

New copper(II) 1-D coordination polymer with hydrazone ligand: synthesis, crystal structure and spectroscopic analysis

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Metal complexes with hydrazone based ligands has a great interest of study due their different structure and broad pharmacological profile, acting such as antitumor, antioxidant and antibacterial agents.¹ We synthesized a new coordination polymer, [Cu(afih)₂]_n, with 2-acetylfuran-isonicotinoyl-hydrazone (Hafih) and Cu(C₅H₇O₂)₂, which had their molecular structure determined by single crystal X-ray diffraction. In the asymmetric unit of [Cu(afih)₂]_n complex, the copper(II) atom is coordinated to the two anionic ligands through the N-iminic and O-carbonyl atoms, and to one N-pyridil atom from another molecule of the ligand hydrazone, where the coordination polyhedra of the metal atom is distorted square pyramid. The bond between the N-pyridil and copper(II) atoms provides the formation of a 1-D coordination polymer, which is not so common for this class of ligands and gives some importance for the complex due his different design and possible applications.² The infrared and ultraviolet-visible spectroscopy analysis confirm the structure elucidated by X-ray diffraction studies for the coordination polymer synthesized. The structural evaluation of [Cu(afih)₂]_n allows the synthesis and study of similar complexes, with different metal ions and possibly various architectures.

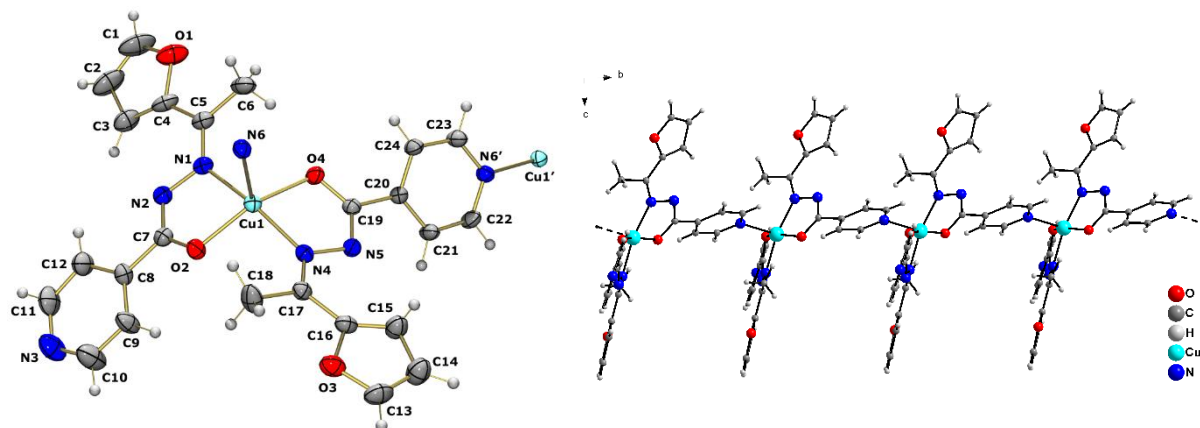


Figure 1. ORTEP projection of asymmetric unit of [Cu(afih)₂]_n (left) with displacement ellipsoids at the 30% probability level and the polymer chain representation of [Cu(afih)₂]_n view in the *a* axis (right).

¹Chang, H. Q.; Jia, L.; Xu, J.; Xu, Z. Q.; Chen, R. H.; Wu, W. N.; Bie, H. Y.; Zhu, T. F.; Ma, T. L.; Wang, Y.; *Inorg. Chem. Comm.*, **2015**, 57, 8.

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