

Publication

Single and Double-Stranded 1D-Coordination Polymers with 4'-(4-Alkyloxyphenyl)-3,2':6',3"-terpyridines and $\{\text{Cu}_2(\mu\text{-OAc})_4\}$ or $\{\text{Cu}_4(\mu_3\text{-OH})_2(\mu\text{-OAc})_2(\mu_3\text{-OAc})_2(\text{AcO-}\kappa\text{O})_2\}$ Motifs

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Five coordination polymers formed from combinations of copper(II) acetate and 4'-(4-alkyloxyphenyl)-3,2':6',3"-terpyridines with methoxy (1), n -butoxy (2), n -pentyloxy (3) and n -heptyloxy (4) substituents are reported. Reaction of 1 with $\text{Cu}(\text{OAc})_2\text{H}_2\text{O}$ leads to the 1D-polymer $[\text{Cu}_2(\mu\text{-OAc})_4(1)]_n$ in which $\{\text{Cu}_2(\mu\text{-OAc})_4\}$ paddle-wheel units are connected by ligands 1 , or $[\{\text{Cu}_4(\mu_3\text{-OH})_2(\mu\text{-OAc})_2(\mu_3\text{-OAc})_2(\text{AcO-}\kappa\text{O})_2(1)_2\} \cdot 2\text{MeOH}]_n$ in which centrosymmetric tetranuclear clusters link pairs of ligands 1 to give a double-stranded 1D-polymer. Layering solutions of $\text{Cu}(\text{OAc})_2\text{H}_2\text{O}$ (in MeOH) over 2 , 3 or 4 (in CHCl_3) leads to the assembly of the 1D-polymers $[2\{\text{Cu}_2(\mu\text{-OAc})_4(2)\} \cdot 1.25\text{MeOH}]_n$, $[\text{Cu}_2(\mu\text{-OAc})_4(3)]_n$ and $[\{\text{Cu}_2(\mu\text{-OAc})_4(4)\} \cdot 0.2\text{CHCl}_3]_n$. In all compounds, the 3,2':6',3"-tpy unit coordinates only through the outer pyridine rings, but the conformation of the 3,2':6',3"-tpy responds to changes in the length of the alkyloxy tails leading to changes in the conformation of the polymer backbone and in the packing of the chains in the crystal lattice in the chains featuring $\{\text{Cu}_2(\mu\text{-OAc})_4\}$ paddle-wheel linkers.

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