

**Biochemical Plant Pathology:** edited by J A CALLOW  
John Wiley & Sons, Chichester, 1983 484 pp £34.50

There has been an increasing need in recent years for a modern student textbook on the subject of biochemical or physiological plant pathology. R K S Wood's pioneering text, published in 1967 in the Botanical Monograph series, is now long out-of-date. Several multi-author works, mainly derived from Symposia proceedings, have since appeared but none has really been suitable as a set book for an undergraduate class. I therefore picked up this new book with high hopes that it might fill the gap and indeed the editor in his foreword proposes such an audience for it. It is therefore with considerable regret that I have to report that this is not really written for undergraduates. Essentially, it is too detailed for students, lacks any historic background and does not have the coherence of a true textbook.

What we have instead is an excellent survey of current research developments presented by a variety of leading research workers in the field. The book begins didactically with five classic case studies: potato blight, stem and root rot of soya bean, flax rust, fireblight and crown gall disease. This was an excellent idea which does not quite come off. Although well considered and authoritative, these five essays lack the sparkle needed for a student audience. The next section on infection and pathogenesis mainly concentrates on fungal penetration of leaf surfaces, enzymic degradation of cell walls and the modes of action of phytotoxins. The third section 'Specificity and Resistance' covers molecular genetics, recognition and antimicrobial substances. The fourth section 'Effects on host metabolism' elaborates the various metabolic changes that occur in the infected plant. Finally, there is a brief epilogue by

K J Brent, which considers the relationship between biochemical plant pathology and disease control.

The problem with the above organisation is that some discrete biochemical topics become dispersed over several chapters and a certain degree of overlap is apparent. Lignification as a defence mechanism, for example, is mentioned independently by J P Ride in his chapter on structural barriers, by M Yoshikawa in his discussion of the triggering of resistance and by M Legrand in his account of phenylpropanoid metabolism. Again, most people would regard phytoalexin induction as of major importance in our understanding of disease resistance and yet there is no single chapter on phytoalexins. The subject to my mind is dealt with inadequately largely because elicitation of the phytoalexin response is considered separately from the brief account of chemistry and distribution by J W Mansfield.

Indeed, one might criticise this whole treatment by saying that the biochemical aspects are under-represented at the expense of the pathological and ultrastructural aspects. Having said that, one should not undervalue this fine publication. Undoubtedly, it will serve a very valuable function in providing an up-to-date review of recent advances, within a relatively short compass, which will be welcomed by all workers in the field as well as by graduates and other researchers entering this fascinating and stimulating research discipline for the first time. It is attractively produced on heavy art paper, is excellently illustrated, referenced and indexed and is a reasonable buy as an advanced (but not as a student) text.

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