Synthesis, spectroscopic characterization of a new coordination compound of Zn(II) atom and pyridine-2,5-dicarboxylic acid

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Recently, there has been extensive interest in preparing metal-organic frameworks (MOFs) which are constructed by metal ions and organic ligands, due to their intriguing molecular topologies and potential applications in ion exchange, fluorescence, and adsorption properties [1], gas storage and separation applications as well as in catalysis, gas-sensing, and photovoltaics [2]. The primary focus of contemporary crystal engineering, a sub-discipline of supramolecular chemistry, is the identification or design of molecular level building blocks (supramolecular synthons), whose interactions with other modular units [including self-complementary interaction(s)] exhibit some degree of predictability. A new complex of Zn(II) was synthesized and characterized by using elemental analysis, IR and ^{1}H NMR spectroscopies. According to the obtained results the chemical formula of the resulting complex is $[9\text{-aaH}][Zn(py\text{-}2,5\text{-dc})(py\text{-}2,5\text{-dcH})(H_2O)_2]\cdot 2H_2O$ (1) (py-2,5-dc = pyridine-2,5-dicarboxylate, 9-aaH = protonated 9-aminoacridine). In the title compound py-2,5-dc and py-2,5-dcH act as a bidentate ligand through oxygen atom of carboxylate group and N atom of pyridine aromatic ring as well as Two coordinative water molecules which are bounded to each Zn(II), giving a ZnN_2O_4 bonded set. It seems the coordination geometry around each Zn(II) centre is distorted octahedron.

Reference

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