

Accepted Manuscript

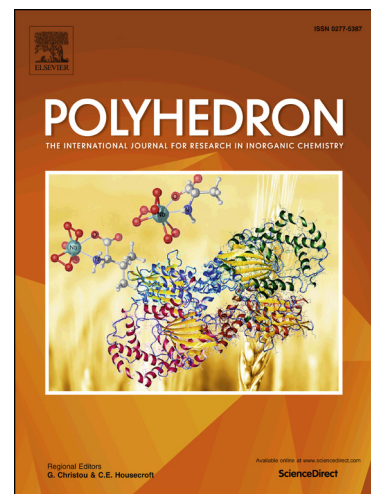
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PII: S0277-5387(17)30090-6
DOI: <http://dx.doi.org/10.1016/j.poly.2017.01.053>
Reference: POLY 12457

To appear in: *Polyhedron*

Received Date: 23 December 2016
Revised Date: 28 January 2017
Accepted Date: 29 January 2017



Please cite this article as: K. Shankar, J.B. Baruah, Inclusion of dihydroxyaromatics by a lanthanum(III) 2,6-dipicolinate complex, *Polyhedron* (2017), doi: <http://dx.doi.org/10.1016/j.poly.2017.01.053>

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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, $(\text{H}_2\text{bpy})_{1.5}[\text{La}(\text{26pdc})_3] \cdot 2(\text{cat}) \cdot 4\text{H}_2\text{O}$, $(\text{H}_2\text{bpy})_3[\text{La}(\text{26pdc})_3]_2 \cdot 3(23\text{dhn}) \cdot 19\text{H}_2\text{O}$, $(\text{H}_2\text{bpy})_{1.5}[\text{La}(\text{26pdc})_3] \cdot 3(27\text{dhn}) \cdot 10\text{H}_2\text{O}$ [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 accommodate 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.

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