Phytochemistry, Vol 28, No 10, pp 2875–2876, 1989
Pergamon Press plc Printed in Great Britain

BOOK REVIEWS

Chemical Mediation of Coevolution: edited by K. C. SPENCER, Academic Press, San Diego, 1988. 609 pp. Hardback, £59 50, paperback £25.00.

Although this volume arose from a Symposium held in Gainesville, Florida in 1985, it is far more than a simple record of that meeting. Most of the authors indeed present new research findings in their chapters but these results are interwoven with reviews of related work from other laboratories. Thus, the book as a whole provides a modern overview of plant–animal coevolution. It is comparable in its breadth and scope with early classics in the field such as Sondheimer and Simeone (1970) and Rosenthal and Janzen (1979).

Two questions considered by most authors of this book are: how far does chemistry mediate in a particular plant–animal interaction; and which if any such interactions are truly coevolutionary? The answers in many cases are equivocal but in the interim much interesting new material is presented and discussed. The editor himself, besides contributing short introductory and concluding chapters, presents a major contribution on the role of cyanogenic glycosides in *Passiflora–Heliconius* which has never been published before. This interaction appears to be a highly subtle one involving no less than six different classes of cyanogen and much more work is needed to sort out the complexities of the chemical responses of the many species of plant and butterfly that are involved.

New information is also available in the chapter by Lincoln Brower and his coworkers on the storage patterns of cardenolides in the Monarch butterfly and how these are related to avian predation on the insect at its winter hibernation sites in Mexico. Other notable contributing authors include May Berenbaum (on parsnips and webworms), Francis Chew (glucosinolates), Judith Myers (induced defences), Richard Lindroth (mammalian herbivores) and Deane Bowers (iridoid sequestration).

As with most Academic Press books, this one is handsomely produced with some excellent black and white photographs and appropriate diagrams and figures. There are both subject and systematic indexes. There is also a paperback edition at an affordable price, so that this book should reach the wide readership that it deserves.

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SHORT BOOK REVIEWS

Crop Safeners for Herbicides: edited by K. K. HATZIOS and R. E. HOAGLAND, Academic Press, San Diego, 1989. 400 pp. $69.95.

I must admit that until I picked up this book I had not heard of Crop Safeners. I was not aware that a range of synthetic chemicals such as the naphthopyranones could be added to agricultural crops to protect them systemically from the adverse affects of the herbicides used to keep the weeds down. To anyone else in this position, this book is the answer—everything is explained here. There is an excellent introductory chapter by the senior editor and this is followed by accounts of the mechanism of action of the six classes of safener and of alternative approaches to crop safening. In a chapter by J. W. Gronwald on the influence of herbicide safeners on herbicide metabolism, I was interested to read that chloroacetanilide herbicides are metabolised by plants to both *N*- and *O*-malonyl conjugates — a fascinating point in relation to the recent discovery in our laboratory and many others that phenolics regularly occur constitutively with malonyl as well as sugar conjugation.

It is clear from several chapters, e.g. that of R. E. Wilkinson on terpenoid biosynthesis as a site of action for herbicide safeners, that we are still far from understanding precisely how safeners work. There is much interesting plant biochemistry awaiting study here. This book provides an excellent entry into this new and fascinating field of herbicide antidotes and it can be warmly recommended.

Eukaryote Cell Recognition: concepts and model systems: edited by G P. CHAPMAN, C. C. AINSWORTH and C. J. CHATHAM, University Press, Cambridge, 1988. 315 pp. $65.50.

This rather fearsome title refers to yet another symposium volume on the problems of cell recognition and how cells signal to each other. It is divided into four parts: concepts, recognition in single-celled organisms (e.g. *Paramecium*), recognition in multicellular organisms (e.g. *Dictyostelium*) and recognition between organisms (e.g. host–parasite). It is thus wide ranging and covers both plant and animal systems. While mainly concentrating on biological aspects, some information is provided on the chemistry of the signals. This book therefore can be usefully added to a growing list of volumes on chemical signalling.

The Ecology of the Nitrogen Cycle: by JANET I. SPRENT, Cambridge Studies in Ecology, University Press, Cambridge, 1987. 151 pp. Hardback $39.50, paperback $14.95.

This book sets out to describe the biochemical processes of the nitrogen cycle and then shows how the cycle is modified by particular ecological and climatic situations in different parts of the world. It admirably achieves this aim in a brief but telling essay, illustrated with tables and schemes and concluding with 12 pages of references. My only regret about this volume is its brevity and there were