

## Optimization of lipase-catalyzed glucose ester synthesis in ionic liquids

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Lipase-catalyzed esterification of glucose with fatty acids in ionic liquids (ILs) mixtures was investigated by using supersaturated glucose solution. The effect of ILs mixtures ratio, substrate ratio, water content, lipase content, and temperature on the activity and stability of lipase was also studied. The highest yield of sugar ester was obtained in a 1-butyl-3-methylimidazolium trifluoromethanesulfonate ([Bmim][TfO]) and 1-octyl-3-methylimidazolium bis[(trifluoromethyl)sulfonyl]amide ([Omim][Tf<sub>2</sub>N]) mixture (9:1, v/v), while Novozym 435 showed the optimal stability and activity in the mixture of [Bmim][TfO]:[Omim][Tf<sub>2</sub>N] 1:1. Reuse of lipase and ILs was successfully carried out with optimized reaction conditions. After 5 times reuse of Novozym 435 and ILs, 78% of initial activity was remained.