

## Pseudohalide manganese(II) complexes of 2-hydroxymethylbenzimidazole - synthesis, spectroscopy, X-ray structure and magnetic properties.

### Autorzy

Joanna Palion-Gazda

Barbara Machura

T. Klemens

Julia Kłak

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### Streszczenie

Three new manganese(II) complexes of 2-hydroxymethylbenzimidazole  $[\text{Mn}(\text{hmbzim})_2(\text{NCS})_2]$  (**1**),  $[\text{Mn}_2(\text{hmbzim})_4(\mu_{1,1}\text{-N}_3)_2](\text{NO}_3)_2$  (**2**) and  $[\text{Mn}(\text{hmbzim})_2(\text{dca})_2]_n$  (**3**) were synthesized and characterised. On the basis of structural data, the influence of pseudohalide ions on a final complex structure and role of weak intermolecular interactions in creation of molecular architecture have been discussed. The structure **1** consists of the mononuclear molecules  $[\text{Mn}(\text{hmbzim})_2(\text{NCS})_2]$  assembled via O–H $\cdots$ S and N–H $\cdots$ S hydrogen bonds into three dimensional supramolecular network. The reaction with using of sodium azide resulted in formation of 0D dimeric structure of **2**, whereas the complex **3** incorporating dicyanamide ions displays two-dimensional coordination framework. Magnetic measurements revealed ferromagnetic coupling ( $J = 0.82(1) \text{ cm}^{-1}$ ) inside the dimer of **2** and weak antiferromagnetic coupling ( $J = -0.37(1) \text{ cm}^{-1}$ ) in 2D lattice of **3**. The complex **1** indicated a very small antiferromagnetic interaction between  $\text{Mn}^{\text{II}}$  ions transmitted in the crystal lattice.

### Słowa kluczowe

Manganese(II) complexes, Pseudohalide ligands, 2-Hydroxymethylbenzimidazole, X-ray, Magnetic properties

### Adres publiczny

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