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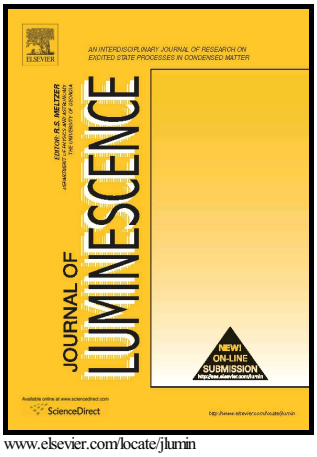

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Synthesis, characterization, photophysical, and photochemical properties of novel zinc(II) and indium(III) phthalocyanines containing 2-phenylphenoxy units

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ABSTRACT

The synthesis of highly soluble and non-aggregated peripherally/non-peripherally Zn and In(OAc) phthalocyanines was achieved by 3-/ and 4-(2-phenylphenoxy)phthalonitrile as starting materials. The novel compounds were characterized by elemental analyses, FT-IR, UV–vis and MALDI-TOF mass spectroscopic techniques. Additionally, photophysical, photochemical and spectral properties of the phthalocyanines were reported. Especially, the indium(OAc) phthalocyanines showed good singlet oxygen quantum yields in DMSO and they can be appropriate candidates as Type II photosensitizers in photodynamic therapy (PDT) applications.

Keywords: Phthalocyanine; 2-Phenylphenol; Photochemical; Photophysical; fluorescence; singlet-oxygen

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1. INTRODUCTION

Phthalocyanine (Pc) is a macrocyclic and tetramer molecule, which is a planar conjugated system of 18π electrons exhibiting aromatic behavior, formed of four isoindoline units. The particular electronic delocalization of the 18π system gives rise to outstanding electronic and unconventional physical properties, and high chemical and thermal stability. Due to the