

عنوان مقاله:

Magnetic Supports for Immobilizaion of Cellulase and Investigation of Operational Conditions

محل انتشار:

اولین کنگره و نمایشگاه بین المللی علوم و تکنولوژی های نوین (سال: 1397)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mozhgan Dehghan Nayeri - *Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran*

Mehdi Bazarganipour - *Nanotechnology & Advanced Materials Institute, Isfahan University of Technology, Isfahan, Iran*

Hamid Zilouei - *Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran*

خلاصه مقاله:

Cellulase is one of the most efficient hydrolytic enzymes with an extensive applications in various industries and plays an important role in bioconversion of lignocellulosic biomass into fermentable sugars. Lignocellulosic biomass is the most wildy reserves of available biomass in the nature which can't be used directly. Lignocellulosic biomass should be decomposed and hydrolyzed to fermentable sugars. These can be used for the production of different bio-based chemicals and second generation of biofuels. free cellulase has low stability, irreversibly combination with solid particles and may become inactivated by denaturation during the process conditions. Furthermore, recycling and reusability of free cellulase from the reaction systems is impossible that can restrict its use in hydrolytic reactions. The cellulase enzyme approximately dedicates for 48% of total price of products by itself and consequently it plays a significant role in the costs of industrial biotechnology. To overcome these obstacles and reduce the costs of production process, enzyme immobilization is the best choice. Immobilization of cellulase on various natural and synthetic supports has been carried out in a variety of physical and chemical methods. Among the different types of supports that used for cellulase immobilization, magnetic supports offer several advantages rather than free cellulase enzyme. During the immobilization process, the optimum operational parameters is determined. In addition, the effect of physical and chemical properties of various types of supports, optimum temperature, and optimum pH on the enzymatic activity of immobilized cellulase were determined. In this survey, cellulase enzyme is loaded onto nanomagnetic support and its enzymatic activity is satisfactory. In addition, the research team is doing experiments on .the operational and kinetic parameters of free and immobilized cellulase

کلمات کلیدی:

Cellulase, Enzyme immobilization, Nanomagnetic support, Operational conditions

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/836694>



