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Mono-, di- and trinuclear complexes of bis(terpyridine) ligand: synthesis, crystal structures and magnetic properties.

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Application of Stille-coupling protocol allowed for synthesis of new bis(terpyridine) ligand **L** (6′,6″-(2-phenylpyrimidine-4,6-diyl)bis(6-methyl-2,2′-bipyridine)) which comprises two tridentate N-donor subunits, designed so as to exploit the formation of supramolecular architectures of different nuclearity. Further complexation, while maintaining reaction parameters unaltered, with the following salts: $CoCl_2$ (**1**), $Co(NO_3)_2$ (**2**), $Cu(NO_3)_2$ (**3**) and $Mn(ClO_4)_2$ (**4**) led to three different classes of compounds: mono-, di- and trinuclear species, the result of self-assembly being contingent on the choice of the metal ion as well as to its corresponding counterion. Single crystal structures of $[Co(\mathbf{L})Cl_2]$ (**1**), $[Co_2(\mathbf{L})(NO_3)_4](CH_3CN)_2$ (**2**), $[Cu_2(\mathbf{L})(NO_3)_4](CH_3CN)_2$ (**3**) and $[Mn_3(\mathbf{L})_2(H_2O)_2(CH_3CN)_4](ClO_4)_6{\cdot}2H_2O$ (**4**) are presented, together with description of their magnetic behavior. Delusively simple coordination compounds were found to self-assemble into interesting supramolecular architectures in the solid state: 1D pillar-like constituent arranged in the helical manner (**1**), sheets of isostructural **2** and **3**, hydrogen bonded zig-zag shaped chains (**4**). Magnetic susceptibility measurements made the determination of both antiferromagnetic interactions and metal ions′ multiplicity possible.

Słowa kluczowe

Cobal, Copper, Manganese, Magnetic properties, Self-assembly

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