

Piia Hara, Mihaela-Claudia Turcu, Riku Sundell, Monica Toşa, Csaba Paizs, Florin-Dan Irimie, Liisa T. Kanerva (2013): Lipase-catalyzed asymmetric acylation in the chemoenzymatic synthesis of furan-based alcohols, *Tetrahedron: Asymmetry* 24, 142–150

**Abstract**

Eight racemic 1-(furan-2-yl)ethanols were prepared from the corresponding carbonyl compounds for enantioselective acylation studies, and seven of them were used in preparative-scale kinetic resolutions with *Candida antarctica* lipase B (Novozym 435) and vinyl acetate in dried diisopropyl ether. Mechanism-based competition between the (*R*)-acetate (enzymatic acylation product), vinyl acetate (added acylating reagent), and acetic acid (enzymatic hydrolysis product) toward CAL-B, together with the residual water of the lipase were shown to be potential reasons for side reactions, which affected the course of the kinetic resolution of 1-[5-(2-chlorophenyl) and (4-bromophenyl)furan-2-yl]ethanols. Clear effects were not observed with the other alcoholic substrates. Alcoholysis of the enantiomerically enriched (*R*)-acetates with methanol and CAL-B in diisopropyl ether was shown to be a potential method for the deprotection of the (*R*)-acetates and the formation of (*R*)-alcohols.

