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

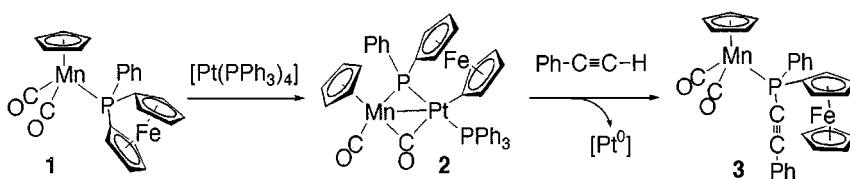
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A reaction of $\text{CpMn}(\text{CO})_2(\text{fcpp})$ ($\text{fcpp} = 1,1'$ -ferrocenediylphenylphosphine) with $\text{Pt}(\text{PPh}_3)_4$ gave an Mn–Pt dinuclear complex, which reacted with $\text{HC}\equiv\text{CPh}$ to give $\text{CpMn}(\text{CO})_2\{\text{PPh}(\text{ferrocene})(\text{C}\equiv\text{CPh})\}$.

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 $\text{Pt}(\text{PPh}_3)_4$ 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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