

عنوان مقاله:

Technical and Economic Analysis of ABE Production Process, a Review

محل انتشار:

ششمین کنفرانس بین المللی رویکردهای نوین در نگهداشت انرژی (سال: 1395)

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خلاصه مقاله:

Biofuels are made from reproducible resources, mainly biomass from plants. Among biofuels, e.g., ethanol, biodiesel, biomethane, biohydrogen, and biobutanol, biobutanol is an advanced promising fuel. Biobutanol, in comparison with other biofuels, has the advantages of higher energy content, closer air/fuel ratio to that of gasoline, less corrosion problems and lower vapor pressure. The most important drawback of biobutanol production which negatively affects the process economy is relatively low yield of butanol. Biobutanol can be produced from sugar, starch or lignocellulosic-based materials. Currently corn, sugar cane, palm oil, soy and rape are the main raw materials for production of biofuels. However, there has been much debate about the negative effects of biofuel production on the food price. Therefore, many of recent studies have focused on lignocellulosic raw materials. These materials are produced in large quantities and low prices. However, the economic viability of biobutanol production from lignocelluloses has not been commercially proved yet. Several economic studies have been performed in order to address the bottlenecks and challenges of biobutanol production. In this paper economics of different biobutanol production technologies were reviewed. The most important parameters for improvement of the process economy are using low cost raw materials and producing high purity by products. Furthermore, promotion of strains with higher yields and selectivities, and more resistance to inhibitors, as well as fermentation with simultaneous vacuum stripping are key factors helping the process economy. Other techniques, e.g., pervaporation, perstraction, adsorption and .liquid-liquid extraction were also suggested to solve some of the challenges

کلمات کلیدی:

Biobutanol, Economic analysis, Lignocellulosic materials, pretreatment

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