3,4-, 4,7- and 1,4,7-substituted Indenyl-TiCl₃ Complexes: Synthesis and Comparison of Substituent Effects

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Me₃Si-substituted indenes of type 1-SiMe₃-3,4-(CH₂)₃C₉H₅ (9), 1-SiMe₃-4-R-7-R’C₉H₅ (11a, R = R’ = Me; 11b, R = R’ = Ph; 11c, R = Me, R’ = Ph) and 1,1’-(SiMe₃)₂-4,7-Me₂C₉H₄ (12) were synthesised as precursors for piano-stool type halfsandwich indenyl-titanium trichloride complexes. Treatment of 9, 11, and 12 with equimolar amounts of TiCl₄ gives the complexes (η⁵-3,4-(CH₂)₃C₉H₅)TiCl₃ (13), (η⁵-4-R-7-R’C₉H₅)TiCl₃ (14a, R = R’ = Me; 14b, R = R’ = Ph; 14c, R = Me, R’ = Ph), and (η⁵-1-SiMe₃-4,7-Me₂C₉H₄)TiCl₃ (15), respectively, with liberation of Me₃SiCl. Detailed UV/vis spectroscopic and cyclic voltammetric studies were carried out which allow a comparison of substituent effects in 13 – 15.

Key words: Halflsandwich Complexes, Indenyl, Titanium, UV/vis, Cyclovoltammetry, Substituent Effects