

Book reviews

Protein Structure–Function Relationships in Foods. Edited by R.Y. Yada, R.L. Jackman and J.L. Smith, Blackie Academics & Professional, 1994. 202 pp. Price £59.00. ISBN 0-7514-0186-2.

Proteins contribute to the nutritional quality of the foods we consume and also act as integral components by virtue of their diverse functional properties. The contemporary consumer increasingly demands food products that are compatible with a busy, healthy lifestyle that includes convenience, balanced calories and nutrients, safe and more wholesome with consistent high quality, appropriate proportioning and attractive packaging.

The particular physical properties that meet the functional requirements, in particular food applications, may be understood so that rational decisions can be made in selecting the best components for specific applications or determining what modifications are required for improving a particular function. The knowledge of the physicochemical characteristics required for particular uses are, therefore, important.

Different applications require different functional properties and many products require an array of properties. In some cases, products depend on changes in properties during actual processing or precipitation. For example, during foaming or gelation and stabilisation, some molecular unfolding and subsequent protein–protein interactions must occur. Therefore, there must be a thorough understanding of the nature of the relation between structure and function so that we can optimise the use of existing and future food proteins.

Protein Structure–Function Relationships in Foods establishes a thorough understanding of the nature of the relationship between the nature and function of food proteins, as the expression of the functional properties during the preparation, processing and storage is largely dictated by changes to the structure or structure-related properties of the proteins involved.

The book is divided into two sections: firstly, those chapters which address structure–function relationships using a variety of food systems as examples to demonstrate the intricacies of this relationship, and secondly, those chapters which discuss techniques used to either examine structural parameters or aid in establishing quantitative relationships between protein structure and functions. This book also deals with α -amylase inhibitors like the *N*-containing carbohydrates which inhibit several glucosidases including α -amylase and owing to the importance of these compounds in modulating effects of diabetes and hyperglycaemia, substantial research has been carried out on the effect of their structure on the inhibition of glucosidases.

This book is a clear and concise valuable reference source for food chemists, scientists and technologists in industry and academia, advanced undergraduates and graduate students in these areas as it provides a greater understanding of the nature of structure–function relationships so that the use of protein sources can be optimised.

John F. Kennedy
Joke H. Kufeji

Wheat, Production, Properties, and Quality. Edited by W. Bushuk and V. Rasper, Chapman and Hall, 1994. xv + 239 pp. ISBN 0-7514-0181.

Wheat is the leading cereal grain produced today; this highly versatile food product provides one-fifth of the calories for the world's population. It may be stored for long periods of time, transported easily and its reasonable pricing makes wheat irreplaceable in the human food chain. Advances in biotechnological breeding, milling, classification and grading, along with understanding of composition all benefit the economies and trade of the agricultural and food baking industries.

The 8th World Congress of Food Science and Technology held in Toronto included a major symposium on wheat. This book provides a permanent record of the papers presented at the symposium. Because of the diverse range of disciplines and topics, the chapters vary noticeably in length and detail. On general reflection, all the information in the book is up-to-date, concise and well illustrated, with extensive reference listing allowing further research into each specific field.

This book presents some of the most significant ideas which will carry food science and technology through this century and well into the next. The book will appeal to anyone interested in the subject, specialist, students and general readers alike. Biologist, chemist, economist, prospective investors in the book are as diverse as the topic and any library, personal or public, would be outdated without it.

John F. Kennedy
Andre Simpson

Cellulose: Structure, Accessibility and Reactivity. Hans A. Krassig, Gordon and Breach Science Publishers, South Africa, 1993. xvi + 376 pp. Price £169.00. ISBN 2-88124-798-9.

Cellulose is the most abundant biopolymer on Earth, comprising almost one-half of the dry weight of plant biomass. Also it is a widely used polymer in different

industries such as the paper and textile industries, and for even many more years in the construction industry. This makes cellulose a much studied subject.

One of the first encounters one may have with cellulose is to study its structure and reactivity. Actually one must look at structure and accessibility first, to understand reactivity – all the more so since cellulose structure has a fair effect on reactivity and accessibility. *Cellulose: Structure, Accessibility and Reactivity* is a compendium of accepted concepts about these effects. This book begins with a short introduction on general information about cellulose. It goes on to describe the fibre structure (cellulose molecule, supermolecular structure, and ultrastructure), several methods of determining molecular mass, mass distribution, and the size of crystallites, fibrils, and fibrillar aggregates. It also deals with

structure and physio-mechanical properties, and effects of structure and morphology on accessibility and reactivity (methods of activation, morphology, structure and the course of substitution reactions). Thanks to reminders and illustrations (many useful and suitably placed schemes, pictures, and examples) the chapters are easy to understand, concise and at the same time deep enough to provide precise information. Furthermore, at the end of this book is an Appendix that gives some more recent references.

Except for the price, this book is not only suitable for students but for anyone who is interested in cellulose and for the cellulose expert as well.

J.F. Kennedy
R.J.S. Pons