

## BOOK REVIEW

**Mechanisms of Saccharide Polymerization and Depolymerization.** Edited by J. J. Marshall. Academic Press, London. 1980. Pp. 442. ISBN 0-12-474150-9. Price: \$32 (£18).

This volume represents the proceedings of a symposium, with the same title, held at the 176th American Chemical Society National Meeting in Miami Beach, Florida, in September 1978. The number of contributions from outside the United States (about half) gives this work a truly international flavour and relevance. *Mechanisms of Saccharide Polymerization and Depolymerization* is divided into four principal sections, with the largest section being further divided into three to give a total of six sections with between three and seven contributions to each section.

The first section deals with glycosyl transfer reactions and saccharide biosynthesis. This section highlights the role of antibiotics in preventing formation of lipid-linked oligosaccharides in polysaccharide biosynthesis and how this enables the metabolism of carbohydrate-containing macromolecules to be studied. Other contributions in this section deal with the biosynthesis of immunogenic glycans, the regulation of sucrose biosynthesis and the action of dextranase (EC 2.4.1.5). Although not physically included within this section (for reasons of lateness in submission) the paper on heparin biosynthesis is part of this first section (and not part of the non-enzymic processes section, in which it had to be included!). The editor is to be congratulated for making the inclusion of this paper possible as it provides an up-to-date discussion on the understanding of the sequence of biosynthetic reactions which has hitherto been fairly limited.

The second section on starch and glycogen is subdivided into: the enzymic degradation of starch, starch biosynthesis, and enzymic processes in glycogen metabolism. The 15 papers in this section include contributions from three leading experts on amylase from Japan and other renowned experts on enzyme action. The papers on the enzymic process in glycogen metabolism should do much to clarify this important and intricate system which seems to become more complicated each day.

The third section on the mechanisms of action of glycoside hydrolases does much to improve the credibility of enzymic analysis of heteropolysaccharides and to increase our level of understanding of the processes involved to that which already exists for the enzymology of homoglycans. The last section on non-enzymic processes of carbohydrate transformations includes a variety of topics ranging from a description of trifluoroacetolysis in the study of carbohydrate-containing macromolecules to a paper on the Maillard reaction and the degradation of monosaccharides in the presence of amino acids and other amino compounds.

The fact that this book appears over two years after the symposium was held, despite the use of rapid manuscript reproduction, detracts somewhat from its appeal, but nevertheless this volume provides a good, state-of-the-art report in an area which suffers from periodic lack of interest. A number of minor criticisms include the lack of use of enzyme commission (EC) numbers to describe the many enzymes discussed and the use of poor and outdated nomenclature. For example,  $\beta$ -glucans should be described as  $\beta$ -D-glucans as the anomeric symbol is meaningless without the configuration symbol, while terms such as heparitin sulphate and acidic mucopolysaccharides should be replaced by the now accepted terms heparan sulphate and glycosaminoglycans, respectively.

Despite the above mentioned failings *Mechanisms of Saccharide Polymerization and Depolymerization* is a publication to be recommended to those involved in the research and teaching of polysaccharide chemistry and biochemistry whilst we would urge its reading by those learning the subject in order to illustrate the variety of approaches to it.

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