

New books

from the Royal Society of Chemistry

As we celebrate our Golden anniversary, 50 years since the first book in our Specialist Periodical Reports series was published, our publishing programme is thriving as we continue to support scientists, researchers, students and teachers.

With titles spanning the breadth of the chemical sciences, covering the core disciplines and their related fields as well as emerging topics, we are building a legacy of high quality, internationally respected books with contributions from all over the world.

So much to celebrate

- 20 titles now make up New Developments in NMR
- **30** books have now been published in Monographs in Supramolecular Chemistry
- 60 books now fill our Green Chemistry series
- years since the first book published in Issues in Environmental Science and Technology
- **50** titles now belong in our Nanoscience and Nanotechnology series
- 70 titles enrich our Drug Discovery series

And don't forget all the new developments marking exciting beginnings: new Editorial Board members, first books in some series and fresh series under discussion

If you have any queries, contact books@rsc.org to talk to the team.

For a list of books published prior to 2018, visit rsc.li/backlist

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The books in this portfolio provide thorough coverage of research developments, breakthroughs, reference information and opinion in a wide range of food science topics, from rapid antibody-based technologies in food analysis to nutrition and cancer prevention.

Five minutes with...



Name Marianne Su-Ling Brooks
Affiliation Dalhousie University Canada
Co-editor of Anthocyanins from Natural Sources
Book publication date February 2019
ISBN 9781788012157

Tell us about your book

The idea for this book came about when we were extracting anthocyanins from local haskap berries and looking at incorporating them into a controlled release system that would be beneficial to human health. As we embarked on that research, we realised that anthocyanins have a complex chemistry, and that there are many things that are still being discovered in regards to their fate in the body and how this relates to their associated health benefits. We also realised that designing effective controlled release systems for natural health compounds, that would be targeted to the appropriate parts of the body, required knowledge in various areas e.g. chemistry, pharmacokinetics, physiology, food science and technology, engineering, pharmaceutical science and human health. This book aims to bring together the latest research in different fields related

to the extraction of anthocyanins from natural sources, their health-promoting properties, pharmacokinetics, and controlled release systems that can modulate the release of these compounds for application in functional foods and nutritional supplements. This book is unique in its discussion of diverse research areas that are seldom brought together for consideration. We hope it will be useful for people wanting to understand more about the many factors that need to be considered when designing an effective nutraceutical product

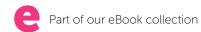
What do you think will be the next big breakthrough in your subject area?

I think as more research is done to determine what happens to the anthocyanins in the body and how they are broken down into metabolites, then we will have a better understanding of the dosage and frequency required to achieve certain health benefits and how to tailor controlled release systems to exploit this in a safe manner. There are still questions around what happens to these metabolites in the body and their impact on human health.

Looking back what is the biggest development in your area of research?

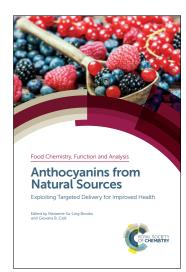
The first sustained release formulation for drug delivery was identified in 1952 (according to the *Journal of Controlled Release*). More recently, the rapid expansion of food supplements, nutraceuticals and related products that are now available to consumers has been a major development, and this has opened up research where there is cross-over between some of the controlled release technologies used in the pharmaceutical industry with the natural bioactive compounds present in foods and vegetables.

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About the series

ISSN: 2398-0656

Series editors

Gary Williamson The University of Leeds, UK | Alejandro G Marangoni University of Guelph, Canada | Juliet A. Gerrard University of Auckland New Zealand

Food Chemistry, Function and Analysis provides a suite of reference books focusing on food chemistry, the functions of food in relation to health and the analytical methods and approaches used by scientists in the area. Providing comprehensive coverage of important topics such as the biochemistry of food, physical properties and structure, efficacy and mechanisms of bioactives in the body including biomarkers, nutrient physiology/metabolism and interactions and the role of nutrition and diet in disease. The series is aimed at academic. and industrial researchers and graduate students in food science and chemistry as well as for physicists, biochemists, nutritionists and others who work at the interface of the chemistry, physics and biology of food.

Advanced Gas Chromatography in **Food Analysis**





Peter Q Tranchida University of Messina, Italy

Gas chromatography is widely used in applications involving food analysis. Typical applications pertain to the quantitative and/or qualitative analysis of food composition, natural products, food additives, flavor and aroma components, a variety of transformation products, and contaminants, such as pesticides, fumigants, environmental pollutants, natural toxins, veterinary drugs, and packaging materials. This book is an up-to-date look at the significant advances in the technology and is suitable for professionals and postgraduate students learning about the technique in the food industry and research.

Hardback | 480 pages | 9781788011273 | 2019 | £179.00 | \$250.00



Anthocyanins from Natural Sources





Exploiting Targeted Delivery for Improved Health

Marianne Su-Ling Brooks Dalhousie University, Canada | Giovana B Celli Dalhousie University, Canada

Interest in anthocyanins has increased in the past few years, due to their potential health-promoting properties as dietary antioxidants, as well as their use as natural dyes. This book discusses ways of targeting the delivery of these compounds, through manipulation of exploitation mechanisms. It addresses all aspects from anthocyanin extraction, health benefits, and metabolism to specialized controlled release applications. This title serves as a reference to those specialising in pharmaceutical science, food engineering, food science or human health and nutrition.

Hardback | 400 pages | 9781788012157 | 2019 | £179.00 | \$250.00



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Biogenic Amines in Food



Analysis, Occurrence and Toxicity

Bahruddin Saad Universiti Teknologi PETRONAS, Malaysia | Rosanna Tofalo Università degli Studi di Teramo, Italy

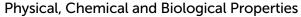
A precise analysis of biogenic amines is important as an indicator of food freshness or spoilage that can cause serious toxicity. This book provides comprehensive background information on biogenic amines and their occurrence in various foods and drinks. It gives a detailed description of both the established analytical methods and the emerging technologies for the analysis of them; this will help make the tests useful for both fermented and non-fermented foods. As the first book on the detection of biogenic amines in all types of food, it provides help to get a better understanding of the risks and how to avoid them. It serves as an excellent and up-to-date reference for food scientists, food chemists and food safety professionals.

Hardback | 350 pages | 9781788014366 | 2020 | £169.00 | \$235.00

Carotenoid Esters in Foods







Adriana Z Mercadante University of Campinas, Brazil

Carotenoids are found in some food plants, flowers and animals, in free form and also esterified with fatty acids. Recent research has concentrated on the extent of carotenoid esters in these sources, how to measure their presence and the amount available for potential health effects. Focusing on the occurrence and assembly in foods, biosynthesis, analytical methods for identification and quantification, dietary intake and metabolism, the most recent research is represented and a balanced overview of what is known about carotenoid esters is provided. This book is a must have source for researchers in food science, nutrition and the food industry.

Hardback | 500 pages | 9781788012423 | 2019 | £179.00 | \$250.00

DNA Techniques to Verify Food Authenticity





Applications in Food Fraud

Malcolm Burns LGC Limited, UK | Lucy Foster Defra, UK | Michael Walker Michael Walker Consulting Ltd, UK

Describing the science behind DNA as a target analyte, its extraction, amplification, detection and quantitation as applied to the detection of food fraud and food crime, this book covers this topical and growing area post the horsemeat scandal. Worldwide authorities in the area have been bought together to provide comprehensive coverage of all issues ranging from sampling of DNA through to emerging techniques such as next generation sequencing. It will appeal to a twofold market – food-testing laboratories worldwide and food policy professionals and regulatory organisations who use these techniques to back up legislation.



Hardback | 320 pages | 9781788011785 | 2019 | £149.00 | \$205.00

Eggs as Functional Foods and Nutraceuticals for Human Health





Jianping Wu University of Alberta, Canada

Often described as 'nature's perfect food', perceptions of egg consumption and human health have evolved substantially over the past decades. This book presents recent developments on the processing of eggs for nutritional, biomedical, functional food, nutraceutical and other value-added applications, as well as providing new evidence around egg consumption on cardiovascular diseases, metabolic syndrome, weight management, mental development, eye, muscle, and ageing health. It will appeal to food scientists, food chemists, researchers in human nutrition specialising in eggs and dairy nutrition, and those involved in egg production.





Hardback | 480 pages | 9781788012133 | 2019 | £179.00 | \$250.00



Food Contact Materials Analysis



Mass Spectrometry Techniques

Michele Suman Barilla S.p.A, Italy

Mass spectrometric techniques have developed to provide increasing solutions to solve problems in food processing and packaging. Even the smallest amount of contamination in food can cause a problem for food production companies, thus they are keen to find speedy and efficient quality control methods. This book outlines how ingredients and their interrelationship with processing and packaging have developed with the exploitation of mass spectrometry and gives practical protocols to stake holders showing the flexibility of this technique. With huge relevance worldwide, it will appeal to food packaging scientist and mass spectrometry practitioners alike.

Hardback | 222 pages | 9781788011242 | 2019 | £149.00 | \$205.00

Handbook of Food Structure Development





Fotis Spyropoulos University of Birmingham, UK | Aris Lazidis University of Birmingham, UK I

lan Norton University of Birmingham, UK

The most useful properties of food, ie those detected through sight, touch and taste, are a manifestation of the food's structure. Studies about how this structure. develops or can be manipulated during food production and processing are a vital part of research in food science. This book provides, in detail, the status of research on food structure and how this has developed through the interplay between processing routes and formulation elements. With world class and up-todate contributions, it brings current knowledge on the subject together and points towards some exciting areas of research for the future. Every chemistry, chemical engineering, food processing and food and nutrition department needs to have a сору.

Hardback | 450 ages | 9781788012164 | 2019 | £125.00 | \$175.00

Health Claims and Food Labelling





Sian Astley EUROFIN, UK

Increasing numbers of foods carry nutrition and/or health claims on their packaging. These need to be regulated in order to protect consumers from false claims, and to promote foods with proven health benefits. This title explores the use of nutrition and health claims around the world, the impact of legislation on consumers especially understanding of the terminology used, and likely developments in the future. It is a valuable reference for those in the food industry, as well as in the regulatory environment.

Hardback | 224 pages | 9781788010733 | 2019 | £149.00 | \$205.00





Legumes





Nutritional Quality, Processing and Potential Health Benefits

Maria Ángeles Martín-Cabrejas Universidad Autónoma de Madrid, Spain

Legumes have high potential for improving the nutritional quality of foods, but limited data on their bioactive compounds exists. This book provides a comprehensive overview of the antioxidant activity and health aspects of legumes. The international spread of contributors will describe the key factors that influence consumer acceptance of legumes in the diet, as well as the known functional properties of legumes and legume based food products. It will serve as an excellent and up-to-date reference for food scientists, food chemists, researchers in human nutrition, dietetics and the chemistry of natural compounds.

Hardback | 360 pages | 9781788011617 | 2019 | £169.00 | \$235.00





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Mitigating Contamination from **Food Processing**



Catherine S Birch Food & Environmental Research Agency, UK | Graham A Bonwick Newcastle University, UK

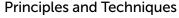
Methods for identification and measurement of existing and newly discovered contaminants are required, especially those that are cheap, simple and rapid, so that testing may be more frequent within the food supply chain. It is also important to identify opportunities to prevent or minimise the formation of contaminants during various types of food processing, especially those recently introduced or proposed for use by the food and drink industries. This book captures recent developments in understanding the formation and occurrence of contaminants in a range of food materials, as well as advances in detection methods. It is aimed at graduate students studying Food Science and Technology or Food Engineering and food science professionals especially those working in food processing or analysis.

Hardback | 280 pages | 9781782629221 | 2020 | £149.00 | \$205.00

Nutrimetabonomics







Sandrine P Claus University of Reading, UK

Nutrimetabonomics offers insight into the effects of diet and nutrition on humans by measuring and mathematically modelling changes in the levels of products of metabolism found in human fluids and tissues. This book covers the whole process, from experiment design to data analysis and interpretation. Written by world experts in the field, it will appeal to those looking to gain an understanding of the technique and its practical aspects, from food scientists to biochemists.

Hardback | 250 pages | 9781782627777 | 2019 | £159.00 | \$220.00

Nutrition and Cancer Prevention





From Molecular Mechanisms to Dietary Recommendations

Thomas Prates Ong University of São Paulo, Brazil | Fernando Salvador Moreno University of São Paulo, Brazil

Cancer is a major global public health problem. Among different environmental and lifestyle factors contributing to cancer risk, diet is a key one. Written by an influential, international team of experts, this book presents and discusses current topics on nutrition and cancer prevention. It covers both nutritional influences on all cancers plus specific chapters on the commonly occurring cancers. Nutritional genomics-based studies show that some dietary components modulate carcinogenesis through complex cellular and molecular mechanisms. A better understanding of these different mechanisms is needed to establish more efficient dietary interventions for cancer prevention. This book will provide such an understanding, serving as an important book for all those working in nutritional health food science and cancer research



Rapid Antibody-based Technologies in Food Analysis





There is a worldwide problem with food contamination, with an increasing number of outbreaks, and food safety. Consequently, there is a need for rapid tracing of foods as well as requirements for food authentication. This book provides a description of antibody-based technologies used in food analysis. It focuses on key applications outlining the approaches used, their advantages and limitations, and future areas for development. An expert in the field has written each chapter and a number of case studies demonstrating the utility of each of the methods described is included. It is for researchers and scientists in the field who have to acquire, verify and use technologies for food analysis, food producers and processors, food safety and testing laboratories, and government agencies.



Hardback | 400 pages | 9781788013901 | 2019 | £179.00 | \$250.00



The Chemistry and Bioactive **Components of Turmeric**



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Sreeraj Gopi Aurea Biolabs Private Limited, India | Sabu Thomas Mahatma Gandhi University, India | Ajaikumar B. Kunnumakkara Indian Institute of Technology Guwahati, India | Bharat B. Aggarwal Anti-inflammation Research Institute, USA | Augustine Amalraj Aurea Biolabs Private Limited, India

Turmeric is cultivated in tropical and sub-tropical regions around the world and used extensively as a colouring and flavouring agent. It is also one of the most popular medicinal herbs, with a wide range of pharmacological activities attributed mainly to curcuminoids and two related compounds, demethoxycurcumin and bisdemethoxycurcumin. This book brings together the research carried out in the area of the constituents obtained from turmeric such as curcuminoid, volatile oil, proteins and carbohydrates and their medicinal, nutraceutical and cosmetic applications. It starts from the isolation of components from turmeric and summarizes the chemistry of isolated compounds, the synthetic methodology to prepare them, various formulations of important components of turmeric to enhance the bioavailability and their biological activity. It is a comprehensive treatment of this important spice appealing to researchers and professionals in natural products and nutraceuticals and food chemists.

Hardback | 450 pages | 9781788015554 | 2020 | £179.00 | \$250.00

The Maillard Reaction



2nd Edition

Justine Cottam University of Canterbury, New Zealand | Sian E Fayle | Juliet A Gerrard University of Auckland, New Zealand

It is a little over 100 years since the Maillard reaction was first described. Despite decades of research since then, the products of the reaction and the mechanistic pathways leading to their formation are being gradually unravelled. It combines comprehensive information regarding the various methods that are employed in the analysis of Maillard products with a discussion of the advantages and limitations of those methods. This fully updated, revised and expanded version of the original volume includes a greater focus on the impact of the Maillard reaction on food, including flavour, texture, nutritional quality and aspects of food safety. It will be useful for both new and experienced researchers who are involved in solving the mysteries and complexities of Maillard chemistry.



Hardback | 200 pages | 9781782629108 | 2019 | £123.00 | \$170.00



Tomato Chemistry, Industrial Processing and Product Development



Sebastiano Porretta Experimental Station for the Food Preserving Industry, Italy

This book looks at the many changes that are taking place in the tomato market and industry; producers are combining origin, tradition, territory, quality, service and supply chain to adapt to the needs of the new consumers. It deals with the topics that are pertinent to the current industry, for example rheology and mechanical properties; origin determination; innovation and new product development; volatile compounds and aroma; functional and healthy compounds; and sustainability and traditional products. Providing a comprehensive overview of the actual tomato industry; how it ensures product authenticity; consumer demand for new products; the presence of bio-active substances able to prevent chronic diseases (carotenoids, phenolic and flavonoids); and how to convert industrial waste into added value byproducts: it will appeal to professionals and food product developers.



Hardback | 320 pages | 9781788013963 | 2019 | £159.00 | \$220.00

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Professional Reference

Vitamin E



Chemistry and Nutritional Benefits

Etsuo Niki University of Tokyo, Japan

This book provides an overview of the state-of-the-art of the chemistry of vitamin E with regards properties and functions and also nutritional benefits. It summarizes information on the role and activity of vitamin E, the current understanding of the advantages and limitations of vitamin E, and also its application in promotion of health and prevention of diseases. Based on sound, solid scientific evidence, this is a timely addition to the literature as the centennial anniversary of the discovery of this important vitamin approaches.

Hardback | 400 pages | 9781788012409 | 2019 | £179.00 | \$250.00

Coffee



Complete Set

Adriana Farah Universidade Federal do Rio de Janeiro. Brazil

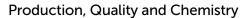
Hardback | 1150 pages | 9781782621065 | 2019 | £180.00 | \$250.00



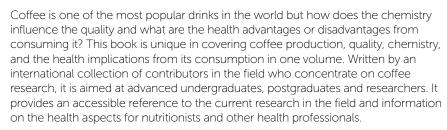
Coffee







Adriana Farah Universidade Federal do Rio de Janeiro, Brazil



Hardback | 718 pages | 9781782620044 | 2019 | £99.99 | \$140.00



Professional Reference

Coffee



Consumption and Health Implications

Adriana Farah Universidade Federal do Rio de Janeiro, Brazil

Coffee is one of the most popular drinks in the world but what are the health advantages or disadvantages from consuming it? This book covers how health is influenced by the consumption of coffee from protective effects to potential contributions of bioactive compounds to health and potential risks involved. Written by an international collection of contributors in the field who concentrate on coffee research, it is edited expertly to ensure consistency and organization across the chapters.

Hardback | 542 pages | 9781788014977 | 2019 | £99.99 | \$140.00



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