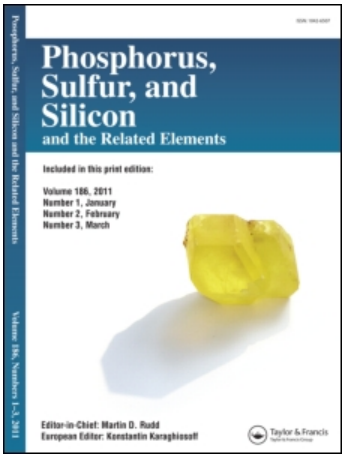

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Phosphorus Functionalized Carbenes: Synthesis and Coordination Properties

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Phosphorus Functionalized Carbenes: Synthesis and Coordination Properties

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Keywords Carbenes; phosphites; phosphonates; iron; rhodium

Metal complexes with *N*-Heterocyclic carbene (NHC) ligands are widely used in organometallic chemistry.[1] NHC are known to be good donor groups, and the incorporation of functionality is possible on the nitrogen atoms. We are interested in the synthesis of functionalized NHC with functionality offering a new coordination center or possessing hemilabile properties. In particular, the functionalization of NHC with phosphonate (**A**) leads us to develop original methods for their synthesis. The organometallics complexes, incorporating the functionalized NHC, has been synthesised following two pathways: 1—by using the silver carbene as intermediate[2] 2—by using the free carbene. According to the first method, several rhodium complexes have been synthesized and characterized. The use of these rhodium complexes (**B**) as precursor of active catalysts for C—C coupling is still under investigation. Beside the chemistry of these rhodium complexes, we have designed models of hydrogenase[3] possessing either a phosphite (complex **C**) or a carbene ligand (**D**). These complexes have been fully characterized including X-ray diffraction studies and electrochemistry methods. These results encourage us to study model of hydrogenase having functionalized NHC as ligand.

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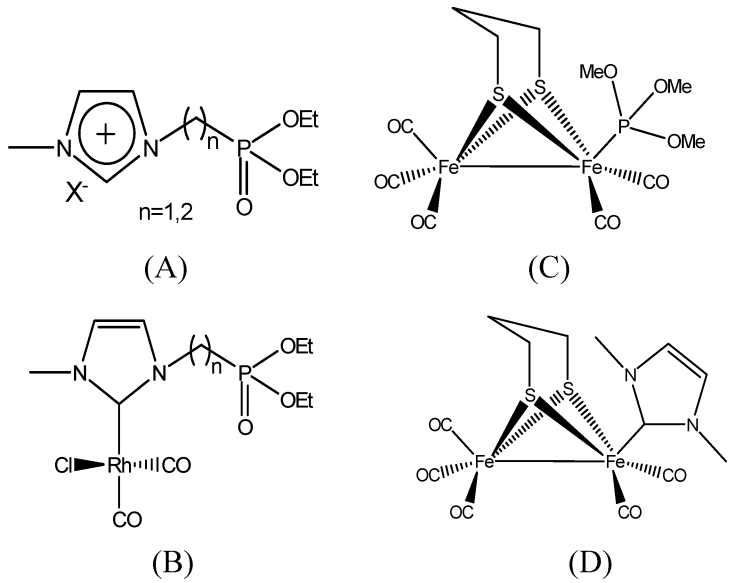

SCHEME 1

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