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Title:	Encapsulation of a Water Octamer Chain in a Chiral 2D Sheetlike Supramolecular Coordination Network Composed of Dinickel–Dicarboxylate Subunits
Authors:	Kumar, Navnita (/jspui/browse?type=author&value=Kumar%2C+Navnita) Mandal, S.K. (/jspui/browse?type=author&value=Mandal%2C+S.K.)
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Citation:	ACS Omega, 3(9), pp. 11062-11070
Abstract:	Four new chiral supramolecular coordination networks of Ni(II) of general formula $[\text{Ni}_2(\text{Hhissal})_2(\text{dicarboxylate})(\text{H}_2\text{O})_2] \cdot n\text{H}_2\text{O}$ (where Hhissal = histidinesalicylate; dicarboxylate = adipate; $n = 8$ for 1, succinate; $n = 4$ for 2, maleate; $n = 4$ for 3, fumarate; and $n = 6$ for 4) are reported. On the basis of the single-crystal X-ray study, an unprecedented zig-zag chain structure of water octamer encapsulated in 1 has been identified. The supramolecular network of the dimetal subunits is formed through hydrogen bonding interactions between the amine N–H of Hhissal and the oxygen atom of the coordinated water molecule of one subunit with the uncoordinated oxygen atom and the coordinated oxygen atom of the carboxylate group of Hhissal of the next subunit, respectively. The strength of hydrogen bonding within this water cluster (the range of $\text{O} \cdots \text{O}$ distances is 2.702–2.760 Å) is similar to that found in ice. These networks are further characterized by elemental analysis, IR spectroscopy, powder X-ray diffraction, polarimetry, UV–vis/diffuse reflectance and circular dichroism spectroscopy, and thermogravimetric analysis. A comparison of their properties indicates that these are isostructural with a variation of encapsulated water clusters.
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