INFLUENCE OF THE SUBSTITUENT IN THE CRYSTAL PACKING OF COPPER(II) MALONATES

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There are different strategies to design and prepare new molecular materials with interesting magnetic properties such as the introduction of a co-ligand, the combination of several metal centres or the modification of the primary ligand. In the course of the investigation of our research group in copper(II)-malonate complexes [1], we have developed a study of the influence of the introduction of a substituent in methylene carbon atom of the malonic acid in its coordination chemistry.

Considering the variety of crystal packing exhibited by the copper(II)-malonate system with water molecules as unique coligands [2], we have synthesized and characterized new copper(II)-phenylmalonate, -methylmalonate, -ethylmalonate, etc. complexes (Figure 1 and 2). The crystal structures of these compounds range from discrete molecules in the malonate-containing complexes to two-dimensional structures in the methyl- and ethylmalonate-copper(II) compounds.

Subtle changes in the crystal packing can lead to variations in the magnetic behaviour. The study of these changes and the influence of the substituents in the formation of a given structural motif are the main objectives of this work.

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References:

[1] J. Pasán, F. S. Delgado, Y. Rodríguez-Martín, M. Hernández-Molina, C. Ruiz-Pérez, J. Sanchiz, F. Lloret, M. Julve, *Polyhedron* **22**, (2003) 2143.

[2] C. Ruiz-Pérez, J. Sanchiz, M. Hernández-Molina, F. Lloret, M. Julve, *Inorg. Chem.* **39**, (2000) 1363.

Figures:

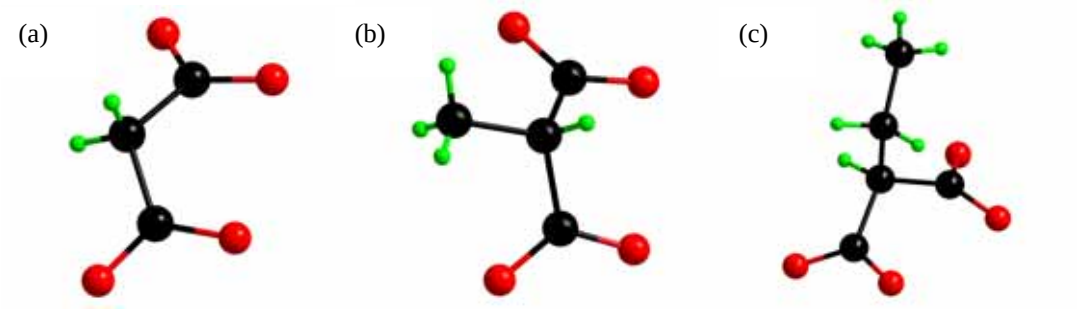

Figure 1. Malonate (a), Methylmalonte (b) and Ethylmalonate (c) ligands

Figure 2. Phenylmalonate ligand