Molecular Structures and Catalytic Activity of Palladium Complexes Derived from Lutidine-bridged Bis(benzimidazolin-2-ylidene) Ligands

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Z. Naturforsch. **2007**, *62b,* 357 – 361; received November 29, 2006

Dedicated to Prof. Helgard G. Raubenheimer on the occasion of his 65th birthday

Reaction of lutidine-bridged dibenzimidazolium dibromides **1** – **4** with palladium acetate gives pincer-type palladium complexes of the type [Pd(L)Br]Br [**5**]Br–[**8**]Br. Crystals suitable for an X-ray diffraction study have been obtained by slow evaporation of the solvent from dichloromethane/methanol solutions of [**7**]Br and [**8**]Br. The crystal structure of [**7**]$^+$ reveals a pincer topology of the cationic complex with a distorted square-planar coordination geometry at the metal center. From a solution of complex [**8**]Br, a dinuclear byproduct [**9**]$^+$ was obtained with two bis(benzimidazolin-2-ylidene) ligands coordinating in a bridging fashion. The pincer-type palladium complexes [**5**]Br–[**8**]Br were tested as precatalysts in Suzuki coupling reactions.

Key words: Heterocyclic Carbene Complexes, Palladium(II) Complexes, Pincer Complexes