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Biochemistry And Physiology Of Polyamines In Plants

Uriel Bachrach, Yair M. Heimer



Biochemistry And Physiology Of Polyamines In Plants:

Biochemistry and Physiology of Polyamines in Plants Robert D. Slocum, Hector E. Flores, 2024-12-06 Biochemistry and Physiology of Polyamines in Plants provides a comprehensive introduction to commonly used methods in polyamine research and the problems unique to plant studies Topics discussed include polyamine metabolism in plants the functions of polyamines in plant growth and development and an examination of analytical methods for polyamines and enzymes of polyamine metabolism Agronomists plant physiologists and biochemists interested in polyamines in plants will find this book to be a valuable reference resource

Biochemistry and Physiology of Polyamines in Plants Robert D. Slocum, Hector E. Flores, 1991-12-20 Biochemistry and Physiology of Polyamines in Plants provides a comprehensive introduction to commonly used methods in polyamine research and the problems unique to plant studies Topics discussed include polyamine metabolism in plants the functions of polyamines in plant growth and development and an examination of analytical methods for polyamines and enzymes of polyamine metabolism Agronomists plant physiologists and biochemists interested in polyamines in plants will find this book to be a valuable reference resource

The Physiology of Polyamines, Volume I Uriel Bachrach, Yair M. Heimer, 2021-05-30 The area of polyamines is presented in this useful two volume publication Basic information describing the role of polyamines in the processes of growth and differentiation is given Also included are data on the regulation of polyamine biosynthesis and metabolism and their interactions with nucleic acids Several chapters are devoted to the role of polyamines in various aspects of plant biology with a special emphasis on their participation in the response of plants to extreme environments Special attention is given to the use of inhibitors of polyamine biosynthesis as potential antitumor and antiproliferative agents Additionally progress in the molecular biology and genetic engineering of genes coding for polyamine biosynthetic enzymes is described Cancer researchers biologists geneticists biochemists physiologists and clinicians will find this volume indispensable

Plant peroxidases biochemistry and physiology J. N. Rodríguez López, M. A. Pedreño, 2003-05-12 Plant Peroxidases Biochemistry and Physiology recoge los últimos avances en el campo de las peroxidasas vegetales Las peroxidasas son un grupo de enzimas que se encuentran ampliamente distribuidas en toda la escala filogenética y catalizan la oxidación de un amplio número de sustratos orgánicos e inorgánicos utilizando el poder oxidante del peróxido de hidrógeno Además de su interés académico y fisiológico estas enzimas son ampliamente utilizadas en laboratorios clínicos y en la industria El presente libro consta de 47 artículos de investigación en los que se tratan diversos aspectos de las peroxidasas como su estructura enzimológica genética fisiológica localización y aplicaciones Las aportaciones a este libro han sido realizadas por especialistas de todo el mundo que se reunieron en Murcia en el año 2002 durante el Congreso titulado VI International Plant Peroxidase Symposium

Biochemical, Physiological and Molecular Avenues for Combating Abiotic Stress in Plants Shabir Hussain Wani, 2018-06-12 Biochemical Physiological and Molecular Avenues for Combating Abiotic Stress in Plants is a must have reference for researchers and professionals in agronomy plant

science and horticulture As abiotic stress tolerance is a constant challenge for researchers and professionals working on improving crop production this book combines recent advances with foundational content thus offering in depth coverage on a variety of abiotic stress tolerance mechanisms that help us better understand and improve plant response and growth under stress conditions The mechanisms explored in this book include stress perception signal transduction and synthesis of stress related proteins and other molecules In addition the book provides a critical understanding of the networks of genes responsible for abiotic stress tolerance and their utilization in the development of stress tolerance in plants Practical breeding techniques and modern genetic analyses are also discussed Unlocks the physiological biochemical and molecular basis of abiotic stress response and tolerance in crop plants Presents comprehensive information on abiotic stress tolerance from gene to whole plant level Includes content on antioxidant metabolism marker assisted selection microarrays next generation sequencing and genome editing techniques

Biochemistry and Physiology of Plant Hormones Thomas C. Moore, 2012-12-06 Biochemistry and Physiology of Plant Hormones is intended primarily as a textbook or major reference for a one term intermediate level or advanced course dealing with hormonal regulation of growth and development of seed plants for students majoring in biology botany and applied botany fields such as agronomy forestry and horticulture Additionally it should be useful to others who wish to become familiar with the topic in relation to their principal student or professional interests in related fields It is assumed that readers will have a background in fundamental biology plant physiology and biochemistry The dominant objective of Biochemistry and Physiology of Plant Hormones is to summarize in a reasonably balanced and comprehensive way the current state of our fundamental knowledge regarding the major kinds of hormones and the phytochrome pigment system Written primarily for students rather than researchers the book is purposely brief Biochemical aspects have been given priority intentionally somewhat at the expense of physiological considerations There are extensive citations of the literature both old and recent but it is hoped not so much documentation as to make the book difficult to read The specific choices of publications to cite and illustrations to present were made for different reasons often to illustrate historical development sometimes to illustrate ideas that later proved invalid occasionally to exemplify conflicting hypotheses and most often to illustrate the current state of our knowledge about hormonal phenomena

The Physiology of Polyamines Uriel Bachrach, Yair M. Heimer, 1989-03-31 The state of the art in the area of polyamines is presented in this useful two volume publication Basic information describing the role of polyamines in the processes of growth and differentiation is given Also included are data on the regulation of polyamine biosynthesis and metabolism and their interactions with nucleic acids Several chapters are devoted to the role of polyamines in various aspects of plant biology with a special emphasis on their participation in the response of plants to extreme environments Special attention is given to the use of inhibitors of polyamine biosynthesis as potential antitumor and antiproliferative agents Additionally recent progress in the molecular biology and genetic engineering of genes coding for polyamine biosynthetic enzymes is described

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of a Difluoromethylornithine Index c 328 pp 7x10 due February 1989 ISBN 0 8493 6809 X **Handbook of Plant
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includes more techniques But we have also had in mind the young scientists beginning to work on Plant Ecophysiology In
1999 Fran ois Pellissier led a proposal presented to the European Commission in the Fifth Framework Program in the
High Level Scientific Conferences including three EuroLab Courses about lab and field techniques useful to improve
allelopathic research Somatic Embryogenesis and Synthetic Seed I Professor Dr. Y. P. S. Bajaj, 2013-03-14 While working
in the laboratory of Professor Dr Jacob Reinert at the Freie Universitat Berlin 1974 1976 I had the opportunity to become
deeply involved in studying the intricacies of the fascinating phenomenon of somatic embryogenesis in plant cells and
protoplasts In numerous stimulating discussions with Professor Reinert on this subject I was fully convinced that somatic
embryogenesis would become one of the most important areas of study not only regarding basic and fundamental aspects but

also for its application in crop improvement During the last decade we have witnessed tremendous interest and achievements in the use of somatic embryos for the production of synthetic seeds for micro propagation genetic transformation cryopreservation and conservation of germplasm The en masse production of somatic embryos in the bioreactors has facilitated some of these studies Somatic embryos have now been induced in more than 300 plant species belonging to a wide range of families It was therefore felt that a compilation of literature state of the art on this subject was necessary Thus two volumes on Somatic Embryo genesis and Synthetic Seed have been compiled which contain 65 chapters contributed by International experts Somatic Embryogenesis and Synthetic Seed I comprises 31 chapters arranged in 3 sections Section I Commitment of the cell to somatic embryogenesis early events anatomy molecular basis gene expression role of polyamines machine vision analysis of somatic embryos Section II Applications of somatic embryos technology of synthetic seed fluid drilling micropropagation genetic transformation through somatic embryos cryopreservation Developments in Physiology, Biochemistry and Molecular Biology of Plants Bandana Bose, 2008-01-15 The Volume 2 of the treatise on the Developments in Physiology Biochemistry and Molecular Biology of Plants provides additional information in the crucial areas for making precise and applied research in the national context on the one hand and to unravel the science on the other hand In the earlier volume the theme of publishing this needful treatise has been already made obvious However in view of the experiences and enormous advances in plant science research in the last few decades providing enough insight to scan vital research in this century has almost certainly enlightened the path to undertake necessary research projects for the benefit of mankind to which we are indispensably committed We the plant physiologists biochemists molecular biologists and plant nutritionists must be proud of our support to the world's farmers which has helped them make their achievement possible In this century up to 2025 the human population is expected to double and that is in truth a serious issue for us to trace out the limiting factors reducing yield potentiality of crop plants on the one hand and to understand the science of related processes at different levels alternatively This principally necessitates for elucidation of dimensions of environmental stresses in relation to crop plants and their genotypes optimally suitable to prevailing stress conditions Of course in the last few decades more emphasis was laid in this direction and remarkable progress has been made at the global scale to meet the challenges Owing to this distinguished scientists have been consistently reviewing and synchronizing the manifold research and signifying specific research of basic and applied implication in classified segment It is delightful to mention that our attempt to sufficiently provide the essential and comprehensive literature to speed up important research in explicit areas of plant sciences has been once again tremendously satisfactory due to exceptional dedication of illustrious Indian scientists in the preparation of this momentous work This treatise has been ordered with twelve excellent contributions in the form of review articles by thirty well known Indian workers and academicians The reviews are relevant to guide for theme oriented research as well as for scientific future planning of research projects The four applicable sections related to I Sustainable

Crop Productivity II Recent Advances in Plant Metabolism III Molecular Physiology of Plants IV Environmental Stresses in Plants consist of over twelve meaningful review articles as substantial chapters. Moreover, as promised, prominence has been given to compile extremely important aspects of Stress Physiology. The detailed choice of the contents of the various contributions has been left largely to the individual authors. Doubtless, this book will be of immense help to scientists, teachers, and students of almost all disciplines of Agriculture, Botany, and Biotechnology.

A Guide to the Polyamines Seymour Stanley Cohen, 1998. The polyamines are ubiquitous and essential organic cations in prokaryotic and eukaryotic cells. This book is a comprehensive survey of the development of knowledge of their physiological and structural roles. Currently, the genetic and regulatory determinants of the amines and their cellular composition are being explored actively as parameters of normal physiology and aberrant pathologies. Cancer, virus infection, and protozoan parasitism are major examples of the latter groups. Studies of the control of polyamine metabolism are providing important therapeutic leads. Further, the structural roles of the amines are being determined at molecular levels, contributing to the understanding of polynucleotide and protein organization and interaction, as well as to the solution of problems of genome transfer. These subjects describe a burgeoning biochemical area involving compounds whose roles in cytoplasmic and nuclear function include numerous aspects of organelle structure, polymer synthesis, and interactions.

Advances in Plant Physiology (Vol. 11) A. Hemantaranjan, 2009-01-01. The configuration of Volume 11 of the International Treatise Series has been absolutely due to praiseworthy contributions from Scientists of global eminence. This programme has been undertaken with a view to reinforce the indistinguishable efforts to recognize the outcome of scrupulous research in some of the very rational and stirring areas of Environmental and Molecular Physiology of Plants. In order to sustain and further advance it, it is committed to maintain the originality and the introduction of novel ideas, ensuring that the treatise welcomes the best science done across the full extent of modern plant biology in general and plant physiology in particular. Indeed, within the time span of twelve years, this treatise has been duly recognized through Current Book Contents and other academic periodicals in the minds of distinguished readers and has, beyond doubt, achieved the international status. It is reiterated that, in spite of the handiness of quick accessibility of vast literature from the internet, this treatise series in the field of life sciences has been realized over and above to be like a true guide, friend, and philosopher, continually enlightening the most hidden perceptible nerves of an individual worker, which is beyond the competence of mere internet web service. It is a glory to record that in Volume 11, with inventive applied research attempts, have been made to bring together much needed fifteen review articles by fifty-eight contributors from Brazil, China, Egypt, France, Germany, India, Switzerland, and Tunisia, duly evaluated by Consulting Editors of international stature from India, U K, U S A, Argentina, Australia, France, Germany, Japan, Spain, Portugal, Israel, and Morocco, and rationally disseminated in Seven Sections. Creditably in this volume, over five important reviews belong to the field of Environmental Stresses, besides covering significant areas of research. In genuineness, the treatise is an achievement for

interdisciplinary exchange of information It would be extremely a significant book and a voluminous reference material for acquiring advanced knowledge by post graduate and Ph D scholars in response to the innovative courses in Plant Physiology Plant Biochemistry Plant Molecular Biology Plant Biotechnology Environmental Sciences Plant Pathology Microbiology Soil Science Agricultural Chemistry Agronomy Horticulture and Botany besides fulfilling needs for research teams and scientists engaged in various facets of research in Molecular Physiology and Biology of Plants in traditional and agricultural universities institutes and research laboratories throughout the world Amino Acids and Their Derivatives in Higher Plants R. M. Wallsgrove,1995-01-26 For 150 years scientists at the Rothamsted Experimental Station have studied aspects of plant nitrogen nutrition and amino acid biosynthesis This book is the result of a meeting held to mark this century and a half of work there The papers look at the significant progress in understanding the biochemistry of amino acids recently achieved in the light of this history of research Leading researchers from around the world have contributed authoritative chapters on protein amino acids non protein amino acids betaines glutathione polyamines and other secondary metabolites derived from amino acids As well as being essential in some animals nutrition these compounds can have important roles in defending against herbivores insects and disease An understanding of these compounds can help in devising better crop protection and production methods **Plant Analysis: Comprehensive Methods and Protocols** B.K. Garg,2012-06-01 The book Plant Analysis Comprehensive Methods and Protocols is a complete laboratory manual for analytical methods and techniques in the field of Agriculture Plant Physiology Biochemistry and related Plant Sciences Right from nutrient analysis in plants it covers estimations of macromolecules such as amino acids proteins nucleic acids and metabolites of fatty acid metabolism Protocols for the assay of various enzymes of nitrogen metabolism ammonia assimilation photosynthetic CO₂ fixation reactive oxygen species carbohydrate phosphorus and energy metabolism have been elucidated in the book Special emphasis has also been given to techniques on specific topics such as Electrophoresis Molecular Biology Histo enzymology Symbiotic Nitrogen Fixation and assay of plant growth hormones Thus the present book is one stop solution for all important techniques and analytical methods for students and research workers engaged in plant sciences and agricultural research Biostimulants for Crop Production and Sustainable Agriculture Mirza Hasanuzzaman,Barbara Hawrylak-Nowak,Tofazzal Islam,Masayuki Fujita,2022-09-14 Agricultural biostimulants are a group of substances or microorganisms based on natural resources that are applied to plants or soils to improve nutrient uptake and plant growth and provide better tolerance to various stresses Their function is to stimulate the natural processes of plants or to enrich the soil microbiome to improve plant growth nutrition abiotic and or biotic stress tolerance yield and quality of crop plants Interest in plant biostimulants has been on the rise over the past 10 years driven by the growing interest of researchers and farmers in environmentally friendly tools for improved crop performance Improved crop production technologies are urgently needed to meet the growing demand for food for the ever increasing global population by addressing the impacts of changing climate on agriculture This book is of

interest to researchers in agriculture agronomy crop and plant science soil science and environmental science

Postharvest Biology and Technology of Fruits, Vegetables, and Flowers Gopinadhan Paliyath, Dennis P. Murr, Avtar K. Handa, Susan Lurie, 2009-03-16 An increased understanding of the developmental physiology biochemistry and molecular biology during early growth maturation ripening and postharvest conditions has improved technologies to maintain the shelf life and quality of fruits vegetables and flowers Postharvest Biology and Technology of Fruits Vegetables and Flowers provides a comprehensive introduction to this subject offering a firm grounding in the basic science and branching out into the technology and practical applications An authoritative resource on the science and technology of the postharvest sector this book surveys the body of knowledge with an emphasis on the recent advances in the field Advances In Plant Physiology (Vol. 6) A. Hemantaranjan, 2003-11-01 The publication of Volume 6 of the International Treatise Series on Advances in Plant Physiology has been feasible exclusively and unquestionably due to commendable contributions from World Scientists of distinction in explicit fields within eight years the treatise series has been instituted in the spirits and compassion of illustrious readers all through the world The proficient International and National Co ordinators have all along unified their views for the expediency of readers assisting them to speed up important research work in the field of Plant and Crop Physiology Biochemistry Plant Molecular Biology in spite of handiness of quick accessibility of vast literature from internet this treatise series in the field of life sciences has been realized over and above to be like a true guide friend and philosopher everlastingly enlightening the most hidden perceptible nerves of an individual worker which is beyond the competence of mere web services The volume 8 is absolutely another one of its kinds for incorporation of most timely and important worthy reviews of diverse objectives contributed by forty four well informed admirable and documented scientists stalwarts of which twenty three participated from abroad The original writing coming in bounteous journals of international repute covering new technologies and tools in plant science research have been pulled together in affirmative prolific and supportive manner by specialists all over the globe In this volume efforts have been made to fetch together twenty one indispensable review articles duly evaluated by the respective Consulting Editors of international stature from India U K U S A Argentina Australia France Germany Japan Spain Portugal Israel and Morocco and rationally distributed in eight sections Indeed the treatise is wealth for interdisciplinary exchange of information Apart from fulfilling need of this kind of exclusive edition in different volumes for research teams in Molecular Plant Physiology and Biochemistry in traditional and agricultural universities institutes and research laboratories throughout the world it would be extremely a constructive book and a voluminous reference material for acquiring advanced knowledge by post graduate and Ph D scholars in response to the innovative courses in Plant Physiology Plant Biochemistry Plant Molecular Biology Plant Biotechnology Environmental Sciences Plant Pathology Microbiology Soil Science Agricultural Chemistry Agronomy Horticulture and Botany Indeed the treatise is wealth for interdisciplinary exchange of information Apart from fulfilling need of this kind of exclusive edition in

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Morphogenesis in Plants Kalliopi A. Roubelakis-Angelakis, Kiem Tran Thanh Van, 2013-06-29 Proceedings of a NATO ASI held in Crete Greece September 5 17 1992 *Phytohormones in Abiotic Stress* Dhandapani Raju, R Ambika Rajendran, Ayyagari Ramlal, Virendra Pal Singh, 2024-06-14 Plants are continuously exposed to different environmental stresses that negatively impact their physiology and morphology resulting in production reduction As a result of constant pressure plants evolve different mechanisms for sustenance and survival Hormones play a major role in defences against the stresses and stimulate regulatory mechanisms One of the ways through which they mitigate stress is via the production of hormones like auxins ethylene jasmonic acid etc The phytohormones help in signaling and enhance the chances of their survival Plant hormones play many vital roles from integrating developmental events physiological and biochemical processes to mediating both abiotic and biotic stresses This book aims to highlight these issues and provide scope for the development of tolerance in crops against abiotic stresses to maximize yield for the growing population There is an urgent need for the development of strategies methods and tools for the broad spectrum tolerance in plants supporting sustainable crop production under hostile environmental conditions The salient features are as follows It includes both traditional and non traditional phytohormones and focuses on the latest progress emphasizing the roles of different hormones under abiotic stresses It provides a scope of the best plausible and suitable options for overcoming these stresses and puts forward the methods for crop improvement It is an amalgamation of the biosynthesis of phytohormones and also provides molecular intricacies and signalling mechanisms in different abiotic stresses This book serves as a reference book for scientific investigators from recent graduates academicians and researchers working on phytohormones and abiotic stresses

Molecular Biology & Biotechnology of the Grapevine Kalliopi A. Roubelakis-Angelakis, 2013-04-17 Grapevine is one of the major cultivated plant crops As with most woody plant species molecular biology and biotechnology have progressed at a slow pace due to several obstacles which have had to be overcome However substantial progress has now been made and useful information has been accumulated in the literature numerous genes have been characterized from grapevine and significant progress has been made in the molecular and non molecular biotechnological applications In an effort to collect and present the state of the art on grapevine molecular biology and biotechnology 41 scientists from 12 countries worked jointly on the preparation of this book It is intended as a reference book for viticulturists graduate and undergraduate students biotechnological companies and any scientist who is interested in molecular biology and biotechnology of plants

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