

Pengaruh gugus amino kitosan dalam imobilisasi adsorpsi crosslinking enzim lipase pada resin = Effect of chitosan s amino group in adsorption crosslinking immobilization of lipase enzyme on resin

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Abstrak

ABSTRAK

Penggunaan lipase sebagai biokatalis diminati dalam industri, namun harganya yang mahal menjadi masalah utama. Imobilisasi mampu meningkatkan kemampuan enzim. Metode imobilisasi yang menghasilkan aktivitas dan stabilitas cukup baik ialah adsorpsi – crosslinking. Penambahan gugus amino pada support terbukti dapat meningkatkan kestabilan enzim. Maka, penelitian difokuskan pada peningkatan kinerja imobilisasi lipase pada resin melalui penambahan kitosan yang mengandung gugus amino. Unit aktivitas tertinggi (24.69 U/g resin) diraih oleh lipase terimobilisasi pada resin anion – exchange macroporous dengan penambahan kitosan pada resin secara langsung. Enzim ini berhasil menghasilkan yield 50,79% melalui reaksi interesterifikasi biodiesel dan stabil hingga 4 siklus dengan aktivitas relatif sebesar 63,94%.

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ABSTRACT

Lipase as biocatalyst is used in many industry, but its price is becoming serious problem. Immobilization could improve enzyme ability. Immobilization method which give higher activity and stability is adsorption-crosslinking method. The addition of amino group on support has proven to be able stabilize the enzyme. Thus, this research focused on improvement immobilization performance by addition of chitosan which contain amino group. The highest unit activity (24.69 U/g resin) reached by lipase immobilized on anion-exchange macroporous resin with addition of chitosan on resin directly. This enzyme resulting biodiesel with yield 50.79% and stable for 4 cycle with relative activity 63.94%.