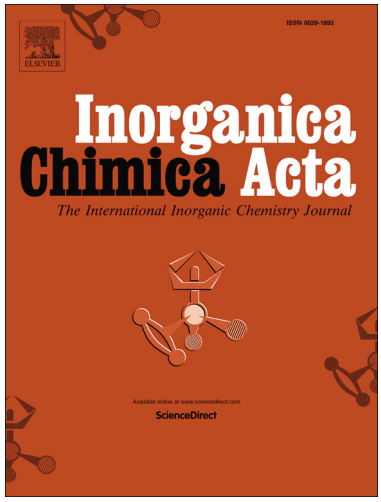
Accepted Manuscript



Research paper

Synthesis, Photophysicochemical and Photodynamic Antimicrobial Chemotherapy studies of indium pyridyl phthalocyanines: charge versus bridging atom

Azole Sindelo, Olawale L Osifeko, Tebello Nyokong

PII: S0020-1693(17)31542-6
DOI: https://doi.org/10.1016/j.ica.2018.02.020
Reference: ICA 18130

To appear in: *Inorganica Chimica Acta*

Received Date: 4 October 2017
Revised Date: 7 December 2017
Accepted Date: 17 February 2018

Please cite this article as: A. Sindelo, O.L. Osifeko, T. Nyokong, Synthesis, Photophysicochemical and Photodynamic Antimicrobial Chemotherapy studies of indium pyridyl phthalocyanines: charge versus bridging atom, *Inorganica Chimica Acta* (2018), doi: https://doi.org/10.1016/j.ica.2018.02.020

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 proof before it is published in its final 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.

ACCEPTED MANUSCRIPT

Synthesis, Photophysicochemical and Photodynamic Antimicrobial Chemotherapy studies of indium pyridyl phthalocyanines: charge versus bridging atom

Azole Sindelo, Olawale L Osifeko, and Tebello Nyokong*

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

Abstract

2(3), 9(10), 16(17), 23(24)-Octapyridylsulfanyl phthalocyaninato chloroindium(III) (complex **1a**) and its quaternized derivative 2(3), 9(10), 16(17), 23(24)-octamethylpyridylsulfanyl phthalocyaninato chloroindium (III) (complex **1b**) were synthesised. The triplet quantum yields were 0.53 and 0.48 while the singlet oxygen quantum yields were 0.46 and 0.33 in DMF for **1a** and **1b**, respectively. The photodynamic antimicrobial chemotherapy (PACT) activity of **1b** (containing 8 positive charges) was compared to those of 9(10),16(17),23(24)-tri-N-methyl-4-pyridylsulfanyl-2(3)-(4-aminophenoxy) phthalocyaninato chloro indium(III) triiodide (**2**) (containing 3 positive charges) and 2-[4-(N-Methylpyridyloxy) phthalocyaninato] chloroindium (III) iodide (**3**) (containing 4 positive charges). Complex **1b** gave log reductions of 4.21, 8.30 and 3.21 for Gram(-) *E. coli*, Gram(+) *S. aureus* and *C. albicans*, respectively. When comparing **1b**, **2** and **3**, the largest log reductions for *E. coli* were obtained for complex **3** containing four positive charges hence showing it is not always the charge that determines the PACT activity, but the bridging atom in the phthalocyanine plays a role.

Keywords: Indium phthalocyanine, Photodynamic antimicrobial therapy, *S.aureus, C.albicans, E.coli*

*Corresponding author. Tel: + 27 46 6038260; Fax: + 27 46 6225109.

Download English Version:

https://daneshyari.com/en/article/7750519

Download Persian Version:

https://daneshyari.com/article/7750519

Daneshyari.com