

PHILIP O. ADERO

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QUALIFICATION SUMMARY

- Highly skilled in Organic Chemical Synthesis
- Demonstrated ability and extensive hands-on experience in designing and executing multi-step synthesis, optimizing chemical processes and scale-up of synthetic methods
- Outstanding expertise in analyzing and identifying organic materials by NMR, FT-IR, UV-VIS, GC/MS, LC/MS
- Highly skilled in organic chemicals separation and purification by traditional and modern methods
- Adept in SciFinder Scholar and ChemDraw
- High level skills of trouble-shooting and problem-solving in synthesis and purification
- Highly motivated and a team player ready to learn new ideas and advance the course of the company

EDUCATION

Wayne State University

Detroit, Michigan, USA.

PhD in Chemistry

May 2018

Dissertation: Cation Clock Reactions for the Determination of Relative Reaction Kinetics in Glycosylation Reactions

Advisor: Prof. David Crich

Youngstown State University

Youngstown, Ohio, USA

MSc in Chemistry

August 2012

Thesis title: Heterocycle Synthesis via Rhodium (II)-Catalyzed Azido Carbenoid Cyclization.

Advisor: Prof. Peter Norris

University of Eastern Africa Baraton

Eldoret, Kenya

BSc in Chemistry

June 2009

Research Title: Isolation of biologically active compounds in *Erythrina abyssinica*

Advisor: Prof. Maradufu Asaf

RESEARCH EXPERIENCE

Graduate Researcher

Wayne State University, Detroit MI, August **2012** to **present**

Advisor: Dr. David Crich

Designed and successfully conducted Cation clock reactions for the determination of relative reaction kinetics in glycosylation reactions: Applications to gluco- and mannopyranosyl sulfoxide and trichloroacetimidate type donors. Extended this methodology development to the mechanistic study of arabinofuranoside systems

- Employed chromatographic techniques in separation of various stereoisomeric material
- Conducted mechanistic studies using UHPLC to analyze glycosylated products
- Issued detailed reports and summarized findings to my supervisor
- Collaborated with labmates on conducting and analyzing research, specifically in methodology development
- Designed and analyzed Hydrogenolytic cleavage of naphthylmethyl ethers in the presence of sulfides,
- Mentored junior chemists on instrumental analysis especially the use of HPLC, LC-MS and UV
- Utilized various programs such as ChemDraw and Microsoft Words on a regular basis

Graduate Researcher

Youngstown State University, Youngstown, OH, January **2011** to August, **2012**

Advisor: Dr. Peter Norris

- Designed, conducted, analyzed and characterized Rhodium catalyzed heterocycles using various techniques

- Solved crystal structure and DNA binding studies of Pd(II) complexes containing thiosemicarbazone and triphenylphosphine/ triphenylarsine
- Conducted air and water sensitive reactions (Rhodium catalyzed reactions)
- Regularly issued detailed reports and summarized findings to supervisor
- Supervised undergraduate lab sections of the NSF-funded Research Experiences to Enhance Learning (YSU-REEL) and helped students interpret lab data; NMR, UV-Vis spectroscopy
- Assisted students with lecture material during office hours
- Applied SciFinder Scholar, ChemDraw and ISIS Draw as strong tools for research reference

Laboratory Assistant

University of Eastern Africa Baraton, Eldoret, Kenya **2010**

- Designed and supervised undergraduate teaching labs and also did peer mentorship.

Undergraduate Researcher

University of Eastern Africa Baraton, Eldoret, Kenya **2008-2009**

- Isolated biologically active compounds in *Erythrina abyssinica* using chromatographic techniques

SELECTED PUBLICATIONS

1. **Adero, P. O.**; Furukawa, T.; Huang, M.; Mukherjee, D.; Retailleau, P.; Bohé, L.; Crich, D., Cation clock reactions for the determination of relative reaction kinetics in glycosylation reactions: Applications to gluco- and mannopyranosyl sulfoxide and trichloroacetimidate type donors. *J. Am. Chem. Soc.* **2015**, *137*, 32, 10336-10345.
2. Ramachandran, E.; Kalaivani, P.; Prabhakaran, R.; Zeller, M.; Bartlett, J. H.; **Adero, P. O.**; Wagner, T. R.; Natarajan, K., Synthesis, characterization, crystal structure and DNA binding studies of Pd(II) complexes containing thiosemicarbazone and triphenylphosphine/ triphenylarsine. *Inorg. Chim. Acta*, **2012**, *385*, 94-99.
3. Yamuna, E.; Zeller, M.; **Adero, P. O.**; Prasad, K. J. R., Synthesis of thieno- and benzocyclohepta[b]indoles: Gewald reaction and regioselective cycloaddition of acetylenic esters. *Arkivoc*, **2012**, *2012* 6, 326-342.

SELECTED PRESENTATIONS

1. **Adero, P.O.**; Crich, D.(poster) Selective Hydrogenolysis of (2-Naphthyl)methyl Ethers in the Presence of Sulfides and Benzyl Ethers. 252nd American Chemical Society National Meeting & Exposition, Philadelphia, PA, 2016.
2. **Adero, P.O.**; Crich, D. (poster) Cation Clock Reactions for the Determination of Relative Reaction Kinetics in Glycosylation Reactions: Applications to Gluco- and Mannopyranosyl Sulfoxide and Trichloroacetimidate Type Donors. 17th Annual Chemistry Graduate Research Symposium; Wayne State University, Detroit, MI, October 17th, 2015.
3. **Adero, P.O.**; Crich, D. (Poster) Kinetic Study of Glycosylation Reactions by the Cation Clock Method, Using Trichloroacetimidates as Leaving Group. 16th Annual Chemistry Graduate Research Symposium; Wayne State University, Detroit, MI, October 11th, 2014.

VOLUNTEER WORK:

Facilitated ReBUILD Detroit Program by providing peer mentoring and enriching student's chemistry background as they transition to science degree program. The function was held from July 10-July 21, Wayne State University, Detroit, Michigan.

Presided over organic chemistry talks during the 48th Central Regional Meeting of the American Chemical Society held from June 6 – 9, 2017 in Dearborn, Michigan.

Professional Memberships:

- American Chemical Society
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)-Vice President Wayne State Chapter