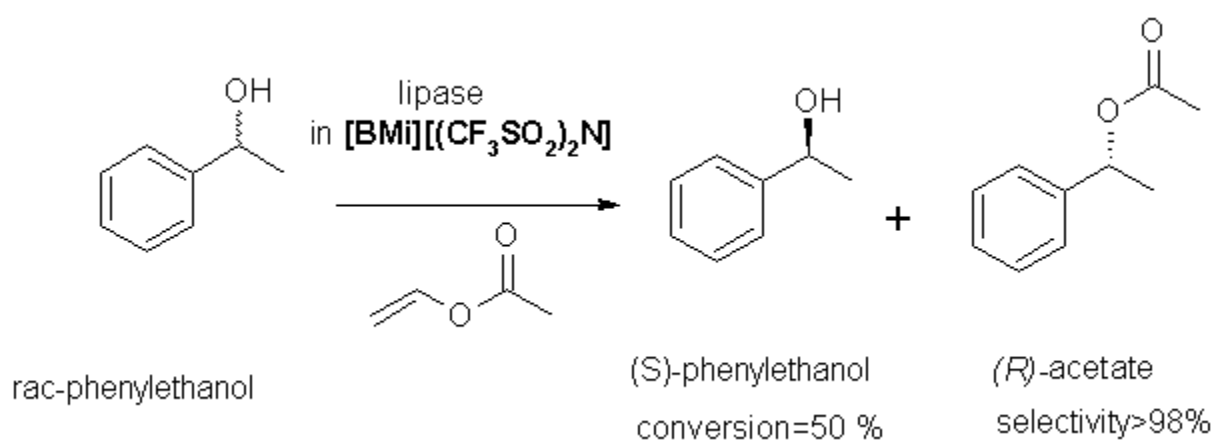


BIOTECHNOLOGY

Biocatalysis – Transesterification reaction

Ionic liquids may be used as solvents for biocatalyzed reactions. This is namely the case of 1-Butyl-3-Methylimidazolium Bis(trifluoromethanesulfonyl)imide [Bmi][CF₃SO₂]₂N⁻ in which Wasserscheid et al. described a reaction of enantioselective transesterification catalyzed by a lipase¹.



Transesterification reactions in industrial environments are usually carried out in methyl tertbutylether (MTBE). While, in this case, the conversions and selectivities are identical regardless of the solvent, the advantage of the ionic liquid lies in the thermal stability of the enzymes in this environment (stable up to 100°C / 212°F). This stability both improves the reaction's kinetics, but also the separation of the products of the reaction medium (vacuum distillation (85°C / 185°F, 0,06 mbar) or extraction (1mL of n-hexane/iPrOH (97.5/2.5) for μL of reaction medium).

The enzyme/ionic liquid may then be recycled without any loss of activity.

REFERENCES	LIQUIDES IONIQUES
IM0408B	1-Butyl-3-methylimidazolium bis(trifluoromethanesulfonyl)imide, 99.5%
IM0208B	1-Ethyl-3-methylimidazolium bis(trifluoromethanesulfonyl)imide, 99.5%
IM2008B	1-(2-Hydroxyethyl)-3-methylimidazolium bis(trifluoromethanesulfonyl)imide , 99.5%
IM0404B	1-Butyl-3-methylimidazolium Hexafluorophosphate, 99.5%

¹ S. H. Schöfer, N. Kaftzik, P. Wasserscheid, U. Kragl Chem. Commun., 2001, 425