

Book review

Robert N. Goodman, Zoltán Király & K.R. Wood, 1986. The biochemistry and physiology of plant disease. University of Missouri Press, Columbia. 433 pp. Price Dfl. 147.

This book appears two decades after the first version, published by Goodman, Király and Zaitlin in 1967 [see review in *Neth. J. Pl. Path.* 75 (1969): 262-263]. A comparison of the two books shows the tremendous advances that have been made in the physiological and molecular aspects of plant pathology. This is also reflected in the number of references to the literature, about 900 in the first version, and almost 3000 in this treatise.

The division into chapters has in principle remained the same. The first chapter deals with the infection process; in addition to the process of penetration, increased attention is now paid to recognition between host and parasite. Each of the following chapters deals with a particular aspect of plant metabolism: after a comprehensive introduction of the particular process in the healthy plant, the aberrations caused by viruses (Wood), bacteria (Goodman) and fungi (Király) are discussed. In this way, the successive chapters treat photosynthesis (2), respiration (3), cell-wall composition and metabolism (4), metabolism of nucleic acids and proteins (5), secondary metabolites (6), metabolism of growth regulators (7), transcellular and vascular transport (8) and toxins (9). The tenth chapter on resistance to infection is new to this treatise. This last chapter deals, for instance, with local and systematic resistance, the role of phytoalexins and the hypersensitivity response. It greatly adds to the value of the book. Chapter 5, in the first version was on nitrogen metabolism, and has been considerably expanded. Chapter 6 formerly dealt with phenol metabolism, and has been altered to cover secondary metabolism.

The ample and excellent illustrations in this book deserve special mention. The number of figures has increased from less than 90 in the first edition to more than 300. There are, for example, many electron micrographs of high quality. Diagrams of pathways and chemical structures support the text. Much attention has also been paid to the layout, which eases reading.

In the preface, the authors mention that the book has had an unusually long gestation period, as they were waiting, again and again, to include new information coming from this rapidly developing field. By adding a brief section at the end of each chapter, entitled 'Additional comments and citations', developments after the main text had been written could still be mentioned, albeit not all of them. Missing, for example, are recent discoveries about the molecular background of race-cultivar specific resistance.

This book, which covers the whole area of physiological plant pathology in a comprehensive and balanced way, can be highly recommended to students and in fact to all plant pathologists who want to be informed about knowledge in this field. Certainly it will be consulted intensively also by those colleagues who have to teach the physiology and biochemistry of parasitism.

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