

Book reviews

Molecular Biology and Biotechnology. Edited by J.M. Walker and E.B. Gingold, The Royal Society of Chemistry, 1993. xviii + 428 pp. Price £39.00. ISBN 0-85186-794-4.

Books on molecular biology and/or biotechnology are in great demand nowadays as most organisations and institutions are investing a lot of financial, material and human resources to fund and facilitate the research and development in the fields of biotechnology. This popular field of research covers a wide scope of activities and areas. Hence, this third edition of 'Molecular Biology and Biotechnology' can provide the basic knowledge as well as give information on the latest developments to the reader.

The 19 chapters cover the following topics: Fermentation Technology, An Introduction to Recombinant DNA Technology, The Polymerase Chain Reaction, The Expression of Foreign DNA in Bacteria, Yeast Cloning and Biotechnology, Cloning Genes in Mammalian Cell-Industry, The Current Impact of Recombinant DNA Technology in the Food Industry, DNA Profiling in Forensic Science, Molecular Diagnosis of Inherited Disease, Vaccination and Gene Manipulation, Transgenesis, Enzyme Engineering, Stability of Enzymes Cells, Immobilised Biocatalysts, Downstream Processing, Monoclonal Antibodies, and Biosensors. The chapters are arranged quite systematically in which the presentations can be classified into several main topics like Fermentation Technology, Recombinant DNA Technology, Gene Cloning, Plant Biotechnology, Application of Molecular Biology in Various Industry and finally the Current Development in Biotechnology which covers Enzyme Immobilisation Technology, Monoclonal Antibodies and Biosensors.

We found the book had been thoroughly revised and updated, combining entirely new information on current hot topics with upgrading of the existing chapters. The contents were aided by illustrations and examples to guide the readers to comprehend the subjects. In conclusion, the contributions in this book are obviously suitable for teaching purposes, i.e. for undergraduates. However, the simple presentation of the book should also be helpful to researchers from other fields of training who require a basic introduction and understanding in this area.

J.F. Kennedy
W.H.W. Hasamudin

Chitin Enzymology. Edited by R.A.A. Muzzarelli, European Chitin Society, Ancona, 1993. xiv + 508 pp.

Chitin occurs in a variety of organisms, including fungi, algae, protozoans and arthropods. The enzymes involved with synthesis, lysis and modification of chitin control essential functions, such as body protection and support, defense mechanisms, pathogenicity, digestion and ecological equilibria. A better understanding of the structure and mode of action of these enzymes has been made possible by biochemical methods, analytical techniques and genetic manipulation. A number of research groups have made excellent progress in identifying genes coding for chitinase and chitin synthase. Considerable effort has also been put into isolating and purifying chitin synthase, but separation of this enzyme from strong associated lipids and other proteins has been difficult.

'Chitin Enzymology' represents a collection of papers presented at the International Symposium under the same name held in Senigallia, Italy. It comprises the most recent advances in the fields of chitin synthesis, lysozymes, chitinases, cloned enzymes and chemical aspects.

Among the many interesting topics covered are: the transglycosylase activity of chitinase; the purification and characterisation of membrane-demand chitin synthase from *Absidia glauca*; the isolation and characterisation of chitin deacetylase; the enzymatic degradation of chitin and chitosan; and the role of exogenous chitosans in human wound tissues.

This book is an important research reference tool for those working in this field and is recommended to all libraries concerned with carbohydrates, biochemistry and molecular biology.

John F. Kennedy
Marion Paterson

Chemistry and Biology of (1 → 3)- β -Glucans. Edited by B.A. Stone and A.E. Clarke, La Trobe University Press, 1992. xi + 303 pp. Price AU\$175.00. ISBN 1-86 324-409-3.

Glucan biopolymers are readily abundant particularly those with a (1 → 3)- β -D-glycosidic linkage as a major feature which can be found in many plants and micro-organisms. The main functions of these polysaccharides

are storage and structural purposes which are common for polymers of D-glucose. It was later discovered that D-glucans also contribute significantly towards the defence mechanism in plant host-pathogen interactions. The understanding of using D-glucans to protect the host is then further exploited in animal defence mechanisms.

First of all the word glucans should be properly written as D-glucans. Hence the correct title of the book would be *Chemistry and Biology of (1 → 3)-β-D-Glucans*. One cannot specify an α- or β-anomeric link without specifying the absolute configuration of the monosaccharide residue because the two are inter-related. The book is written systematically with the basic information of D-glucans being covered in the first three chapters. These include the physical and chemical characterisation, degradation and biosynthesis of these polymers. Later the authors describe the formation of D-glucans in different types of plants and microbes. The synthesis of these biopolymers in prokaryotes, algae, fungi, yeast, lichen and higher plants are also discussed in chapters 4–7. Another topic also covered is the

involvement of D-glucans and D-glucan hydrolases in the interaction of fungal pathogens with higher plant hosts. Furthermore, an interesting account of the only reported example of a (1 → 3)-β-D-glucan in animals, is illustrated in chapter 10. Finally the last chapter discusses the effects and roles of D-glucans in animal defence mechanisms which need further study and research for better understanding.

The book provides a source of information and references for those requiring an understanding of (1 → 3)-β-D-glucans in their work. The book is of great suitability to carbohydrate chemists and biochemists, plant pathologists, mycologists, botanists, animal and human nutritionists, immunologists and food technologists. Hence, the book is valuable for lecturers and graduate students in universities and higher learning institutes; and researchers in industrial, agricultural and medical research and development organisations.

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