



Book Reviews

Biomedical and Biotechnological Advances in Industrial Polysaccharides. Edited by V. Crescenzi, I. C. M. Dea, S. Paoletti, S. S. Stivala and I. W. Sutherland, Gordon Breach Science, Amsterdam, 1988. xiii + 553 pp. ISBN 0-2-88124-368-1. Price: £75.00.

Polysaccharides are utilized in various industries for their viscosifying gelling and film-forming properties. More recently, polysaccharides, in particular glycosaminoglycans (e.g. hyaluronic acid and chitosan), are finding increasing applications in the medical field in areas of controlled drug release, drug development, diagnostics and vaccines. The application/function of a certain polysaccharide depends on its structure under the conditions at which it is utilized. Investigations for the better understanding of structure/function relationship have, therefore, increased considerably especially with the development of spectroscopic techniques. As a consequence of such investigations, enzyme modifications and genetic engineering (biotechnology) as well as chemical modifications are currently being exploited in the design and tailoring (and production) of new high-added value polysaccharides and oligosaccharides. Furthermore, the search for novel sources (plant, animal and microbial) of polysaccharides with novel properties still continues.

This book presents in 35 contributions by scientists from the Americas, Africa, Europe and Australia active in polysaccharide research, recent developments, particularly biomedical and biotechnological advances in industrial polysaccharides. The book is divided into four main topics, namely; glycosaminoglycans, microbial polysaccharides and microbial enzymes, algal polysaccharides and oligo- and polysaccharide structure. The 11 contributions regarding glycosaminoglycans focus on heparin (the molecular basis of its anticoagulant and anti-thrombotic properties and its enzyme modifications), dermatan sulfate, hyaluronic acid (its utilization as a drug delivery system, characterization of its film-forming derivatives and its measurement

using affinity techniques), chitosan and semi-synthetic sulfamino-galactoaminoglycans. The 21 contributions concerning microbial polysaccharides and enzymes discuss and describe mainly, the structure and solution properties (as well as production and utilization) of exocellular polysaccharides and structure-activity relationship of immunogenic polysaccharides and their use as vaccines. Measurement and modification of starch using microbial enzymes are also presented. Only alginates and agar were covered by four contributions concerning algal gel-forming polysaccharides, whilst 10 contributions deal with structures of cellulose, gel-forming polysaccharides, cyclic glucans and glycosaminoglycans by e.g. spectroscopic and light scattering techniques. The book concludes with a contribution dealing with future trends in research and application of industrial polysaccharides.

Contributions to this book are the proceedings of the third international workshop on industrial polysaccharides held at the Area de Ricerca di Trieste, Italy, in October 1988 and as such, contributions are in camera-ready format producing a book having non-uniform printing. However, the book is a good source of valuable information for recent developments especially on the use of polysaccharides as vaccine and on the structure/function relationship of carbohydrate polymers. Some editing mistakes were found; one which is significant is in a paper contributed by the reviewers showing the same figure for Figs 1 and 3. Otherwise, the book should find a place in the library of researchers involved in polysaccharide studies.

Vivian M. Cabalda
John F. Kennedy

The Maillard Reaction in Food Processing, Human Nutrition and Physiology. Edited by P. A. Finot, H. U. Aeschbacher, R. F. Hurrell and R. Liardon, Birkhauser Verlag, Switzerland, 1990. 516 pp. ISBN 3-7643-2354-X. Price SFR 108.00.

Much attention has recently been focused on the nonenzymatic browning reaction between an amino acid and sugar, also called glycosylation, glycation or Maillard reaction. It is indeed a very important reaction involved in most food processes, in particular, with regard to colour, flavour and nutritional properties. In addition to both its favourable and unfavourable contributions to food, some other aspects of this reaction have recently stimulated the attention of chemists, biochemists, food technologists, toxicologists and other scientists to explore this field.