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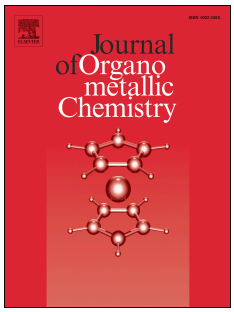

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Article

Syntheses, Structures, and Electrochemical Properties of Iron(II) and Ruthenium(IV)-Hydrido Complexes with Ferrocenylsilyl Ligand(s)

Masumi Itazaki,* Yuka Shigesato, Makiko Minakata, Sho Ishii, Akio Ichimura, and Hiroshi Nakazawa*

Department of Chemistry, Graduate School of Science, Osaka City University, Sugimoto 3-3-138, Sumiyoshi-ku, Osaka 558-8585, Japan.

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Abstract: An iron methyl complex $Cp^*(CO)_2Fe(Me)$ reacts with silylferrocene $HSiR_2Fc$ (Fc = $C_5H_4FeC_5H_5$, R = Me, Ph) to afford the iron complex with a ferrocenylsilyl ligand, $Cp^*(CO)_2Fe(SiR_2Fc)$ (R = Me: **1**, Ph: **2**). On the other hand, the reactions of a ruthenium methyl complex Cp*(CO)(py)Ru(Me) with 2 equiv of silylferrocene $HSiR_2Fc$ (R = Me, Ph) afford the ruthenium(IV) hydrido complexes with two ferrocenylsilyl ligands, $Cp^*(CO)Ru(H)(SiR_2Fc)_2$ (R = Me: **3**, Ph: **4**). Complexes **1**–**4** were fully characterized using ^1H and $^{13}C\{^1H\}$ NMR measurements, elemental analyses, and these structures were determined by X-ray crystallography. The cyclic voltammograms of **3** and **4** showed two well-resolved reversible waves, suggesting electronic communication of two ferrocenyl units through the Ru(IV) center.

Keywords: Iron, Ruthenium, Silylferrocene, Crystal structures, Cyclic voltammetry