1. Record Nr. UNINA9910781313403321

Titolo	Biofuels [[electronic resource]] : alternative feedstocks and conversion processes / / edited by Ashok Pandey ... [et al.]
Pubbl/distr/stampa	Kidlington, Oxford ; ; San Diego, Calif., : Academic Press, 2011
ISBN	1-283-16414-0 9786613164148 0-12-385100-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (642 p.)
Altri autori (Persone)	PandeyAshok
Disciplina	333.95/39
Soggetti	Biomass energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Biofuels: Alternative Feedstocks and Conversion Processes; Copyright; Contents; Preface; Contributors; Section I: General; Chapter 1: Principles of Biorefining; 1. Introduction; 2. From fossil to biomass raw materials; 3. Biomass processing in biorefinery; 4. Lignocellulosic molecular components and their derivatives; 5. Biorefinery to replace existing fossil bulk chemicals; 6. Biorefinery to produce alternative products; 7. Next research outlook; References; Chapter 2: Life-Cycle Assessment of Biofuels; 1. Introduction; 2. The concept of LCA and its application to biofuels 3. Methodology and assumptions4. Case study: bioethanol from wheat; 5. Results; 6. Conclusions; References; Chapter 3: Thermochemical Conversion of Biomass to Biofuels; 1. Introduction; 2. Feedstocks for biofuels; 3. Composition of lignocellulosic biomass; 4. Lignocellulosic biomass pretreatment techniques; 5. Biotechnological conversion; 6. Thermochemical conversion; 7. Bio-refineries and biofuels; 8. Typical issues for life-cycle analysis; 9. Perspectives and challenges; References; Chapter 4: Biomass-derived Syngas Fermentation into Biofuels; 1. Background 2. Fundamental aspects of syngas fermentation3. Microbiology of syngas fermentation; 4. Syngas characteristics; 5. Current developments in syngas fermentation; 6. Factors affecting syngas fermentation; 7. Industrial-scale syngas fermentation; 8. Challenges

and future research directions; 9. Summary; References; Section II: Production of bioethanol from lignocellulosic feedstocks; Chapter 5: Lignocellulosic Bioethanol: Current Status and Future Perspectives; 1. Introduction; 2. First-generation fuel ethanol production: the feedstock and the process and their constraints
3. Second-generation ethanol production4. Feasibility of lignocellulosic ethanol production; 5. Concluding remarks; References; Chapter 6: Technoeconomic Analysis of Lignocellulosic Ethanol; 1. Introduction; 2. State of the art; 3. Key drivers of the lignocellulosic ethanol production cost; 4. Cost management system; 5. Current economic evaluation of lignocellulosic bioethanol: some limitations; 6. Conclusion; References; Chapter 7: Pretreatment Technologies for Lignocellulose-to-Bioethanol Conversion; 1. Introduction; 2. Toxic Compounds Generated During Pretreatment
3. Pretreatment processes4. Biological pretreatments; 5. Concluding remarks; References; Additional Resources; Chapter 8: Production of Celluloytic Enzymes for the Hydrolysis of Lignocellulosic Biomass; 1. Introduction; 2. Cellulase: mode of action; 3. Cellulase systems and the control of cellulase gene expression; 4. Cellulase producers; 5. Pretreatment; 6. Bioprocesses for cellulase production; 7. Applications of cellulases; 8. Cellulase market scenario; 9. Engineered/artificial cellulases; 10. Future perspectives; 11. Challenges; 12. Conclusion; References
Chapter 9: Production of Hemicellulolytic Enzymes for Hydrolysis of Lignocellulosic Biomass

Sommario/riassunto

Global concern for energy security and environmental protection has put great emphasis on the search for alternative energy sources, particularly for the transport sector. Biofuels have emerged as a highly promising source of alternative energy, and have drawn global R&D for their production using biomass. With the increasing worldwide demand of energy along with the depletion of conventional fossil fuel reserves, there has been growing global interest in developing alternative sources of energy. There has also been concern in growing economies regarding energy security. Biofuels of