

## Book reviews

***Process-Induced Chemical Changes in Food. Advances in Experimental Medicine and Biology, Vol. 434, F. Shahidi, C.-T. Ho, N. van Chuyen (Eds.). Plenum Press, New York, 1998, ix + 355 pages, ISBN 0-306-45824-1***

This book is based in part on the proceedings of Pacifichem 95, which was held in December 1995. It is divided into 28 chapters, each written by internationally recognized scientists. The first chapter (two pages, no references) gives an overview of process-induced chemical changes in foods. The remaining chapters are mainly between 8 and 15 pages in length and each begins with an abstract and ends with a list of references.

Several chapters deal with the effect of a specific process on a particular food or food component. Two chapters deal with ohmic heating (effects on fish proteins and egg albumin), four cover high pressure processing (effects on fish proteins, Pacific Whiting Surimi, fresh seafoods and pectic substances) and two cover extrusion cooking (recent advances in chemical changes and flavour generation). Two chapters deal with the effects of processing on oils and a third covers the antioxidant potential of various established antioxidants in a fish product. Six chapters are concerned with different aspects of the Maillard reaction (antioxidant properties of Maillard reaction products, relationship between the Maillard reaction and food processing, reactive fragments formed in model systems, metal chelating and antioxidant activity of Maillard reaction products, volatiles formed in a model system, and aminoreductones). Three chapters (further to those already

mentioned) deal with the effects of gamma radiation on the flavour composition of foods, flavour deterioration in yoghurt and photochemical reactions of flavour compounds. Other topics covered are methods to monitor process-induced changes in food proteins, the effect of maturity and curing on peanut proteins, chemometric applications of thermally produced compounds, sucrose loss and colour formation during sugar manufacture, minimising process-induced prooxidant stress, process-induced compositional changes of flaxseed, and effect of processing on phenolics of wine.

Chapters take either the form of a conference paper, with the presentation of original work, or the form of a textbook chapter, with a review of recent work. Most are of a good standard, regardless of the form. However, the original work presented is likely to be of most use to the specialist, while the review chapters will interest a wider audience, including undergraduate students. The index, which runs to four and a half pages is adequate, but some searching of the text is likely to be required by the reader. Errors in the text are few and the presentation of figures and tables is uniform. In summary, this is a useful book but one that will probably be a library rather than a personal purchase.

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***Spice Science and Technology, K. Hirasa, M. Takemasa, (Eds.). Marcel Dekker, New York, 1998, v + 212 pages, ISBN 0-8247-0144-5, US\$135.00***

This book is divided into seven chapters, each with its own reference list. Chapter 1 deals with the basic concepts, beginning with an explanation of the meaning of the term 'spice' as well as explaining the differences between herbs and spices. This is essential because the authors do cover many culinary plants that are com-

monly considered to be herbs. This chapter also discusses compounds contributing to flavour, pungency, colour and deodorizing properties of spices. The effects of cooking as well as factors such as light, on the stability of the compounds concerned, are considered. Chapter 2 discusses spice specifications, including quality specifications and spice quality (control of insect and microbiological contamination, and flavour, pungency and colour quality). The third chapter explains the manufacture and properties of different forms of spice, the role

of spices in blends, how to optimise the effects of spices in food (including the use of spices to reduce sugar and salt use), and the deodorizing/flavour-masking effects of spices. Chapter 4 presents the 'patterning theory' of spice use. This theory is based on the supposition that if a spice and a food ingredient tasted together are liked, the two can be successfully combined in cooking. This is the longest chapter, running to 55 pages. Chapter 5 discusses the physiological effects of spice components, chapter 6 deals with the antimicrobial and antioxidant properties of spices, and chapter 7 is concerned with the physiological effects of aroma. The book

is nicely presented and amply illustrated. Although probably of most value to product developers, chefs and flavourists, it should also be of interest to flavour chemists, food scientists in general and to those interested in herbal medicine.

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***Nutrition and Chemical Toxicity*, Costas Ioannides (Ed.).  
John Wiley and Sons Ltd, Chichester, UK, 1998, ISBN  
0-471-97453-6, £100.00**

There is an increasing awareness of the potential health benefits of many dietary components. These naturally occurring chemicals in food, primarily of plant origin, may be protective against cardiovascular disease and certain forms of cancer. Conversely, toxic substances may be generated during normal cooking of food that may be carcinogenic. This book aims to provide up-to-date information on these aspects of nutrition and toxicology.

The book consists of 14 chapters, each chapter dealing with a different subject area in some depth. The first four chapters cover various toxicants found in foods, including naturally occurring, fungal contaminants, products of the cooking process and food allergens. These chapters are clear and well written. The chapter on food allergens, an area of increasing interest, covers the potential for transgenic foods to induce allergic response.

Subsequent chapters focus on the effects of diet on metabolism, with chapters on the nutritional modulation of cytochrome P450; interactions between diet drugs and diet; glutathione, sulphur amino acids and chemical detoxication; lipotropes and chemical carcinogenesis. Chapter 8 deals with a topical research area, that of the modulation of the carcinogenic response by caloric

restriction which, although quite short in length, is clear and a worthy introduction to the area.

Further contributions discuss such diverse topics as expression of chemical toxicity in vitamin deficiency and supplementation; safety evaluation of vitamins and minerals; naturally occurring organosulphur compounds as potential anticarcinogens; cancer chemoprevention by tea polyphenols; animal diets in safety evaluation studies. Chapter 13 suggests, for relaxation, a good book and sipping hot tea but also covers the potential health benefits of green tea, the most widely consumed hot beverage in the world.

In conclusion, this is a very interesting text, covering a diverse subject range of currently important topics embracing both nutrition and toxicology. Although there seems to be a lack of coherent structure to the book, the individual chapters are clear and well written. The chapters are well referenced with up-to-date references and an international authorship. This book is suitable for a wide audience, including food scientists, toxicologists, nutritionists and biomedical research workers.

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