The Zinc Aqua Complex of a Tetrapodal Pentaamine Ligand and its Reactivity towards Carbon Dioxide

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In the context of derivatisation studies of the pentaamine ligand 2,6-C₅H₃N[CMe(CH₂NH₂)₂]₂
(2-(6-(1,3-diamino-2-methylpropan-2-yl)pyridin-2-yl)-2-methylpropane-1,3-diamine, 1), we explored its zinc(II) coordination chemistry. With ZnBr₂ in hot aqueous ethanol, in the absence of Lewis acid, the aqua complex [Zn(1)(H₂O)]Br₂ (2) is obtained, in which the pentaamine ligand acts as a square-pyramidal coordination cap. Single crystal structure data for the dihydrate of 2 are reported. In methanol solution, the complex is reactive towards carbon dioxide, and spectroscopic data (IR, ¹³C NMR) indicate the reversible formation of the dinuclear methyl carbonate complex [(Zn(1))₂(µ₂-η¹-O,η¹-O)₂COCH₃)]Br₃.

Key words: Tetrapodal Pentadentate Ligand, Zinc, Aqua Complex, Carbon Dioxide Fixation