

Book reviews

Advances in Carbohydrate Chemistry and Biochemistry — Vol. 49. Edited by Derek Horton, Academic Press, Inc., San Diego, 1991. viii + 286 pp. Price £50.00. ISBN 0-12-007249-1.

The chemistry and biochemistry of carbohydrates is of great importance to many industries. The majority of present carbohydrate utilisation occurs in the food industry. However, many other industries are starting to realise the enormous potential of carbohydrates. For example, the pharmaceutical industry now uses carbohydrates for antibiotics, intravenous solutions, and vitamin C production.

The first two sections of the book are tributes to the contributions in the field of carbohydrates of Rezso Bognar (1913–1990), and Jean Emile Courtois (1907–1989), providing an insight into the backgrounds, research interests and achievements of these two accomplished scientists.

Analysis of the tautomeric composition of reducing sugars in solution by classical polarimetric methods has inherent limitations, and a chapter discusses nmr spectroscopic methods that have greatly enhanced the ability to monitor and quantitate interconversions of sugars. Another section deals with radical-mediated brominations at the ring positions of carbohydrates. The synthetic procedures available to the carbohydrate chemist have been largely dominated by standard reactions proceeding by heterolytic processes with a chiral matrix. However, the preparative utility of radical-mediated reactions has been amply demonstrated in recent years.

Anhydrides such as 1,4:3,6-dianhydrohexitols are of considerable interest; much of the rapidly growing related research has previously been recorded in the patent literature because of the wide practical potential manifested by these bicyclic diols, but a chapter here clearly displays their preparations and applications. In the penultimate section, enzymic methods in preparative carbohydrate chemistry are discussed, providing a practical overview of the potential of enzymes as synthetic tools for the organic chemist trying to overcome the classical preconception that enzymes are the domain of the biochemist working with nanomole quantities of material.

All mammalian tissues contain proteoglycans, but little is known about the ‘small proteoglycans’ which contain only one or two glycosaminoglycan chains on the protein core. The last section examines the structure

of collagen fibril-associated small proteoglycans of mammalian origin.

Information retrieval is made easy by comprehensive author and subject indexes, making a well presented and informative, if somewhat specialised tome, ideal for the academic or research scientist.

Charles J. Knill
John F. Kennedy

Handbook of Food Engineering. Edited by D. Heldman and D. Lund, Marcel Dekker, Inc., New York, 1992. viii + 756 pp. Price US \$195. ISBN 0-847-8463-4.

The engineer working in the food-based industry is faced with a number of unique concerns and problems due to the characteristics of the materials involved. In many such situations, the basic or chemical properties of the materials are not evident. If you are such a person, and you frequently experience this form of problem, then the ‘Handbook of Food Engineering’ is designed for you.

As with any handbook, this volume assembles data, information and equations deemed essential. However, the knowledge which makes this handbook essential is the guidance it gives on how to use all of the relevant information.

The main body of the volume is an assembly of properties, rate constants and related data in a readily usable format, and, whilst this does not make for interesting reviewing, we feel that it is both comprehensive and concise enough to warrant the term ‘handbook’. The contents and information of this volume are also such that they are likely to make it of use to researchers involved in the mathematical modelling of processes, or in the measurement of properties and rate constants.

The ‘Handbook of Food Engineering’ is a well organised and designed text with a sound index. It should be of use to both graduate and undergraduate students, and it should also provide an ideal reference volume for food process, agricultural and chemical engineers, food scientists and technologists. We have no hesitation in recommending this volume to all of these people, particularly to a reader who requires an ‘in laboratory’ general reference book.

David W. Taylor
John F. Kennedy