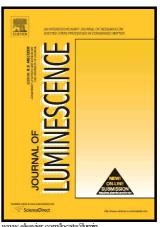
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M.Nilüfer Yaraşir, Ahmet Aytekin, Mehmet Kandaz, Orhan Güney



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Selective Recognition of Palladium Based on Functional Mono Phthalocyanines; Synthesis, Characterization and Photophysical Properties

M.Nilüfer Yaraşir^a, Ahmet Aytekin^a, Mehmet Kandaz^{a*}, Orhan Güney^b

^aDepartment of Chemistry, Sakarya University, TR54187 Serdivan, Sakarya, Turkey ^bIstanbul Technical University, Department of Chemistry, 34469 Maslak, Istanbul, Turkey

Abstract: We report the synthesis and photophysical properties of 4,5-bis(2-((Z)-(3-hydroxynaphthalen-2-yl)methyleneamino)phenylthio)phthalonitrile ligand (SB) and its startype functional zincphthalocyanine (SB-ZnPc) compound obtained by the condensation of 2,3, 9,10, 16, 17, 23, 24-octakis-(2-aminophenylthio)zincphthlocyanines (A-ZnPc) and 1-hydroxy-2-naphthaldehyde (HNA). Each compound was purified and characterized by elemental analysis, FTIR, ¹H NMR, ¹³C NMR, UV/Vis and MS (Maldi-TOF) spectral data. SB-ZnPc bearing fluorescent SB moieties on the periphery shows selective palladium ion sensing behavior by acting as hard core upon interaction. Electronic spectra of the SB-ZnPc displays pronounced changes in both absorption and fluorescence spectra upon interaction with Pd²⁺ ion. The fluorescence of the SB-ZnPc compound is effectively quenched by treatment with Pd²⁺ in THF solution. The solvent effect on the photophysical properties of the SB-ZnPc and interference effect of foreign metal ions were also investigated.

Keywords: Zinc phthalocyanine, Schiff base, Palladium sensor, Fluorescence quenching

* Corresponding authors. Tel: +90 264 295 60 42; fax: +90 264 295 59 50 (M. Kandaz),

E-mail addresses: mkandaz@sakarya.edu.tr (M. Kandaz)

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