Palladium-catalyzed asymmetric Heck arylation of 2,3-dihydrofuran - effect of prolinate salts.

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Streszczenie

Chiral ionic liquids (CILs) containing L-prolinate and L-lactate anions and non-chiral quaternary ammonium cations were employed in the palladium catalyzed enantioselective Heck arylation of 2,3-dihydrofuran with aryl iodides (iodobenzene, 4-iodotoluene, 2-iodoanisole, 4-iodoanisole, 4-iodoacetophenone). In all the reactions 2-aryl-2,3-dihydrofuran (**3**) was obtained as the main product with the yield up to 52% at the total conversion reaching 83%. Product **3**, 2-phenyl-2,3-dihydrofuran, was obtained with excellent enantioselectivity (>99% ee) in a 6 h reaction with tetrabutylammonium L-prolinate. In the proposed homogeneous reaction Pd(0) nanoparticles are considered as a resting state of the catalyst and a source of soluble palladium species catalyzing the Heck reaction. The yield and stereoselectivity of the Heck reaction are strongly influenced by the kind of non-chiral cations present in CILs.

Adres publiczny

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https://www.rsc.org/