

Plant Carbohydrate Biochemistry

Edited by J. A. Bryant, M. M. Burrell and N. J. Kruger, *Experimental Biology Reviews*, BIOS Scientific Publishers, Oxford, 1999, 336 pp. £67.50. ISBN: 185-996-1126

This book is a summary of reviews coming out from a meeting held in Cambridge in 1998 in memorium to Tom ap Rees, one of the grand old men of carbohydrate metabolism in plants, who died on 3 October, 1996. It covers the main topics of carbohydrate research, together with some specific aspects of this field. Each chapter is written by an expert, which results in a competent summary of the scientific knowledge of their specific field. The main part of this book covered by the first nine chapters is focussed on aspects of (i) flux control of carbohydrate metabolism in whole plant or at the level of organs, (ii) sucrose synthesis pathways, (iii) synthesis of sucrose derived soluble sugars and of starch, and (iv) regulatory properties of key enzymes of these pathways. The following chapters (10–14) are related to more specific problems, such as regulation of Rubisco, photorespiration, and carbohydrate metabolism in C4 and CAM plants. The

third main topic is focussed on new developments in metabolite transport across biomembranes (chapters 16–18). Finally, some specific chapters are added about the recently discovered synthesis pathway of ascorbate, the folate supply of plant cells, the synthesis of tetrapyrroles, and the possible role of glycolytic enzymes in DNA replication.

This book allows the reader to get a brief summary on the status of research in most carbohydrate-related topics. It helps to realize that classical analytical plant physiology, which has been fundamentally influenced by Tom ap Rees, has not been replaced but supplemented by modern plant molecular biology. Physiological analysis of transgenic plants is referred to in nearly all chapters as a tool for the understanding of metabolic regulation. For these reasons, this book can warmly be recommended to all students and also scientists interested in plant carbohydrate metabolism.

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Indole Alkaloids

By Atta-ur-Rahman and A. Basha, Harwood Academic Publishers, Reading, Berks, 1999, 324 pp. £55. ISBN: 90-5702-268-0.

The indole alkaloids are arguably one of the largest and most important class of plant alkaloid. Those in clinical use include vinblastine, vincristine, reserpine and ajmaline. One would expect a book with such a simple title to provide a general account of these interesting alkaloids, with some information on natural occurrence, biosynthesis, chemistry and pharmacology. Unfortunately, what is provided is a very thin slice of information, namely laboratory syntheses of some 95 such alkaloids. These are one to two page outline

syntheses, with a few references and some data on the physical properties of the products.

The majority of phytochemists will therefore be disappointed at the very limited contents of this natural product offering. It is the type of information more appropriately placed in a database and I cannot see many scientists, even synthetic organic chemists, wanting to consult this book.

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New Trends in Natural Product Chemistry

Edited by Atta-ur-Rahman and M.I. Choudhary, Harwood Academic Publishers, Reading, Berks, 1999, 305 pp. £44. ISBN: 90-5702-287-7.

This book contains 23 chapters on various aspects of natural product research and is derived from the 6th International Symposium on Natural Products held in Karachi, Pakistan in January 1996. Undoubt-

edly, the most generally interesting contributions are three chapters from scientists working at the College of Pharmacy, University of Illinois at Chicago. The first on Biologically Active Natural Products considers those substances which possess the ability to overcome drug resistance. Structures considered here include bisamides, lignans and rutaceous alkaloids. The other two chapters from Chicago cover more familiar ground and describe in detail a research programme directed towards the discovery of plant-derived anticancer agents. A range of secondary metabolites have been evaluated during this work, but unfortunately, many of the most active leads eventually turn out to be insufficiently active for clinical use.

Two other notable contributions to this volume are chapters on ladybird beetle defence secretions by Attygale and Meinwald and on cytotoxic macrocycles from marine sponges by T. Higa and co-workers. The remaining papers cover natural product synthesis and structural elucidation and have a more limited interest. At £44, this book is a reasonable buy and is an appropriate addition to the natural product literature.

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