

عنوان مقاله:

Utilization of algae for sustainable biofuel production

محل انتشار:

دومین کنفرانس ملی و اولین کنفرانس بین المللی چالش های محیط زیست: صنعت و معدن سبز (سال: 1403)

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خلاصه مقاله:

The growth of the population and the reduction of energy reserves and the problems caused by the use of fossil fuels and environmental pollution have led to the detection, production, and development of biofuels. Algae are very valuable biological resources for producing energy and biofuels that can be cultivated in open, closed, and hybrid systems. This study was conducted to investigate the importance of biofuels derived from algae. The results of this research indicated that algal biofuels are third-generation biofuels that are more stable than first and second-generation biofuels. In addition, there are various methods for converting algal fats into biofuels, among which biochemical, thermochemical, and chemical conversions can be mentioned. One of the biochemical conversion processes is called anaerobic digestion, which produces biodiesel, biogas, and biohydrogen. Thermochemical conversion includes pyrolysis, gasification, hydrothermal liquefaction, and cracking. Fuels such as biochar, syngas, and bio-oil are products of the thermochemical conversion process. The third technique to convert algal fat into biofuel is the chemical conversion process, which is done through the transesterification process. It should also be noted that the use of nanomaterials will increase the growth and harvesting of algae and ultimately lead to the production of more biofuels.

کلمات کلیدی:

Algae, Aquatic ecosystem, Biofuel, Sustainable development, Biological resource, Renewable energy

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