

## Book review

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*The Phytochemistry of Cell Recognition and Cell Surface Interactions*: edited by FRANK A. LOEWUS AND CLARENCE A. RYAN, *Recent Advances in Phytochemistry*, Volume 15, Plenum Press, New York and London, 1981, x + 277 pages, \$37.50.

The role of complex carbohydrates in the phenomena of cell recognition and cell-surface interactions is now well established through studies on mammalian tissues and micro-organisms. This volume brings together a well-chosen selection of contributions to show that glycoconjugates may function in a similar manner as informational molecules in higher plants, and in their interactions with fungi and bacteria. The book starts with general papers on glycoconjugates (A. D. Elbein), carbohydrate-binding proteins (lectins) (I. J. Goldstein), and those plant polysaccharides that are involved in host–pest interactions (P. Albersheim *et al.*). Some current areas of the biochemistry of glycoconjugates are then examined in relation to the structure and function of lipoglycopeptides in *Penicillium* (J. E. Gander and C. J. Laybourn), phytohemagglutinins (lectins) that also display enzymic activity (L. M. Shannon and C. M. Hankins), and the isolation of cell-surface glycoproteins from plant tissues (R. G. Brown and W. C. Kimmins). The functional significance of complex carbohydrates in biological-recognition phenomena is then discussed in chapters on plant-protoplast agglutination and immobilization (P. J. Larkin), molecular aspects of recognition and response in the pollen–stigma interaction (A. E. Clarke and P. A. Gleeson), bacterial attachment to plant cell-walls (M. H. Whatley and L. Sequeira), lectins and plant-herbivore interactions (D. H. Janzen), and cell interactions and pattern formation in *Dictyostelium discoideum* (D. McMahon).

The book provides a record of a symposium sponsored by the Phytochemical Society of North America, and, as such, points to some of the advantages and disadvantages of this increasingly common form of publication. Several of the contributions are excellent, state-of-the-art accounts of then-current research (August, 1980) that manage to convey the enthusiasm of the authors by placing the topics within a broad perspective, and raising interesting, speculative questions. If some papers are less definitive than those in refereed journals, that loss is more than offset by retention of the spontaneity of the oral presentation, which survives transcription to the written word. At the risk of making invidious selections from among other fine papers, the articles by Gander and Laybourn, and by Clarke and Gleeson, deserve special mention for establishing connections between structural carbohydrate chemistry and biological functions. Without intending any disrespect to friends and colleagues, it is only fair to say that the less satisfactory sections of this volume are the introductory, “overview” chapters. However necessary and desirable these reviews may be at the meeting itself, only a weak case can be made for publishing,

yet again, brief reviews of topics that have been better, and more extensively, reviewed elsewhere (and by the same authors!).

The overall presentation of the book from camera-ready copy is good, the diagrams are satisfactory, and the chapters are well documented. The absence of rigorous carbohydrate nomenclature may offend some readers, but it does not result in serious inaccuracies. In these inflationary times, the cost of the book is moderate: expensive compared with that of the established textbook, but cheap compared with that of actually attending any scientific meeting. The volume provides an excellent window on a rapidly developing field of plant biochemistry. With supplementation from the current literature, it could form the basis for an advanced undergraduate or graduate course. The book is strongly recommended for personal purchase by the prospective graduate student in biochemistry and related disciplines who is looking for challenging fields of study, and by the carbohydrate biochemist in search of new territories to explore.

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