

Synthesis and characterization of a supramolecular structure bearing manganese(II) and pyridine-2,5-dicarboxylic acid *N*-oxide

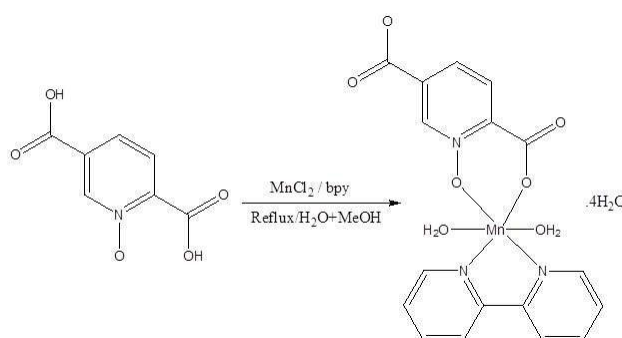
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Purposeful design and organization of molecular building blocks into extended architectures with specific dimensionalities and properties is an important goal for scientists. In fact, the idea of preparing designed crystals with desired properties is known as "crystal engineering" and since the 1990s, this field has been flourishing. Also, it would be wonderful if we could predict what the resulting reactivity patterns would be for a given set of donor atoms on a particular metal center. An important way to achieve this goal is to study the geometry of ligands as well as to examine their effects on the spatial arrangement of the crystal lattice. H₂pydco (isocinchomeric acid or pyridine-2,5-dicarboxylic acid *N*-oxide) is an appropriate candidate for construction of new metal-organic compounds through coordination to metal ions as well as simultaneous participation in non-covalent interactions (typically π -stacking interactions) that promote the dimensional architectures of the complex. It is well known that Mn complexes containing *N*-oxide family of ligands have been utilized as anti-HIV agents, gas adsorbents, luminescent agents, *etc* [1-3]. In this work, we report preparation of a new coordination complex based on pydco, 2,2'-bipyridine (bpy) and manganese metal. It is characterized by physico-chemical approaches such as elemental analysis (CHN), IR spectroscopy and melting point. Based on the obtained data it can be formulated as [Mn(pydco)(bpy)(H₂O)₂].4H₂O. Also, many aspects of this category of complexes such as single crystal X-ray diffraction, supramolecular interactions and biological tests are remain to be investigated; we plan to carry out this investigation in the future.

Keywords: crystalline engineering, pyridine-2,5-dicarboxylic acid *N*-oxide, isocinchomeric acid, 2,2'-bipyridine.



REFERENCES

- [1] A. Hassanpoor, M. Mirzaei, M. Niknam, A. Majcher, *Dalton Trans.*, 47, 13849-13860, 2018.
- [2] M. Mirzaei, H. Eshtiagh-Hosseini, M. Bazargan, F. Mehrzad, M. Shahbazi, J. T. Mague, A. Bauzá, and A. Frontera, *Inorg. Chim. Acta*, 438, 135-145, 2015.
- [3] M. Shahbazi, F. Mehrzad, M. Mirzaei, H. Eshtiagh-Hosseini, J. T. Mague, M. Ardalani, and M. Shamsipur, *Inorg. Chim. Acta*, 458, 84-96, 2017.