Synthesis, spectral and magnetic properties of two different 2-nitrobenzoatocopper(II) complexes containing*N*,*N*-diethylnicotinamide.

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Two structurally different complexes, $[Cu_2(2\text{-}NO_2Bz)_4(denia)_1]_n$ (**1**) and $[Cu(2\text{-}NO_2Bz)_2(denia)_2(H_2O)_2]$ (**2**), were prepared from the same reaction (where $2\text{-}NO_2Bz$ = 2-nitrobenzoate, denia = *N*,*N*-diethylnicotinamide) and they are reported together with $[Cu_2(2\text{-}NO_2Bz)_4(DMF)_2]$ (**3**) (DMF = *N*,*N*-dimethylformamide). The compounds under study were characterized by elemental analysis, electronic, IR and EPR spectra, magnetic measurements over the temperature range of 1.8–300 K and X-ray analysis. The molecular structure of (**1**) is polymeric, (**2**) is monomeric and (**3**) is dimeric. In the polymeric chain of (**1**), the denia molecules serve as bridges between dimeric $Cu_2(2\text{-}NO_2bz)_4$ units. Each Cu(II) atom has a square-pyramidal arrangement with different chromophores, Cu^1O_4O' and Cu^2O_4N. The Cu–Cu distances are 2.699(1) Å in the dimeric unit and 7.980(3) Å between the dimeric units. In (**2**) the Cu(II) atom has a tetragonal-bipyramidal environment $CuO_2N_2O'_2$. In (**3**) two Cu(II) atoms are bridged by four carboxylate groups of four $2\text{-}NO_2bz$ anions in a *syn–syn* arrangement which create a square base about each Cu(II) atom and an apical position is occupied by the O atom of a DMF molecule (CuO_4O'). The Cu–Cu distance of 2.633(1) Å is somewhat shorter than in (**1**). Spectral and magnetic data of the complexes are discussed with their structures.

Słowa kluczowe

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