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One Pot Synthesis of Zerovalent Palladium – Olefin Complexes from Palladium (II) Carboxylates with Reduced 1,2-Bis(arylimino)acenaphthenes (Ar-BIANH$_2$)

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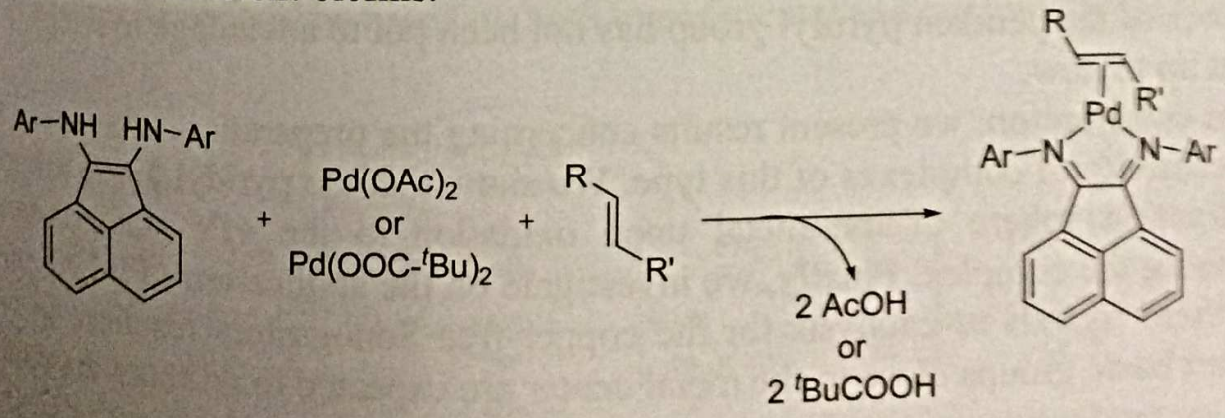
Complexes of palladium and 1,2-bis(arylimino)acenaphthenes (Ar-BIAN) are important catalysts for the polymerization reaction of olefins. In many studies divalent palladium complexes have been employed as catalyst precursors. Thus, most of the attention was devoted to the synthesis and study of alkene complexes of palladium (II). However also zerovalent palladium complexes have an important role either as precursors or active species. [1,2]

The complexes with the formula Pd(Ar-BIAN)(η^2-olefin) can only be synthesized by reacting the Ar-BIAN with a suitable Pd^0 precursor, as Pd(dibenzylideneacetone)$_2$, followed by exchange of the alkene with another suitably substituted olefin. The reaction is efficient only if the second olefin bears an electron-withdrawing group. [2]

Recently we started an extensive study about the synthesis, the reactivity and the electrochemical behaviour of a reduced form of Ar-BIANs, the Ar-BIANH$_2$ compounds. [3] Taking advantage of the reducing power of the Ar-BIANH$_2$ we developed an alternative synthetic strategy for the preparation of Pd(Ar-BIAN)(η^2-olefin) complexes in which reduction of a palladium (II) precursor, complexation of the chelating diimine and coordination of the olefin take place at the same time, eliminating the need for a palladium (0) precursor and opening the way to the use of less electron-deficient olefins.



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[3] M. Viganò, M. Rossi, F. Ferretti, F. Ragaini, P. Mussini, *manuscript in preparation.*