

Effect of temperature and solvent on enzymatic production of glycerol carbonate

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Glycerol production has increased with increasing demand of biodiesel because glycerol is by-product of biodiesel production process. The transformation of glycerol into high value added products is necessary. Glycerol carbonate, one of high value added products from glycerol, is synthesized by transesterification of glycerol and dimethyl carbonate. In this work, the effect of temperature and solvent on enzymatic synthesis of glycerol carbonate were investigated using Novozym 435. Each test was performed at different reaction temperatures and in various organic solvents. As the economical and effective side of process considered, reaction temperature was selected as optimal temperature without enzyme inactivation. At tests of solvent selection, the results that the hydrophilic is more suitable solvent for synthesis of glycerol carbonate was shown. Among three kinds of the hydrophilic solvents, acetonitrile led to the highest conversion of glycerol carbonate.