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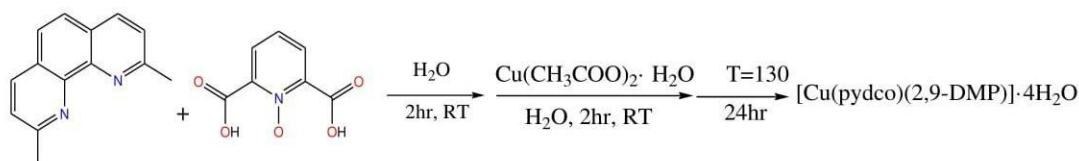
## Investigation of the coordination behavior of pyridine-2,6-dicarboxylic acid *N*-oxide and 2,9-dimethyl-1,10-phenanthroline toward copper ion

Maryam Bazargan and Masoud Mirzaei\*

Department of Chemistry, Ferdowsi University of Mashhad, Mashhad 917751436, Iran  
(E-mail: mirzaeesh@um.ac.ir)

### ABSTRACT

Nowadays, inorganic chemistry is an interesting field for many researches, by designing and constructing new compounds with favorable properties, which have fascinating applications ranging from nanotechnology, catalysis, macromolecular crystallography and medicine. As we know, *O*-donor ligands are of particular interest because they have significant medical property specially when they are connected to biologically important metals. Furthermore, heterocyclic *N*-donor  $\pi$ -electron-deficient ligands, with planarity, rigidity and hydrophobicity have numerous applications for example in supramolecular chemistry and luminescent sensors. Also, they can be used in molecular biology as DNA cleaving reagent in coordination compounds of the majority of *d* elements. The aim of the present study is the use of the mixed ligands to produce an organized structure possessing a combination of both properties. So we report the hydrothermally synthesis of a novel coordination complex with considered 1: 1: 1 molar ratios of pyridine-2,6-dicarboxylic acid *N*-oxide (H<sub>2</sub>pydco) as an organic *O*-donor ligand and 2,9-dimethyl-1,10-phenanthroline (2,9-DMP) as a powerful bidentate metal chelator and Cu(II) ion. The H<sub>2</sub>pydco ligand and the coordination complex were characterized by physico-chemical approaches such as elemental analysis (CHN) and FTIR spectroscopy. Based on our obtained data it may be formulated as [Cu(pydco)(2,9-DMP)]·4H<sub>2</sub>O.



**Keywords:** Mixed ligands, Pyridine-2,6-dicarboxylic acid *N*-oxide, 2,9-dimethyl-1,10-phenanthroline.

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