

BOOK REVIEWS

Cereal grains

Assessing and managing quality, Second edition

C. WRIGLEY, I. BATEY and D. MISKELLY (Eds)

Woodhead Publishing, Academic Press is an imprint of Elsevier, UK, 2017
ISBN 978-0-08-1007119-8, 830 pages

Cereal-based food is essential to human nutritional requirements, supplying a major part of our diet. The assessment and managing of the quality of cereal grains are critical for human health. This second edition of *Cereal grains* meets the demand to address other grain species as well, thus the book is extended with new chapters on durum wheat (Chapter 6), triticale (Chapter 8), and several ‘alternative’ species – ancient grains and pseudo-cereals (Chapter 14). The authors of the book are experts from food industry, research institutes, and universities. The editors are Colin Wrigley with 55 years in grain-science research, University of Queensland, Australia; Ian Batey with 40 years in cereal research, Sunset Cereal Services, Australia; and Diane Miskelly, who has also more than 40-year experience in cereal science, Westcott Consultants, Australia.

The book is divided into five parts completed with two appendices. The first chapters (Part I, Chapter 1–4) deal with cereal-grain quality including cereal grain morphology, composition, utilization, assessing, and managing quality. In Part II (Chapter 5–14) the chapters describe the different species (wheat, durum wheat, rye, triticale, barley, oat, corn, rice, sorghum, millet, ancient wheats, and pseudocereals). Each chapter gives an overview of the species covering the morphology, breeding aspects, compositional data, utilization, and quality requirements. Part III (Chapter 15–21) specifies the grain quality analysis and management in food safety, breeding, agronomy, and environmental point of view. This part details the variety identification and quality determination methods, and the different inspection systems from all over the world. Part IV begins with assessing and managing wheat flour quality in the whole processing chain, then Chapter 23 focuses on the co-products as important valuable components of the grain industry, and Chapter 24 shows the product groups of cereals and how the consumers’ need could be met by optimizing the production and end-product quality. Part V gives an overall summary of the previous chapters completed with two appendices of compositional data of grains, grain products, and of metric units for grain industry.

This book is a complete guide to cereal grains from breeding to storage, transport and production of cereal-based products. Completed with new chapters, the book gives a whole overview for quality management at all stages of the chain, and summarises the trends for future research and applications.

É. KÓNYA

Nutraceutical and functional food components

Effects of innovative processing techniques

C.M. GALANAKIS (Ed.)

Academic Press is an imprint of Elsevier, UK, 2017
ISBN 978-0-12-805257-0, 382 pages

Reduced activity and lack of exercise in our society can lead to obesity and the so-called “metabolic syndrome”. Changes in eating habits, consumption of fast foods and environmental factors can also adversely affect the health of humans around the world. These approaches and the increasing cost of healthcare, the steady increase in life expectancy, and the desire of older people for improved quality of life also lead to increasing demand for healthy and nutritious food with not only balanced calorific content, but also with additional health promoting functions. Food contains major and minor components as well as bioactive compounds (e.g. antioxidants, peptides, carbohydrates, and lipids) that are important for human nutrition, and their importance has initiated a surge of research and product development in food industry called “functional foods”.

This book describes the different food components and explains the effects of emerging, innovative and non-thermal technologies on the different parameters of food components. The book contains 10 chapters. Chapter 1, *Introduction*, contains the state-of-the-art of nutrition, development trends for nutraceuticals and functional foods, detailed definition for bioavailability, bio-accessibility, bioactivity, bioactive compounds and affecting factors. Chapter 2, *Proteins, peptides and amino acids*, deals with these components’ characteristics and their modification by emerging and innovative technologies. Chapter 3, *Carbohydrates*, discusses the effects of emerging technologies on carbohydrates characteristics, especially for carbohydrates having a carbon chain length up to nine carbon atoms and for inulin, starch, and dietary fibres. Chapter 4, *Lipids*, describes the stability of lipids in food products, and also gives an overview of lipid oxidation affected by different technologies. Chapter 5, *Minerals*, focuses on iron, zinc, and calcium because of their low bioavailability, and discusses the methodologies for measuring bioavailability in humans, methodologies to estimate in vivo and in vitro bio-accessibility. Chapter 6, *Vitamins*, deals with the biosynthesis of vitamins, the health effects, the effects of emerging technologies, the extraction, analytical procedures, the stability and application of vitamins. Chapter 7, *Polyphenols*, focuses on oxidative stress and the protective role of polyphenols and also on interaction of polyphenols with intestinal microbiota. The implementation of emerging technologies to improve stability and bio-accessibility of polyphenols and carotenoids in food through their metabolism and health-promoting activities are described in Chapter 7, *Polyphenols*, and Chapter 8, *Carotenoids*, respectively. Innovative extraction techniques for the recovery of these components from food sources and by-products are also highlighted. Aroma compounds are one of the main food sensory characteristics that impact consumer preference and acceptance. Chapter 9, *Food aroma compounds*, discusses main natural and technology-derived food aroma compounds, with special focus on novel extraction methods as well as on the effects of innovative food-processing technologies on food aroma profile. Finally, Chapter 10, *Interaction between compounds*, gives an overview on emerging nonthermal technologies,

such as high-pressure processing (HPP), pulsed electric field (PEF), high-pressure homogenization (HPH), cold-plasma processing, ultrasound technology, and Ohmic heating, and their effects on the interactions between different food components.

This book is suggested for students, food scientists, technologists, engineers, chemists working in food processing, research, and development as a textbook with good description of food components, novel and innovative food processing technologies, and their effects on compounds.

É. KÓNYA

Nutrition and functional foods for healthy aging

R.R. WATSON (Ed.)

Academic Press is an imprint of Elsevier, UK, 2017
ISBN 978-0-12-805376-8, 367 pages

Aging is a natural, continuous, unidirectional process for any human body; it refers to all the changes that occur during the human's entire existence. The best performance of the body is mostly based on maintenance through timely inputs of appropriate food as measured both quantitatively and qualitatively. Healthy aging as a new term in the last years serves as the basis not only of healthy growth and development during an individual's earliest phases but also for a feeling of wellness during senility, where the nutrition is nothing but nutritious food. In practice, healthy aging for humans depends on eating right, physical exercises, and activity. According to the recent research studies, food is a contributor to the reduction of symptoms and physiological changes associated with aging.

This book, "Nutrition and functional foods for healthy aging", aims to give an overview on health problems of elderly people, contribution of different foodstuffs to healthy aging, and how they can help in treatment of diseases.

The book has four main parts: Part I – Overview health and aging, Part II – Nutrients (Vitamins and minerals) in health in aging adults, Part III – Dietary supplements and herbs, functional foods in health in aging adults, Part IV – Protein and energy in health and growth of elderly.

Part I, as its title shows, summarizes knowledge about health and aging including the impact of food on healthy aging, skin function and its changes during aging. One chapter describes the changed nutritional demands of adults and another one deals with sugar-obesity relation.

Part II discusses some specific vitamins appearing to play important roles in the aging process and may be needing supplementation. Vitamin D and diabetes, vitamin D and orthopaedic problems, B group vitamins and brain aging, vitamin B₁₂ deficiency, vitamin E and allergic inflammation and asthma are highlighted.

Part III begins with polyphenols and their effects on intestinal health, then it gives a review of nootropics and resveratrol to prevent and treat mental decline and cognitive diseases. This section also deals with the use of chalcones as modified tumour necrosis factor treatment of cancer chemoprevention. Components contributing to healthy skin aging are also described here.

Part IV details the role of coenzyme Q₁₀ and arginine amino acid in relations of exercise and aging – importance of physical activity and lifestyle, and finally gives an example with a case of protein and protein-rich food consumption to offer nutritional guidelines for healthy aging.

This book fulfils its aim to provide a comprehensive overview of the role of nutrition and exercises for elderly people. It describes how good food choices, dietary supplements, exercise, lifestyle promote health and reduce symptoms and physiological changes.

É. KÓNYA