

## Book review

J.A. Bailey and J.W. Mansfield (Eds), 1982. *Phytoalexins*. Blackie & Son Ltd, Glasgow and London. X + 334 pages, 55 figures, 13 tables. ISBN 0-216-91162-1. Price £ 28.00.

Are phytoalexins primary determinants of plant disease resistance or are they merely stress metabolites that happen to be antimicrobial and without any important function in plant defense reactions? Or do they play a role somewhere between these two extremes? Anyone who expects to find a clear-cut, unequivocal answer in this book, which is written and edited by specialists in the field of phytoalexin research, will be disappointed. No decisive answer yet can be given, and the book makes clear why. The general view, however, is one of strong support for a primary role of phytoalexins in restricting fungal growth within necrotic tissues.

This book, being the first that is devoted completely to phytoalexins, presents and discusses in a comprehensive way a wealth of data that has accumulated during 40 years of research since the introduction of the phytoalexin concept in 1940.

The introductory chapter, written by B.J. Deverall, gives a brief overview of the history of phytoalexin research. The chemistry of the phytoalexins from the Leguminosae (J.L. Ingham), the Solanaceae (J. Kuć) and other plant families (D.T. Coxon) is treated in varying ways by the different authors. These chapters contain the chemical structures of almost all known phytoalexins, along with many details on their chemical properties, accumulation, isolation and purification. What is known about their biosynthesis and biogenetic relationships is put together in great detail by A. Stoessl. This chapter is amply illustrated with several proven or presumed pathways leading to the synthesis of phytoalexins.

The ability of some pathogenic fungi to metabolize the host's phytoalexins to less toxic products, may be a factor contributing to their virulence. The different metabolic reactions, carried out either by fungi or by plants, are reviewed in a chapter by H.D. VanEtten, D.E. Matthews and D.A. Smith. The toxicity of phytoalexins, both to fungi and to other organisms (bacteria, plants, animals) is discussed by D.A. Smith.

J.W. Mansfield has selected host-pathogen interactions which have been the subject of coordinated biochemical and microscopical studies and shows that these and other studies provide evidence which is highly suggestive of a primary role of phytoalexins in the expression of disease resistance. Possible mechanisms of phytoalexin accumulation and the involvement of elicitors and cell necrosis are discussed by J.A. Bailey.

J.W. Mansfield and J.A. Bailey conclude with a short chapter on current problems and future prospects. These regard the questions: are phytoalexins produced by all plants; are phytoalexins active in vivo; what is the relationship between plant cell death and phytoalexin accumulation; how can our knowledge of phytoalexins be used to develop new approaches to disease control?

The book ends with subject, compound and organism indexes.

Each chapter contains a large number of references. The total of cited references encompasses an impressive proportion of all published research on phytoalexins. Unfortunately, although being up-to-date, a book of this kind, and in particular certain chapters, may soon become outdated, due to the rapid appearance of new research results.

The book does not appear to be written for those who wish to acquaint themselves with phytoalexins by a quick look only. It is rather a prime source book for anyone with a more profound interest into phytoalexins. It can be recommended to all who wish to obtain an authoritative review of our current knowledge of phytoalexins.

The well-produced and firmly bound book contains relatively few printing errors except, however, in some of the references.

J. van den Heuvel