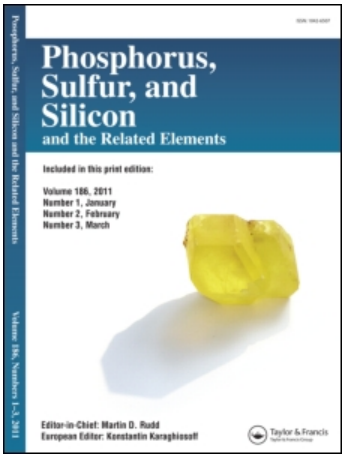

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Addition of Phenylacetylene to a P--C Bond of Phosphorus-Bridged [1]Ferrocenophane

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ADDITION OF PHENYLACETYLENE TO A P–C BOND OF PHOSPHORUS-BRIDGED [1]FERROCENOPHANE

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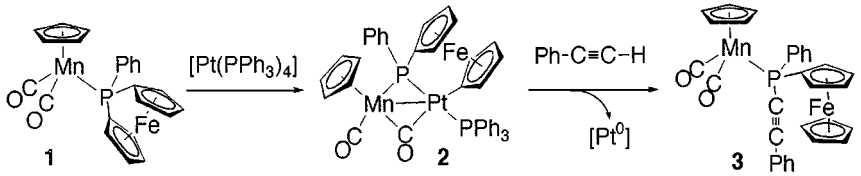
A reaction of $CpMn(CO)_2(fcpp)$ (fcpp = 1,1′-ferrocenediylphenylphosphine) with $Pt(PPh_3)_4$ gave an Mn-Pt dinuclear complex, which reacted with HC≡CPh to give $CpMn(CO)_2${PPh(ferroccene)(C≡CPh)}.

A P–C bond cleavage of a phosphorus compound by a transition metal complex provides a novel route for an introduction of a functional group to a phosphorus atom.[1] Here, we report a reaction in the title via the P–C bond cleavage by a platinum(0) complex.

A manganese complex **1** having a phosphorus-bridged [1]ferrocenophane reacts with $Pt(PPh_3)_4$ to give an Mn-Pt heterodinuclear complex **2**. An X-ray structure of **2** shows that a bridging CO ligand adopts a semibridging mode, suggesting that the CO ligand readily dissociates from the platinum to leave a reactive coordination site on the platinum. Upon a reaction of **2** with phenylacetylene, its terminal C–H bond is activated with the platinum center, and then two successive reductive eliminations give a final product **3**.



SCHEME 1

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[1] D. K. Morita, J. K. Stille, and J. R. Norton, *J. Am. Chem. Soc.*, **117,** 8576 (1995).