

## Book Reviews

**Carbohydrate–Protein Interaction. Current Topics in Microbiology and Immunology, Vol. 139.** Edited by A. E. Clarke and I. A. Wilson, Springer–Verlag, Berlin, 1988, vi + 152 pp. ISBN 3-540-19378-2. Price: DM136.

Carbohydrates are vital to the maintenance of life on this planet. They are the primary products of photosynthesis and play an important role as energy sources and structural components. They have more recently been shown to play an important role in the cell–cell recognition phenomena in animal and plant systems. Consequently, the manner in which complex carbohydrates interact with other cellular components is of considerable interest to biological scientists.

This book brings together the information on the interactions of carbohydrates with proteins which are of interest to all scientists involved in plant, microbial or animal systems, and presents a good introduction to the subject. However, the omission of any discussion on the interactions of carbohydrate and protein, via Schiff's base formation, between aldehyde groups at the reducing terminus of carbohydrate chains and free amino groups from for example lysine residues is somewhat surprising, since such interactions can have significant effects on the physical characteristics of proteins.

Following an introduction to the basic carbohydrate structures and chemistry involved in the formation of carbohydrate–protein materials, such as polysaccharides, glycoproteins and proteoglycans, individual chapters deal with aspects of the carbohydrate-binding site of plant lectins and anti-carbohydrate antibodies, and the interactions between proteins (lysosyme, phosphorylase, amylase, etc.) and oligosaccharides,

and between arabinose-binding protein and carbohydrates. Each chapter is well written with reference to the more recent literature, but the different nomenclature systems used for defining carbohydrate structures (few of which comply with the IUPAC/IUB recommendations published in the early 1980s) can be confusing to the less specialised reader.

In general, this book has a lot to contribute to the subject of carbohydrate-protein interactions and is therefore suitable for recommending as an introductory text for graduate students and scientists from other disciplines who want a brief resumé of the subject. The inclusion of a discussion on the other types of carbohydrate-protein interactions and an adherence to accepted IUPAC nomenclature would have made this an excellent introductory text.

**John F. Kennedy**  
**Charles A. White**

**Food Biotechnology 2.** Edited by R. D. Kind and P. S. J. Cheetham, Elsevier Applied Science Publishers, London and New York, 1988, v + 260 pp. ISBN 1 85166 218 9. Price: US\$70.25, £39.00.

Carbohydrates have always been and always will be associated with food, not only as an essential nutrient but (more recently) also as a necessary ingredient/additive (e.g. as sweeteners, food stabilisers, emulsifiers, etc.) to maintain or enhance texture, palatability, etc., of processed food stuffs. It is, therefore, not very surprising that three reviews in *Food Biotechnology 2* deal with the general topics of bioaffinity methods of analysis (Chapter 1), economics of biotechnology (Chapter 2) and recent developments in enzyme technology (Chapter 5) and have for their examples glucose sensors, high-fructose syrup manufacture and the optimisation of the performance of carbohydrate degrading enzymes (e.g. amylases) respectively. Another review dealing with immobilized plant cells (Chapter 4) discusses the application of carbohydrates (e.g. agarose, alginates, carageenan, xanthan) for gel entrapment.

However, in the more specialized contributions, surprisingly not even one was dedicated to the application of biotechnology on any carbo-