

## **Immobilized Burkholderia cepacia lipase for biodiesel production from crude Jatropha curcas L. oil**

### **Abstract**

The present world is in a dilemma with fast depletion of fossil fuels. So there arises a drastic need for development of biofuels to power the earth. From an environmental point of view, biodiesel has great potential as an alternative diesel fuel. In this study, lipase from Burkholderia cepacia was first cross linked with glutaraldehyde followed by entrapment in a hybrid matrix of equal proportions of alginate and k -carrageenan. Later, this biocatalyst was employed for biodiesel production from crude Jatropha curcas L. oil. The optimal conditions for processing 10 g crude Jatropha oil were: 35 C, 1:10 mol ratio of oil to ethanol, 1 g water, 5.25 g immobilized lipase, 6 g RCF and 24 h reaction time. At the optimal conditions, 100% yield of fatty acid ethyl esters could be achieved. The immobilized lipase was stable and retained 73% relative transesterification activity after six cycles of reuse. This shows that the immobilized lipase in alginate/ k-carrageenan matrix is a potential environmental friendly biocatalyst for biodiesel industry