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# Synthesis and characterization of molecular-crystal structure of a coordination complex based on zinc and pyridine-2,5-dicarboxylic acid *N*-oxide

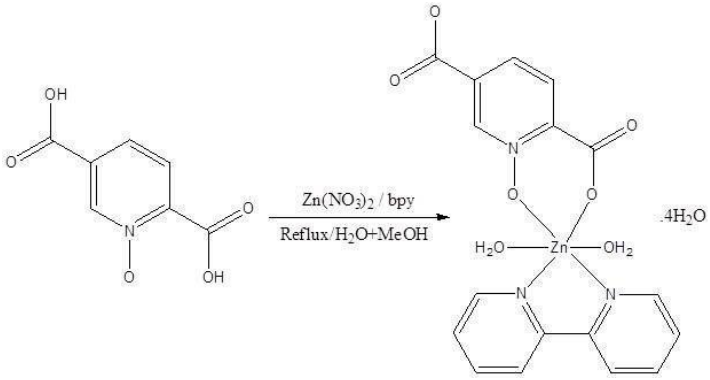
Hanie Alizadeh, Masoud Mirzaei*, Amir Sh. Saljooghi

*Department of Chemistry, Faculty of Science, Ferdowsi University of Mashhad, Mashhad 917751436, Iran*
*E-mail: mirzaeesh@um.ac.ir*

Chemistry of coordination compounds is an interesting and growing field of research; design and construction of novel compounds with favorable properties have fascinating applications ranging from nanotechnology, catalysis, macromolecular crystallography and medicine. *O*-donor ligands are of particular interest because their complexes with biologically important metals have potential medical applications. Furthermore, planar and rigid heterocyclic *N*-donor π-electron-deficient ligands, are widely used in supramolecular chemistry and/or in the molecular biology as DNA cleaving reagents and *etc*. The aim of the present study is to produce an organized structure possessing a combination of both properties using the mixed ligands.

In this work, we select pyridine-2,5-dicarboxyxlic acid *N*-oxide (pydco) as a versatile *O*-donor ligand with -COOH groups in a *p*-arrangement. It can be used to construct coordination polymers or link monomeric or dimeric compounds by hydrogen bonding through its uncoordinated carboxylate group at the position 5 [1-3]. Herein, we report successful preparation of a new coordination complex based on pydco, 2,2'-bipyridine (bpy) and zinc metal, which is characterized by physico-chemical approaches such as elemental analysis (CHN), IR spectroscopy and melting point. Based on our data it may be formulated as $[Zn(pydco)(bpy)(H_2O)_2]\cdot 4H_2O$. This category of complexes remains little-investigated in aspects such as single crystal X-ray diffraction, supramolecular interactions and biological tests; therefore we intend to extend our studies.

**Keywords:** Mixed ligands, pyridine-2,5-dicarboxylic acid *N*-oxide, 2,2'-bipyridine.

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