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| Nota di contenuto | Intro -- MICROBIAL CONVERSIONS OF RAW GLYCEROL -- MICROBIAL CONVERSIONS OF RAW GLYCEROL -- Contents -- Preface -- Chapter I Glycerol Waste from Biodiesel Manufacturing -- Abstract -- 1. Introduction -- 2. Current Status of Biodiesel Production -- 3. How Biodiesel is Made -- 4. Characterizations of Glycerol Waste -- 5. Utilization of Glycerol Waste -- 6. Conclusion -- References -- Chapter II Pathways to Aerobic Glycerol Catabolism and their Regulation -- Abstract -- Introduction -- Glycerol Transport -- Glycerol Catabolism -- Regulation of Glycerol Assimilation -- Genes Implicated in Glycerol Assimilation and their Regulation -- Conclusion -- References -- Chapter III Citric Acid Production from Raw Glycerol by Yarrowia Lipolytica Wratislavia 1.31 -- Abstract -- Introduction -- Materials and Methods -- Microorganism -- Media and Culture Conditions -- Analytical Methods -- Results and Discussion -- Conclusion -- Acknowledgement -- References -- Chapter IV Biodiesel By-Products Used as Substrates for Oxalic Acid Production by Aspergillus Niger -- Abstract -- Introduction -- Materials and Methods -- Results and Discussion -- Conclusions -- References -- Chapter V Production of Omega-3 Polyunsaturated Fatty Acids from Biodiesel-derived Crude Glycerol by Microalgal and Fungal Fermentation -- Abstract -- 1. Introduction -- 1.1. Structure and Significance of -3 PUFAs -- 1.2. Biosynthesis of -3 PUFAs -- 1.3. Sources of -3 PUFAs -- 1.4. |

Microbial Production of Omega-3 Fatty Acids -- 2. Producing DHA from Microalgae Grown on Crude Glycerol -- 2.1. Experimental Protocols -- 2.1.1. Algal Strain, Medium and Culture Conditions -- 2.1.2. Crude Glycerol Characterization and Pretreatment -- 2.1.3. Analysis -- 2.2. Feasibility of Producing DHA from Crude Glycerol -- 2.3. Effects of Glycerol Impurities on Algal DHA Production.
2.3.1. Effects of Methanol -- 2.3.2. Effects of Soap -- 2.4. Optimization of Algal Culture Conditions for Producing DHA from Crude Glycerol -- 3. Producing EPA from Fungi Grown on Crude Glycerol -- 3.1. Experimental Protocols -- 3.1.1. Fungal Strain and Culture Conditions -- 3.1.2. Crude Glycerol Characterization and Pretreatment -- 3.1.3. Analysis -- 3.2. Feasibility of Producing EPA from Crude Glycerol -- 3.3. Optimization of Fungal Culture Conditions for Producing EPA from Crude Glycerol -- 4. Prospects for Producing DHA/EPA Using Crude Glycerol -- 5. Conclusion -- References -- Chapter VI Biotechnological Production of Bioplastics from Raw Glycerol -- Abstract -- Introduction -- Occurrence of PHAs -- Diversity of PHAs -- Applications and Properties of PHAs -- Degradation of PHAs -- Pathway and Regulation of scl PHA Synthesis -- Fermentative Production of PHAs from Crude Glycerol -- Recovery of the PHAs -- Conclusion -- Acknowledgments -- References -- Chapter VII Single Cell Oil and Gamma-linolenic Acid Production by Thamnidium elegans Grown on Raw Glycerol -- Abstract -- Notation -- Introduction -- Materials and Methods -- Microorganisms and Culture Conditions -- Analytical Methods -- Fungal Lipid Content Determination -- Fractionation of Fungal Lipids -- Gas Chromatography (GC) Analysis -- Results -- Screening of Oleaginous Zygomycetes on Raw Glycerol -- Model Presentation -- Model Fitted on the Experimental Data and Evaluation of Parameters -- Growth of T. elegans on Raw Glycerol -- Lipid Composition during Growth of T. elegans -- Fatty Acid Composition of the Produced Lipids -- Discussion -- Conclusion -- Acknowledgments -- References -- Chapter VIII The Potential of Raw Glycerol in the Production of Food Grade Carotenoids by Fungi -- Abstract -- Abbreviations Used -- Introduction -- Fungal Carotenoids. Food-grade Carotenoids by Blakeslea Trispora -- Biosynthesis of Carotenoids -- Carotenoid Production in Various Medium Formulations -- Carbon Sources -- Sugars and other Pure Carbon Sources -- Waste-based Media -- Nitrogen Sources -- Carbon-to-Nitrogen Ratio -- Performance of Pure Glycerol as a Carbon Source for Fungal Growth and Carotenoid Production -- Using Pure Glycerol for Growth and Carotenoid Production by Blakeslea Trispora -- Glycerol as a Sole Carbon Source -- Glycerol as co-Substrate of Glucose -- Using Pure Glycerol for Growth and Carotenoid Production by other Fungi -- Potential of Raw Glycerol in Fungal Carotenoid Production -- Safety Aspects -- Conclusion -- Acknowledgment -- Reference List -- Chapter IX Characterization of Microbial Biomass Production from Glycerin Waste by Various Yeast Strains -- Abstract -- Introduction -- Material and Methods -- Results and Discussion -- Conclusion -- Reference -- Chapter X Microbial Conversion of Glycerol into 1,3-propanediol: Glycerol Assimilation, Biochemical Events Related with 1,3-Propanediol Biosynthesis and Biochemical Engineering of the Process -- Abstract -- 1. Introduction -- 2. The Biochemistry of 1,3-propanediol Fermentation -- 2.1. Assimilation of Glycerol inside the Microbial Prokaryotic Cell -- 2.2. Biochemical Events Related with Glycerol Breakdown in Glycerol-consuming Prokaryotic Microorganisms -- 3. The Process of 1,3-propanediol Fermentation -- 4. Conclusions -- References -- Chapter XI Capital and Manufacturing Cost Estimation of a Bioprocess Converting Raw Glycerol to 1,3-Propanediol

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| | -- Abstract -- 1. Introduction -- 2. Biotechnological Conversion of Raw Glycerol to 1,3-Propanediol -- 3. Methodology for Manufacturing Cost Estimation -- 4. Process Flow Diagram Description -- 5. Equipment Cost Estimation -- 6. Estimation of the Operating Costs and Cost of Manufacture.<br>7. Conclusion -- References -- Index -- Blank Page. |
| Sommario/riassunto | In this text, the biochemical pathways of glycerol metabolism in prokaryotic and eukaryotic cells cultivated under various conditions are discussed. |