Three new pseudohalide bridged dinuclear Zn(II) Schiff base complexes: Synthesis, crystal structures and fluorescence studies

Basak, Subhra

Sen, Soma

Banerjee, Sambuddha

Mitra, Samiran

Rosair, Georgina

Rodriguez, M. T.Garland

Three new dinuclear Zn(II) complexes [Zn(L)(?1,1-N3)Zn(L)(N3)] · 1.5H2O (1), [Zn(L)(?1,1-NCO)Zn(L)(NCO)] · 1.5H2O (2) and [Zn(L)(?1,1-NCS)Zn(L)(NCS)(OH2)] (3) have been synthesized from a potentially tetradentate N2O2-donor Schiff base ligand LH, [LH = (OCH3)(OH)C6H3CHN(CH2)2N(CH3)2], which is the condensation product of o-vanillin and 2-dimethylaminoethylamine. All the three complexes 1, 2 and 3 have been characterized by elemental analysis, IR and 1H NMR spectroscopy, TGA and fluorescence studies. Finally, their structures have been established by the single crystal X-ray diffraction method. Structural studies reveal that in complexes 1, 2 and 3 the two Zn(II) centers are held together by a ?2-phenolato oxygen atom and also by an end-on pseudohalide nitrogen (azide for 1; cyanate for 2; thiocyanate for 3) atom. Among the two deprotonated Schiff base ligands present in each complex, one acts as a tetradentate ligand (N2O2 donor set) while the other acts as a tridentate ligand (N2O don