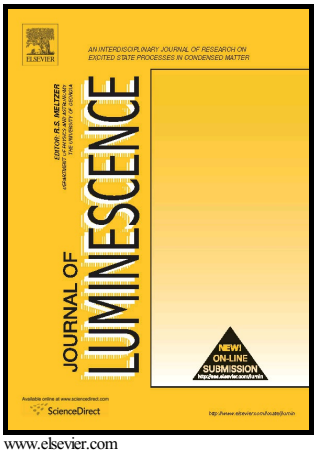

Solid state and solution photoluminescence properties of a novel *meso-meso*-linked porphyrin dimer Schiff base ligand and its metal complexes

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PII: S0022-2313(15)30040-5
DOI: http://dx.doi.org/10.1016/j.jlumin.2015.09.010
Reference: LUMIN13595

To appear in: *Journal of Luminescence*

Received date: 30 May 2015
Revised date: 3 September 2015
Accepted date: 9 September 2015

Cite this article as: Mehmet Tümer, S. Ali Güngör and A. Raşit Çiftaslan, Solic state and solution photoluminescence properties of a novel *meso-meso*-linke porphyrin dimer Schiff base ligand and its metal complexes, *Journal o Luminescence,* http://dx.doi.org/10.1016/j.jlumin.2015.09.010

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Abstract

We prepared novel *meso-meso* linked 4-bromo-2,6-bis[5-(4-iminophenyl)-10,15,20-triphenylporphyrin]phenol (HL) and its Cu(II), Fe(III), Mn(III), Pt(II) and Zn(II) transition metal complexes. Structural characterizations of the ligand (HL) and its metal complexes were done by the spectroscopic and analytical methods. The electronic absorption and photoluminescence spectra of the ligand, its metal complexes and the metal salts used for preparing of the complexes were investigated in the solid and solution state. The emission and excitation data of the $CuCl_2.2H_2O$ in both solid and the solution state were obsrved in the longest wavelenght. On the other hand, the emission value of the $ZnCl_2$ salt was shown at the shortest wavelenght. The emission values of the $[LCu_4Cl_3(H_2O)_2]H_2O$ and LPt_4Cl_3 complexes in the solid state are bigger than the other metal salts. The ligand and its metal complexes show the very interesting absorption spectral properties in the solid state. Metal complexes have less number Q bands in the solid state. The electrochemical properties of the ligand and its metal complexes were investigated and found that they show the reversible or irreversible redox processes at the different scan rates. Thermal properties of the compopunds were investigated in the 20-900 °C temperature range.

Keywords: Porphyrin, Schiff base, photoluminescence, electrochemistry, thermal, Uv-vis

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