

عنوان مقاله:

Regulation of Metabolic Pathway for Bio-Hydrogen Production in Dark Fermentation via Redox Potential

محل انتشار:

مجله تحقیقات بیومکانیسم و بیوانرژی، دوره 2، شماره 2 (سال: 1402)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Saeed Khesareh - Chemical Engineering Department, Faculty of Engineering, Shahid Bahonar University of Kerman, Iran

Seyed Ahmad Ataei - Chemical Engineering Department, Faculty of Engineering, Shahid Bahonar University of Kerman, Iran

خلاصه مقاله:

The ever increase in global population and consequently daily increase in energy consumption are causing various environmental pollution and worldwide climate changes. Replace fossil with different type of clean and renewable energy or decreasing the consumption of petroleum-based fuels will greatly reduce the hazardous effects of fossil fuels. Biohydrogen is a suitable alternative source of energy that can reduce dependency on conventional fuels. In this research the effect of the external oxido-reduction system on biohydrogen production from glucose fermented in a dark medium was carried out and the effect of oxidation potential on biohydrogen production from *Clostridium acetobutylicum* was investigated. The maximum hydrogen production rate and accumulative hydrogen were calculated using the modified Gompertz equation. Results show that the increase of voltage to 600 mV, leads to an increase of 25% in hydrogen production rate and a 19% increase in yield. It was also observed that the amount of undesired end products like ethanol and lactate decreased with the increase of oxidation potential and the acetate to butyrate ratio (A/B) increased from 0.82 to 1.52 when the voltage was raised to 600 mV.

کلمات کلیدی:

Biohydrogen, Dark fermentation, Oxidation potential, Metabolic pathway

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1875407>

