New Fe(II) complexes with Schiff base ligand : synthesis, spectral characterization, magnetic studies and thermal stability.

Autorzy

Marta A. Fik

Marta Löffler

Marek Weselski

Maciej Kubicki

Maria J. Korabik

Violetta Patroniak

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Streszczenie

New ligand (Z)-2-(1-methyl-2-(pyridine-2-ylmethylene)hydrazinyl)benzoxazole (**L**) reacts with Fe(II) ions what results in formation of mononuclear complexes of 2:1 stoichiometry (complexes **1** and **2**), which crystallize in the rare space group Ia–3d (No. 230) with solvent–acetonitrile–molecules in the crystal structure. Obtained complexes were studied in terms of their properties in the solid state concerning thermal stability and magnetism. N_3-donor Schiff base type **L** is a strong crystal field ligand, therefore both obtained Fe(II) complexes are diamagnetic at room temperature what has been confirmed by magnetic susceptibility measurements and Mössbauer spectroscopy. However, the reversible LS ($^1A_1$) ↔ HS ($^5T_2$) spin-transitions may be observed starting above room temperature, remaining incomplete even up to 400 K. The thermal stability and electronic reflectance spectra of complexes were determined as well.

Słowa kluczowe

Coordination chemistry, Iron(II) complex, Schiff-base, Magnetism, Mossbauer spectroscopy

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