



Syntheses, structures and magnetic properties of azido- and phenoxo-bridged complexes of manganese containing tridentate aroylhydrazone based ligands.

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Streszczenie

Five new compounds have been prepared by the reaction of $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ with aroylhydrazone in the presence of NaN_3 : $[\text{Mn}(\text{L}^1)(\text{N}_3)(\text{HOCH}_3)]_2$ (**1**), $[\text{Mn}(\text{L}^2)(\text{N}_3)(\text{HOCH}_3)]_2$ (**2**), $[\text{Mn}(\text{L}^3)(\text{N}_3)(\text{HOCH}_3)_{0.75}(\text{EtOH})_{0.25}]_2$ (**3**), $[\text{Mn}(\text{L}^4)(\text{N}_3)(\text{HOCH}_3)]_2$ (**4**) and $[\text{Mn}_2(\text{L}^2)_2(\text{HOCH}_3)_2]_n$ (**5**). ($\text{HL}^1 = (E)$ -3-hydroxy- N' -(1-(pyridin-2-yl)ethylidene)-2-naphthohydrazide, $\text{HL}^2 = (E)$ - N' -(phenyl(pyridin-2-yl)methylene)furan-2-carbohydrazide, $\text{H}_2\text{L}^3 = (Z)$ - N' -(4-oxo-4-phenylbut-2-en-2-yl)isonicotinohydrazide, $\text{H}_2\text{L}^4 = (E)$ - N' -(5-bromo-2-hydroxybenzylidene)isonicotinohydrazide). In absence of NaN_3 the mononuclear complex $[\text{Mn}(\text{H}_2\text{L}^5)_2(\text{EtOH})_2\text{Cl}_2]$ (**6**) was obtained by the reaction of $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ and H_2L^5 ((E)- N' -(2-hydroxy-3-methoxybenzylidene)isonicotinohydrazide). All the compounds have been characterized by elemental analyses, IR spectra, single crystal X-ray diffraction and magnetic susceptibility measurements. Compound **6** exhibits mononuclear structure, **1–4** dinuclear structure whereas complex **5** yields two-dimensional sheets parallel to the (1 0 0) plane in which the deprotonated H_2L^4 act as bridging ligand. The magnetic study reveals dominating antiferromagnetic interactions in **1** and **5** whereas the ferromagnetic coupling dominates in **2–4**. The magnetic properties are interpreted in terms of the electronic structure of the Mn ions and structural parameters.

Słowa kluczowe

Dinuclear Mn complexes, Magnetic behavior, azide, coordination polymer, hydrazones

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