A Rare Example of a Dinuclear Cobalt(II) Complex with Dipicolinate and Bridging 2-Aminopyrazine Ligands. Preparation, Structural, Spectroscopic and Thermal Characterization

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A dinuclear cobalt(II) complex, \([\text{Co}_2(\text{H}_2\text{O})_4(\text{dipic})_2(\mu-\text{apyz})]\) (dipic\textsubscript{H} = pyridine-2,6-dicarboxylic (dipicolinic) acid, apyz = 2-aminopyrazine) (I), has been hydrothermally synthesized and characterized by elemental analyses, spectroscopic methods (IR, UV/Vis), thermal analysis as well as by X-ray diffraction studies. The dinuclear complex is composed of two cobalt(II) ions bridged by a 2-aminopyrazine molecule. Each cobalt(II) ion is coordinated by one nitrogen and two oxygen atoms of the tridentate dipicolinate anion, one heterocyclic nitrogen atom of the 2-aminopyrazine and two oxygen atoms of coordinated water molecules. The resulting geometry for the CoN\textsubscript{2}O\textsubscript{4} coordination environment can be described as distorted octahedral. Various hydrogen bonds of the type O–H⋯O and N–H⋯O are also present in the crystal structure. This arrangement leads to the formation of a 3D structure.

\textit{Key words:} Cobalt, Dipicolinic Acid, 2-Aminopyrazine, Dinuclear Complex, X-Ray Diffraction