

Syntheses, crystal structures and magnetic studies of new 2D coordination polymers containing dinuclear manganese(II) repetitive units using a ditopic isonicotinhydrazone based *N,N,O*-donor ligand.

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Three new complexes of manganese(II) with pseudohalide anions and (*E*)-*N'*-(phenyl(pyridin-2-yl)methylene)isonicotinhydrazide (HL), namely a 2D polymer with azide bridged dinuclear unit $[\text{Mn}_2(\text{L})_2(\mu\text{-N}_3)_2]_n$ (**1**), a 2D coordination polymer $[\text{Mn}_2(\text{L})_2(\text{NCS})_2]_n$ (**2a**) and a monomeric $[\text{Mn}(\text{HL})(\text{NCS})_2(\text{OHCH}_3)]$ (**2b**), were synthesized and characterized by elemental analyses and spectroscopic methods. The structures were established by X-ray diffraction, and further studied by magnetic susceptibility measurements. The isonicotinhydrazide ligand acts as a mononegative tetradentate N_3O -donor ligand and coordinates to the manganese center in the enolic form ($\text{N}=\text{NC}=\text{O}$) in **1** and **2a** while in complex **2b** coordinates as NNO-donor tridentate neutral ligand in keto form ($\text{N}=\text{NH}-\text{CO}$). Two bridging azide ligands connect the two metal centers in an end-on (EO) fashion in **1**. For complex **2a** the enolic oxygen of the hydrazone moiety spans two metal centers to form a dinuclear unit containing Mn_2O_2 four-membered planar ring. Magnetic measurements revealed antiferromagnetic coupling inside the dimers for **1** and ferromagnetic coupling for **2a**.

Słowa kluczowe

Hydrazone ligands, Magnetic behavior, 2D coordination polymers, X-ray crystal structures, Manganese complexes

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