

Cross-linked lipase in hybrid matrix for biodiesel production from crude Jatropha curcas oil

Abstract

Immobilization of lipases is gaining much attention these days due to the wide variety of reactions catalyzed by them. Moreover, the lipases play an important role in biodiesel production. In this study, lipase from *Burkholderia cepacia* was first cross-linked with glutaraldehyde followed by entrapment into hybrid matrix of equal proportions of alginate and β -carrageenan natural polymers. The immobilized lipase gave promising results with stability parameters like pH, temperature, solvent, storage, enzyme leakage, and hydrolytic activity. A significant reduction of 65.76% of enzyme leakage was obtained with this immobilized lipase. Moreover, a 100% yield of biodiesel was produced from crude *Jatropha curcas* oil using this immobilized lipase.