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Title:	Effect of the flexible chain length of a dimetal subunit on the formation of 1D coordination polymers to molecular rectangles.
Authors:	Gogia, Alisha (/jspui/browse?type=author&value=Gogia%2C+Alisha) Khullar, Sadhika (/jspui/browse?type=author&value=Khullar%2C+Sadhika) Alokananda, Chanda (/jspui/browse?type=author&value=Alokananda%2C+Chanda) Sanjay K., Mandal (/jspui/browse?type=author&value=Sanjay+K.%2C+Mandal)
Keywords:	1D coordination polymers molecular rectangles dimetal subunit
Issue Date:	2022
Publisher:	Royal Society of Chemistry
Citation:	Dalton Transactions, 51(46), 17711- 17723.
Abstract:	Utilizing the angular and rigid furan dicarboxylate (fdc2-) ion, a new series of four (1-4) metal-organic coordination networks (MOCNs) is synthesized in good yields through a one-pot self-assembly reaction in methanol under ambient conditions to demonstrate the effect of Cu ₂ dimetal subunits, connected by flexible polypyridyl bis(tridentate) ancillary ligands, tpxn, where x refers to the number of methylene groups connecting the alkyl nitrogen atoms in the ancillary ligands and is equal to 2, 4, 6, and 7. The solid-state molecular structures of 1-4 are determined by single-crystal X-ray diffraction. A change in the dimensionality of the resultant MOCN is observed from a 1D coordination polymer (CP) for 1, 2, and 3 to a molecular rectangle for 4. Furthermore, each unit of 4 contains one NaClO ₄ . Using electrospray ionization (ESI) mass spectrometry, their structural integrity in solution and their purity of existence as a single product are confirmed. Further characterization of 1-4 by FTIR and UV-vis (in solution and solid-state) spectroscopy, and FESEM and TEM is also reported. The presence of unsaturated metal centers in 1-4 provided an opportunity to compare their Lewis acid catalytic activities for the Knoevenagel condensation reaction of malononitrile with various aldehydes.
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