Synthesis and Structural Characterization of a Tetranuclear Zinc(II) Complex with *P,P′*-Diphenylmethylenediphosphinate (pcp) and 2,2′-Bipyridine (2,2′-bipy) Ligands

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A new tetranuclear complex of zinc(II) with *P, P′*-diphenylmethylenediphosphinate and 2, 2′-bipyridine ligands was synthesized. [(pcp)(2, 2′-bipy)Zn (μ_3-pcp)Zn (2, 2′-bipy)]$_2 \cdot 6H_2O$ was characterized by elemental analysis, IR spectroscopy, thermogravimetric analysis and X-ray diffractometry. The structure consists of tetranuclear complexes connected through water hydrogen-bonding interactions in corrugated 2D layers. Two crystallographically independent zinc ions are in a distorted five-coordinate environment, being surrounded by three oxygen atoms of phosphinate groups (from two pcp ligands) and by two bipy nitrogen donors. Of the two independent pcp anions the first one utilizes all of its oxygen donors to coordinate one metal as bidentate and two metal atoms as a monodentate ligand, whereas the second one is only bidentate for one metal atom.

Key words: Zinc(II), Tetranuclear Complex, Diphosphinate, 2,2′-Bipyridine, Inorganic-Organic Hybrid