New complexes of Cu (II) with ligand 2,2-diphenylethyl oxamate: Synthesis and Characterization

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The design and synthesis of organic ligands capable of acting as a bridge between metal ions promoting the coupling of complex polynuclear with structures and predetermined properties are one of the biggest successes of molecular magnetism area. The use of oxamate ligand to obtain new synthesis compounds have shown optimum results in recent years.[1] In this work we obtained a new ligand 2,2-diphenylethyl oxamate (L) EtHL (**1**) and two new mononuclear precursors $(Me_4N)_2[CuL_2]$ (**2**) and $(Bu_4N)_2[CuL_2]$ (**3**) were characterized according to the usual techniques.

The ligand 1 was synthesized by direct condensation of ethyl oxalyl chloride with 2,2-diphenylethylamine in basic medium and THF under reflux for 3 h. The product was obtained as a white solid in 98% yield. For the synthesis of mononuclear complexes were used to stoichiometric ratio of 1:2 (metal:ligand). Compound **1** was characterized by IR-spectroscopy, NMR (^{1}H and ^{13}C), mass spectrometry and melting point. Since the complex **2** and **3** were characterized by IR-spectroscopy, melting point, and diffraction X-ray crystallography (**Figure 1).** Other complex characterization techniques are being carried out as elemental analysis. The variable-temperature measurements show Curie law behavior for **2**.

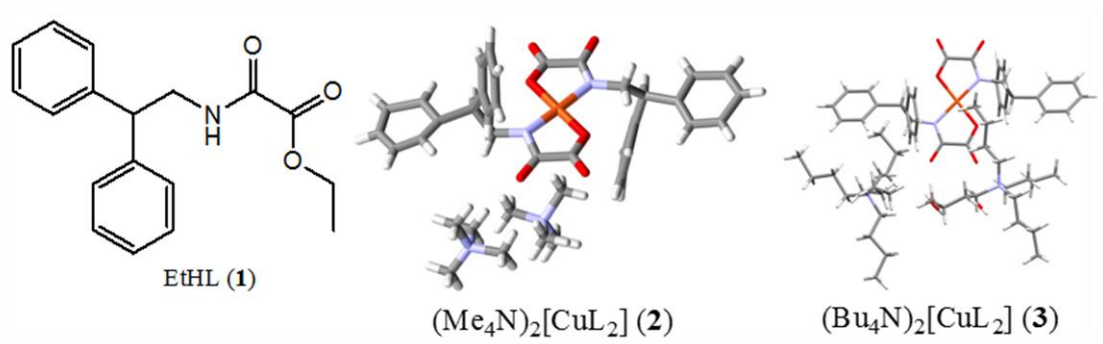

Figure 1. Ligand **1** and Complexes Structure **2** and **3.**

Initial analysis of the ligand **1** and **2** complex proved to be satisfied with the methodology used in the synthesis of these new compounds. As perspective intended to obtain the bi-metal complex 3d-4f in the form of single crystals for elucidation of their crystal structures and finally carries out a study of the magnetic properties of the compound.

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[1] Ferrando-Soria, J.; Pardo, E.; Ruiz-Garcia, R.; Cano, J.; Lloret, F.; Julve, M.; Journaux, Y.; Pasán, J.; Ruiz-Pérez, C.; Chem. Eur. J. 2011, 17, 2176.