



Palladium(II) complexes with the unsymmetrical H-spirophosphorane ligand HP(OCMe₂CMe₂O)(OCH₂CMe₂NH): synthesis, structural and catalytic studies.

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Streszczenie

We have investigated the reactivity of the unsymmetrical H-spirophosphorane (HSP) ligand HP(OCMe₂CMe₂O)(OCH₂CMe₂NH) **1** towards different palladium(II) precursors and synthesised the mononuclear complexes [PdCl₂{P(OCMe₂CMe₂O)OCH₂CMe₂NH₂}] **2** and [PdCl(C₃H₅){P(OCMe₂CMe₂O)OCH₂CMe₂NH₂}] **3**. The structural features of the compounds are characterised by spectroscopic methods as well as single crystal X-ray diffraction studies. The complexes are shown to be remarkably active precatalysts for the Heck and Hiyama cross-coupling reactions. The products of the C–C bond formation reactions were obtained with high conversion and stereoselectivity. Mechanistic studies of the Heck reaction reveal that, besides homogenous precatalysts, also heterogeneous Pd(0) nanoparticles are involved in the catalytic process.

Słowa kluczowe

Hydrophosphoranes, palladium, C–C bond formation, Heck reaction, Hiyama reaction

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