

ELIZABETH OKOTH

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EDUCATION

Ph.D. Organic Chemistry 2017

Louisiana State University, Baton Rouge, LA

Dissertation: Synthesis, Characterization and Biological Evaluation of Monoisomeric Zinc Phthalocyanines for Imaging and Photodynamic Therapy.

Advisor: Prof. Graça Vicente

B.S. Chemistry with minor in Botany (Second Upper Honors) 2007

Moi University, Eldoret, Kenya

Thesis: Evaluation of aspirin content in over-the-counter analgesics in Kenya.

PROFESSIONAL EXPERIENCE

TEACHING EXPERIENCE:

Assistant Professor of Chemistry

Shorther University – Rome, GA 2020-2021

- Biochemistry I & II and laboratory class
- General Chemistry I & II and laboratory classes
- Nursing Chemistry and laboratory class
- Scientific Literacy
- Supervise honors research student

Adjunct Instructor

Mercer University – Atlanta, GA 2020-2021

- Organic Chemistry

Visiting Assistant Professor of Chemistry

State University of New York – Cortland, NY 2018-2019

- Organic chemistry I lecture and laboratory class
- General Chemistry I & II
- Prepared material for peer-led team learning

Associate Adjunct Professor

Richland College – Dallas Community College District, Dallas, TX 01/2018-08/2018

- Organic chemistry I lecture and laboratory class

Associate Adjunct Professor

Preston Ridge Campus – Collin College, Frisco, TX 01/2018-08/2018

- General Chemistry I lecture and laboratory class

Graduate Assistant

Louisiana State University, Baton Rouge, LA 2011-2017

- Organic & General chemistry laboratory class
- Supervise independent student research in an organic laboratory

ACADEMIC SERVICE

Committee member: Campus Chemical & Biological Hazard Committee, Shorter University 2020-2021

- Review safety for the university
- Inspect laboratories for adherence to safety measures

Executive board of the Louisiana State University NOBCChE Chapter

Historian, Louisiana State University Chapter 2013, 2014

- Organize meeting venues for the LSU chapter meetings of NOBCChE, store records and participated in the organization's events locally and nationally

Business development team National NOBCChE 2015, 2016

- Create and maintain relationships with organizations' sponsors to raise funds for student's registration fees and awards to attend national conferences

Super Science Saturday, IMSD, Sigma Gamma Rho Sorority, Trinity Day School and NOBCChE: Chemistry Demonstrations 2013, 2014, 2016

- Organized and collaborated with various organizations for chemistry demonstrations

Louisiana Organic Chemistry Symposium, Organizing committee member 2013

- Organized the inaugural Louisiana organic chemistry symposium

RESEARCH EXPERIENCE:

Research Assistant – Organic Chemistry Laboratory

Louisiana State University, Baton Rouge, LA 2011-2017

- Innovatively designed, planned and synthesized biocompatible compounds for cancer photodynamic imaging and therapy within the academic budget
- Developed methodologies for high yielding and reproducible methods of conjugating targeting moieties to pharmaceuticals
- Excellent team player and project manager, effectively built prolific collaborations in different aspects of basic and applied research in projects as demonstrated by the completion of interdisciplinary collaborations with veterinary scientists that led to 2 publications and renewal of grant funding
- Effective science communicator, both oral and written, making complex scientific concepts accessible to audiences of various backgrounds. Authored 3 peer-reviewed publications and 10 conference presentations nationally and internationally
- Expert in the use of many different instruments for synthesis and characterization of organic and biological compounds

INDUSTRY EXPERIENCE:

Beta Healthcare International, Nairobi, KE 2006

- Sampled and assessed supplies, investigated in-process and finished pharmaceuticals for quality adherence
- Determined the status of compounds: Approved or disproved compounds for production or packaging after verifying quality.
- Expert in the operation of many different instruments for sample analysis during dispensing, granulation/blending, manufacturing of solid and liquid drugs

SKILLS AND TECHNIQUES

Teaching, Research, Mentoring, Organic Synthesis, Structure Elucidation, Photophysical characterization, Nuclear Magnetic Resonance Spectroscopy, High Performance Liquid Chromatography, Ultraviolet-visible Spectroscopy, Infrared Spectroscopy, Transmission Electron Microscopy, Gel electrophoresis, Western Blot, Flow Cytometry, Electrospray Ionization Mass Spectrometry, Dynamic Light Scattering, Chromatography, Matrix-assisted Laser Desorption Ionization Mass Spectrometry, Blackboard, Moodle, canvas, GraphPad Prism, Origin

PUBLICATIONS

- **Okoth, E. A.**; Zhou, Z.; Ongarora, B.G.; Stutes, Alyssa.; Mathis, J.M.; Vicente, M. G. H. Synthesis and Investigation of Phthalocyanine-biotin Conjugates. *Journal of Porphyrins and Phthalocyanines*. **2019**; 23: 125–135
- Taylor, A.; **Okoth, E. A.**; Kuruppu, N.; Vicente, M. G. H.; Garino, J. Nanostructures of Functionalized Zinc Phthalocyanines Prepared with Colloidal Lithography: Evaluation of Surface Orientation and Dimensions using Scanning Probe Microscopy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **2019**; 563: 370-382
- **Okoth, E. A.**; Synthesis, Characterization and Biological Evaluation of Monoisomeric Zinc Phthalocyanines for Imaging and Photodynamic Therapy. Department of Chemistry, Louisiana State University. **2017**
- Ongarora, B. G.; Zhou, Z.; **Okoth, E. A.**; Kolesnichenko, I.; Smith, K. M.; Vicente, M. G. H. Synthesis, spectroscopic, and cellular properties of α -PEGylated cis-A₂B₂- and A₃B-types Zinc (II)-phthalocyanines. *Journal of Porphyrins and Phthalocyanines*. **2014**; 18: 1021-1033
- **Okoth, E. A.**; Aspirin Content of Over-the-counter Aspirin Containing Analgesics. Department of chemistry. **Moi University**. 2007

PRESENTATIONS

ORAL PRESENTATIONS:

- **Okoth, E. A.**; Going Global: State University of New York, Cortland Women Doing International Research. American Association of University Women. Cortland, NY. **2019**
- **Okoth, E. A.**; Zhou, Z.; Vicente, M. G. H. Synthesis of A₃B type phthalocyanine analogs and their biological evaluation. 43rd National Organization for the Professional Advancement of Black Chemists and Chemical Engineers. Raleigh, NC. **2016**
- **Okoth, E. A.**; Zhou, Z.; Vicente, M. G. H. Synthesis of A₃B phthalocyanines for photodynamic therapy and imaging. National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Baton Rouge, LA. **2016**
- **Okoth, E. A.**; Zhou, Z.; Vicente, M. G. H. Synthesis and characterization of zinc-phthalocyanines derivatives via O-alkylation for PDT. National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, Orlando, FL. **2015**

POSTER PRESENTATIONS:

- **Okoth, E. A.;** Stutes, A.; Zhou, Z.; Mathis, J. M.; Vicente, M. G. H. Synthesis and Characterization of Zinc (II)-phthalocyanine-peptide for theranostics. The Education and research Symposium in honor of Professor Barry Dellinger. Baton Rouge, LA. **2017**
- **Okoth, E. A.;** Stutes, A.; Zhou, Z.; Mathis, J. M.; Vicente, M. G. H. Synthesis and Characterization of Zinc (II)-phthalocyanine-peptide for theranostics. Prospective Student Visit Poster Session. Baton Rouge, LA. **2017**
- **Okoth, E. A.;** Zhou, Z.; Mathis, J. M.; Vicente, M. G. H. Synthesis of a mono-substituted phthalocyanine conjugated to monoclonal antibody for targeted therapy. Prospective Student Visit Poster Session. Baton Rouge, LA. **2017**
- **Okoth, E. A.;** Zhou, Z.; Mathis, J. M.; Vicente, M. G. H. Synthesis of a mono-substituted phthalocyanine conjugated to monoclonal antibody for targeted therapy. 9th International Conference on Porphyrins and Phthalocyanines. Nanjing, China. **2016**
- **Okoth, E. A.;** Zhou, Z.; Warner, I. M.; Vicente, M. G. H. Synthesis and characterization of zinc phthalocyanine-folate nanoparticles for photodynamic therapy. National Organization for the Professional Advancement of Black Chemists and Chemical Engineers. Indianapolis, IN. **2013**
- **Okoth, E. A.;** Zhou, Z.; Warner, I. M.; Vicente, M. G. H. Synthesis and characterization of zinc phthalocyanine-folate nanoparticles for photodynamic therapy. Chemistry Graduate Student Council poster session. Baton Rouge, LA. **2013**

ENRICHMENT TRAINING

- Online Course Design and Delivery 2020
- Diversity, Inclusion and Social Justice Training 2019

AWARDS AND SYNERGISTIC ACTIVITIES

- Reviewer for Journal of Photodiagnosis and Photodynamic Therapy 2019-2021
- Outstanding organic/inorganic oral presentation. Southeast/southwest regional meeting of National Organization for the Professional Advancement of Black Chemists and Chemical Engineers 2016
- Research pitch 2-minute Drill. 43rd annual National Organization for the Professional Advancement of Black Chemists and Chemical Engineers 2016
- Graduate Student Travel Award. Louisiana State University 2016
- COACH: Professional Skills Training for Minority Graduate Students. University of Oregon 2015, 2017
- Advancing Science Travel Grant. National Organization for the Professional Advancement of Black Chemists and Chemical Engineers 2013, 2015, 2016
- Business Development Team, NOBCChE National Conference 2015, 2016
- JARM service event in honor of Earth Day, NOBCChE 2016
- Super Science Saturday, IMSD and NOBCChE 2014, 2016
- Executive board - Historian, Louisiana State University Chapter 2013, 2014
- 17th Annual STEM Youth Symposium by Sigma Gamma Rho Sorority 2014

- Coates Travel Award. Louisiana State University 2013
- Smart Chemistry Demonstrations, Trinity Day School 2013
- Louisiana Organic Chemistry Symposium, Organizing committee member 2013
- International Computer Driving License 2010
- The Gold Standard of the Presidents' Award Scheme for young people 2009
- Students Electoral Commissioner for the 16th Students Governing Council 2007
- Chepnet Web Developers 2007
- Current Chemistry and Careers in Chemistry 2007
- The Silver Standard of the Presidents' Award Scheme for young people 2006
- 14th Moi University Students Governing Council – Chepkoilel Campus 2006
- Chemistry in our daily lives and as a career 2005
- Our Environment our future – Ministry of Environment 2005
- Wardens cup basketball tournament, Moi University 2004
- Top position in Chemistry, AS-level, Millennium Academy 2002
- International Lifesaver First Aid course 2002
- Junior Achievement – Success Skills 2001
- Commissioners' Academic Excellence Award. Commissioner of Police 1999

MEMBERSHIP

- American Chemical Society
- Society of Porphyrins and Phthalocyanines
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers
- Association for Women in Science