

Book reviews

Food Polysaccharides and Their Applications, 2nd ed., A.M. Stephen, G.O. Phillips, P.A. Williams (Eds.). CRC Press, Boca Raton, FL, USA (2006). x+733 pp., £109-00, ISBN: 0-8247-5922-2

Food polysaccharides are of great importance in our day-to-day life, both as an essential dietary component in all cultures, and as additives to a huge variety of prepared foods. In this ever-changing field of biochemistry, the analysis and evaluation of polysaccharide foodstuffs is of utmost importance, and this second edition has been updated to reflect recent developments and discoveries.

Arranged by topic, the 20 chapters of this book cover a wide range of information pertinent to the subject. Starches, being obviously one of the most extensive and important dietary energy sources, are comprehensively examined in the first four chapters. The understanding of the structure of starch, its possible modifications and its reactions and reaction products, is vital for a full understanding of the role of starch in nutrition. All of these concepts are explained, along with examples of applications of starches in specific products.

Further chapters describe the most commonly found food polysaccharides, with respect to their source, biosynthesis, molecular structure and physical properties. Again this information is given with examples of their applications and production in food formulations. The importance of the interactions of polysaccharides with other biological macromolecules is also covered, with details of the interactions with proteins, lipids, sugars and metal ions all described. Furthermore, effects of heat and cooking on polysaccharides are discussed, and a detailed overview of analytic techniques regarding the quantitative determination and identification of polysaccharides is presented.

The fundamental biochemistry of the book is balanced by the examples of the practical applications given, but also by the chapters of the book that address more ethical considerations of polysaccharide food chemistry. Chapter 9 is devoted to exploring the issues, and delineating the facts, of genetic modification of food crops. This includes an overview of the techniques of genetic modification, as well as a discussion of the commercial and possible humanitarian benefits of genetic modification.

Completely new to the second edition of this book is an explanation of the preparation of novel starch esters, as

well as improved techniques for the production of acid-converted and oxidized starches. New information on the natural functions of cell wall polysaccharides of seeds, in relation to their molecular structure, biosynthesis and enzymatic hydrolysis is also covered. Also for the first time in this edition, information regarding IR and NMR spectroscopic analysis is presented.

This book has an impressively comprehensive scope regarding the subject of the title, and will be of use to both students and professionals in the area of food technology, nutritional science and biochemistry.

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Carbohydrates in Food, 2nd ed., Eliasson, A.-C. (Ed.). CRC Press, Boca Raton, FL, USA (2006). vi + 546 pp., £79.99, ISBN: 0-824-759-427

Food manufacture is one of the largest industries. It continues to expand providing customers with a variety of food and beverages products. On the other hand, growing expectation of quality from customers has led to the application of specific, quantitative and rapid analytical methods to obtain data on the composition of products. The most frequently required analysis is determination of mono-, disaccharides and polysaccharides, which are classified as carbohydrates. Carbohydrates are sugars containing carbon, oxygen and hydrogen atoms.

The second edition of *Carbohydrates in Food* combines the latest data on the analytical, physico-chemical and nutritional properties of carbohydrates. The first three chapters concentrate on mono and disaccharides, which are the lowest molecular weight carbohydrates. They are added to food to increase sweetness and storage stability, to give colour and flavour. Mono and disaccharides may