

Synthesis and characterization of a manganese(II) coordination complex based on highly pre-organized ligand of 1,10-phenanthroline-2,9-dicarboxylic acid

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The continuity of the searches for new materials with the higher performance than those used currently are necessary in order to satisfy daily improving technology. For this purpose, the sensible choice of suitable ligands with fixed geometry and flexible coordination capability plays a vital role for the design and synthesis of functional materials with interesting geometric configurations. In this respect, 1,10-phenanthroline as chelating nitrogen donor ligand has a rigid framework, and exhibits an excellent coordination ability with transition metal ions.¹⁻³ Additionally, pre-organized ligands have proven to be important in inorganic chemistry, biomedical, environmental, and industrial fields.⁴ In this work, we have synthesized a Mn(II) coordination compound by employing 1,10-phenanthroline-2,9-dicarboxylic acid (PDA) ligand, [Mn(PDA)(Cl)(H₂O)]·H₂O·EtOH (**1**) (Fig. 1). This complex has been characterized by melting point, elemental analysis and infrared spectroscopy. Finally, further experiments involving different pre-organized ligands and metal ions with complementary characterizations such as TGA and SXRD as well as high level DFT are in progress in our laboratory to obtain different supramolecular assemblies in order to have further insight into this type of coordination compounds. Continued efforts to explore the construction of novel functional hybrids base on POMs incorporating other new pyridinedicarboxylic acid and azide ligands are also underway.

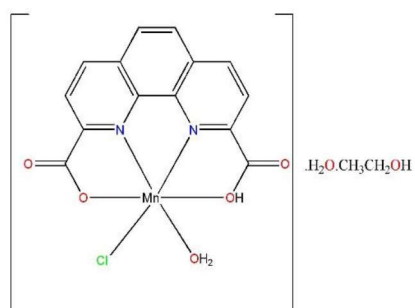


Fig. 1 The molecular structure of **1**.

References

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