

Preface

Although the chemical industry today still works with fossil raw materials such as petrol and natural gas, even this sector will have a stronger focus on the use of renewable feedstock: biomass from plants. A particular advantage of biorefineries will be effective in this development for exploiting biomass perfectly: the generation of a high number of products and material for further processing in the chemical industry. The development of microbial processes both for the digestion of biomass and for the synthesis of platform chemicals and secondary products is an important object of research in this context.

This monograph delivers a selective outlook on developments regarding microorganisms and their use in several product lines of the biorefinery. Microorganisms in lignocellulosic feedstock biorefineries (chapters by Arkady P. Sinitsyn and Alexandra M. Rozhkova; Alessandro Luis Venega Coradini et al.; M. Teresa F. Cesário and M. Catarina M. Dias de Almeida; and Dženan Hozioć), particularly concerning the production of polyhydroxyalkanoates and lipids, alcohol fuels, and hydrocarbons, microorganisms in the green biorefinery focused on organic acids (chapter by Petra Schönicke et al.; Mette Hedegaard Thomsen et al.); and microorganisms for the synthesis of defined platform chemicals and specialty chemicals containing heteroatoms (chapters by Qiang LI and Jianmin Xing; Nick Wierckx et al.; Christine Idler, Joachim Venus, and Birgit Kamm; Robert Kourist and Lutz Hilterhaus). Furthermore, microorganisms for the generation of isoprenoids and methane from biomass are part of the biorefining observations (chapters by Claudia E. Vickers et al.; Vladimir V. Zverlov, Daniela E. Köck, and Wolfgang H. Schwarz)."

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