

Monosaccharide Sugars; Z. Gyorgydeak, I. Pelyvas; Academic Press, New York, 1998, 504 pages, ISBN 0-12-550360-1, £62.00

For many years, carbohydrate chemistry has been an important part of organic chemistry. Thus, it will remain a major interest of organic chemists, biochemists, molecular biologists, and synthetic chemists for an indefinite period into the future. *Monosaccharide Sugars* critically summarises the applied and potentially useful strategies for the synthesis and degradation of monosaccharides by chain-elongation, degradation, and epimerisation. These methodologies permit the synthesis of rare or unnatural monosaccharides that are frequently employed as chiral building blocks in natural products synthesis, as well as for producing sugar derivatives labelled with radioactive isotopes.

The book aims to treat carbohydrate chemistry through the eyes of a synthetic chemist who is using carbohydrates as naturally occurring, inexpensive starting materials in organic synthesis.

This scientifically sound publication, is compiled into three major chapters; the first describes the reactions applicable to the chain extension of carbohydrates, the second summarises the methods reported for chain shortening (degradation) of sugars, and the final chapter deals with the epimerisation reactions of carbohydrate derivatives.

The literature is well-presented, containing unique supplementary collections of prepared sugar derivatives, which are provided in the form of tables, while representative, well established experimental procedures illustrate the practical potential of the discussed synthetic transformation. It is also up-to-date, discussing methods for carbon–carbon bond formation and degradation in the field of sugars, offering the production of higher-carbon sugars and related compounds, or smaller chiral synthons, respectively, from simple carbohydrate derivatives.

This book is of benefit to anyone who has to deal with carbohydrate chemistry, and will eliminate tedious literature searches for those engaged in research and teaching on the chemistry and biochemistry of saccharides and other natural products, and also for those working on the medicinal and metabolic investigation of related substances of biological importance.

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Carbohydrates in Foods; A.C. Eliasson (Ed.); Marcel Dekker, New York, 1996, 561 pages, ISBN 0-8247-9542-3, £199.00

Carbohydrates is the term used to describe anything from simple glucose molecules to very complex ones such as polysaccharides. Working in the food industry, technicians regularly deal with several different carbohydrate compounds and need to analyse them. It is therefore required to have a vast understanding of the role and function of different carbohydrate compounds.

Carbohydrates in Foods provides a comprehensive, authoritative and in-depth guide about general properties of compounds such as monosaccharides, disaccharides and polysaccharides, these include analysis protocols, physico-chemical properties with reference to their application and their relevance in the human diet as nutritional elements.

The text under review also delves into the various techniques used, such as gas chromatography and liquid chromatography. It also looks at topical areas such as weight regulation, obesity, glucose response and non-insulin dependant mellitus.

The text contains many protocols, which are enforced by orthodox tables and well presented diagrams. Also contained within are some 2600 bibliographic citations. This volume is aimed at the professional researcher and a fairly high level of understanding is required to utilise the book's full potential.

Overall, this book is well presented; has a fair length (having 561 pages), and is a very readable text.

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Organic Chemistry; H. Beyer, W. Walter (D. Lloyd, translator & Ed.); Albion Publishing, Chichester, 1997, xx + 1037 pages, ISBN 1-898563-37-3, £26.50

There is a multitude of organic chemistry textbooks available for degree students, however, this weighty tome is much more than a mere textbook. It has been translated from the German title '*Lehrbuch der Organischen Chemie*', and as its subtitle states, this volume is a '*comprehensive degree text and source book*'. It provides extensive and pertinent background information for undergraduate students in support of lecture courses, whilst also serving as an invaluable reference and consultation source for

postgraduate students and practising chemists, both in industry and academia.

'Organic Chemistry' is divided into eleven main chapters which cover general chemistry, aliphatics, alicyclics, carbohydrates, aromatics, isoprenoids, heterocyclics, amino acids, peptides and proteins, nucleic acids, enzymes, and metabolic processes, respectively. Each chapter is divided logically into subsections, complete with literature references. The chapter on carbohydrates provides an excellent overview of the structure and chemistry of monosaccharides, and the structure and properties of oligosaccharides and polysaccharides, in more detail than would normally be expected in a general textbook. In fact, the content of bioorganic chemistry and biochemistry based information contained within this book is significant, making it an excellent all-encompassing text. The volume also includes detailed appendices which contain information on hazardous substances and carcinogenic materials, named reactions and concepts, and an extensive subject index.

'Organic Chemistry' has been described as a rare find among English-language texts since it is also packed with useful details concerning practical organic chemistry and industrial processes e.g. there are two sections devoted to petroleum chemistry. It contains a wealth of up-to-date information and is highly recommended as a value for money text for all individuals involved with any aspect of organic chemistry in academia and industry.

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Industrial Enzymes and their Applications; H. Uhlig, E.M. Linsmaier-Bednar; John Wiley & Sons, Inc., New York, 1998, 454 pages, ISBN 0-471-19660-6, £80.00

Enzymes have always played a substantial role in the development of new products and have aided in the

furthering of certain products. Types of industries that utilise enzymes are always growing but some of the main ones are, food processing, beverage production, animal nutrition, leather, textiles and detergents. Defined as being biological catalysts, enzymes are primarily used in industries to speed up reaction times and lower the cost of product production. This is due to the fact that enzymes can be reused as they are not lost in the reaction, hence they are financially highly economical.

Industrial Enzymes and their Applications provides a breakdown of numerous enzymes and their various applications. It groups enzymes into specific categories and which chemical agent they can be substituted for on production lines. The text under review covers a wide range of subjects ranging from general enzyme characteristics such as pH and temperature stability and how they effect activity, to precise determination of microbiological origin.

The book also delves into some of the most important and widely utilised enzymes such as; proteases, ester cleavage fat hydrolysing enzymes, carbohydrate hydrolysing enzymes, and immobilised enzymes. Contained within the text are many protocols which are aided with well presented diagrams and orthodox tables. The text is primarily aimed at the professional researcher but could also be utilised by students studying in related fields as a highly informative aid.

Over all, this book is well presented, a fair length (having 454 pages), thorough and a very readable text. A fine publication that we are sure will be high utilised and should not go a miss in any researcher's collection.

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