Effect of chiral ionic liquids on palladium-catalyzed Heck arylation of 2,3-dihydrofuran.

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It is demonstrated that a relatively small amount of IL (IL = ionic liquid) can dramatically affect conversion in the Heck arylation of 2,3-dihydrofuran with iodobenzene, catalyzed by $Pd(OAc)_2$ in DMF as a solvent. In all reactions, 2-phenyl-2,3-dihydrofuran (**3**) was obtained as the main product, and conversion increased even up to 10 times when pyridinium salts with 1-butyl-4-methylpyridinium cation were applied. In a 1:1 mixture of DMF and H_2O as solvent, the addition of ILs led to a remarkable deactivation of the catalyst, and this effect was most visible in the presence of imidazolium salts containing a 1-butyl-3-methylimidazolium cation. The influence of the anionic part of ILs on the reaction course was tested using a series of morpholinium salts and, depending on the anion, conversion varied from 0.4% to even 100%. When morpholinium salts with chiral anions were used, e.e. values of up to 10% were obtained, which is the highest value for the Heck reaction involving IL as a chirality source.

Słowa kluczowe

Homogeneous catalysis, palladium, Heck reaction, Asymmetric catalysis, Ionic liquids

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