

## Ultrasound-enhanced lipase activity for the synthesis of sugar ester in ionic liquids

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Ionic liquids (ILs) which can dissolve high concentration of sugars and retain enzyme activity have been reported as good reaction media for the synthesis of sugar esters. However, the activities of lipases in ILs are usually lower than those in conventional organic solvents used for sugar ester synthesis. In this work, the supersaturated glucose solution and ultrasound irradiation were used to increase enzyme activity in ILs. In the lipase-catalyzed esterifications of glucose with vinyl laurate and lauric acid using [Bmim][TfO], 2.4 and 4.7 times higher activities, respectively, were obtained by using supersaturated solution under ultrasound irradiation than those in conventional method. In the lipase-catalyzed transesterification using [Bmim][PF6], enzyme activity was 5.8 times increased by ultrasound irradiation.