

Book reviews

Lectins and Glycobiology. Edited by H. Gabius & S. Gabius. Springer, Berlin, 1993. xx + 521 pp. Price £73.00. ISBN 3-540-5611-7.

Lectins are carbohydrate-binding proteins of nonimmune origin which occur throughout the biosphere. They have been found in the plant and animal kingdoms and in microorganisms (including prokaryotes). Their most obvious property, haemagglutination, has been known for more than a century. The role of lectins in immunological defence reactions is of great interest. Lectins are also involved in various biochemical and cellular processes, such as cell recognition, communication and inflammation. The great breakthrough in the art of purifying lectins came with the introduction of affinity chromatography. First with homopolymer polysaccharides which are suitable for only certain lectins and later with tailor-made affinity adsorbents prepared by immobilising monosaccharides, oligosaccharides, glycopeptides or glycoproteins to hydrophilic and water insoluble matrices.

Lectins and Glycobiology is organised in ten sections, each of which focuses on techniques in different research fields that deal with lectins. The introduction presents insights into the state of knowledge of lectins by literature searches. The four following sections deal with chemical synthesis of lectin ligands, purification and characterisation of lectins and of lectin–ligand interactions, and the use of lectins as tools for the characterisation of glycoconjugates. The determination of expression of lectins and their ligands, and the use of lectins in histochemical and cytochemical analysis are discussed in the sixth and seventh sections. The last sections are devoted to biosignalling, cell adhesion and molecular genetics of lectins.

Each chapter comprises procedures, equipment, materials, helpful hints and references. Certainly, this book provides information of invaluable help to all those active in the field, especially biochemists, chemists, molecular biologists, cell biologists and biotechnologists.

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John F. Kennedy

Food Polysaccharides and Their Applications. Edited by A.M. Stephen. Marcel Dekker, New York, USA, 1995. 654 pp. Price US\$195. ISBN 0-8247-9353-6.

Carbohydrates, mono-, oligo- and polysaccharides, are essential components of our food and constitute the bulk of the human diet. The polysaccharide component is not only important where it forms the major part of the food, for example as in the case of the starch polysaccharide in potato and bread, but also where a particular polysaccharide may be present at a level below 5% but is responsible for the physical characteristics of the food. Polysaccharides are often present as additives for thickening, stabilising and emulsifying foods due to their unique ability to form gels and highly viscous solutions at low concentrations.

This volume *Food Polysaccharides and Their Applications* in the *Food Science and Technology* series of monographs, textbooks and reference books, sets out to provide a comprehensive reference work on the sources, types, modification, properties, characterisation, and regulatory aspects of the polysaccharides used by the food industry. The early part of the book focuses on the neutral homopolysaccharides — starch and cellulose — and reviews their structure, analysis and applications. The properties of modified polysaccharides, modified starches and cellulose derivatives are also discussed and methods of preparation are detailed, including one chapter which is exclusively devoted to the starch hydrolysates (Chapter 4), which are of major importance in the food industry. The next group of chapters deals with more complex polysaccharides including the neutral heteropolysaccharide galactomannan, agar — a polysaccharide of galactose residues with alternating linkages, the sulphated polysaccharide carrageenan, the hexuronic acid-containing polysaccharides alginate and pectin, bacterial polysaccharides, gums and mucilages, and finally the basic chitin and chitosan polysaccharides. Although properties and applications are discussed for each polymer in the relevant sections there are also three excellent chapters detailing polysaccharide interactions, emulsion stabilisation by polysaccharides and polysaccharide rheology and in-mouth perception — perhaps the most important properties for food applications.

Although this book is expensive, it does contain a huge amount of current information relating to the