The first part of the book covers the sensory methods which are used by sensory scientists and product developers including established and new and innovative methods The second section investigates the product development process and how the application of sensory analysis instrumental methods and multivariate data analysis can improve new product development including packaging optimization and shelf life The final section defines the important sensory criteria and modalities of different food and beverage products including Dairy Meat Confectionary Bakery and Beverage alcoholic and non alcoholic and presents case studies indicating how the methods described in the first two sections have been successfully and innovatively applied to these different foods and beverages The book is written to be of value to new product development researchers working in large corporations SMEs micro small or medium sized enterprises as well as being accessible to the novice starting up their own business The innovative technologies and methods described are less expensive than some more traditional practices and aim to be quick and effective in assisting products to market Sensory testing is critical for new product development optimization ingredient substitution and devising appropriate packaging and shelf life as well as comparing foods or beverages to competitor s products Presents novel and effective sensory based methods for new product development two related fields that are often covered separately Provides accessible useful guidance to the new product developer working in a large multi national food company as well as novices starting up a new business Offers case studies that provide examples of how these methods have been applied to real product development by practitioners in a wide range of organizations Investigates how the application of sensory analysis can improve new product development including packaging optimization

**Postharvest Physiology and Pathology of Vegetables** Jerry A. Bartz, Jeffrey K. Brecht, 2002-12-04 Focusing exclusively on postharvest vegetable studies this book covers advances in biochemistry plant physiology and molecular physiology to maximize vegetable quality The book reviews the principles of harvest and storage factors affecting postharvest physiology calcium nutrition and irrigation control product quality changes during handling and storage technologies to improve quality spoilage factors and biocontrol methods and storage characteristics of produce by category It covers changes in sensory quality such as color texture and flavor after harvest and how biotechnology is being used to improve postharvest quality

Chemical Deterioration and Physical Instability of Food and Beverages Leif H Skibsted, Jens Risbo, Mogens L Andersen, 2010-04-23 For a food product to be a success in the marketplace it must be stable throughout its shelf life Quality deterioration due to chemical changes and alterations in condition due to physical instability are not always recognised yet can be just as problematic as microbial spoilage This book provides an authoritative review of key topics in this area Chapters in part one focus on the chemical reactions which can negatively affect food quality such as oxidative rancidity and their measurement Part two reviews quality deterioration associated with physical changes such as moisture loss gain and migration crystallization and emulsion breakdown Contributions in the following section outline the likely effects on different

foods and beverages including bakery products fruit and vegetables ready to eat meals and wine With contributions from leaders in their fields Chemical deterioration and physical instability of food and beverages is an essential reference for R D and QA staff in the food industry and researchers with an interested in this subject Examines chemical reactions which can negatively affect food quality and measurement Reviews quality deterioration associated with physical changes such as moisture loss gain and migration and crystallization Documents deterioration in specific food and beverage products including bakery products frozen foods and wine Advances in Sustainable Food Packaging Technology Megh R. Goyal,Preeti Birwal,Anand Kumar Pandey,Ritesh Balaso Watharkar,2024-02-13 This new volume explores the recent innovations in active intelligent and smart packaging systems that embrace packaging potential to not only provide protection to food but to also improve its nutritive value reduce contamination by releasing antimicrobials and provide real time status of food quality The book presents novel edible food packaging nanotechnology based improvements in food packaging and biodegradation and bio based approaches for management of food waste and plastic waste from packaging

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