A Novel Hydrogen-bonded Zigzag Chain Manganese(III) Complex: Synthesis, Crystal Structure and Magnetic Properties

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The synthesis, crystal structure and magnetic properties of $[Mn(III)L(H_2O)_2]^+ClO_4^-$, **1** [L = *N*,*N*′-bis(rac-3,5-dichlorosalicylidenato)-1,2-diaminopropane] are reported. Single crystal X-ray diffraction studies showed the structure to consist of $[MnL(H_2O)_2]^+$ octahedra, with *trans*-coordinated water molecules, which are linked into infinite helices by hydrogen bonds. The distorted octahedral manganese(III) centre contains an $N_2O_2O'_2$ coordination sphere made up of the Schiff base ligand in the equatorial plane. In the axial direction, an elongation of the *trans* Mn–O_{water} bonds to 2.165(2) and 2.187(2) Å is observed. Such elongations are typical of d^4 systems but in this case may also be attributed to the poorer donor power of the water molecules.

Key words: Crystal Structures, Manganese(III) Complex, Schiff Base Ligand, Hydrogen Bond, Supramolecular Chemistry