

1. Record Nr.	UNINA9910461465603321
Titolo	Handbook of biofuels production : processes and technologies // edited by Rafael Luque, Juan Campelo and James Clark
Pubbl/distr/stampa	Oxford, England : , : Woodhead Publishing, , 2011 ©2011
ISBN	1-61344-354-4 0-85709-049-6
Descrizione fisica	1 online resource (684 p.)
Collana	Woodhead Publishing Series in Energy, , 2044-9364 ; ; Number 15
Altri autori (Persone)	LuqueRafael CampeloJuan ClarkJames H
Disciplina	662/.88
Soggetti	Biomass energy Electronic books.
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	Cover; Handbook of biofuels production: Processes and technologies; Copyright; Contents; Contributor contact details; Woodhead Publishing Series in Energy; Foreword; Part I Key issues and assessment of biofuels production; 1Introduction: an overview of biofuelsand production technologies; 1.1 Introduction; 1.2 Development of (bio)chemical conversion technologies; 1.3 Development of biological conversion technologies; 1.4 Development of thermochemical conversion technologies; 1.5 Integration of biofuels into biorefineries; 1.6 Future trends; 1.7 Acknowledgements 1.8 Sources of further information1.9 References; 2Multiple objectives policy for biofuelsproduction: environmental, socio-economicand regulatory issues; 2.1 Introduction; 2.2 Energy security and supply; 2.3 Emission reductions, land use and other environmental impacts; 2.4 Food safety and development of rural areas; 2.5 Biofuels support policies; 2.6 Conclusions and future trends; 2.7 List of selected economies in Fig. 2.1 and 2.2, and Tables 2.1 and 2.2; 2.8 References; 3Life cycle sustainability assessment of biofuels; 3.1 Introduction 3.2 Sustainability issues along the life cycle of biofuels3.3

Environmental sustainability of biofuels; 3.4 Economic sustainability of biofuels; 3.5 Future trends; 3.6 Appendix: Life cycle assessment (LCA) methodology; 3.7 Sources of further information; 3.8 References; 4Vegetable-based feedstocksfor biofuels production; 4.1 Introduction; 4.2 Most frequent vegetable raw materials to produce first-generation biodiesel; 4.3 Raw materials to produce low-cost biodiesel; 4.4 Vegetable raw materials to produce bioethanol; 4.5 Vegetable raw materials to produce biofuels from other technologies 4.6 Acknowledgements4.7 References; Part II Biofuels from chemical and biochemical conversion processes and technologies; 5Production of biodiesel via chemicalcatalytic conversion; 5.1 Introduction; 5.2 Biodiesel definition; 5.3 Treatment of the feedstocks prior to production of the biodiesel; 5.4 Current technologies of biodiesel production; 5.5 Purification of biodiesel; 5.6 Industrial production of biodiesel; 5.7 Influence of the feedstock and technology on biodiesel properties; 5.8 Conclusions and future trends; 5.9 References; 6Biochemical catalytic production of biodiesel 6.1 Introduction6.2 The enzymatic process; 6.3 Limitations of the enzymatic approach; 6.4 Sources of the enzyme: lipase; 6.5 Feedstock; 6.6 Acyl acceptors; 6.7 Effect of temperature; 6.8 Immobilized lipase; 6.9 Kinetics of enzymatic production of biodiesel; 6.10 Future trends; 6.11 Sources of further information; 6.12 References; 7Production of glycerol-free andalternative biodiesels; 7.1 Introduction; 7.2 Novel types of biodiesel: biofuels that incorporate glycerol into their composition; 7.3 Advantages in the use of biofuels integrating glycerol 7.4 Processing of oils and fats in the current oil refining plants

---

## Sommario/riassunto

In response to the global increase in the use of biofuels as substitute transportation fuels, advanced chemical, biochemical and thermochemical biofuels production routes are fast being developed. Research and development in this field is aimed at improving the quality and environmental impact of biofuels production, as well as the overall efficiency and output of biofuels production plants. The range of biofuels has also increased to supplement bioethanol and biodiesel production, with market developments leading to the increased production and utilisation of such biofuels as biosyngas

---