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Thiocyanate mediated structural diversity in phenol based “end-off” compartmental ligand complexes of group 12 metal ions: Studies on their photophysical properties and phosphatase like activity

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ABSTRACT

The reaction of a pentadentate compartmental ligand LH, namely 4-*tert*-Butyl-2,6-bis-[(2-pyridin-2-yl-ethylimino)-methyl]-phenol, with group 12 metal ions (Zn^{II} , Cd^{II} , Hg^{II}) followed by addition of NaSCN afforded one discrete dinuclear complex $[Zn_2(L)(SCN)_3]$ (**1**), and two polymeric 1D species $[Cd_{2.5}(L)(SCN)_3(AcO)]_n$ (**2**) and $[Hg_2(L)(SCN)_3]_n$ (**3**). All the complexes have been structurally characterized by single crystal X-ray diffraction. The crystal structure of the complexes reveals different coordination modes of thiocyanate anion that affect the different topology detected in the compounds: the anions are μ^1 -NCS and $\mu^{1,1}$ -NCS connected in complex **1**, while $\mu^{1,3}$ -NCS bridging mode is observed in **2**, and μ^1 -SCN and $\mu^{1,3}$ -NCS in **3**. The polymeric

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