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Yuki Nakamura
Yonghua Li-Beisson *Editors*

Lipids in Plant and Algae Development

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Lipids In Plant And Algae Development Subcellular Biochemistry

Dipanjana Ghosh,Qingsong Lin,Jian Xu,Hanjo A. Hellmann

Lipids In Plant And Algae Development Subcellular Biochemistry:

Lipids in Plant and Algae Development Yuki Nakamura,Yonghua Li-Beisson,2016-03-29 This book summarizes recent advances in understanding the functions of plant and algal lipids in photosynthesis in development and signaling and in industrial applications As readers will discover biochemistry enzymology and analytical chemistry as well as gene knock out studies have all contributed to our rapidly increasing understanding of the functions of lipids In the past few decades distinct physical and biochemical properties of specific lipid classes were revealed in plant and algal lipids and the functional aspects of lipids in modulating critical biological processes have been uncovered These chapters from international authors across relevant research fields highlight the underlying evolutionary context of lipid function in photosynthetic unicellular and multicellular organisms The book goes on to encompass what lipids can do for industrial applications at a time of fascination with plants and algae in carbon fixation and as sources for production of food energy and novel chemicals The developmental context is a part of the fresh and engaging perspective that is presented in this work which graduate students and scientists will find both illuminating and useful **Functional Ingredients from Algae for Foods and Nutraceuticals** Herminia Dominguez,Leonel Pereira,Stefan Kraan,2023-07-28 Functional Ingredients from Algae for Foods and Nutraceuticals Second Edition presents an overview on the composition properties and potential to develop novel ingredients and additives for functional foods and nutraceuticals This revised edition includes recent data on the composition and biological properties of algae along with examples of the development of novel algae products and their performance It includes a new chapter on both conventional and green technologies for product development and will be of interest to nutrition researchers food technologists and marine scientists as well as those with an interest in natural product development Addresses the chemical nutritional and biological characterization of algae components Includes cases studies focused on bioactives and the development of novel food products Presents a new chapter on conventional and green technologies for product development

Bioactive Compounds in Bryophytes and Pteridophytes Hosakatte Niranjana Murthy,2023-06-20 This reference work provides a comprehensive overview of bioactive compounds investigated in bryophytes and pteridophytes and explores their nutritional biological pharmacological and ecological effects Bryophytes are cosmopolitan lower plants that are rich in phytochemicals including fatty acids tocopherols phenolics terpenoids Additionally these plants contain bibenzyls bis benzyls and polyketides which have been demonstrated to have antimicrobial anti inflammatory and cytotoxic activities Pteridophytes are another group of lower vascular plants which were reported to have useful secondary compounds such as flavonoids steroids phenolics terpenoids and these plants impart medicinal values including antioxidant antimicrobial anti inflammatory anti tumor and anti HIV activities This book contains comprehensive contributions compiled by expert scientists and researchers in this field The book offers a useful resource for plant biotechnologists plant biologists pharmacologists pharmacists food technologists nutritionists research investigators of the healthcare industry academia faculty and students

of biology and biomedical sciences It also provides a strategic framework for further research and development activities of bryophytes and pteridophytes of the world Structure and Function of Chloroplasts Hongbo Gao,Rebecca L. Roston,Juliette Jouhet,Fei Yu,2019-01-21 *Biotechnology For Sustainable Energy And Products* Prakash Kumar Sarangi,Sonil Nanda,2019-10-10 The apprehensions relating to global warming climate change and increasing energy demands have led to significant research for the development of sustainable energy and products from biomass by utilizing modern biotechnological tools This book is an innovative collection of 14 chapters broadly focussing on biofuels biomaterials biopolymers and other industrially relevant commodities produced from agricultural biomass forest residues algae food processing wastes and other biogenic refuse The book aims to serve as a reference book for academic and industrial researchers in finding new pathways to link food security and energy demands with the help of novel biotechnological interventions This book highlights state of the art aspects based on biotechnology involved in transportation sector food industry agriculture biorefining and material science **Volume 2: Thalassotherapy and Cosmeceuticals** M. Lourdes Mourelle,Haresh S. Kalasariya,2025-05-14 The book is a comprehensive review of thalassotherapy and seawater cures and the cosmeceuticals derived from marine algae as novel sources of cosmetic ingredients This comprehensive text offers an in depth exploration of the research and issues related to the use of seawater and marine environment for therapies as well as the composition of cosmeceuticals derived from seaweed With contributions from an international team of experts the book describes the amazing field of thalassotherapy highlighting the characteristics of seawater the techniques of applying seawater and the mechanisms of action as well as the climatic factors that complement marine therapies Of particular relevance are cosmeceuticals derived from seaweed which have been the subject of intense research in recent years In addition highly topical aspects are addressed such as nutrition linked to thalassotherapy Grand Challenges in Algae Biotechnology Armin Hallmann,Pabulo H. Rampelotto,2020-01-02 In this book researchers and practitioners working in the field present the major promises of algae biotechnology and they critically discuss the challenges arising from applications Based on this assessment the authors explore the great scientific industrial and economic potential opened up by algae biotechnology The first part of the book presents recent developments in key enabling technologies which are the driving force to unleash the enormous potential of algae biotechnology The second part of the book focuses on how practical applications of algae biotechnology may provide new solutions to some of the grand challenges of the 21st century Algae offer great potential to support the building of a bio based economy and they can contribute new solutions to some of the grand challenges of the 21st century Despite significant progress algae biotechnology is yet far from fulfilling its potential How to unleash this enormous potential is the challenge that the own field is facing New cultivation technologies and bioprocess engineering allow for optimization of the operation strategy of state of the art industrial scale production systems and they reduce the production costs Parallel to this new molecular technologies for genetic and metabolic engineering of

micro algae develop quickly The optimization of existing biochemical pathways or the introduction of pathway components makes high yield production of specific metabolites possible Novel screening technologies including high throughput technologies enables testing of extremely large numbers of samples and thus allow for large scale modelling of biomolecular processes which would have not been possible in the past Moreover profitable production can demand for integrated biorefining which combines consecutive processes and various feedstocks to produce both transportation fuel electric energy and valuable chemicals Microalgae for Sustainable Products Ajam Shekh,Santanu Dasgupta,2022-12-12 Microalgae are a diverse set of eukaryotic photosynthetic organisms with great potential for being used to produce various high value molecules Using synthetic biology to manipulate and control the metabolic processes of microalgae scientists hope to find economical and sustainable alternatives for commercial production of high value biochemicals and other metabolites for diverse applications Highlighting the immense potential of microalgae as a renewable and sustainable source of commercially important high value biomolecules this book covers the recent advances in the resources tools and techniques used for genetic engineering of microalgae Also discussed are the legislative challenges associated with genetically engineered microalgae their derived products and their uses as well as socio economic and environmental acceptance Written to be accessible to a wide audience this book will be a useful reference to students and researchers from both academia and industry as well as policy makers for understanding the current status trends and future possibilities of using microalgae for biotechnological applications *Plants, Stress & Proteins* Dipanjana Ghosh,Qingsong Lin,Jian Xu,Hanjo A. Hellmann,2017-09-08 Biotic and abiotic stress factors deliver a huge impact on plant life Biotic stress factors such as damage through pathogens or herbivore attack as well as abiotic stress factors like variation in temperature rainfall and salinity have placed the plant kingdom under constant challenges for survival As a consequence global agricultural and horticultural productivity has been disturbed to a large extent Being sessile in nature plants cannot escape from the stress and instead adapt changes within their system to overcome the adverse conditions These changes include physiological developmental and biochemical alterations within the plant body which influences the genome proteome and metabolome profiles of the plant Since proteins are the ultimate players of cellular behavior proteome level alterations during and recovery period of stress provide direct implications of plant responses towards stress factors With current advancement of modern high throughput technologies much research has been carried out in this field This e book highlights the research and review articles that cover proteome level changes during the course or recovery period of various stress factors in plant life Overall the chapters in this e book has provided a wealth of information on how plants deal with stress from a proteomics perspective

Chloroplast Biogenesis and Plastid Interconversions Vijay Kumar Dalal,Amarendra Narayan Misra,2025-09-26 This edited book covers the latest developments surrounding plastids with a focus on chloroplasts and their inter conversions to other plastids namely chromoplasts gerontoplasts and leucoplasts Chloroplasts convert solar energy into biologically useful forms

of energy by performing photosynthesis The parts of plants above ground contain green tissues that house chloroplasts one of several types of plastids which are the main sites of photosynthesis in eukaryotic cells The book focuses on what chloroplasts are their biogenesis and degradation constituents thylakoids and assembly of thylakoids functions their inter conversions and their effects on biomass production and yield among other topics It discusses how chloroplasts form from proplastids primarily found in meristematic tissues present in shoot apical and auxiliary meristems in dicots and in the leaf base in monocots Additionally chloroplasts produce various molecules of human interest that can be converted into biochemical factories through transgenic approaches which are also discussed The content is supported with figures offering a more comprehensive understanding of the topics covered making the information more accessible and engaging for readers This book is suitable for students researchers and scientists working in chloroplast leucoplast gerontoplast chromoplast biogenesis and photosynthesis as it covers the latest findings in addition to the currently established notions **Membrane Transport in Plants** ,2018-10-31 Plant Transporters Volume 87 the latest release in the Advances in Botanical Research series brings together the experiences and critical information teachers researchers and managers must consider from scientific and legal points of view as they relate to biotechnology New chapters in this updated volume include sections on P type ATPases ABC transporters Nitrate transport Metal transporters Hormone transporters Plant aquaporins Ion channel regulation in guard cells Ion transport in pollen tube growth Xylem loading under stress and Transporters during arbuscular mycorrhizal symbiosis Encompasses various aspects of the GMO debate its historical background current status recent research outcomes potential future developments Written by highly competent authors from all continents Based on facts and written in a dispassionate and non polemical tone *Microalgae and One Health* Antonio Pérez-Gálvez,Eduardo Jacob-Lopes,Leila Queiroz Zepka,María Roca,2025-06-26 Microalgae and One Health Fundamentals Biocompounds and Health and Environmental Applications provides a novel compendium of the interdisciplinary applications of microalgae Adverse global changes including climate change environmental pollution urbanization globalization industrialization and food insecurity are imminent threats to global health as they accelerate damage to humanity wildlife and the biosphere The One Health concept asserts that these contemporary challenges are entwined in the interdependence of humans animals and our shared environment This book examines the use of microalgae in human and animal nutrition healthcare and novel technologies applied to sustainable environmental processes Written by a globally diverse network of experts this book is systematically structured to illustrate the applications of microalgae The first section of the book covers the fundamentals of microalgae from chemistry to industry applications The next section further examines microalgae chemistry and identifies bioactive compounds Subsequent sections examine the utility of microalgae in One Health from human therapeutic potential to animal health and sustainability The book concludes with a comprehensive market analysis regulatory discussion and safety considerations associated with microalgae products Explores the interface between microalgae and the One Health

approach Analyzes the contributions of microalgae based products to human animal and environmental health Addresses and offers solutions to market safety and regulatory issues *Algal Development* Wolfgang Wiessner,D.G. Robinson,R.C. Starr,2012-12-06 Proceedings of the Third Symposium on Experimental Phycology 1986 Lipids in Cyanobacteria, Algae, and Plants - From Biology to Biotechnology Eric Marechal,Koichiro Awai,Juliette Jouhet,Mie Shimojima,2022-02-17 *Lipid Metabolism in Development and Environmental Stress Tolerance for Engineering Agronomic Traits* Zhi-Yan (Rock) Du,Susanne Hoffmann-Benning,Agnieszka Zienkiewicz,Krzysztof Zienkiewicz,Shiwen Wang,Lina Yin,2021-10-14 Biotechnology of Microalgae, Based on Molecular Biology and Biochemistry of Eukaryotic Algae and Cyanobacteria Takashi Osanai,Youn-Il Park,Yuki Nakamura,2017-04-04 Research Grants Index National Institutes of Health (U.S.). Division of Research Grants,1975 **Cumulated Index Medicus** ,1966 **Adaptation mechanisms of grass and forage plants to stressful environments** Jing Zhang,Maofeng Chai,Sergey Shabala,Kehua Wang,Jin-Lin Zhang,2023-04-18 *Oceanic Abstracts with Indexes* ,1979

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