

Book Reviews

***Polysaccharides structural diversity and functional versatility*; S. Dumitriu (Ed.); Marcel Dekker Inc., New York, USA, 1998, 1176 pages, ISBN 0-8247-0127-5, price \$250.00**

Polysaccharide macromolecules and complexes are present in all living organisms. They are fundamental to the biological processes which occur. Polysaccharides are also of significant industrial importance being utilised in, and components of, industrial processes and products. In order to understand the complex role of polysaccharides in living systems and, to be able to control and alter their physico-chemical characteristics for industrial applications, it is necessary to determine the chain composition and its conformation within any given environment. This is a formidable task given the complexity of many polysaccharides.

This book “Polysaccharides structural diversity and functional versatility” is an attempt to bring together and summarise the present knowledge relating to polysaccharide chemistry. Its 30 chapters are split into three main areas; progress in structural characterisation, ionic polysaccharides, and new applications of polysaccharides. The chapters dealing with structural characterisation do not form a comprehensive overview of the techniques required to elucidate the structure of a polysaccharide. They focus only on a limited number of techniques including X-ray diffraction and NMR spectroscopy. The application of computational methods to the prediction of polymer chain conformation and interactions is also included. The middle section contains information on specific polysaccharides including hyaluronic acid, pectin, agar, chitins, cyclodextrins, and hemicelluloses and includes information on their source, production and possible uses. The final group of chapters looks at potential commercial applications including biofilms, immobilisation and biosurfactants.

Although this is a large book, some 1140 pages and 4100 references, it does not provide a comprehensive overview of the field of polysaccharides, but rather, provides detailed information on selected areas within the topics covered. Given the ready accessibility of data bases many of the chapters have, what may be considered, an excessive number of references, in one case 468. The information in several of the chapters does not include reference to the current research and two have no references after 1993. Much of the information in this book is readily available

from the specialist texts which provide more complete information in the relevant subject areas but it would be suitable for inclusion in main libraries.

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***Carbohydrates from *Trichoderma reesei* and other micro organisms*; Structures, Biochemistry, Genetics and Applications; M. Claeysens, W. Nerincks, K. Piens (Eds.); The Royal Society of Chemistry, Cambridge, 1998, xv + 351 pages, ISBN 0-85404-713-1 (£69.50)**

Trichoderma reesei was named in the honour of Elwyn Reese, who together with Mary Mandels, pioneered research in the US Army laboratory in Natick, and developed the first cellulase enhanced mutants of this microorganism in the late 1960s. The advantages of *Trichoderma reesei* as a source of cellulase were recognised for its complete system of enzymes capable to hydrolyse crystalline cellulose and for its high yield of extracellular protein.

Since World War II, research has focussed upon the development of hypercellulolytic and hyperhemicellulolytic systems or complexes from various microorganisms, active at extreme temperatures or pH. As a result of the energy crises, several programmes were set up in the seventies which led to new industrial applications of these enzymes, now produced in ton scales.

“Carbohydrases from *Trichoderma reesei* and other microorganisms” is the proceedings of the Tricel 97 meeting held in Ghent, Belgium, and is dedicated to Dr E.T. Reese and Prof. J.P. Aubert, two pioneers in cellulase research. It is organised in five sections which deal with aspects of: the biochemistry of glycanases; structure and function of carbohydrases; substrates and industrial applications; gene regulations and expression; and protein-linked glycosyl structures in lower eucaryotes.

This book provides an up date coverage of the subject and is a useful reference for researchers working in the field. It