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Nota di contenuto	Chapter 1. An Introduction to Haematococcus -- Chapter 2. Nutritional studies and optimization of biomass from unicellular microalgae Haematococcus sp.-Chapter 3. Abiotic stress factors and high astaxanthin accumulation in Haematococcus pluvialis -- Chapter 4. Haematococcus: Cultivation for Astaxanthin Production -- Chapter 5. Bottlenecks in the cultivation processes of Haematococcus pluvialis -- Chapter 6. Biochemistry of Haematococcus -- Chapter 7. Lipids, lipidomics and biosurfactants of Haematococcus -- Chapter 8. Genetic engineering approaches for Haematococcus: Recent developments in genome sequencing and strain improvement -- Chapter 9. Food and Food Packaging Technology -- Chapter 10 Algae Materials for Bionanopesticides: Nanoparticles and composites -- Chapter 11. Environmental Impacts Related to Upstream and Downstream Processing of Haematococcus pluvialis -- Chapter 12. Therapeutic potential of Haematococcus pluvialis in the field of drug delivery -- Chapter 13. Clinical applications of Haematococcus. - Chapter 14. In silico exploration of therapeutics in Haematococcus pluvialis -- Chapter 15. Algal Polymers, Proteins and Pigments for Industrial

Applications -- Chapter 16. Valorising Haematococcus biomass for commercial applications -- Chapter 17. Biotechnological applications of Haematococcus: Future perspectives -- Chapter 18. Commercialization of Haematococcus-based products: Current status and future forecast -- Chapter 19. Bioenergy Applications of Haematococcus.-.

Sommario/riassunto

This book offers a comprehensive analysis of microalgal cultivation methods and optimization of astaxanthin production for various applications, including clinical uses, algae polymers, proteins and pigments, food applications and packaging, algae forming, cosmetics, and more. Microalgae are unicellular living forms and are the primary producers that play a major role in the ecosystem. Commercially, while many documents are available, some recent fields are yet to be explored. The book comprises 19 chapters contributed by experts and reviews the recent developments in the cultivation, harvest, and genetic engineering of *H. pluvialis*-derived astaxanthin. It also discusses their bottlenecks and challenges in commercial-scale production, as well as current and prospective global market. Current research supports the exploration of new topics and practical applications of microalgae and their products, which will also benefit academia. The book will be an important resource for researchers and industry, providing comprehensive knowledge on broad topics. Flow charts, updated methods, and colour images are included to help the readers' understanding.
