

Abstract

The reaction of $[\text{Mo}(\text{NO})\text{Tp}^*\text{Cl}_2]$ [Tp^* = tris(3,5-dimethylpyrazolyl)borate] with copper(II) Schiff base complexes derived by condensation of two mole equivalents of 2,5-dihydroxybenzaldehyde with α,ω -diamines [$1,2\text{-C}_6\text{H}_4(\text{NH}_2)_2$, $\text{NH}_2(\text{CH}_2)_n\text{NH}_2$, $n = 2\text{--}5$] affords trimetallic species containing three potential redox centres. The IR, UV-vis and EPR spectroscopic properties of these compounds are described and it is shown that, with increasing chain length in the diimino bridges of the Schiff base complexes, there are small distortions from planarity, probably towards tetrahedral structures. From cyclic and differential pulse voltammetry it is shown that the trimetallic species primarily undergo two accessible sequential one-electron reductions associated with the $\{\text{Mo}(\text{NO})\text{Tp}^*\text{Cl}\}$ centres, and by determination of conproportionation constants for the mono-reduced species, it is established that there is weak interaction between these two centres. Attempts to obtain reduced trimetallic species are described.