

The Studies on a new type of Enzymatic Dynamic Kinetic Resolution based on Esterification.

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Chiral, β,γ -Unsaturated carboxylic acids derivatives are important intermediates in the synthesis of many biologically active compounds; for example anti-microtubule agents [1], Bisnorvernolepin [2] and Vineomycinone B₂ [3].

Recently we have performed studies on enzymatic kinetic resolution based on esterification of carboxylic acids with orthoesters, used as a donor of alkoxy group [4,5]. As a compound for our studies, we choose 2-benzyl-2-methylbut-3-enic acid, which contains stereogenic quaternary carbon center. This compound is a substrate for the synthesis of irreversible inhibitors of a carboxypeptidase A, a representative zinc-containing proteolytic enzyme [6]. 2-Benzyl-2-methylbut-3-enic acid was synthesized in 4-step synthesis, containing enzymatic hydrolysis of benzylmethylmalonic dimethylester [6]. We propose short, two step synthesis of optically active 2-benzyl-2-methylbut-3-enic acid from commercially available tiglic acid. The results of optimization of the kinetic resolution of 2-benzyl-2-methylbut-3-enic acid, containing enzyme screening, influence of solvent and reaction conditions will be demonstrated.[7]

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Ryszard Ostaszewski has completed his PhD at Institute of Organic Chemistry Polish Academy of Sciences in 1989 and postdoctoral studies from University of Twente, the Netherlands and from University of Zurich, Switzerland. He is a Professor of the Institute of Organic Chemistry since 2009. He received the award for the Young Chemist from the Polish Chemical Society 1989. He is the author of over 105 publications in peer-reviewed journals and more than 50 communications in international conferences and symposium. His current scientific interests include biocatalysis, multicomponent reactions and nanotechnology.