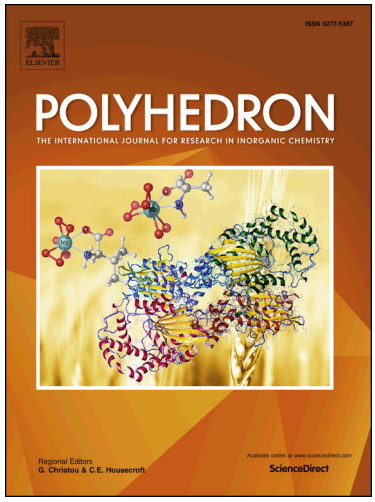

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Dedicated to Professor Spyros Perlepes, a great scientist and friend

ABSTRACT

A binuclear complex, $[Ni_2L_2(NO_3)(H_2O)(CH_3CN)]ClO_4\cdot CH_3CN$ (**1**), has been obtained using a Schiff-base ligand (HL) derived from *o*-vanillin and 4-(2-aminoethyl)morpholine. The crystal structure of **1** has been solved. Both Ni(II) ions are hexacoordinated, but they display different coordination spheres. The exchange interaction between the two nickel ions is antiferromagnetic (J = -7.9±0.2 cm^{-1}; $\boldsymbol{H} = -J\mathbf{S}_1\mathbf{S}_2$), in line with the DFT calculations. Compound **1** was tested as a catalyst in the epoxidation of various olefins. The reaction of the same ligand with a mixture of cobalt(II) perchlorate and nitrate affords a mononuclear Co(III) complex, $[CoL_2(H_2O)]ClO_4\cdot CH_3OH$ (**2**).

Keywords: nickel complexes; cobalt complexes; Schiff-base ligands; magnetic properties; catalysis