



ADVANCE INFORMATION

The Alga *Dunaliella*

Biodiversity, Physiology, Genomics and Biotechnology

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ABOUT THE BOOK

The genus *Dunaliella* has been one of the most studied members of Chlorophyceae and is represented by 27 species, of which 23 are from salt water. Species of *Dunaliella* occur in freshwater, euryhaline habitats of all continents, oceans including the Dead Sea and even the salt lakes of the Antarctic. These extremophiles thrive in habitats with a wide range of salinity, pH, light intensity and temperature.

This volume presents a state-of-the-art research in biochemistry, molecular biology and medical application. A glossary of specialized terms is appended. Each chapter is contributed by an expert or group of experts dedicated to increase our understanding of *Dunaliella*. All the chapters were reviewed internally by their colleagues, editors and external reviewers; this was followed by a final revision.

The book provides a balanced multi-disciplinary communication and contributes to our understanding of this unique alga. It is addressed to graduate students and scientists as a summary of current thoughts on *Dunaliella*.

CONTENTS

• History, Distribution, and Habitats of Algae of the Genus *Dunaliella* TEODORESCO (Chlorophyceae) • Taxonomy and Phylogeny of the Genus *Dunaliella* • Cultivation, Growth Media, Division Rates and Applications of *Dunaliella* Species • Cultivation of *Dunaliella* for High Value Compounds • Pigments of Green and Red Forms of *Dunaliella*, and Related Chlorophytes • Carotenoid Biosynthesis in *Dunaliella* (Chlorophyta) • Acquisition and Metabolism of Inorganic Nutrients by *Dunaliella* • Bioactive Compounds: Glycerol Production, Carotenoid Production, Fatty Acids Production • Photosynthesis — Energy Relationships in *Dunaliella* • The Effects of Ultraviolet Radiation on *Dunaliella*: Growth, Development and Metabolism • Chloroplast Acclimation, Photodamage and Repair Reactions of Photosystem-II in the Model Green Alga *Dunaliella salina* • Photoacclimation and Photostasis in *Dunaliella* • Selected Functional and Molecular Adaptations Contributing to the Exceptional Stress Tolerance of *Dunaliella* • Salinity Tolerance and Iron Deprivation Resistance Mechanisms Revealed by Proteomic Analyzes in *Dunaliella salina* • Carbon Dioxide Fixation by *Dunaliella* spp. and the Possible Use of this Genus in Carbon Dioxide Mitigation and Waste Reduction • Paratransgenic Approaches to the Control of Infections of Shrimp: Prospects for Use of *Dunaliella* • Development of Genetics and Molecular Tool Kits for Species of the Unicellular Green Alga *Dunaliella* (Chlorophyta) • Application of the Colorless Carotenoids, Phytoene, and Phytofluene in Cosmetics, Wellness, Nutrition, and Therapeutics • Biofuels from Microalgae: Review of Products, Processes and Potential, with Special Focus on *Dunaliella* sp. • Application of *Dunaliella* in Atherosclerosis • Utility of *Dunaliella* in Ecotoxicity Testing

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