

Book Reviews

Essentials of Carbohydrate Chemistry and Biochemistry

Thisbe K. Lindhorst. Wiley & Sons Ltd, 2000, 217pp, £34.95p, ISBN 3-527-29543-7

Millions of tonnes of carbohydrates are biosynthesised by plants and algae each year, their agricultural, social and industrial importance cannot be overstated. They are primarily an energy store and a structural building block for the organism producing them, they also have other functions such as encoding of biological information and cell to cell communication.

The book starts by examining the basic structure of mono-, oligo- and polysaccharides. The protecting groups for carbohydrates are discussed in detail in conjunction with strategies for protecting the anomeric centre, many chemical reaction methodologies and pathways are given to illustrate the concepts. A variety of methods are given for the chemical synthesis of *o*-glycoside in its many forms including mannopyranosides, glycopeptides and pentanyl glycosides, there is also an enzymatic alternative to the chemical synthesis of *o*-glycoside. The activation of the hydroxyl groups on the carbohydrate ring is discussed with a selection of widely used leaving groups, followed by functionalisation reactions. The diverse structure of glycoconjugates are examined, these being glycoproteins and glycolipids.

The biosynthesis and occurrence of oligosaccharides *N*-glycoproteins, *O*-glycoproteins and glycosphingolipids are considered in detail with the enzymes used to catalyse the conversion. Some of the wider implications and occurrence of glycobiology are discussed using examples such as: blood group specificities; lectins; carbohydrate–selectin interactions in leucocyte trafficking and microbial adhesion. Methods for purification and analysis are briefly described, these include chromatography, polarimetry, mass spectrometry and nuclear magnetic resonance.

This book would be good primer in carbohydrates for any student with a basic knowledge of organic chemistry. The carbohydrate chemist will find this an invaluable reference source for reaction mechanisms, protecting groups, functionalisation, enzymes and a host of other useful information.

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ROMPP Encyclopedia Natural Products

W. Steglich, B. Fugmann, S. Lang-Fugmann (Eds.). Georg Thieme Verlag, Stuttgart, 2000, 748pp, DM498, ISBN 3-13-117711-X (GTV) or ISBN 0-86577-988-0 (TNY)

Natural products, with their complex structural, biological and physical properties, are a source of continued inspiration for scientists from numerous different disciplines. *ROMPP Encyclopedia Natural Products* provides insights into the immense structural diversity of natural substances. It presents thorough and meticulous information on the chemical structures, stereochemistry, biological properties, physical properties, biological sources and medical applications of natural products isolated from a myriad of organisms. One of the aims of this volume is to provide insight into the vast structural diversity of secondary metabolites, which have become increasingly important in the discovery of lead structures in pharmaceutical and crop protection research.

This text mainly focuses on secondary metabolites (although important primary metabolites are also covered), with the main emphasis being placed on types of microbial, plant or animal secondary metabolites, which show interesting biological activities or are responsible for conspicuous properties of the organism, like colour or smell. The compounds selected include antibiotics, alkaloids, pheromones, flavonoids, and ionophores. This volume is also a rich source of compounds like isocyanides, nitro compounds and halogenated aromatic ring systems, which were previously thought to be of synthetic origin only. This encyclopaedia presents the profiles of different natural products, from their discovery to their applications, and useful synthetic derivatives and biosynthesis of natural products have also been included. This book also contains