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Redox-induced change in the ligand coordination mode

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Abstract

© 2014 American Chemical Society. The reaction of cobalt(II) pivalate with a spin-labeled Schiff base (HL1) in organic solvents formed trinuclear complex $[\text{Co}_3(\text{Piv})_2\text{L}_1\text{ 2L}_2\text{ 2}]\cdot\text{Solv}$ (Solv is Me_2CO and/or C_7H_{16} and CH_3CN) containing both nitroxide L1 and the product of its single-electron reduction, nitron L2. The formation of $[\text{Co}_3(\text{Piv})_2\text{L}_1\text{ 2L}_2\text{ 2}]$ was a consequence of an unusual phenomenon, which we called "redox-induced change in the ligand coordination mode". A reduction of L1 to L2 led to a change in the set of donor atoms and even in the size of the metallocycle. This phenomenon was also found for mononuclear $[\text{CrL}_1\text{ 2L}_2]$ and $[\text{FeL}_1\text{ 2L}_2]\cdot\text{Me}_2\text{CO}$.

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