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Synthesis of vic-Dioxime Derivatives with Hydrazone Side Groups and Their Metal Complexes

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Abstract: Two novel vic-dioxime (L^1H_2, L^2H_2) compounds bearing hydrazone side groups and their transition metal complexes Ni(II), Co(II), Cu(II), and Zn(II) were synthesized. The vic-dioxime ligands bearing hydrazone side groups were synthesized by reacting anti-glyoximehydrazine (GH_2) with 4-nitroacetophenone and 4-methylacetophenenone, respectively. Ligands form mononuclear complexes $[(LH)_2M]$ with a metal to ligand ratio of 1:2 with M=Co(II)$(H_2O)_2$, Ni(II), and Cu(II). Zn(II) forms complexes $[(LH)(H_2O)(Cl)Zn]$ with a metal to ligand ratio of 1:1. The Co(II) complexes of the ligands are proposed to be octahedral with water molecules as axial ligands, the Ni(II) and Cu(II) complexes are proposed to be square planar, and the complexes of Zn(II) are tetrahedral. A chloride ion and a water molecule are also coordinated to the Zn(II) ion. Structural assignments are supported by a combination of ^{1}H-NMR, ^{13}C-NMR, HMQC, FT-IR, elemental analyses, and magnetic susceptibility.

Key Words: vic-Dioximes, hydrazone compounds, transition metal complexes

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