

Contents

Part I Bioenergy

- 1 The Role of Biomass in the World's Energy System.....** 3
Jose Goldemberg
- 2 Bioenergy and the Sustainable Revolution.....** 15
Wanderley D. dos Santos, Edgardo O. Gómez,
and Marcos S. Buckeridge
- 3 Biomass Gasification for Ethanol Production.....** 27
Luiz A.H. Nogueira, Joaquim E.A. Seabra, and Isafas C. Macedo

Part II Plant Cell Walls, Enzymes, and Metabolismtries

- 4 Hemicelluloses as Recalcitrant Components
for Saccharification in Wood.....** 45
Takahisa Hayashi and Rumi Kaida
- 5 Topochemistry, Porosity and Chemical
Composition Affecting Enzymatic Hydrolysis
of Lignocellulosic Materials.....** 53
Adriane M.F. Milagres, Walter Carvalho, and Andre Ferraz
- 6 Enzymology of Plant Cell Wall Breakdown: An Update.....** 73
Leonora R.S. Moreira, Natália vG. Milanezi, and Edivaldo X.F. Filho
- 7 Enzymes in Bioenergy.....** 97
Viviane I. Serpa and Igor Polikarpov

| | | |
|--|---|------------|
| 8 | Hydrolases from Microorganisms used for Degradation of Plant Cell Wall and Bioenergy | 115 |
| | Maria L.T.M. Polizeli, Emanuelle C.P. Corrêa, Aline M. Polizeli, and João A. Jorge | |
| 9 | Cellulase Engineering for Biomass Saccharification | 135 |
| | Richard J. Ward | |
| 10 | Genetic Improvement of Xylose Utilization by <i>Saccharomyces cerevisiae</i> | 153 |
| | Gustavo H. Goldman | |
| Part III Plant Cell Wall Genetics | | |
| 11 | Tropical Maize: Exploiting Maize Genetic Diversity to Develop a Novel Annual Crop for Lignocellulosic Biomass and Sugar Production | 167 |
| | Wendy G. White, Stephen P. Moose, Clifford F. Weil, Maureen C. McCann, Nicholas C. Carpita, and Fred E. Below | |
| 12 | Improving Efficiency of Cellulosic Fermentation via Genetic Engineering to Create “Smart Plants” for Biofuel Production | 181 |
| | Zeyu Xin, Naohide Watanabe, and Eric Lam | |
| 13 | Sugarcane Breeding and Selection for more Efficient Biomass Conversion in Cellulosic Ethanol | 199 |
| | Marcelo E. Loureiro, Márcio H.P. Barbosa, Francis J.F. Lopes, and Flaviano O. Silvério | |
| 14 | Cell Wall Genomics in the Recombinogenic Moss <i>Physcomitrella patens</i> | 241 |
| | Michael A. Lawton and Hemalatha Saidasan | |
| | Index | 263 |



<http://www.springer.com/978-0-387-92739-8>

Routes to Cellulosic Ethanol

Buckeridge, M.S.; Goldman, G.H. (Eds.)

2011, XII, 270 p., Hardcover

ISBN: 978-0-387-92739-8