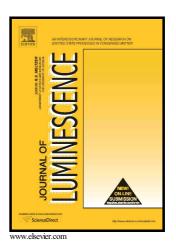
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Solid state and solution photoluminescence properties of a novel *meso-meso*-linked porphyrin dimer Schiff base ligand and its metal complexes

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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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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_{2.2}H₂O in both solid and the solution state were obsrved in the

longest wavelenght. On the other hand, the emission value of the ZnCl₂ salt was shown at the

shortest wavelenght. The emission values of the [LCu₄Cl₃(H₂O)₂]H₂O and LPt₄Cl₃ 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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