Ammonium *tris* oxalatoferrate(III) as a source of metalloligand in direct synthesis of Cu/Fe coordination polymer.

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Streszczenie

It has been shown that one-pot reaction of copper powder, ammonium tris-oxalatoferrate(III) (NH4)3[Fe(C2O4)3]·3H2O as a source of metalloligand, and ethylenediamine (en) leads to the formation of heterobimetallic complex (NH4)[Cu(en)2Fe(C2O4)3]·2dmso (1). This complex has been characterised by elemental analysis, IR spectroscopy and single crystal X-ray crystallography. Crystal structure analysis reveals that 1 consists of [Cu(en)2Fe(C2O4)3]− anionic chains with regularly alternated [Cu(en)2]2+ and [Fe(C2O4)3]3− moieties. Magnetic susceptibility measurements indicate absence of a significant exchange interaction between the metal units. The polycrystalline X-band EPR spectrum of 1 exhibits broad line characteristic of Fe(III) centers, whereas the signals observed in EPR spectrum of frozen dmf solution of 1 are distinctly associated with zero field splitting in the spin states of rhombically distorted Fe(III) centers, non interacting with Cu(II) centers.

Słowa kluczowe

Direct synthesis, heterobimetallic complexes, copper, tris-oxalatoferrate(III), X-ray crystallography, X-band EPR

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