Synthesis and Crystal Structure of bis(3,3',5,5'-tetramethyl benzidinium) bis(pyridine-2,6-dicarboxylato) nickelate(II) monohydrate

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Abstract: The compound of (H₄tm₅b)₂[Ni(pydc)₂]H₂O (I) (In that tm₅b and pydc are 3,3',5,5'-tetramethyl benzidine and pyridine-2,6-dicarboxylic acid, respectively) was synthesized via the proton transfer method and the structure was determined by single crystal X-ray diffraction. This compound crystallized in monoclinic crystal system and C2/c space group. In the asymmetry unit of compound 1, there are half molecule of the [Ni(pydc)₂]²⁻ anionic complex, one protonated molecule of 3,3',5,5'-tetramethyl benzidine as a counter ion and half of an uncoordinated water molecule. Extensive intermolecular N-H···O and O-H···N, hydrogen bonds along with π···π and C-H···π interactions contribute in self-assembly and formation of a novel supramolecular structure.

Keywords: Proton transfer compounds, pyridine-2,6-dicarboxylic acid, 3,3',5,5'-tetramethyl benzidine, crystallography, crystal structure.