

Book review

A. Graniti, R.D. Durbin & A. Ballio (Eds), 1989. Phytotoxins and plant pathogenesis (NATO ASI Series. Series H: Cell biology; Vol. 27). Proceedings of the NATO Advanced Research Workshop on phytotoxins and plant pathogenesis, held at Capri, Italy, May 30-June 3, 1988. Springer-Verlag, Berlin. 508 pages. ISBN 3-540-18564-X. Price DM 198.

Toxins produced by plant pathogens play a major role in pathogenesis in some well studied plant-pathogenic interactions. They may be important in many more compatible combinations. The 25 chapters of this volume summarize the state of the art in microbial toxin research related to plant pathology. Clearly, emphasis is on low-molecular-weight toxins, their structure, synthesis and mode of action. A most interesting exception is the contribution of K.W.E. Rudolph and co-workers on the role of large bacterial extracellular polysaccharides in the pathogenesis of leaf-spot diseases.

One session of the workshop was dedicated to 'ecological aspects and applications of phytotoxins'. Its seven chapters open up new horizons, but also show what one may and may not expect from toxin research. Especially the chapters of R.K.S. Wood and of J.A. Bailey & R.J. O'Connell are exemplary of compact reviews.

Wood discusses especially the role of toxins in pathogenesis, questioning for instance why only restricted lesions develop in resistant plants. What agent kills those cells? and, having killed some cells, why does the toxic agent not continue to kill many more? Does death of the cells cause changes that prevent growth of the pathogen and is sensitivity to the toxin involved at all in this kind of resistance?

Bailey and O'Connell focus on plant-cell death and synthesis of inhibitors in the living cells surrounding the dead or dying cells: phytoalexins that accumulate at the interface of living and dying cells, elicitors inducing resistance and suppressors of pathogen origin that induce susceptibility. They too raise many questions, most of them unanswered, as experimental evidence still generally allows conflicting views. Clearly this is one of the key issues of the entire volume: the understanding of the interactions between plant and pathogen is so fragmentary that conflicting hypotheses on these interactions are still being debated.

In addition to the 25 papers, 40 summaries of posters are incorporated in the volume. Although they make interesting reading, these summaries generally lack the hard data necessary to interpret the research presented, a problem that is certainly not unique to this book. Probably the reader should regard them as a 128-page bonus.

A comment on the typographical lay-out may be made. Apparently manuscripts were submitted camera-ready in a variety of typefaces, generally non-proportional and thus slow to read. Hopefully electronic processing techniques will bring back uniformity combined with a quality typeface in future volumes.

For biologists working in the field of plant pathology or plant breeding for resistance, this volume is indispensable.

R.J. Scheffer