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Title:	Updated technologies for sugar fermentation to bioethanol
Authors:	Mahala, Sangeeta (/jspui/browse?type=author&value=Mahala%2C+Sangeeta) Devi, Bhawana (/jspui/browse?type=author&value=Devi%2C+Bhawana)
Keywords:	Sugar fermentation Petroleum-derived fuels
Issue Date:	2022
Publisher:	Elsevier
Citation:	Biomass Biofuels Biochemicals: Biochemicals and Materials Production from Sustainable Biomass Resources, 95-116.
Abstract:	Biologically derived ethanol (or bioethanol) has been considered a potential renewable fuel to partly or entirely replace petroleum-derived fuels. To date, enormous studies have undertaken the task of the technology development of cellulosic biofuel, specifically ethanol, from various renewable feedstocks through different approaches. From an industrial perspective the chapter comprehensively reviews the updated technologies for ethanol production from various carbohydrate sources. It begins with discussing the significance of bioethanol in the modern world, its long-term perspectives, and the advancements made in the existing production strategies. Further, it covers different methods adopted for the processing of a variety of substrates derived from the biological origin that includes feedstock preparation, release of fermentable sugars from the biomasses (particularly starchy and nonstarchy materials), suitable microbial species for industrial ethanol fermentation, and the modes of operation of the fermentation reactors. Overall, the chapter briefly discusses the technological advancements in the biorefining of biomass to ethanol (particularly at industrial level), a sustainable renewable alternative to depleting fossil fuels, and highlights the potential challenges in the second-generation biofuel.
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