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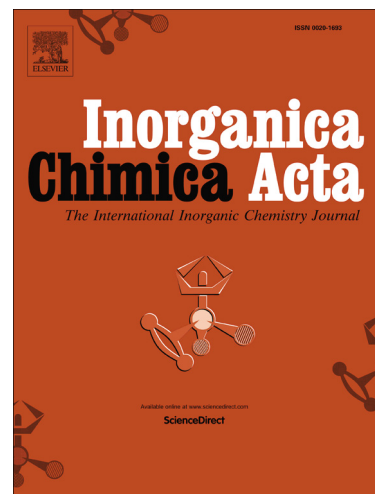
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**Synthesis and photophysicochemical properties of novel thiadiazole-substituted zinc (II), gallium (III) and silicon (IV) phthalocyanines for photodynamic therapy**

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**Abstract**

Peripherally electron withdrawing thiadiazole substituted phthalocyanine Zn(II), Ga(III) and axially disubstituted Si(IV) complexes have been synthesized for the first time. These new phthalocyanine compounds have been characterized by spectral methods such as FT-IR, <sup>1</sup>H-NMR, UV-vis spectra, Mass spectra and elemental analyses. In this study, the ground state electronic absorption spectra and the nature of the metal ion on the photophysical and photochemical parameters of the phthalocyanines are also presented. The closed shell and diamagnetic ions (Zn(II), Ga(III) and Si(IV)) gave high quantum yields of singlet oxygen ( $\Phi_{\Delta}$ , 0.49, 0.81 and 0.86 in DMSO), which makes them potential photosensitizer for use in photodynamic therapy (PDT) of cancer.

**Keywords:** Zinc, Gallium, Silicon, Phthalocyanine, Thiadiazole-substituted, Aggregation, Fluorescence, Singlet oxygen, High quantum yield.

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