

Supplementary Information

H_3O_2^- , O_2^{2-} and $\text{O}_2^{\bullet-}$ bridging ligands in cobalt(III) complexes of an acyclic phenolate-hinged dinucleating ligand.

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Figure S1. Raman spectra of $[\text{Co}_2(\text{bpbp})(\mu\text{-O}_2)(\mu\text{-CH}_3\text{CO}_2)]^{2+}$ (top) and the superoxo-bridged complex $[\text{Co}_2(\text{bpbp})(\mu\text{-O}_2)(\mu\text{-CH}_3\text{CO}_2)]^{3+}$ (bottom).

Figure S2. ESI-MS spectra of the peroxo bridged $[\text{Co}_2(\text{bpbp})(\mu\text{-O}_2)(\mu\text{-CH}_3\text{CO}_2)]^{2+}$. The Capillary temperature was 150 °C. (a) Tube lens 80 V. (b) Tube lens 40 V. Under the milder conditions in (b) the parent peroxo complex is readily observed. As source conditions are made increasingly more harsh the ion with m/z 390.0 loses intensity.

Figure S3. ESI-MS spectrum of the superoxo bridged $[\text{Co}_2(\text{bpbp})(\mu\text{-O}_2)(\mu\text{-CH}_3\text{CO}_2)]^{3+}$.

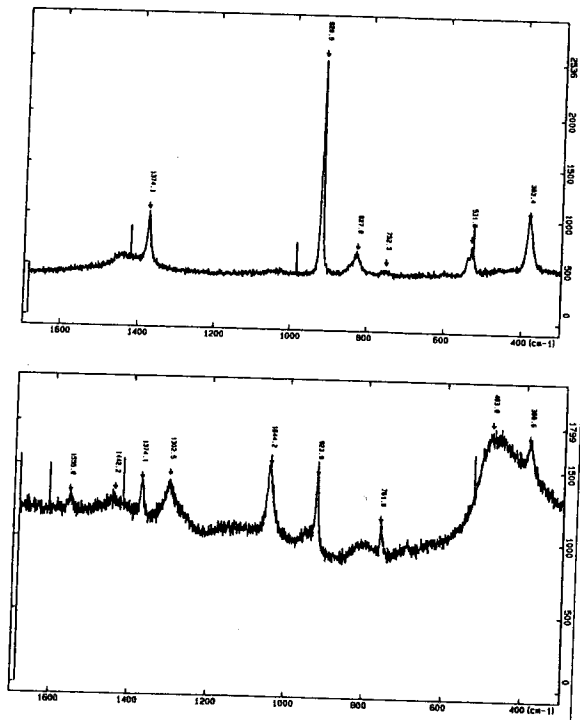
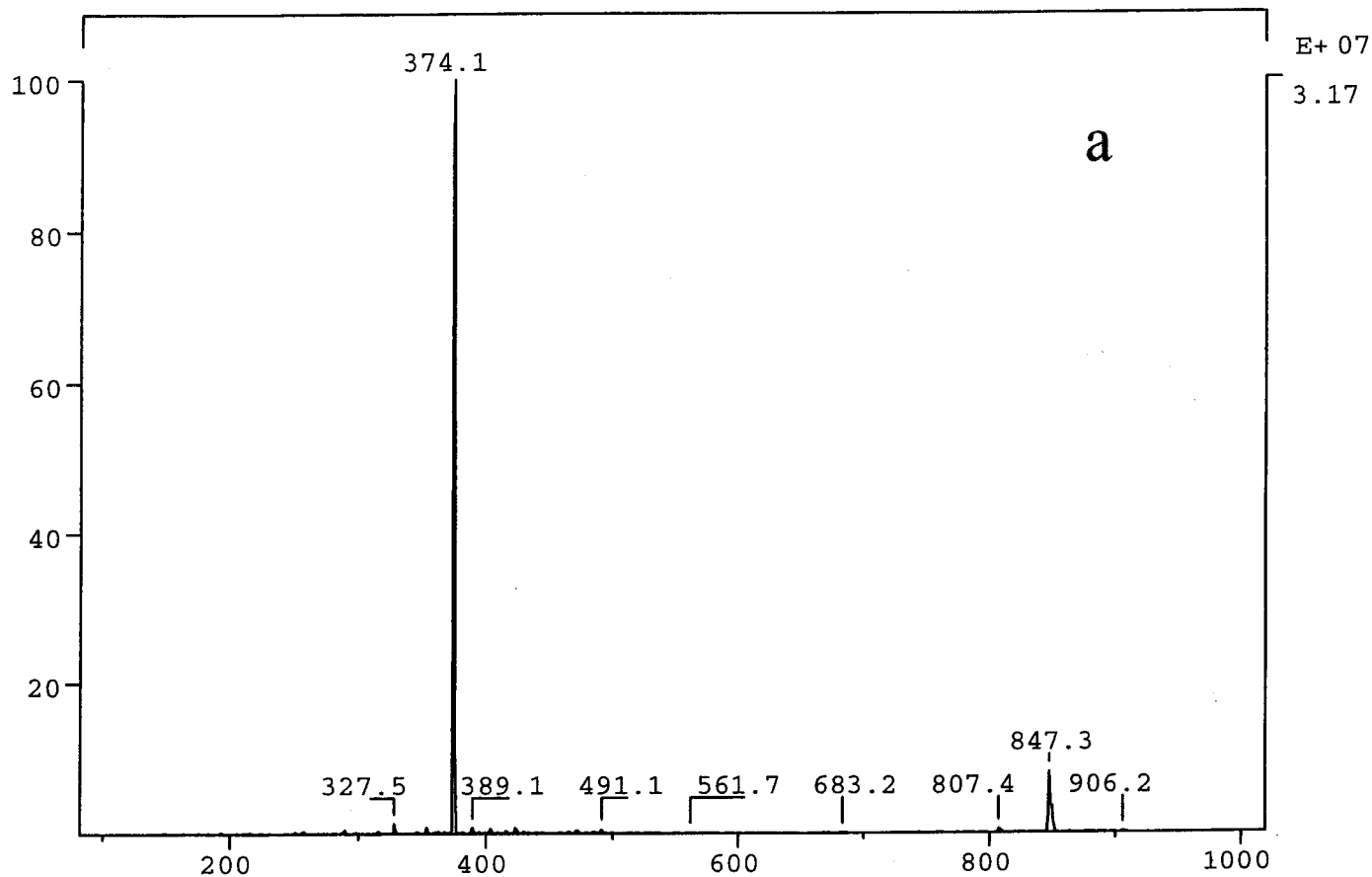


Figure S1

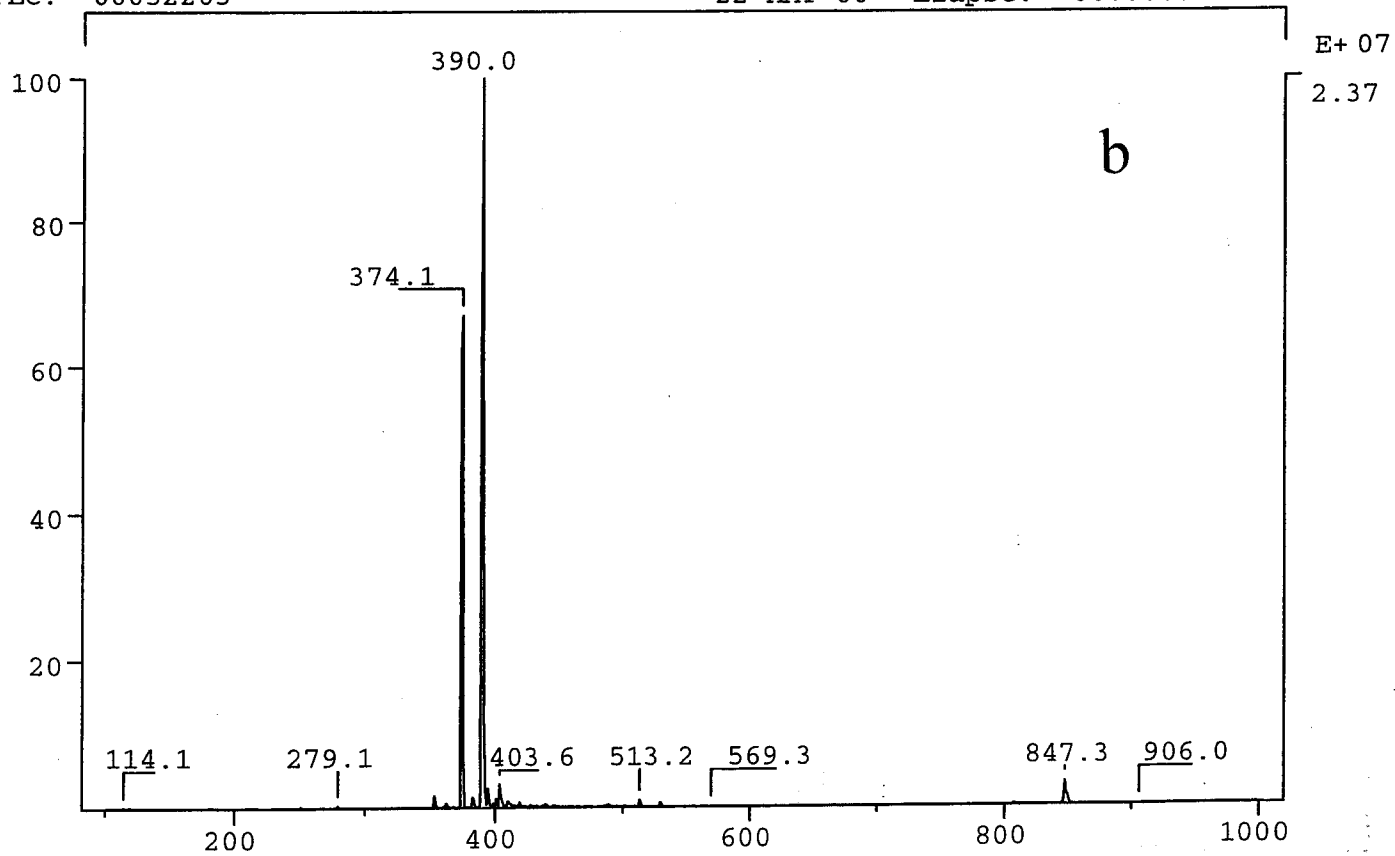
Figure S2



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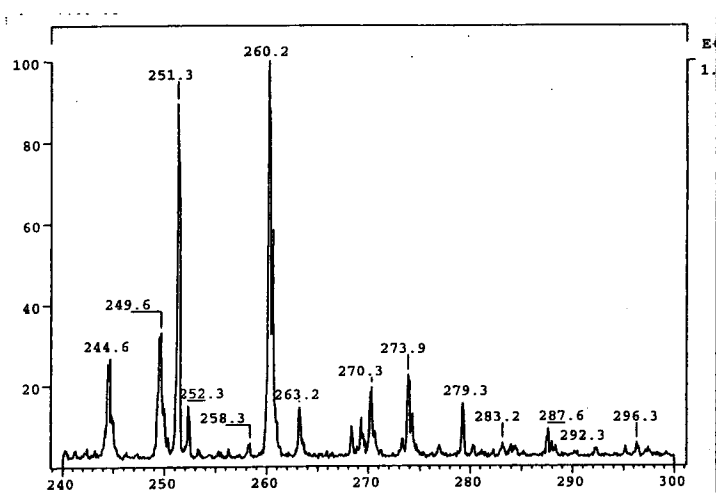


Figure S3