

Plant Virology

Applied Plant VirologyDesk Encyclopedia of Plant and Fungal VirologyApplied Plant VirologyPlant VirologyPerspectives in Plant VirologyNatural and Engineered Resistance to Plant VirusesCurrent Research Topics in Plant VirologyMatthews' Plant VirologyPlant Virus-Host InteractionApplied Plant VirologyPrinciples of Plant VirologyApplied Plant VirologyPlant VirologyPractical Plant VirologyComparative Plant VirologyPlant Virology in Sub-Saharan AfricaPlant Virology ProtocolsEnvironmental Virology and Virus EcologyA Century of Plant Virology in IndiaPlant VirologyDesk Encyclopedia of Plant and Fungal VirologyControl of Plant Virus DiseasesPlant Virology ProtocolsPlant Virology ProtocolsPlant VirologyPlant Viruses As Molecular PathogensPlant Virology ProtocolsExperimental Plant VirologyHandbook of Plant VirologyPlant VirologyRecent Advances in Plant VirologyEmerging and Reemerging Viral PathogensMatthews' Plant VirologyPlant VirusesPlant VirologyComparative Plant VirologyDiagnosis of Plant Virus DiseasesFundamentals of Plant VirologyFundamentals of Plant VirologyPlant Virology

Applied Plant Virology

Plant Virus-Host Interaction contains cutting-edge research in plant molecular

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virology, including pathogenic viroids and transport by insect vectors, interference with transmission to control viruses, and synergism, with pivotal coverage of RNA silencing and the counter-defensive strategies used by viruses to overcome the silencing response in plants. With a clear focus on plant virus evolution, including quantitative and population genetics, Plant Virus-Host Interaction provides insights on the major factors favoring disease emergence, such as genetic change in pathogen and host populations and changes in host ecology and environment. The book also examines socioeconomic implications of widespread plant viral agents. Contributions from leading experts around the globe provide varied perspectives, while comprehensive coverage ensures a complete look at this exciting field. Covers the emergence of new viral diseases Provides molecular approaches for virus-host interaction Highlights RNA silencing and counter-defensive strategies Discusses socioeconomic implications of viral spread and mitigation techniques

Desk Encyclopedia of Plant and Fungal Virology

All the information you need on plant viruses in a single volume The Handbook of Plant Virology is a comprehensive guide to the terms and expressions commonly used in the study of plant virology, complete with descriptions of plant virus families down to the generic level. Rather than simply listing terms in alphabetical order, this unique book links each term to related terms within a theme and adds commentary from authors whose specific expertise adds additional dimensions to

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the topics. The result is an invaluable resource for research workers, educators, and students working in plant virology and pathology, crop protection, molecular biology, and plant breeding. The Handbook of Plant Virology provides enough details and background in the discussion of each topic to present a clear and thorough understanding of terms without the lengthy analysis found in most textbooks. The book's first section covers: the mechanics of virus classification internal and external symptoms (with color illustrations) isolation and purification genome packaging replication and gene expression detection and identification various methods of virus transmission serology forecasting disease development recombination control strategies economic importance and much more The second section of The Handbook of Plant Virology is devoted to concise descriptions of the 81 genera and 18 families of plant viruses, including: positive-sense, single-stranded RNA viruses, such as Potyviridae, Sequiviridae, and Comoviridae double-stranded RNA viruses, such as Reoviridae and Partitiviridae negative-sense, single-stranded RNA viruses, such as Rhabdoviridae and Bunyaviridae single-stranded DNA viruses, such as Geminiviridae, Pseudoviridae, Metaviridae The Handbook of Plant Virology also includes photos, illustrations, figures, diagrams, and brief, but detailed, bibliographies. The book's concise mix of information on currently assigned taxonomic families and the genera of plant viruses make it an essential reference tool for practitioners, researchers, educators, and students.

Applied Plant Virology

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The book is a compilation of research work carried out on plant viruses during past 100 years in India. Plant viruses are important constraints in Indian agriculture. Tropical and sub-tropical environments and intensive crop cultivation practices ideally favours perpetuation of numerous plant viruses and their vectors in India, which often cause wide spread crop losses. Of all the plant pathogens, studies of plant viruses have received a special attention as they are difficult to manage. A large body of literature has been published on the plant virus research from India during past 100 years; however the information is so far not available in one place. This book provides comprehensive information on the biology, molecular biology, epidemics, crop losses, diagnosis and management of viruses and viroids occurring in India. Description of properties of the viruses are provided in the chapters comprising of different genera such as Allexivirus, Begomovirus, Babuvirus, Badnavirus, Carlavirus, Carmovirus, Cucumovirus, Closterovirus, Ilavirus, Mandrivirus, Potyvirus, Tospovirus, Tungrovirus and Sobemovirus. Virus-vector research related to aphid, thrips and whitefly is discussed. The work on the management aspects of plant viral diseases has been described with reference to the conventional, antiviral and transgenic approaches. Further, the quarantine mechanism developed in India for the exclusion of viruses and vectors has also been included. The book also provides useful information about the capacity building on the research and education on Plant Virology in India. Overall, the book covers a wide range of accounts of research findings and innovations in Plant

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Virology in India during past 100 years. The book will be a resourceful reference to the students, scientists, agricultural professionals and policy makers.

Plant Virology

Fundamentals of Plant Virology is an introductory student text covering all of modern plant virology. The author, Dr. R.E.F. Matthews, has written this coursebook based on his classic and comprehensive Plant Virology, Third Edition. Four introductory chapters review properties of viruses and cells and techniques used in their study. Five chapters are devoted to current knowledge of all major plant viruses and related pathogens. Seven chapters describe biological properties such as transmission, host response, disease, ecology, control, classification, and evolution of plant viruses. A historical and future overview concludes the text. Fundamentals of Plant Virology is a carefully designed instructional format for a plant virology course. It is also an invaluable resource for students of plant pathology and plant molecular biology. Summarizes knowledge on all aspects of plant virology Condenses all essential material from Plant Virology 3/e Compares basic properties of cells and viruses Outlines principles of gene manipulation technology Discusses serological techniques including monoclonal antibodies Geared to student level course

Perspectives in Plant Virology

Viruses are a huge threat to agriculture. In the past, viruses used to be controlled using conventional methods, such as crop rotation and destruction of the infected plants, but now there are more novel ways to control them. This volume focuses on natural and engineered virus resistance, the two major strategies used for crop protection. * Contributions from leading authorities * Informs and updates on all the latest developments in the field

Natural and Engineered Resistance to Plant Viruses

Comparative Plant Virology provides a complete overview of our current knowledge of plant viruses, including background information on plant viruses and up-to-date aspects of virus biology and control. It deals mainly with concepts rather than detail. The focus will be on plant viruses but due to the changing environment of how virology is taught, comparisons will be drawn with viruses of other kingdoms, animals, fungi and bacteria. It has been written for students of plant virology, plant pathology, virology and microbiology who have no previous knowledge of plant viruses or of virology in general. Boxes highlight important information such as virus definition and taxonomy Includes profiles of 32 plant viruses that feature extensively in the text Full color throughout

Current Research Topics in Plant Virology

Matthews' Plant Virology

Written for advanced undergraduate students, this book is a practical, in-depth guide to plant virology. Beginning with an introduction to viruses and their classification, the text describes virus pathology, including how viruses enter and move through plant cells and induce disease. Subsequent chapters discuss how viruses spread in the field and how to measure this. Throughout, the book remains reader-friendly, using focus boxes for clear, easy to obtain information, enabling students to quickly access relevant information but supply sufficient detail for advanced studies. In addition to basic information on virus biology there is an additional focus on applied virology, ideal for students undertaking agricultural studies for whom study of disease and its control is essential.

Plant Virus-Host Interaction

This volume consists of 85 chapters that highlight recent advances in our knowledge of the viruses that infect plants and fungi. It begins with general topics in plant virology including movement of viruses in plants, the transmission of plant

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viruses by vectors, and the development of virus-resistant transgenic plants. The second section presents an overview of the properties of a selection of 20 well-studied plant viruses, 23 plant virus genera and a few larger groups of plant viruses. The third section, which is abundantly illustrated, highlights the most economically important virus diseases of cereals, legumes, vegetable crops, fruit trees and ornamentals. The last section describes the major groups of viruses that infect fungi. The most comprehensive single-volume source providing an overview of virology issues related to plant and fungi Bridges the gap between basic undergraduate texts and specialized reviews Concise and general overviews of important topics within the field will help in preparation of lectures, writing reports, or drafting grant applications

Applied Plant Virology

Viruses require a special approach to establish their presence in a diseased plant since they are not visible, even under a light microscope. This manual describes in detail a variety of protocols for determining the properties and identity of a virus and its behavior in infected plants. A Springer Lab Manual.

Principles of Plant Virology

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Written for advanced undergraduate students, this book is a practical, in-depth guide to plant virology. Beginning with an introduction to viruses and their classification, the text describes virus pathology, including how viruses enter and move through plant cells and induce disease. Subsequent chapters discuss how viruses spread in the field and how to measure this. Throughout, the book remains reader-friendly, using focus boxes for clear, easy to obtain information, enabling students to quickly access relevant information but supply sufficient detail for advanced studies. In addition to basic information on virus biology there is an additional focus on applied virology, ideal for students undertaking agricultural studies for whom study of disease and its control is essential.

Applied Plant Virology

Diagnosis of Plant Virus Diseases presents a comprehensive summary of methods currently available for the diagnosis of plant diseases caused by viruses and viroids. Up-to-date literature references are provided, brief accounts of the basis for particular methods are included, and detailed protocols are presented. Procedures discussed include the use of host plants, electron microscopy of in vitro preparations, serological procedures (especially forms of ELISA, monoclonal antibodies, serological specific electron microscopy, and immunoblotting), and nucleic acid hybridization procedures. Strategies are outlined for implicating virus-like pathogens as causes of diseases of unknown etiology, and problems involved

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in identifying complexes of transmission-dependent and helper viruses are discussed. The book will be extremely useful for phytopathologists, plant virologists, and research students and workers in plant virology laboratories and diagnostic plant pathology laboratories.

Plant Virology

Major developments have taken shape in the ten years since the publication of *Plant Virology, Second Edition*. This Third Edition of the leading comprehensive text and reference for the field contains more than sixty percent new material, including applications and results of gene manipulation techniques. As with the first and second editions, this volume covers all aspects of plant virology, from molecular to ecological. *Plant Virology, Third Edition*, is intended for graduate students, researchers, and teachers in plant virology, plant pathology, general virology, and microbiology, and scientists in related areas of molecular biology, biochemistry, plant physiology, and entomology.

Practical Plant Virology

The history and scope of plant virology; Some plant viruses and their names; Effects of viruses on plants; Experimental transmission; The composition and

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structure of the particles of plant viruses; The purification of virus particles, and some properties of purified preparations; Infectivity assay; Serological methods; Physical and chemical methods of assay and analysis; The effects of inactivators on virus particles; Behaviour of viruses in plants; Variation, strains and classification; Transmission by vectors and in other natural ways; Virus ecology; Ways of preventing crop losses; Viruses of organisms other than higher plants; Origins of viruses; Plant pathogens confused with viruses.

Comparative Plant Virology

Plant Virology Protocols: New Approaches to Detect Viruses and Host Responses addresses recent developments in genome analyses and cytological technologies being used today to learn more about plant virology. Opening with chapters covering techniques relevant to the detection of unknown viruses and disease diagnosis, this detailed volume continues with chapters on the utilization of metagenome sequencing and global gene expression analyses for the search and identification of viruses, as well as the elucidation of host responses to viral infection, construction methods of infectious cDNAs, and methods relevant to plant virus control. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative

and practical, *Plant Virology Protocols: New Approaches to Detect Viruses and Host Responses* will be an invaluable guide to researchers working in the field of plant sciences.

Plant Virology in Sub-Saharan Africa

Emerging and Reemerging Viral Pathogens: Applied Virology Approaches Related to Human, Animal and Environmental Pathogens, Volume Two presents new research information on viruses and their impact on the scientific community. It provides a reference book on certain viruses in humans, animals and vegetal, along with a comprehensive discussion on interspecies interactions. The book then looks at the drug, vaccine and bioinformatical strategies that can be used against these viruses, giving the reader a clear understanding of transmission. The book's end goal is to create awareness that the appearance of newly transmissible pathogens is a global risk that requires shared/adoptable policies for prevention and control. Covers most emerging viral disease in humans, animals and plants Provides the most advanced tools and techniques in molecular virology and the modeling of viruses Creates awareness that the appearance of new transmissible pathogens is a global risk Highlights the need to adopt shared policies for the prevention and control of infectious diseases

Plant Virology Protocols

The seminal text Plant Virology is now in its fifth edition. It has been 10 years since the publication of the fourth edition, during which there has been an explosion of conceptual and factual advances. The fifth edition of Plant Virology updates and revises many details of the previous edition while retaining the important earlier results that constitute the field's conceptual foundation. Revamped art, along with fully updated references and increased focus on molecular biology, transgenic resistance, aphid transmission, and new, cutting-edge topics, bring the volume up to date and maintain its value as an essential reference for researchers and students in the field. Thumbnail sketches of each genera and family groups
Genome maps of all genera for which they are known
Genetic engineered resistance strategies for virus disease control
Latest understanding of virus interactions with plants, including gene silencing
Interactions between viruses and insect, fungal, and nematode vectors
Contains over 300 full-color illustrations

Environmental Virology and Virus Ecology

It has been ten years since the publication of the third edition of this seminal text on plant virology, during which there has been an explosion of conceptual and factual advances. The fourth edition updates and revises many details of the

previous edition, while retaining the important older results that constitute the field's conceptual foundation. Key features of the fourth edition include: *

- * Thumbnail sketches of each genera and family groups
- * Genome maps of all genera for which they are known
- * Genetic engineered resistance strategies for virus disease control
- * Latest understanding of virus interactions with plants, including gene silencing
- * Interactions between viruses and insect, fungal, and nematode vectors
- * New plate section containing over 50 full-color illustrations

A Century of Plant Virology in India

Plant Virology, Second Edition, was written to cover the substantial developments in many areas of plant virology since the first edition was published. Advances have been made in all branches of the subject, but these have been most far reaching with respect to the structure of viruses and of their components, and in the understanding of how viral genomes are organized and how viruses replicate in cells. Significant developments have also occurred in the understanding of how viruses are transmitted by invertebrates and in the application of control measures for specific diseases. The taxonomy of viruses has advanced significantly, and there are now 25 internationally approved families and groups of plant viruses. All these developments have required that most sections be entirely rewritten. This book is intended primarily for graduate students in plant pathology, plant virology, general virology, and microbiology, and for teachers and research workers in these

fields. It should also prove useful to some people in related disciplines—molecular biologists, biochemists, plant physiologists, and entomologists.

Plant Virology

This text elucidates the latest techniques in plant virology for the isolation of plant viruses, for RNA extraction, and for the localization and cloning of coat protein genes, among others.

Desk Encyclopedia of Plant and Fungal Virology

For the past twenty years I have worked as an applied plant virologist, attempting to identify and control virus diseases in field crops. During the last ten years it has been my privilege to present short courses in plant virology to final-year students studying plant pathology, micro biology and general botany. Throughout the period I have been lecturing, it has been possible to recommend several excellent 'library' books for further reading in plant virology, but there has been no publication covering applied plant virology that a student might consider purchasing. With teaching requirements in mind this book has been written to provide a concise introduction to applied plant virology based on the experiences I have gained working on virus diseases, both in an applied laboratory and in the field. The text

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concentrates on introducing the reader to aspects of plant virology that would be encountered every day by an applied virologist trying to identify viruses and develop control measures for virus diseases of crop plants. Although a brief introduction to virus structure and its terminology is given in the opening chapter of the book, no attempt is made to cover in detail the more fundamental aspects of virus structure, biochemistry and replication. Similarly, the symptoms caused by individual viruses are not described, although the various types of symptoms that plant viruses cause and which might be encountered by a student or research worker are described.

Control of Plant Virus Diseases

Comparative Plant Virology provides a complete overview of our current knowledge of plant viruses, including background information on plant viruses and up-to-date aspects of virus biology and control. It deals mainly with concepts rather than detail. The focus will be on plant viruses but due to the changing environment of how virology is taught, comparisons will be drawn with viruses of other kingdoms, animals, fungi and bacteria. It has been written for students of plant virology, plant pathology, virology and microbiology who have no previous knowledge of plant viruses or of virology in general. Boxes highlight important information such as virus definition and taxonomy Includes profiles of 32 plant viruses that feature extensively in the text Full color throughout

Plant Virology Protocols

The first review series in virology and published since 1953, *Advances in Virus Research* covers a diverse range of in-depth reviews, providing a valuable overview of the field. The series of eclectic volumes are valuable resources to virologists, microbiologists, immunologists, molecular biologists, pathologists, and plant researchers. Volume 90 features articles on control of plant virus diseases. Contributions from leading authorities Comprehensive reviews for general and specialist use First and longest-running review series in virology

Plant Virology Protocols

Environmental Virology, Volume 101, the latest in the *Advances in Virus Research* series, contains new, informative updates on the topic. First published in 1953, this series covers a diverse range of in-depth reviews, providing a valuable overview of the current field of virology. Updates to this release include sections on the host landscape and vector behavior, key determinants of plant virus evolution and emergence, plant virome analysis using spatial metagenomics, host range evolution in generalist viruses, the influence of environment, water-mediated spread and transmission of viruses, viruses transmitted by means other than insect vectors, and more. Contains contributions from leading authorities in the field of

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virology Informs and updates on all the latest developments in the field Features a diverse range of virology topics, including discussions of host landscape and vector behavior and viruses transmitted by means other than insect vectors

Plant Virology

Fundamentals of Plant Virology is an early on understudy content covering all of present day plant virology. A chronicled and future diagram finishes up the content. Fundamentals of Plant Virology is a deliberately outlined instructional arrangement for a plant virology course. It is likewise a priceless asset for understudies of plant pathology and plant sub-atomic science. Summarizes information on all parts of plant virology; Condenses all fundamental material from Plant Virology; Compares essential properties of cells and infections; Outlines standards of quality control innovation; Discusses serological strategies including monoclonal antibodies. This book is proposed to give data in plant pathology, plant virology, general virology, and microbiology, and for educators and research specialists in these fields. It ought to likewise demonstrate helpful to a few people in related controls-sub-atomic scholars, natural chemists, plant physiologists, and entomologists.

Plant Viruses As Molecular Pathogens

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Plant Virology, Second Edition, was written to cover the substantial developments in many areas of plant virology since the first edition was published. Advances have been made in all branches of the subject, but these have been most far reaching with respect to the structure of viruses and of their components, and in the understanding of how viral genomes are organized and how viruses replicate in cells. Significant developments have also occurred in the understanding of how viruses are transmitted by invertebrates and in the application of control measures for specific diseases. The taxonomy of viruses has advanced significantly, and there are now 25 internationally approved families and groups of plant viruses. All these developments have required that most sections be entirely rewritten. This book is intended primarily for graduate students in plant pathology, plant virology, general virology, and microbiology, and for teachers and research workers in these fields. It should also prove useful to some people in related disciplines—molecular biologists, biochemists, plant physiologists, and entomologists.

Plant Virology Protocols

It has been ten years since the publication of the third edition of this seminal text on plant virology, during which there has been an explosion of conceptual and factual advances. The fourth edition updates and revises many details of the previous edition, while retaining the important older results that constitute the field's conceptual foundation. Key features of the fourth edition include: *

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Thumbnail sketches of each genera and family groups * Genome maps of all genera for which they are known * Genetic engineered resistance strategies for virus disease control * Latest understanding of virus interactions with plants, including gene silencing * Interactions between viruses and insect, fungal, and nematode vectors * New plate section containing over 50 full-color illustrations

Experimental Plant Virology

Plant viruses are significant as they affect our food supply and are capable of rapidly spreading to new plant species, so a comprehensive study of plant viruses is important in understanding their pathogenesis and prevention. This book focuses on the plant virus evolution, their molecular classification, epidemics and management. The key features in the book includes genome organization, translation and replication, virus-coded proteinases, structure of virus particles, cell receptors and host range, the RNA polymerase, quasispecies dynamics and virus evolution, and its natural habitats.

Handbook of Plant Virology

"Experimental Plant Virology" provides the updated methodology for studying the genomic characterization and mechanisms of infection, the quantitative

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determination as well as the diagnosis of plant pathogenic viruses. With illustrations showing viral symptoms and ultra-structures, clear and concise descriptions, the book presents the latest developments in experimental plant virology. This book is intended for researchers, university teaching staff, graduate students and undergraduates in plant science. Dr. Jishuang Chen is a professor of plant pathology at the Institute of Bioengineering, Zhejiang Sci-Tech University, China.

Plant Virology

Recent Advances in Plant Virology

The seminal text Plant Virology is now in its fifth edition. It has been 10 years since the publication of the fourth edition, during which there has been an explosion of conceptual and factual advances. The fifth edition of Plant Virology updates and revises many details of the previous edition while retaining the important earlier results that constitute the field's conceptual foundation. Revamped art, along with fully updated references and increased focus on molecular biology, transgenic resistance, aphid transmission, and new, cutting-edge topics, bring the volume up to date and maintain its value as an essential reference for researchers and

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students in the field. Thumbnail sketches of each genera and family groups
Genome maps of all genera for which they are known Genetic engineered
resistance strategies for virus disease control Latest understanding of virus
interactions with plants, including gene silencing Interactions between viruses and
insect, fungal, and nematode vectors Contains over 300 full-color illustrations

Emerging and Reemerging Viral Pathogens

Following the considerable success of the first edition of Plant Virology Protocols, this exciting new edition covers the many new techniques that are now applied to the examination and understanding of plant viruses. Each section presents the most novel methods and step-by-step reproducible laboratory protocols to allow researchers more effective approaches to study plant viruses. This updated book will prove indispensable to laboratory investigators studying plant viruses.

Matthews' Plant Virology

Fundamentals of Plant Virology is an introductory student text covering all of modern plant virology. The author, Dr. R.E.F. Matthews, has written this coursebook based on his classic and comprehensive Plant Virology, Third Edition. Four introductory chapters review properties of viruses and cells and techniques

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used in their study. Five chapters are devoted to current knowledge of all major plant viruses and related pathogens. Seven chapters describe biological properties such as transmission, host response, disease, ecology, control, classification, and evolution of plant viruses. A historical and future overview concludes the text. Fundamentals of Plant Virology is a carefully designed instructional format for a plant virology course. It is also an invaluable resource for students of plant pathology and plant molecular biology. Summarizes knowledge on all aspects of plant virology Condenses all essential material from Plant Virology 3/e Compares basic properties of cells and viruses Outlines principles of gene manipulation technology Discusses serological techniques including monoclonal antibodies Geared to student level course

Plant Viruses

Topics covered in this book include RNA silencing and its suppression in plant virus infection, virus replication mechanisms, the association of cellular membranes with virus replication and movement, plant genetic resistance to viruses, viral cell-to-cell spread, long distance movement in plants, virus induced ER stress, virus diversity and evolution, virus-vector interactions, cross protection, geminiviruses, negative strand RNA viruses, viroids, and the diagnosis of plant viral diseases using next generation sequencing. This book was anticipated to help plant pathologists, scholars, professors, teachers and advanced students in the field with a

comprehensive state-of-the-art knowledge of the subject.

Plant Virology

Applied Plant Virology: Advances, Detection, and Antiviral Strategies provides an overview on recent developments and applications in the field of plant virology. The book begins with an introduction to important advances in plant virology, but then covers topics including techniques for assay detection and the diagnosis of plant viruses, the purification, isolation and characterization of plant viruses, the architecture of plant viruses, the replication of plant viruses, the physiology of virus-infected hosts, vectors of plant viruses, and the nomenclature and classification of plants. The book also discusses defense strategies by utilizing antiviral agents and management strategies of virus and viroid diseases. With contributions from an international collection of experts, this book presents a practical resource for plant virologists, plant pathologists, horticulturalists, agronomists, biotechnologists, academics and researchers interested in up-to-date technologies and information that advance the field of plant virology. Covers the detection, control and management of plant viruses Discusses antiviral strategies, along with mechanisms of systemic induced resistance to enhance the defense of plants against viruses Provides contributory chapters from expert plant virologists from different parts of the world

Comparative Plant Virology

Plant genetic engineering has revolutionized our ability to produce genetically improved plant varieties. A large portion of our major crops have undergone genetic improvement through the use of recombinant DNA techniques in which microorganisms play a vital role. The cross-kingdom transfer of genes to incorporate novel phenotypes into plants has utilized microbes at every step—from cloning and characterization of a gene to the production of a genetically engineered plant. This book covers the important aspects of Microbial Biotechnology in Agriculture and Aquaculture with an aim to improve crop yield.

Diagnosis of Plant Virus Diseases

Learn to produce healthier crops and better harvests! This uniquely valuable book highlights the tremendous progress of knowledge in different areas of the field over the last decade. Here you'll find new and useful information about plant molecular virology and how the field can improve the world food situation in the coming years. The last decade has seen remarkable advances in plant virological research, owing mainly to the rapid progress made in molecular biology and genetic engineering in recent years. While recombinant DNA technology has significantly contributed to our understanding of plant viruses, new findings are

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being accumulated every day as reported in various publications. Plant Viruses As Molecular Pathogens is the only book to bring you all of this information--22 chapters--in a single volume, compiled by specialists around the globe! Use Plant Viruses As Molecular Pathogens to enhance your knowledge of: current virus taxonomy the molecular basis of virus transmission movement of plant viruses replication and gene expression of RNA/DNA viruses resistance to viruses molecular epidemiology recombination events and possible mechanisms molecular diversity novel aspects of plant virus detection technologies With helpful illustrations, photos, figures, models that explain viral mechanisms, and easy-to-understand reference tables, Plant Viruses As Molecular Pathogens will stimulate your thinking on this fascinating area of plant science!

Fundamentals of Plant Virology

This text elucidates the latest techniques in plant virology for the isolation of plant viruses, for RNA extraction, and for the localization and cloning of coat protein genes, among others.

Fundamentals of Plant Virology

This volume consists of 85 chapters that highlight recent advances in our

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knowledge of the viruses that infect plants and fungi. It begins with general topics in plant virology including movement of viruses in plants, the transmission of plant viruses by vectors, and the development of virus-resistant transgenic plants. The second section presents an overview of the properties of a selection of 20 well-studied plant viruses, 23 plant virus genera and a few larger groups of plant viruses. The third section, which is abundantly illustrated, highlights the most economically important virus diseases of cereals, legumes, vegetable crops, fruit trees and ornamentals. The last section describes the major groups of viruses that infect fungi. The most comprehensive single-volume source providing an overview of virology issues related to plant and fungi Bridges the gap between basic undergraduate texts and specialized reviews Concise and general overviews of important topics within the field will help in preparation of lectures, writing reports, or drafting grant applications

Plant Virology

Viruses that infect plants are responsible for reduction in both yield and quality of crops around the world, and thus are of great economic importance. This has provided the impetus for the extensive research into the molecular and cellular biology of these pathogens and into their interaction with their plant hosts and their vectors. However, interest in plant viruses extends beyond their ability to damage crops. Many plant viruses - for example, tobacco mosaic virus - have been

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used as model systems to provide basic understanding of how viruses express genes and replicate. Others permitted the elucidation of the processes underlying RNA silencing, now recognized as a core epigenetic mechanism underpinning numerous areas of biology. This book attests to the huge diversity of research in plant molecular virology. Written by world authorities in the field, the book opens with two chapters on the translation and replication of viral RNA. Following chapters cover topics such as viral movement within and between plants, plant responses to viral infection, antiviral control measures, virus evolution, and newly emerging plant viruses. The book concludes with two chapters on biotechnological applications of plant viruses. Throughout, the focus is on the most recent, cutting-edge research, making this book essential reading for everyone working with plant viruses.

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