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Priyanka Kundu, Prateeti Chakraborty, Jaydeep Adhikary, Tanmay Chattopadhyay, Roland C. Fischer, Franz A. Mautner, Debasis Das

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Influence of co-ligands in synthesis, photoluminescence behavior and catalytic activities of zinc complexes of 2-((E)-((pyridin-2-yl)methylimino)methyl)phenol

Priyanka Kundu^a, Prateeti Chakraborty^a, Jaydeep Adhikary^a, Tanmay Chattopadhyay^b, Roland C. Fischer^c, Franz A. Mautner^{c,*}, Debasis Das^{a,*}

^a Department of Chemistry, University of Calcutta, 92 A. P. C. Road, Kolkata 700009, India.

^b Department of Chemistry, Panchakot Mahavidyalaya, Sarbari, Purulia, Pin 723121, India.

^c Institut fuer Physikalische und Theoretische Chemie, Technische Universitaet Graz, 8010 Graz, Austria.

Corresponding authors. Tel.: +91 33 24837031; fax: +91 33 23519755.

E-mail address: dasdebasis2001@yahoo.com (D.Das)

ABSTRACT

Four new zinc(II) complexes of a tridentate Schiff base ligand 2-((E)-((pyridin-2-yl)methylimino)methyl)phenol (HL), namely [Zn₂L₂Cl₂] (**1**); [Zn₂L₂Br₂] (**2**); [ZnL(SCN)(MeOH)] (**3**) and [Zn₂L(OAc)₃(MeOH)] (**4**) have been synthesized with the view to investigate the role of co-ligands in controlling the structural diversity, photoluminescence property and catalytic activities. The complexes have been characterized through common physicochemical techniques as well as by X-ray single crystal structural analysis. All of them display interesting co-ligands mediated photoluminescence property the origin of which may be attributed due to ligand to metal charge transfer (LMCT) and the order of photoluminescence efficiency is **3**>**4**>**1**~**2**. Catecholase and phosphatase activities of the complexes have been investigated in DMF medium using 3,5-di-*tert*-butylcatechol (3,5-DTBC) and 4-nitrophenylphosphate as substrates respectively. Co-ligands have prominent role on phosphatase activity of the complexes where the order of activity in terms of *k*_{cat} value is **4**>**1**>**2**>**3**.

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