Synthesis, Characterization and Crystal Structures of 1,2-Disubstituted Ferrocenyl Stibines

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New 1,2-disubstituted ferrocenyl stibines containing a -CH\textsubscript{2}OR pendant arm were synthesized and characterized by various spectral and analytical methods. Nucleophilic substitution of rac-di-phenyl[(2-trimethylammoniomethylferrocen-1-yl)]stibine iodide by methanol produces compound Fc(CH\textsubscript{2}OMe)SbPh\textsubscript{2} (1). The acetylation of diphenyl(2-dimethylaminomethylferrocen-1-yl)stibine by acetic anhydride affords compound Fc(CH\textsubscript{2}OCOCH\textsubscript{3})SbPh\textsubscript{2} (2), which on further reaction with sodium hydroxide affords the alcohol Fc(CH\textsubscript{2}OH)SbPh\textsubscript{2} (3). The molecular structures of the stibines 1, 2 and 3 were determined by X-ray crystallography. None of the heterobimetallic compounds containing a -CH\textsubscript{2}OR arm shows hypervalent interactions in the solid state. By contrast, hypervalent interactions were found in ferrocenyl stibines with a -CH\textsubscript{2}NR\textsubscript{2} pendant arm.

Key words: 1,2-Disubstituted Ferrocene, Organoantimony, Stibine, X-Ray Structures