Phytochemistry, 1973, Vol. 12, pp. 1835 to 1838. Pergamon Press. Printed in England.

BOOK REVIEWS

Introduction to the Biochemistry and Physiology of Plant Growth Hormones: by I. D. J. PHILLIPS, McGraw-Hill, London, 1972. £2.40 (hard back), £1.40 (soft back).

THE UNDERLYING biochemistry of plant growth and development is still in a state of flux. Rather than simplifying the whole process, the remarkable discoveries during the last two decades of the new plant hormones which regulate these systems, have led to a greater complexity than before. This has been confounded to a large extent by the desire of plant physiologists to mount the fashionable bandwaggon of molecular biology and describe hormonal regulation in plants solely in terms of repression or stimulation of the transcription and translation of the genetic code. There are few papers on the subject in the fashionable journals which do not mention the use of actinomycin-*D* or cycloheximide or both. This is not to say that growth and development are not ultimately controlled by molecular processes, but if we stop all transcription and translation *in a growing cell* we are bound to affect its elongation, and indeed, any other of its multifarious activities. It is not a simple matter. Of course cellulose synthesis or hydroxyproline incorporation will be inhibited by the application of the antibiotics. But so will many other things which are never measured, like phosphorylation of ADP, transport of materials from the golgi apparatus to the cell wall and so on. In other words, an effect does not point to a cause (unless we define the cause so broadly as to constitute a non-answer). But if we want to make a start on understanding these processes, we must make sure that we have grasped the essential details of the discoveries which have led to our present knowledge. Over the past few years there has been a plethora of books dealing with the subject matter covered by the title of this volume. Most of them can be recommended for use at different levels. However, none, in my opinion, is more suitable for the beginning student than this book by Dr. Phillips. It is not only clearly written, but clearly organized. Rather than deal with each hormone separately, he has chosen the more difficult task of showing their individual and combined effect on various single aspects of plant growth and development, in separate chapters, and moreover succeeded in giving a well rounded account of each. He has chosen his examples with care and illustrated them with well produced figures and graphs. And above all, he is honest enough to admit to the reader that regarding the mechanism of action of plant hormones 'we just do not know' and I applaud his last sentence: 'There is unquestionably plenty more to do and time enough for you, the student, to become one of the researchers doing it'. Needless to say, the book is well produced and in my opinion a worthwhile investment for every first year student of botany and plant biochemistry.

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Systemic Fungicides: edited by R. W. MARSH, Longman, London, 1972. 321 pp. £4.00.

THIS timely volume comprises twelve reviews of the development, theory and uses of earlier chemotherapeutants and recent systemic fungicides. The distinguished authors are well

equipped for their task. Half of the 1174 references are dated later than 1967 and represent contributions scattered among journals, conference reports, abstracts and personal communications the world over, so the book provides a valuable condensation of current knowledge.

Nine chapters deal comprehensively with the whole field; definitions and historical aspects (R. L. Wain and G. A. Carter); structure–activity relationships and toxicology (D. Woodcock); translocation (S. H. Crowdy); effects on host physiology and host/pathogen interactions (A. E. Dimond); effects on pathogens (A. Kaars Sijpesteijn); fungicide resistance/tolerance (J. Dekker); methods of application (E. Evans). The remainer of the book is devoted to practical results of using systemic fungicides on cereals (D. H. Brooks), glasshouse crops (D. M. Spencer), vegetable crops (R. B. Maude) and fruit crops (R. J. W. Byrde).

The text is plainly and properly aimed at specialists on systemic fungicides, so it is not surprising that it is not easy reading. In parts, especially in the historical sections which have already been adequately reviewed, many of the references seem superfluous. By contrast, the single reference given in the chapter on toxicology may seem like a general absolution, especially as one of the materials 'ranking among the safest pesticides in current use' has since been withdrawn. The chapter on acquired resistance should be required reading for all those able to influence the general policy of fungicide use and long term welfare of crop protection.

The book might have been improved by a final chapter discussing present trends, future needs, the new methods of disease control systemic fungicides offer, and the research required to develop more new compounds with wider spectra of activity, different modes of uptake, action, translocation and degradation. Such a chapter would obviate repeating basic points that occur in many of the reviews, and, together with a more consistent policy on the inclusion of authorities for fungal species and use of currently accepted binomials, the book would have more general appeal to students and non-specialists.

Systemic Fungicides is the first book to be published on the subject, and, as a paper-back at £4, it is certain to be welcomed, widely read and much referred to.

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Phytochrome: edited by K. MITRAKOS and W. SHROPSHIRE. Academic Press, London, 1972. 631 pp. £7.50.

IN ORDER to celebrate the coming of age of the discovery of phytochrome, most of the active workers engaged in research on this elusive photoreversible plant pigment met together in Greece, under the auspices of NATO, for a Summer School and the present volume is the product of this gathering. It contains 23 review articles, covering almost every possible aspect, ranging from history (H. Borthwick), physical chemistry (J. M. Lhoste), chemical structure (W. Rüdiger), physiological responses (P. Rollin, D. Vince and others), and biochemical effects (H. Virgin, H. Smith, P. Schopfer, K. Mitrakos).