

**A new mononuclear Co^{II} coordination compound using proton transfer methodology:
Synthesis, characterization, and X-ray crystal structure**

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A new Co^{II} proton transfer compound based on pyrazine-2,3-dicarboxylic acid has been synthesized and structurally characterized. The title compound (2a-6mpyH₂[Co(pyazdc)₂(H₂O)₂].8H₂O, was obtained by the reaction of CoCl₂.6H₂O with pyrazine-2,3-dicarboxylic acid and 2-amino-6-methylpyridine in aqueous solution (molar ratio 1:2:2). The Co^{II} ion is situated on an inversion centre and is coordinated by two O and two N atoms of two symmetry-related pyrazine-2,3-dicarboxylate ligands and two water molecules and has a distorted octahedral coordination environment. The asymmetric unit also contains four water molecules (Fig. 1). In the crystal structure, extensive intermolecular classical N–H...O, O–H...O and O–H...N hydrogen bonds and slipped or offset π - π stacking interactions [centroid-centroid distance = 3.490 (1) Å] connect the various components, forming a three-dimensional network. The water molecules in **1** can play an important role as gluing factor in the stabilization of supramolecular systems by creating divers H- bonds and resulted in the creation of six supramolecular synthons as $R^2_2(8)$, $R^3_4(10)$, $R^3_5(10)$, $R^4_5(15)$, $R^4_4(18)$, $R^4_4(26)$.

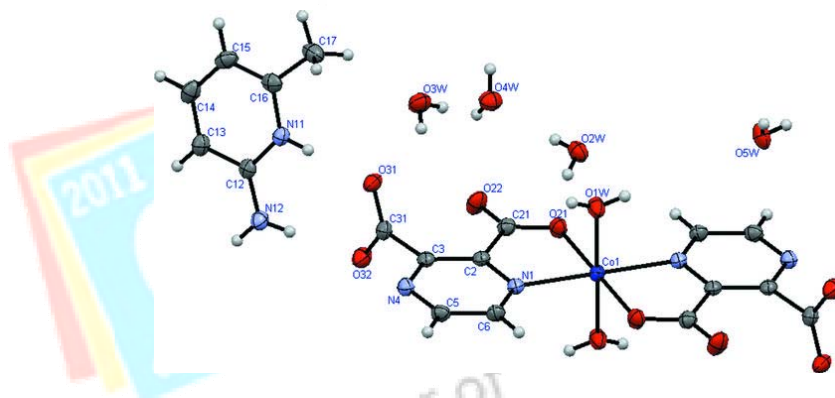


Fig. 1: An ORTEP drawing of the title compound showing 50% ellipsoid probability. Only the symmetry independent atoms are labeled.

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