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2: Industrial Systems Biology2.1 Introduction; 2.2 Industrial Biotechnology; 2.3 Market Drivers for Industrial Biotechnology; 2.4 Industrial Systems Biology; 2.5 Metabolic Models; 2.5.1 Microbial Metabolism-A Historical Perspective; 2.5.2 Genome Sequencing and Functional Genomics; 2.6 Reconstructed Metabolic Network Models; 2.6.1 Introduction; 2.6.2 Genome-Scale Reconstructed Network Process; 2.7 Industrial Systems Biology Case Studies; 2.7.1 A Mature and Developed Industrial Biotechnology Product: Bioethanol
2.7.2 A Recently Launched and Rapidly Growing Industrial Biotechnology Product: 1,3-Propanediol2.7.3 An In-Development Industrial Biotechnology Product: Succinic Acid; 2.8 Conclusion and Future Perspectives; References; 3: Fermentation Technology; 3.1 Introduction; 3.2 Types of Fermentations; 3.3 Fermentation Process; 3.3.1 Inoculum Generation; 3.3.2 Growth and Product Formation; 3.4 Fermentation Medium Design; 3.5 Sterilization of Air and Fermentation Medium; 3.6 Environmental Factors; 3.7 Fermentation Kinetics; 3.7.1 Batch Fermentation; 3.7.2 Continuous Culture; 3.8 Fermentation Equipment
3.8.1 Submerged Fermentation

Sommario/riassunto

Describing all topics of white biotechnology admitted to the 7th EU Frame Programme and new industrial production processes aiming towards the Kyoto objectives, this comprehensive overview covers the technology, applications, economic potential and implications for society. Directed at readers with a general interest in a specific technology, this is equally suitable as an introductory handbook to a wide range of industries, including chemicals, biotechnology and pharmaceuticals, food and feed, paper and pulp, personal care, energy and agriculture.