



RHODES UNIVERSITY, GRAHAMSTOWN, SOUTH AFRICA

STUDENT INFORMATION



MS LINDOKUHLE NENE (POST-DOCTORAL FELLOW)

Supervisor: Distinguished Professor Tebello Nyokong

STUDENT DETAILS:

Surname: Nene

First Name: Lindokuhle

Title: Dr

Preferred Name: Lindo

Student Number: 2400081

CONTACT DETAILS:

Rhodes University, Department of Chemistry, P O Box 94, Grahamstown 6140, South Africa

Email: lindokuhle.nene@ru.ac.za

REGISTRATION DETAILS:

Academic Status: Post-Doctoral Fellow

Faculty: Science

Department: Chemistry

Degree: Post Doctoral Fellow

Academic Year: 2

Registration Status: Full Time

EDUCATION DETAILS:

PhD (Chemistry) 2023 - Rhodes University, Grahamstown, South Africa
MSc – with distinction (Chemistry) 2019 - Rhodes University, Grahamstown, South Africa
BSc Honours (Biochemistry) 2016 – Rhodes University, Grahamstown, South Africa
BSc (Chemistry, Biochemistry and Microbiology) 2015 – Rhodes University, Grahamstown, South Africa

RESEARCH PROJECT:

Synthesis of dual activity phthalocyanines for diagnostics and sonodynamic therapy of cancer.

PUBLICATIONS:

1. Oluwole, David O.; Nwaji, Njemuwa; Nene, Lindokuhle C.; Mokone, Lesedi; Dube, Edith; Nyokong, Tebello

Novel nano-dyad of homoleptic sandwich-type phthalocyanines with nitrogen doped graphene quantum dots for nonlinear optics

New Journal of Chemistry (2018), 42(12), 10124-10133

DOI:10.1039/c8nj01707g

<http://pubs.rsc.org/en/content/articlehtml/2018/nj/c8nj01707g>

2. Nene, L.C., Managa, M.E., Oluwole, D.O., Mafukidze, D.M., Sindelo, A. and Nyokong, T.

The photo-physicochemical properties and in vitro photodynamic therapy activity of differently substituted- zinc (II)-phthalocyanines and graphene quantum dots conjugates on MCF7 breast cancer cell line

Inorganica Chimica Acta (2019), 488, 304-311

DOI:10.1016/j.ica.2019.01.012

<https://doi.org/10.1016/j.ica.2019.01.012>

3. Nene, Lindokuhle C.; Managa, Muthumuni; Nyokong, Tebello

Photo-physicochemical properties and in vitro photodynamic therapy activity of morpholine-substituted Zinc(II)-Phthalocyanines p-p stacked on biotinylated graphene quantum dots

Dyes and Pigments (2019), 165, 488-498

DOI:10.1016/j.dyepig.2019.03.002

<https://doi.org/10.1016/j.dyepig.2019.03.002>

4. 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>

5. Lindokuhle Cindy Nene, Tebello Nyokong
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)**

DOI: 10.1016/j.pdpdt.2021.102573

<https://doi.org/10.1016/j.pdpdt.2021.102573>

6. Lindokuhle Cindy Nene, K. Buthelezi, E. Prinsloo and Tebello Nyokong
The In Vitro Photo-Sonodynamic Combinatorial Therapy Activity of Cationic and Zwitterionic Phthalocyanines on MCF-7 and HeLa Cancer Cell Lines

J. Photochem Photobiol. A: Chem. **432, 114116, 2022.**

<https://doi.org/10.1016/j.jphotochem.2022.114116>

7. Lindokuhle Cindy Nene, A. Magadla and Tebello Nyokong
Enhanced Mitochondria Destruction on MCF-7 and HeLa Cell Lines In Vitro Using Triphenyl-phosphonium-Labelled Phthalocyanines in Ultrasound-Assisted Photodynamic Therapy Activity

J. Photochem. Photobiol. B. Biology, **235, 112553, 2022.**

<https://doi.org/10.1016/j.jphotobiol.2022.112553>

8. Lindokuhle Cindy Nene and Tebello Nyokong
The Synthesis and Enhancement of the In Vitro Anticancer Photo-Sonodynamic Combination Therapy Activity of Cationic Thiazole Phthalocyanines using Gold and Silver Nanoparticles

J. Photochem and Photobiol. A: Chem. **435, 114339, 2022.**

<https://doi.org/10.1016/j.jphotochem.2022.114339>

9. Lindokuhle Cindy Nene and Heidi Abrahamse
Design Consideration of Phthalocyanines as Sensitizers for Enhanced Sono-Photodynamic Combinatorial Therapy.

Acta Pharmaceutica Sinica B. **14, 1077-1097. 2023**

<https://doi.org/10.1016/j.apsb.2023.11.030>

10. Lindokuhle Cindy Nene and Heidi Abrahamse
Phthalocyanine-based probes in alleviating or evading tumour-hypoxia for enhanced photo- and sono-mediated therapeutic efficacies.

Photodiagnosis and Photodynamic Therapy. **46, 104024, 2024.**

<https://doi.org/10.1016/j.pdpdt.2024.104024>

11. Lindokuhle Cindy Nene, Nkune Williams Nkune and Heidi Abrahamse
Anticancer photodynamic activities of triphenylphosphine-labelled phthalocyanines and their bovine serum albumin-gold nanoparticles- complexes on melanoma A375 cell lines in vitro.

Journal of Inorganic Biochemistry. **256, 112570, 2024.**

<https://doi.org/10.1016/j.jinorgbio.2024.112570>

AWARDS/OTHER ACHIEVEMENTS:

1. 2019 - Awarded the South African Women in Science Awards: DST-Albertina Sisulu Fellowship
2. 2019 - Member of "Team E-Smart" which consists of four Chemistry PhD students from Rhodes University. The team won the Hult Prize Regional Summit hosted in Brookhouse international school in Nairobi, Kenya.

The 46 participating teams in the Nairobi summits were from 16 countries including Germany, Brazil, Kenya, Iraq, USA (Massachusetts), Jordan, London, Nigeria, Austria, Chad, Tunis and others, were Team E-Smart (represented South Africa) came out 1st (selected by a panel of 12 Judges).

The Hult Prize was established in 2010 by Ahmad Ashkar and Bertil Hult, and is an annual, year-long competition that crowd-sources ideas from MBA and college students after challenging them to solve a pressing social issue around topics such as food security, water access, energy, and education.

3. Featured in a youtube video that shares what it's like working in Rhodes University's top-rated nanotech labs under internationally renowned Prof Tebello Nyokong.

https://www.youtube.com/watch?v=8F6SmyhB_2U

4. Rhodes University 3 Minute thesis overall winner. Rhodes University three-minute thesis representative at the SANORD International Conference in Norway, 2023.

Talk Title: The power of sound for cancer treatment.

<https://sanord.uwc.ac.za/news/3-minute-thesis-early-career-researchers/>

Conferences

International Conference on Porphyrins and Phthalocyanine (2022)

Oral Presentation

Title: Photo-Sonodynamic Combination Activity of Morpholino-Phthalocyanines Conjugated to Graphene Quantum Dots Against the MCF-7 Breast Cancer Cell Line

Optics and Photonics Africa (OPA) 2023, International

Poster Presentation

Title: Preparation and In Vitro Evaluation of the Anticancer Photodynamic Therapy Efficacies of Carboxyphenoxy Zinc Phthalocyanine and their Triphenylphosphine-Labelled Gold Nanoparticle Conjugates.

Southern African and Nordic Centre Conference (SANORD) 2023, International

Title: The Power of Sound for Cancer Therapy (Three minute thesis), Oral Presentation

OVERSEAS TRAVEL:

Shinshu University, Ueda, Japan

1 Sept to 31 Oct 2017

Research Collaboration (NRF SA/Japan) – Exchange students

Ecole Nationale Supérieure de Chimie de Paris, Paris, France

1 Feb 2018 – 31 July 2018
MSc Exchange Student