

Synthesis, characterization and catalytic reactivity of Mn(III) complexes with a scorpion-like bis(phenolate) ligand: selective oxidation of primary alcohols to aldehydes.

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Two new mononuclear complexes of manganese(III), $[\text{Mn}(\text{bp})(\text{N}_3)(\text{CH}_3\text{OH})]\cdot 0.5\text{CH}_3\text{OH}$ (**1**) and $[\text{Mn}(\text{bp})(\text{NCS})_{0.9}(\text{NO}_3)_{0.1}(\text{CH}_3\text{OH})]\cdot \text{CH}_3\text{OH}$ (**2**), have been synthesized, where H_2bp is 6,6'-(pyridin-2-ylmethylazanediyl)bis(methylene)bis(2,4-di-*tert*-butylphenol).

The complexes were characterized by elemental analyses and spectroscopic methods, and fully characterized by X-ray diffraction analysis. Single-crystal X-ray diffraction structure analysis of the complexes revealed that the manganese atom is octahedrally coordinated, where the bis(phenolate) ligand (bp^{2-}) is N_2O_2 -bonded to the Mn(III) center in a tetradentate dinegative fashion. The catalytic potential of these complexes has been tested for the oxidation of primary alcohols using H_2O_2 as the oxidant. The effects of various parameters, including the molar ratio of oxidant to substrate, the temperature and the solvent, have been studied. On comparing the catalytic activity of **1** and **2**, catalyst **2** showed the most powerful activity in the oxidation of alcohols. Excellent conversions have been obtained for the oxidation of benzyl alcohols containing electron-donating groups at the *para*-position.

Słowa kluczowe

Bis(phenolate) ligands, Mn(III) complex, Catalytic oxidation, Crystal structure, Scorpion-like ligands, Oxidation of alcohols

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