

2021 Publications

1. Balaji Babu, Thaslina Asraf Ali, Thivagar Ochappan, John Mack, Tebello Nyokong, Mathur Gopalakrishnan Sethuraman
Photocytotoxicity of heavy-atom-free thiobarbituric acid functionalized pyrene derivatives against MCF-7 cancer cells

Photodiagnosis and Photodynamic Therapy 33 (2021) 102102 (1-6)

DOI: 10.1016/j.pdpdt.2020.102102

<https://doi.org/10.1016/j.pdpdt.2020.102102>

2. Balaji Babu, Azole Sindelo, John Mack, Tebello Nyokong
Thien-2-yl substituted chlorins as photosensitizers for photodynamic therapy and photodynamic antimicrobial chemotherapy

Dyes and Pigments, 185 (2021) 10886 (1-8)

DOI: 10.1016/j.dyepig.2020.108886

<https://doi.org/10.1016/j.dyepig.2020.108886>

3. Sithi Mgidlana, Tebello Nyokong
Photocatalytic desulfurization of dibenzothiophene using asymmetrical zinc (II) phthalocyanines conjugated to silver-magnetic nanoparticles

Inorganica Chimica Acta 514 (2021) 119970 (1-12)

DOI: 10.1016/j.ica.2020.119970

<https://doi.org/10.1016/j.ica.2020.119970>

4. Sixolile Centane, Tebello Nyokong
The antibody assisted detection of HER2 on a cobalt porphyrin binuclear framework and gold functionalized graphene quantum dots modified electrode

Journal of Electroanalytical Chemistry 880 (2021) 114908 (1-12)

DOI: 10.1016/j.jelechem.2020.114908

<http://dx.doi.org/10.1016/j.jelechem.2020.114908>

5. L. Collen Makola, Tebello Nyokong, Edith K. Amuhaya
Impact of axial ligation on photophysical and photodynamic antimicrobial properties of indium (III) methylsulfanylphenyl porphyrin complexes linked to silver-capped copper ferrite magnetic nanoparticles

Polyhedron 193 (2021) 114882 (1-15)

DOI: 10.1016/j.poly.2020.114882

<https://doi.org/10.1016/j.poly.2020.114882>

6. Nkhahle, Reitumetse; Nyokong, Tebello
Creating the Ideal Push-Pull System for Electrocatalysis: A Comparative Study on Symmetrical and Asymmetrical Cardanol-based Cobalt Phthalocyanines

Electroanalysis (2021), 33, 11–22

DOI: 10.1002/elan.202060019

<https://doi.org/10.1002/elan.202060019>

7. Sivuyisiwe Mapukata, Jonathan Britton, Olawale L. Osifeko, Tebello Nyokong
The improved antibacterial efficiency of a zinc phthalocyanine when embedded on silver nanoparticle modified silica nanofibers

Photodiagnosis and Photodynamic Therapy 33 (2021) 102100 (1-11)

DOI: 10.1016/j.pdpdt.2020.102100

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8. Mingfeng Qin, , Zhen Zhang, Weihua Zhu, John Mack, Rodah C. Soy, Tebello Nyokong and Xu Liang
Modulation of the optical properties of chiral porphyrin dimers by introducing bridged chiral amide-bonds
Journal of Porphyrins and Phthalocyanines (2021), 25, 37-46
DOI: 10.1142/S1088424620500492
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9. Gugu Kubheka, Balaji Babu, Earl Prinsloo, Nagao Kobayashi, John Mack and Tebello Nyokong
Photodynamic activity of 2,6-dibrominated dimethylaminophenylbuta-1,3-dienylBODIPY dyes
Journal of Porphyrins and Phthalocyanines (2021), 25, 47-55
DOI: 10.1142/S1088424620500509
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10. Donovan M. Mafukidze , Tebello Nyokong
Photocatalytic and solar radiation harvesting potential of a free-base porphyrin-zinc (II) phthalocyanine heterodyad functionalized polystyrene polymer membrane for the degradation of 4-chlorophenol
Journal of Photochemistry & Photobiology, A: Chemistry 409 (2021) 113142 (1-14)
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11. Sithi Mgidlana, Nnamdi Nwahara, Tebello Nyokong
Photocatalytic desulfurization of dibenzothiophene using methoxy substituted asymmetrical zinc(II) phthalocyanines conjugated to metal tungstate nanomaterials
Polyhedron 197 (2021) 115053 (1-16)
DOI: 10.1016/j.poly.2021.115053
<https://doi.org/10.1016/j.poly.2021.115053>
12. Edith Dube, Rodah Soy, Munyaradzi Shumba, Tebello Nyokong
Photophysicochemical behaviour of phenoxy propanoic acid functionalised zinc phthalocyanines when grafted onto iron oxide and silica nanoparticles: Effects in photodynamic antimicrobial chemotherapy
Journal of Luminescence 234 (2021) 117939 (1-10)
DOI: 10.1016/j.jlumin.2021.117939
<https://doi.org/10.1016/j.jlumin.2021.117939>
13. Pinar Sen, Tebello Nyokong
Enhanced Photodynamic inactivation of Staphylococcus Aureus with Schiffbase substituted Zinc phthalocyanines through conjugation to silver nanoparticles
Journal of Molecular Structure 1232 (2021) 130012 (1-13)
DOI: 10.1016/j.molstruc.2021.130012
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14. Yolande Ikala Openda and Tebello Nyokong
Enhanced photo-ablation effect of positively charged phthalocyanines-detonation nanodiamonds nanoplatfoms for the suppression of *Staphylococcus aureus* and *Escherichia coli* planktonic cells and biofilms
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DOI: 10.1016/j.jphotochem.2021.113200
<https://doi.org/10.1016/j.jphotochem.2021.113200>

15. Balaji Babu, John Mack and Tebello Nyokong
Photodynamic activity of Sn(IV) tetrathien-2-ylchlorin against MCF-7 breast cancer cells
Dalton Transactions, **50 (2021) 2177–2182**
DOI: 10.1039/D0DT03958F
<https://doi.org/10.1039/D0DT03958F>
16. Lindokuhle Cindy Nene, Azole Sindelo, Jonathan Britton and Tebello Nyokong
Effect of ultrasonic frequency and power on the sonodynamic therapy activity of cationic Zn(II) phthalocyanines
Journal of Inorganic Biochemistry **217 (2021) 111397 (1-12)**
DOI: 10.1016/j.jinorgbio.2021.111397
<https://doi.org/10.1016/j.jinorgbio.2021.111397>
17. Balaji Babu, John Mack and Tebello Nyokong
Naked Eye and Colorimetric Detection of Cyanide with a 1,3-Diethyl-2-thiobarbituric Acid Substituted Ferrocene Chemosensor
Chemistry Select **6 (2021) 1448–1452**
DOI: 10.1002/slct.202100163
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18. Nnaji, Nnaemeka; Nwaji, Njemuwa; Mack, John; Nyokong, Tebello
Ball-type phthalocyanines and reduced graphene oxide nanoparticles as separate and combined corrosion inhibitors of aluminium in HCl
Journal of Molecular Structure (2021), 1236, 130279 (1-13)
DOI:10.1016/j.molstruc.2021.130279
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19. Babu, Balaji; Ochappan, Thivagar; Asraf Ali, Thaslima; Mack, John; Nyokong, Tebello; Gopalakrishnan Sethuraman, Mathur
Photodynamic activity and photoantimicrobial chemotherapy studies of ferrocene-substituted 2-thiobarbituric acid
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20. Ndebele, Nobuhle; Sen, Pinar; Nyokong, Tebello
Electrochemical detection of dopamine using phthalocyanine-nitrogen-doped graphene quantum dot conjugates
Journal of Electroanalytical Chemistry (2021), 886, 115111 (1-11)
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21. Openda Yolande I; Ngoy Bokolombe P; Nyokong Tebello
Photodynamic Antimicrobial Action of Asymmetrical Porphyrins Functionalized Silver-Detonation Nanodiamonds Nanoplatforms for the Suppression of Staphylococcus aureus Planktonic Cells and Biofilms
Frontiers in Chemistry (2021), 9, 628316 (1-17)
DOI: 10.3389/fchem.2021.628316
<https://doi.org/10.3389/fchem.2021.628316>
22. Nyokong Tebello; Ngoy Bokolombe P; Amuhaya Edith K
Overcoming hurdles facing researchers in Africa
Nature Materials (2021), 20, 570
DOI:10.1038/s41563-021- 00961-0

<https://doi.org/10.1038/s41563-021-00961-0>

23. Babu, Balaji; Mack, John; Nyokong, Tebello
A heavy-atom-free π -extended N-confused porphyrin as a photosensitizer for photodynamic therapy

New Journal of Chemistry (2021), 45(12), 5654-5658

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24. Nwahara, Nnamdi; Adeniyi, Omotayo; Mashazi, Philani; Nyokong, Tebello
Visible light responsive TiO₂ - graphene oxide nanosheets - Zn phthalocyanine ternary heterojunction assisted photoelectrocatalytic degradation of Orange G

Journal of Photochemistry and Photobiology, A: Chemistry (2021), 414, 113291 (1-15)

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25. Magadla, Aviwe; Babu, Balaji; Sen, Pinar; Nyokong, Tebello
The photophysicochemical properties and photodynamic therapy activity of Schiff base substituted phthalocyanines doped into silica nanoparticles and conjugated to folic acid

Polyhedron (2021), 203, 115227 (1-10)

DOI:10.1016/j.poly.2021.115227

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26. Şen, Pinar and Tebello, Nyokong
Promising photodynamic antimicrobial activity of polyimine substituted zinc phthalocyanine and its polycationic derivative when conjugated to nitrogen, sulfur, co-doped graphene quantum dots against *Staphylococcus aureus*

Photodiagnosis and Photodynamic Therapy (2021), 34, 102300 (1-13)

DOI: 10.1016/j.pdpdt.2021.102300

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27. Lekgowa Collen Makola, Sithi Mgidlana, Tebello Nyokong
Amphiphilic axially modified cationic indium-porphyrins linked to hydrophilic magnetic nanoparticles for photodynamic antimicrobial chemotherapy against gram-negative strain; *Escherichia coli*

Dyes and Pigments (2021), 192, 109262 (1-15)

DOI: 10.1016/j.dyepig.2021.109262

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28. Nxele, Siphesihle Robin; Nyokong, Tebello
The effects of the composition and structure of quantum dots combined with cobalt phthalocyanine and an aptamer on the electrochemical detection of prostate specific antigen

Dyes and Pigments (2021), 192, 109407 (1-14)

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The electrochemical detection of prostate specific antigen on glassy carbon electrode modified with combinations of graphene quantum dots, cobalt phthalocyanine and an aptamer

Journal of Inorganic Biochemistry(2021) 221, 111462 (1-11)

DOI: 10.1016/j.jinorgbio.2021.111462

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Synthesis of a near infrared-actuated phthalocyanine-lipid vesicle system for augmented photodynamic therapy

Synthetic Metals (2021), 278, 116811 (1-14)

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<https://doi.org/10.1016/j.synthmet.2021.116811>

31. Niu, Yingjie; Zhu, Weihua; Mack, John; Dubazana, Nadine; Nyokong, Tebello; Fu, Bo; Xu, Haijun; Liang, Xu

Push-pull type Co(III)corroles: Synthesis, electronic structure and electrochemical catalysis

Journal of Porphyrins and Phthalocyanines (2021) 25, 289-297

DOI:10.1142/s1088424621500279

<https://doi.org/10.1142/S1088424621500279>

32. Feng, Hongjie; Zhou, Zhikuan; May, Aviwe; Chen, Jiaying; Mack, John; Nyokong, Tebello; Gai, Lizhi; Lu, Hua

Disilane-Bridged Architectures with High Optical Transparency for Optical Limiting

Journal of Materials Chemistry C (2021) 9, 6470–6476

DOI:10.1039/d1tc01488a

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33. Sebastian Otieno, Anabel E. Lanterna, John Mack, Solomon Derese, Edith K. Amuhaya, Tebello Nyokong, Juan C. Scaiano

Solar Driven Photocatalytic Activity of Porphyrin Sensitized TiO₂: Experimental and Computational Studies

Molecules 2021, 26, 3131 (1-15)

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<https://doi.org/10.3390/molecules26113131>

34. Mapukata Sivuyisiwe; Sen Pinar; Osifeko Olawale L; Nyokong Tebello

The antibacterial and antifungal properties of neutral, octacationic and hexadecacationic Zn phthalocyanines when conjugated to silver nanoparticles

Photodiagnosis and photodynamic therapy (2021) 35, 102361 (1-11)

DOI: 10.1016/j.pdpdt.2021.102361

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35. Selvaraj Muthusamy, Long Zhao, Kanagaraj Rajalakshmi, Dongwei Zhu, Rodah Soy, John Mack, Tebello Nyokong, Shengjun Wang, Kang-Bong Lee, Weihua Zhu

Turn-on detection of cysteine by a donor-acceptor type quinoline fluorophore: Exploring the sensing strategy and performance in bioimaging

Dyes and Pigments (2021) 193, 109556 (1-10)

DOI: 10.1016/j.dyepig.2021.109556

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36. Nnaemeka Nnaji, Pinar Sen, Tebello Nyokong

Aluminum corrosion retardation properties of acetamidophenoxy phthalocyanines: effect of central metal

Journal of Molecular Structure (2021) 1242, 130806 (1-14)

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37. Keshavananda Prabhu C. P, Manjunatha Nemakal, Muthumuni Managa, Tebello Nyokong and Lokesh Koodlur Sannegowda
Symmetrically Substituted Zn and Al Phthalocyanines and Polymers for Photodynamic Therapy Application
Frontiers in Chemistry (2021), 9, 647331 (1-14)
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Asymmetrical zinc(II) phthalocyanines cobalt tungstate nanomaterial conjugates for photodegradation of methylene blue
Journal of Photochemistry and Photobiology A Chemistry (2021), 418, 113421 (1-14)
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Photodynamic antimicrobial activity of benzimidazole substituted phthalocyanine when conjugated to Nitrogen Doped Graphene Quantum Dots against *Staphylococcus aureus*
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Borneol-triarylcorrole hybrids with chiral-optical response and anticancer behaviours
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Enhanced upconversion emission of Er³⁺-Yb³⁺ co-doped Ba₅(PO₄)₃OH powder phosphor for application in photodynamic therapy
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Electrocatalytic Activity of Cobalt Phthalocyanines Revisited: Effect of the Number of Oxygen Atoms and Conjugation to Carbon Nanomaterials

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Folic acid-modified phthalocyanine-nanozyme loaded liposomes for targeted photodynamic therapy

Photodiagnosis and Photodynamic Therapy 102527 (1-11)

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47. Omotayo Adeniyi; Nnamdi Nwahara; Daniel Mwanza; Tebello Nyokong, Philani Mashazi
Nanohybrid electrocatalyst based on cobalt phthalocyanine-carbon nanotube-reduced graphene oxide for ultrasensitive detection of glucose in human saliva

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Solventless synthesis of nanospinel $\text{Ni}_{1-x}\text{Co}_x\text{Fe}_2\text{O}_4$ ($0 \leq x \leq 1$) solid solutions for efficient electrochemical water splitting and supercapacitance

RSC Advances (2021), 11, 31002-31014

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49. Jackline Khisa, Solomon Derese, John Mack, Edith Amuhaya and Tebello Nyokong
Synthesis, photophysical properties and photodynamic antimicrobial activity of *meso* 5,10,15,20-tetra(pyren-1-yl)porphyrin and its indium(III) complex

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Low temperature scalable synthetic approach enabling high bifunctional electrocatalytic performance of NiCo_2S_4 and CuCo_2S_4 thiospinels

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51. Openda, Yolande Ikala; Ngoy, Bokolombe Pitchou; Tshishimbi, Jules Muya; Nyokong, Tebello
Synthesis, theoretical calculations and laser flash photolysis studies of selected amphiphilic porphyrin derivatives used as biofilms photodegradative materials

New Journal of Chemistry 45 (2021) 17320 - 17331

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52. Siphesihle Robin Nxele, Reitumetse Nkhahle, Tebello Nyokong
The composites of asymmetric Co phthalocyanines-graphitic carbon nitride quantum dots-aptamer as specific electrochemical sensors for the detection of prostate specific antigen: Effects of ring substituents
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Electrocatalytic activity of manganese tetra 4-aminophenyl porphyrin in the presence of graphene quantum dots.
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Electrocatalytic activity of Schiff base containing copper phthalocyanines towards the detection of catechol: Effect of heteroatoms and asymmetry
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Journal of Nanoparticle Research (2021) **23**: 227 (1-18)
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Photo-sonodynamic combination activity of cationic morpholino-phthalocyanines conjugated to nitrogen and nitrogen-sulfur doped graphene quantum dots against mcf-7 breast cancer cell line *in vitro*
Photodiagnosis and Photodynamic Therapy **36** (2021) 102573 (1-11)
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Electrochemical Detection of Nitrite on Electrodes Modified by Click Chemistry Using Asymmetrical Co(II) and Mn(III) Phthalocyanines Containing Push-Pull Substituents

Journal of The Electrochemical Society 168 (2021) 117514 - Focus Issue on Women in Electrochemistry

DOI: 10.1149/1945-7111/ac377f

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Impedimetric aptasensor for HER2 biomarker using graphene quantum dots, polypyrrole and cobalt phthalocyanine modified electrodes

Sensing and Bio-Sensing Research 34 (2021) 100467 (1-10)

DOI: 10.1016/j.sbsr.2021.100467

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