

Enhancing activity and stability of *Candida antarctica* lipase B by novel sol-gel entrapment

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Lipases catalyze a variety of reactions, such as esterification, interesterification and hydrolysis. Because of their multiple reactions, lipases are used in various applications, such as food, detergent, pharmaceutical, etc. To expand their utility in industry, efficient method of immobilization is needed to promote enzyme reuse and it reduces overall process cost. Several methods have been reported for immobilization of lipase using covalent binding and entrapment within a polymer matrix. Sol-gel entrapment is simple and effective method, which gives greatly improved stability. But lipase immobilized in sol-gel matrix mostly shows low activity recovery. In this research, olive oil and glutaraldehyde were used to improve the activity and stability on sol-gel entrapment of *Candida antarctica* lipase B(CALB). The immobilized lipase showed the higher activity and stability than untreated lipase immobilized in sol-gel matrix. It is assumed that the increased activity and stability of pretreated lipase is due to protecting active site of lipase by olive oil and maintaining the structure of lipase by glutaraldehyde.