

Author's Accepted Manuscript

Effect of gold nanoparticles shape and size on the photophysicochemical behaviour of symmetric and asymmetric zinc phthalocyanines

Edith Dube, Tebello Nyokong



PII: S0022-2313(18)31309-7
DOI: <https://doi.org/10.1016/j.jlumin.2018.09.063>
Reference: LUMIN15946

To appear in: *Journal of Luminescence*

Received date: 19 July 2018
Revised date: 10 September 2018
Accepted date: 28 September 2018

Cite this article as: Edith Dube and Tebello Nyokong, Effect of gold nanoparticles shape and size on the photophysicochemical behaviour of symmetric and asymmetric zinc phthalocyanines, *Journal of Luminescence*, <https://doi.org/10.1016/j.jlumin.2018.09.063>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Effect of gold nanoparticles shape and size on the photophysicochemical behaviour of symmetric and asymmetric zinc phthalocyanines

Edith Dube, Tebello Nyokong*

Center for Nanotechnology Innovation, Department of Chemistry, Rhodes University, Grahamstown 6140, South Africa

*Corresponding author. Tel: + 27 46 6038260; Fax: + 27 46 6225109. E-mail: t.nyokong@ru.ac.za. (T. Nyokong)

Abstract

Glutathione (GSH) capped Au nanotriangles (AuNTs-GSH) and nanospheres (AuNSs-GSH) are covalently linked to symmetric Zn phthalocyanine (ZnPc) substituted with phenoxy propanoic acid substituents only (complex **1**) and two asymmetric ZnPc, each containing one phenoxy propanoic acid and three benzothiazole phenoxy moieties (complex **2**), and one phenoxy propanoic acid and no other ligands (complex **3**). The photophysicochemical behaviour of Pc complexes and their conjugates were studied. All conjugates displayed improved triplet and singlet oxygen quantum yields with decreases in fluorescence quantum yields compared to their respective Pc complexes. The conjugates of asymmetric complexes **2** and **3**, afforded much higher triplet and singlet oxygen quantum yields compared to the symmetric complex **1**, and could serve as good candidates for photodynamic therapy.

Key words

gold nanotriangles, nanospheres, triplet quantum yield, zinc phthalocyanines, asymmetry

Download English Version:

<https://daneshyari.com/en/article/11001962>

Download Persian Version:

<https://daneshyari.com/article/11001962>

[Daneshyari.com](https://daneshyari.com)