

Sadik Tuzun
Elizabeth Bent
(Editors)

Multigenic and Induced Systemic Resistance in Plants

 Springer

Contents

Preface	vii
Contributors	xiii
1. Terminology Related to Induced Systemic Resistance: Incorrect Use of Synonyms may Lead to a Scientific Dilemma by Misleading Interpretation of Results SADIK TUZUN	1
2. What's Old and What's New in Concepts of Induced Systemic Resistance in Plants, and its Application JOSEPH KUĆ	9
3. QTL Analysis of Multigenic Disease Resistance in Plant Breeding JAMES D. KELLY AND VERONICA VALLEJO	21
4. Ultrastructural Studies in Plant Disease Resistance NICOLE BENHAMOU	49
5. The Hypersensitive Response in Plant Disease Resistance NAOHIDE WATANABE AND ERIC LAM	83
6. The Possible Role of PR Proteins in Multigenic and Induced Systemic Resistance SADIK TUZUN AND ARAVIND SOMANCHI	112
7. Chemical Signals in Plant Resistance: Salicylic Acid CHRISTIANE NAWRATH, JEAN-PIERRE MÉTRAUX, AND THIERRY GENOUD	143

8. Signaling in Plant Resistance Responses: Divergence and Cross-Talk of Defense Pathways	166
CORNÉ M.J. PIETERSE, ANDREAS SCHALLER, BRIGITTE MAUCH-MANI, AND UWE CONRATH	
9. The Relationship Between Basal and Induced Resistance in <i>Arabidopsis</i>	197
JURRIAN TON, CORNÉ M.J. PIETERSE, AND L.C. VAN LOON	
10. Induced Systemic Resistance Mediated by Plant Growth-Promoting Rhizobacteria (PGPR) and Fungi (PGPF)	225
ELIZABETH BENT	
11. Chemical Signals in Plants: Jasmonates and the Role of Insect-Derived Elicitors in Responses to Herbivores	259
KENNETH L. KORTH AND GARY A. THOMPSON	
12. Tree Defenses Against Insects	279
ERKKI HAUKIOJA	
13. The Role of Terpene Synthases in the Direct and Indirect Defense of Conifers Against Insect Herbivory and Fungal Pathogens	296
DEZENE P.W. HUBER AND JÖRG BOHLMANN	
14. Mechanisms Involved in Plant Resistance to Nematodes	314
ERIN BAKKER, ROBERT DEES, JAAP BAKKER, AND ASKA GOVERSE	
15. Mechanisms Involved in Induced Resistance to Plant Viruses	335
ANDROULLA GILLILAND, ALEX M. MURPHY, CHUI ENG WONG, RACHAEL A.J. CARSON, AND JOHN P. CARR	
16. Mechanisms Underlying Plant Tolerance to Abiotic Stresses	360
MASARU OHTA, KAREN S. SCHUMAKER, AND JIAN-KANG ZHU	
17. Commercialization of Plant Systemic Defense Activation: Theory, Problems and Successes	386
ANNE J. ANDERSON, KRIS A. BLEE, AND KWANG-YEOL YANG	
18. Engineering Plants for Durable Disease Resistance	415
J. GILBERT, M. JORDAN, D.J. SOMERS, T. XING, AND Z.K. PUNJA	
19. Plantibody-Based Disease Resistance in Plants	456
SABINE ZIMMERMANN, NEIL EMANS, RAINER FISCHER, AND STEFAN SCHILLBERG	
Index	477