Magnetic properties of dinuclear copper(II) complexes with a N6 pyridazine-derived ligand

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A new hexadentate ligand 3,6-bis[(6-methyl-2-pyridyl)(2-pyridyl)methyl]pyridazine (mbdpdz) was prepared by a condensation reaction of 3,6-dichloropyridazine and (6-methyl-2-pyridyl)(2-pyridyl)methyllithium, and the following binuclear copper(II) complexes were obtained: [Cu2(mbdpdz)Cl4] 1, [Cu2(mbdpdz)Br4] 2, [Cu2(mbdpdz)-Cl2(OH)]Cl 3 and [Cu2(mbdpdz)Br2(OH)]Br 4. The crystal and molecular structures of the two isomorphous complexes 3 and 4 are reported. Both complexes crystallize in the monoclinic system, space group C2/c, with eight formula units per unit cell. Complex 3: a = 28.364(3), b = 13.511(1), c = 16.858(1) Å, ? = 109.70(1)°. Complex 4: a = 28.528(5), b = 13.459(2), c = 17.348(3) Å, ? = 109.35(1)°. The copper centres in the binuclear cation in 3 and 4 have a square-pyramidal geometry, with a bridging hydroxide angle of 115.1(3) and 116.2(5)° respectively. The Cu?Cu distance was 3.251(2) Å in both binuclear complexes. These hydroxo-bridged complexes were obtained by refluxing