



BOOK REVIEW

DEFENSE MECHANISMS OF PLANTS. Brian J. Deverall. 1977. Cambridge University Press: Cambridge, England. 110 p. \$12.50. This is the 19th monograph in the series, Cambridge Monographs in Experimental Biology. The author is Professor of Plant Pathology at the University of Sydney.

The book is devoted entirely to plant defense against fungal and bacterial plant pathogens. By Professor Deverall's definition, a defense mechanism is "the dynamic processes by which plant cells perceive the approach of an intruder and occasionally permit, but usually discourage, its further progress." The title of the book implies that more than 1 defense mechanism exists in plants to pathogens, but in reality, only 1 such mechanism, hypersensitivity, is discussed. This defense mechanism seems to be present in all plants, but expression of it is controlled by interactions of single genes in the plant and the pathogen.

Professor Deverall discusses the hypersensitive reaction as a dynamic process and is correct in doing so. Hypersensitivity includes: (1) ingress of pathogen, (2) initial growth of pathogen, (3) induction of the reaction, (4) response of plant cell, (5) plant cell collapse and necrosis, and (6) formation of antifungal, or antibacterial, compounds (phytoalexins). Each of these stages are mentioned by Professor Deverall, but most emphasis is on the last stage. Thirty percent of the book concerns the induced formation and biosynthesis of phytoalexins, and the role of phytoalexins in the defense mechanism. It is obvious that Professor Deverall considers phytoalexins responsible for cessation of growth of pathogens in the hypersensitive reaction. Not everyone in research on hypersensitivity agrees with this position. Some of the papers with the different point of view are mentioned, but not discussed thoroughly.

The hypersensitive reaction is one of the major mechanisms for plant resistance to disease. It is a very effective type of resistance, conferring "field immunity." Hypersensitivity occurs not only to plant pathogenic fungi and bacteria, but to plant viruses, and nematodes as well. This book will give everyone interested in plant resistance to pathogens an up-to-date review of the physiology of this important resistance mechanism.

The book has an extensive list of references. These references are invaluable to teachers and students of plant pathology. It also illustrates the interest and research that has occurred in recent years on this very important resistance mechanism.

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