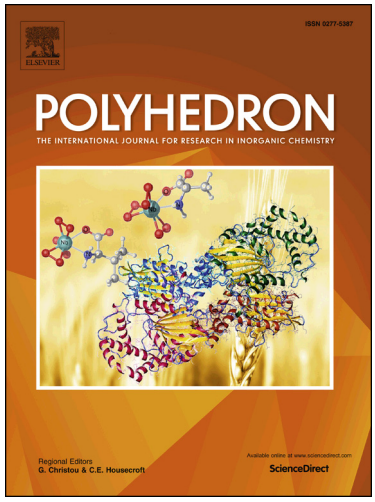

Inclusion of dihydroxyaromatics by a lanthanum(III) 2,6-dipicolinate complex

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Inclusion of dihydroxyaromatics by a lanthanum(III) 2,6-dipicolinate complex

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Abstract:

Lanthanum complexes possessing dihydroxyaromatic guests namely, $(H_2bpy)_{1.5}[La(26pdc)_3].2(cat).4H_2O$, $(H_2bpy)_3[La(26pdc)_3]_2.3(23dhn).19H_2O$, $(H_2bpy)_{1.5}[La(26pdc)_3].3(27dhn).10H_2O$ [26pdc = 2,6-pyridinedicarboxylate, bpy = 4,4'-bipyridine, cat = 1,2-dihydroxybenzene, 23dhn = 2,3-dihydroxynaphthalene, 27dhn = 2,7-dihydroxynaphthalene] are synthesized from 4,4´-bipyridinium lanthanum(III) tris-pyridinedicarboxylate and structurally characterized. Two different types of templates to accomodate hosts are found in these host-guest complexes. 1,2-Dihydroxybenzene molecules are held by template formed by interactions of a [tris-2,6-dipicolinate lanthanum(III)] anion with a 4,4'-bipyridinium cation; whereas dihydroxynaphthalene molecules are held by templates formed between two complex anions interacting with one 4,4'-bipyridinium cation. Complexes **1** and **2** are fluorescent in solid state; whereas dihydroxyaromatic guest included complexes **3-5** are non-fluorescent in solid state. However, in solution, complex **1** causes increase in fluorescence emission intensity of 1,2-hydroxyaromatic compounds and recognition of 1,2-dihydroxybenzene by complex **1** is significant.