

# Albert Jairo Ounza Ndakala, PhD.

## Personal Contact

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## Professional Contact

Postal Address: Department of Chemistry  
University of Nairobi  
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Web page: [profiles.uonbi.ac.ke/andakala/](http://profiles.uonbi.ac.ke/andakala/)

**Date of Birth:** 2<sup>nd</sup> August 1967

**Nationality:** Kenyan

## Research Interests

My main research focus is driven by my desire to exploit my expertise in organic synthesis to synthesize molecules of potential pharmaceutical interest mainly against tropical diseases such as malaria and microbial diseases. I am also keen on structure modification of bioactive natural products to improve their pharmacological profiles. This is with the long term objective of identifying a drug for alleviating the disease burden globally.

## Educational Qualifications

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| 30 <sup>th</sup> August 2001   | <b>PhD., Organic Chemistry</b><br>University of Connecticut, Storrs, Connecticut, USA<br>Thesis Title: Synthesis and Reactions of 1,5-Dioxaspiro[2.3]hexanes<br>Advisor: Prof Amy R. Howell   |
| 11 <sup>th</sup> December 1995 | <b>MSc., Environmental Chemistry</b><br>University of Nairobi, Nairobi, Kenya<br>Thesis Title: Essential Oils of Plants of the Family Capparaceae as Repellents of Maize Weevils ( <i>Sitophilus Zeamais</i> ) and the Livestock Tick ( <i>Rhipicephalus Appendiculatus</i> )<br>Supervisor: Prof Peter M. Gitu |
| 8 <sup>th</sup> September 1992 | <b>BSc., Chemistry</b><br>University of Nairobi, Nairobi, Kenya   |

## Employment Profile

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|--|---|
| 9 <sup>th</sup> October 2013 - Present | <b>Senior Lecturer of Organic Chemistry</b><br>Department of Chemistry,<br>University of Nairobi, Nairobi, Kenya<br>Department Chairman: Prof John Onyari |
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- 23<sup>rd</sup> July 2004 – 8<sup>th</sup> October 2013      **Lecturer of Organic Chemistry**  
Department of Chemistry,  
University of Nairobi, Nairobi, Kenya  
Department Chairman: Prof Amir Yusuf
- 1<sup>st</sup> October 2006- 30<sup>th</sup> September 2007      **WHO Postdoctoral Research Fellow in Medicinal Chemistry**  
Department of Chemistry,  
University of Cape Town, Rondebosch, South Africa  
Research Advisor: Prof Kelly Chibale
- 1<sup>st</sup> September 2001 – 31<sup>st</sup> August 2003      **Procter and Gamble Postdoctoral Research Associate**  
Department of Chemistry and Biochemistry,  
University of Notre Dame, South Bend, Indiana, USA  
Research Advisor: Prof Paul Helquist
- 1<sup>st</sup> June 1999 – 31<sup>st</sup> August 1999      **Predoctoral Industrial Consultant**  
Chemical Discovery Unit  
Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, Connecticut, USA  
Director: Dr Vittorio Farina
- 29<sup>th</sup> August 1995 – 30<sup>th</sup> August 2001      **Graduate Research Assistant**  
Department of Chemistry,  
University of Connecticut, Storrs, Connecticut, USA  
Research Advisor: Prof Amy R. Howell
- 29<sup>th</sup> August 1995 – 31<sup>st</sup> May 1997      **Graduate Teaching Assistant in General and Organic Chemistry**  
Department of Chemistry,  
University of Connecticut, Storrs, Connecticut, USA  
Supervisor: Prof Cecile Hurley
- 31<sup>st</sup> January 1994 – 31<sup>st</sup> July 1995      **Patent Examiner in Chemistry**  
Kenya Industrial Property Institute, Nairobi, Kenya  
Director: Prof Norah Olembo

## Research Experience

### Postdoctoral Research

- 4<sup>th</sup> June 2012- 11<sup>th</sup> August 2012      **Novartis/Seeding Labs Fellowship**  
Global Drug Discovery Programme,  
Novartis Institute for Biomedical Research  
Mentor: Dr Frederic Zecri  
Study: Synthesized heterocycles for management of cardiovascular diseases
- 1<sup>st</sup> October 2006- 31<sup>st</sup> September 2007      **WHO Postdoctoral Research Fellow in Medicinal Chemistry**  
Department of Chemistry,  
University of Cape Town, Rondebosch, South Africa  
Research Advisor: Prof Kelly Chibale  
Study: Synthesized pyrido[1,2-*a*]benzimidazole analogues for biological evaluation for antiplasmodial and antileishmanial activity

3<sup>rd</sup> September 2001 – **Procter and Gamble Postdoctoral Research Associate**  
29<sup>th</sup> August 2003  
Department of Chemistry and Biochemistry,  
University of Notre Dame, South Bend, Indiana, USA  
Research Advisor: Prof Paul Helquist  
Study: Synthesized analogues of the antibiotic Vancomycin for biochemical evaluation.

### **Predoctoral Industrial Research**

1<sup>st</sup> June 1999 – 31<sup>st</sup>  
August 1999 **Predoctoral Industrial Consultant**  
Chemical Discovery Unit  
Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, Connecticut, USA  
Director: Dr Vittorio Farina  
Study: Re-Investigated the mechanism of the Stille coupling reaction and its potential application in the synthesis of pharmaceuticals.

### **PhD. Research**

29<sup>th</sup> August 1995 –  
30<sup>th</sup> August 2001 **Graduate Research Assistant**  
Department of Chemistry,  
University of Connecticut, Storrs, Connecticut, USA  
Research Advisor: Prof Amy R. Howell

- Developed a protocol for the general synthesis of novel 1,5-dioxaspiro[3.2]hexane systems using 2-methyleneoxetanes as intermediates
- Investigated the nucleophilic ring opening of 1,5-dioxaspiro[3.2]hexanes
- Developed a protocol for accessing sphingoid bases from a 1,5-dioxaspiro[3.2]hexane template

### **MSc. Research**

26<sup>th</sup> September 1991 –  
June 1994 University of Nairobi, Kenya and International Centre for Insect Physiology and Ecology, Nairobi, Kenya.  
Research Advisors: Peter M. Gitu and Wilber Lwande

- Investigated the repellency properties of components of the essential oils of some Kenyan plants of the Capparaeae family against the maize weevil and a livestock tick

### **Teaching Experience**

9<sup>th</sup> October 2013-  
Present **Senior Lecturer of Organic Chemistry**  
Department of Chemistry,  
University of Nairobi, Kenya  
Department Chairman: Prof John Onyari

#### **Courses Taught**

- (1) SCH 102: Introduction to Organic Chemistry, the Chemistry of Alkanes and Cycloalkanes
  - Introduced BPharm freshmen students to organic chemistry, the chemistry of alkanes and cycloalkanes and demonstrated the relevance of stereochemistry to the practice of medicine.
- (2) SCH 206: Organic Acids, Amines, Esters and Phenols
  - Taught third B.Ed (Science) students, the chemistry of aldehydes, ketones, carboxylic acids, esters, amides, phenols and amines.
- (3) SCH 302: Stereochemistry and Synthesis of Organic Compounds

- Taught third year BSc (Chemistry/Analytical Chemistry/Industrial Chemistry) students, the concept of stereochemistry and application of organic chemistry in synthesis.
- (4) SCH 305: Amino acids, Peptides, Proteins, Carbohydrates and Nucleic acids
    - Taught third year BEd (Science) students, the chemistry of amino acids, proteins, carbohydrates and nucleic acids.
  - (5) SCH 402: Heterocyclic Chemistry
    - Taught fourth year BEd (Science) students the chemistry of heterocycles from 3-6 membered ring systems/
  - (6) SCH 504: Advanced Organic Chemistry 2
    - Taught first year MSc students synthetic methodology, organometallic chemistry and synthetic planning.

23rd July 2004 – 8<sup>th</sup>  
October 2013

### **Lecturer of Organic Chemistry**

Department of Chemistry,  
University of Nairobi, Kenya  
Department Chairman: Prof Amir Yusuf

### **Courses Taught**

- (1) SCH 102: Introduction to Organic Chemistry, the Chemistry of Alkanes and Cycloalkanes
  - Introduced BPharm freshmen students to organic chemistry, the chemistry of alkanes and cycloalkanes and demonstrated the relevance of stereochemistry to the practice of medicine.
- (2) SCH 206: Organic Acids, Amines, Esters and Phenols
  - Taught third B.Ed (Science) and BPharm students, the chemistry of aldehydes, ketones, carboxylic acids, esters, amides, phenols and amines.
- (3) SCH 302: Stereochemistry and Synthesis of Organic Compounds
  - Taught third year BSc (Chemistry) students, the concept of stereochemistry and application of organic chemistry in synthesis.
- (4) SCH 305: Amino acids, Peptides, Proteins, Carbohydrates and Nucleic acids
  - Taught third year BSc (Chemistry) and second year BPharm students, the chemistry of amino acids, proteins, carbohydrates and nucleic acids.
- (5) SCH 504: Advanced Organic Chemistry 2
  - Taught first year MSc students synthetic methodology, organometallic chemistry and synthetic planning.
- (6) UPC 213: Pharmaceutical Chemistry
  - Taught BPharm students, the chemistry of aldehydes, ketones, carboxylic acids, esters, amides and amines relevant to the practice of medicine.

**Student Supervision  
Postgraduate Students**

**PhD Programme Completed****Student Details**

PhD in Chemistry	Fozia Ali Adem (I80/97548/2015) (Female, Ethiopian) Phytochemical Analysis of Selected Plants in the Leguminosae and Moraceae Families for Anticancer Principles. (Graduated 6 <sup>th</sup> September 2019) Co-supervisors: Prof Abiy Yenesew, Dr. Beatrice Irungu.
PhD in Chemistry	Yoseph Atilaw (I80/92721/2013) (Male, Ethiopian) Phytochemical Investigation of Selected Tephrosia Species for Antiplasmodial and Anti-inflammatory Principles (Graduated on 14 <sup>th</sup> September 2018). Co-supervisors: Prof Abiy Yenesew, Dr Hellen Kariuki.
PhD in Chemistry	Negera Abdissa (I80/82021/2011) (Male, Ethiopian) Phytochemical Studies of Eastern African Plants belonging to the Family Asphodelaceae (Graduated on 29 <sup>th</sup> August 2014). Co-supervisors: Prof. Jacob O. Midiwo; Prof Abiy Yenesew.
PhD in Chemistry	Milkyas Endale Annisa (I80/82101/2009) (Male, Ethiopian) Phytochemical Analyses of Six Pentas Species for Antiplasmodial Principles. (Graduated on 24 <sup>th</sup> August 2012). Co-supervisors: Prof Abiy Yenesew, Dr Martin Mbugua; Prof. Máté Erdélyi.

**PhD Programme Ongoing****Student Details**

PhD in Chemistry	Daniel Buyinza (I80/96687/2014) (Male, Ugandan) Antiplasmodial and Anticancer Principles from <i>Millettia Dura</i> , <i>Millettia Leucantha</i> and <i>Millettia Lasiantha</i> Species. Co-supervisor: Dr Solomon Derese.
PhD in Chemistry	Moses Andima (I80/50060/2015) (Male, Ugandan) Natural Product-loaded Nanoparticles for Cancer Therapy: Formulation, Characterization, <i>In Silico</i> and Cellular Studies. Co-supervisors: Dr Solomon Derese.
PhD in Chemistry	Richard Oriko (I80/50120/2015) (Male, Ugandan) Phytochemical Analysis of Selected Tephrosia Species for Anti-Inflammatory Principles. Co-supervisors: Dr Solomon Derese; Dr George Ongamo.
PhD in Biochemistry	Harrison Ndungu (H80/51971/2017) (Male, Kenyan) Integrating Bioinformatics Mechanism-Based Screening into Kinetoplastids Antiprotozoan Rrna Targets Compound Discovery Paradigm. Co-supervisors: Prof. Francis Mulaa; Prof Peter Wagacha, Dr Edward Muge.
PhD in Chemistry	Carolyn Chekirui (I80/52251/2017) (Female, Kenyan) Nano-Encapsulated Phytochemicals Towards Control of Malaria. Co-supervisors: Prof Abiy Yenesew, Dr Solomon Derese

**MSc Programme Completed****Student Details**

MSc in Chemistry	Ivan Kiganda (I56/83010/2015) (Male, Ugandan) Phytochemical Investigation of <i>Alstonia boonei</i> for Anticancer Principles (Graduated on 21 <sup>st</sup> December 2018). Co-supervisors: Prof Abiy Yenesew, Dr Ivan Gumula.
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MSc in Chemistry	George Kwesiga (I56/68908/2013) (Male, Ugandan) Phytochemical investigation and structure modification of antimicrobial principles of <i>Erythrina sacleuxii</i> and <i>Erythrina melanacantha</i> . (Graduated on 2 <sup>nd</sup> September 2016).Co-supervisor: Prof Abiy Yenesew.
MSc in Chemistry	Openda Ikala (I56/80032/2015) (Female, Congolese) Phytochemical Evaluation of <i>Tephrosia Hildebrandtii</i> for Antimicrobial Principles. (Graduated on 21 <sup>st</sup> December 2018).Co-supervisor: Dr Solomon Derese,
MSc in Chemistry	Samuel Gachuhi (I56/67848/2013) (Male, Kenyan) Synthesis of Antimicrobial Benzene-1,4-Diol Analogues of a Benzoquinone Metabolite From the Endophytic Fungi <i>Xylaria</i> Sp. PBR 30 (Graduated on 22 <sup>nd</sup> December 2017).Co-supervisor: Dr Solomon Derese, Dr Erick Guantai
MSc in Chemistry	James Oyim (I56/79108/2012) (Male, Kenyan) Modeling and Synthesis of Antiplasmodial Naphthoquinones from Natural Products of Kenya (Graduated on 2 <sup>nd</sup> December 2016).Co-supervisor: Dr Solomon Derese
MSc in Chemistry	Michael Rogo (I56/79390/2012) (Male, Kenyan) Modeling and Synthesis of Antiplasmodial Benzoxazines from Natural Products of Kenya (Graduated on 2 <sup>nd</sup> September 2016).Co-supervisor: Dr Solomon Derese
MSc in Chemistry	Scolastica Maynim (I56/79952/2012) (Female, Kenyan) Modeling and Synthesis of Antiplasmodial Chromones, Chromanones And Chalcones based on Natural Products of Kenya (Graduated on 2 <sup>nd</sup> September 2016).Co-supervisor: Dr Solomon Derese
MSc in Chemistry	Abdillahi Swaleh (I56/81011/2015) (Male, Kenyan) Synthesis and Antiglycemic Activity of <i>In Silico</i> Designed Analogues of Allylpropyldisulphide (Graduated on 21 <sup>st</sup> December 2018).Co-supervisor: Dr Solomon Derese,
MSc in Chemistry	Yoseph Atilaw (I56/64389/2010) (Male, Ethiopian) Phytochemical Investigation of <i>Schizogygia coffaeoides</i> Ball. (Apocynaceae) for Antimicrobial Principles (Graduated September 2012). Co-supervisor: Abiy Yenesew; Dr Catherine Lukhoba.
MSc in Chemistry	Michael Bugigi Sangale (I56/71728/2008) (Male, Kenyan) Larvicidal Activity of Some Flavonoids and their Analogues (Graduated on 24 <sup>th</sup> August 2012). Co-supervisors: Prof Abiy Yenesew; Dr Martin Mbugua.
<b>MSc Programme Ongoing</b>	<b>Student Details</b>
MSc in Chemistry	Vicent Kanya (I56/15292/2018) (Male, Ugandan) Phytochemical Investigation of <i>Pentas Parvifolia</i> for Leishmanicidal Principles. Co-supervisors: Prof Abiy Yenesew.
MSc in Chemistry	Patrick Kinuthia (I56/11471/2018) (Male, Kenyan) Synthesis of Meso-Tetrafurylporphyrins for Water Disinfection. Co-supervisor: Dr Solomon Derese, Dr Edith Amuhaya.

MSc in Chemistry Kelvin Wangai (I56/11727/2018) (Male, Kenyan) Synthesis and Photophysical Studies of Porphyrins as Photodynamic Antimicrobial Agent in Water Disinfection. Co-supervisor: Dr Solomon Derese and Dr Edith Amuhaya

### **Undergraduate Students**

#### **BSc Programme Student Details**

#### **Completed**

BSc in Industrial Chemistry Brenda Okoko (I08/30341/2014) (Female, Kenyan) Antimicrobial Activity of the Essential Oils from *Tephrosia vogelii* for Antimicrobial Activities (Graduated on 14<sup>th</sup> September 2018) Co-supervisors: Dr Solomon Derese.

### **Research Publications**

Richard Oriko Owor, Kibrom Gebreheiwot Bedane, Sebastian Zühlke, Solomon Derese, George Otieno Ong'amo, Albert Ndakala, Michael Spittler (2020) Anti-inflammatory Flavanones and Flavones from *Tephrosia linearis* *Journal of Natural Products* **83** (4): 996-1004

Richard Oriko Owor, Kibrom Gebreheiwot Bedane, Yolande Ikala Openda, Sebastian Zühlke, Solomon Derese, George Ong'amo, Albert Ndakala, Michael Spittler (2020) Synergistic anti-inflammatory activities of a new flavone and other flavonoids from *Tephrosia hildebrandtii* vatke *Natural Product Research* 1-8

Veronica M Masila, Albert J Ndakala, Robert Byamukama, Jacob O Midiwo, Rahab W Kamau, Mei Wang, Mallika Kumarihamy, Jianping Zhao, Matthias Heydreich, Ilias Muhammad (2020) Synthesis, structural assignments and anti-infective activities of 3-O-benzyl-carvotacetone and 3-hydroxy-2-isopropyl-5-methyl-p-benzoquinone *Journal Natural Product Research* Pages 1-9

Moses Andima, Paolo Coghi, Li Jun Yang, Vincent Kam Wai Wong, Chrispus Mutuku Ngule, Matthias Heydenreich, Albert Jairo Ndakala, Abiy Yenesew, Solomon Derese (2020) Antiproliferative Activity of Secondary Metabolites from *Zanthoxylum zanthoxyloides* Lam: In vitro and in silico Studies. *Pharmacognosy Communications* **10** (1) 44-51

Fozia A Adem, Victor Kuete, Armelle T Mbaveng, Matthias Heydenreich, Andreas Koch, Albert Ndakala, Beatrice Irungu, Abiy Yenesew, Thomas Efferth (2019) Cytotoxic flavonoids from two *Lonchocarpus* species *Natural product research* **33** (18) Pages:2609-2617

Daniel Buyinza, Li Jun Yang, Solomon Derese, Albert Ndakala, Paolo Coghi, Matthias Heydenreich, Vincent Kam Wai Wong, Heiko M Möller, Abiy Yenesew (2019) Cytotoxicity of isoflavones from *Millettia dura* *Natural Product Research* Pages 1-4

Fozia A Adem, Armelle T Mbaveng, Victor Kuete, Matthias Heydenreich, Albert Ndakala, Beatrice Irungu, Abiy Yenesew, Thomas Efferth (2019) Cytotoxicity of isoflavones and biflavonoids from *Ormocarpum kirkii* towards multi-factorial drug resistant cancer *Phytomedicine* **58**, Pages 152853

Olivia M. Merkel Moses Andima, Gabriella Costabile, Lorenz Isert, Albert J. Ndakala, Solomon Derese (2018) Evaluation of  $\beta$ -Sitosterol Loaded PLGA and PEG-PLA Nanoparticles for Effective Treatment of Breast Cancer: Preparation, Physicochemical Characterization, and Antitumor Activity, *Pharmaceutics*, **10** (4): 1-18

Fozia A. Adem. Victor Kuete, Armelle T.Mbaveng, Matthias Heydenreich, Albert Ndakala, Beatrice Irungu, Thomas Efferth and Abiy Yenesew (2018) Cytotoxic benzylbenzofuran derivatives from *Dorstenia kameruniana* *Fitoterapia* **128**, 26-30

Yoseph Atilaw, Lois Muiva-Mutisya, Albert Ndakala, Hoseah M. Akala, Redemptah Yeda, Yu J. Wu, Paolo Coghi, Vincent K. W. Wong, Máté Erdélyi and Abiy Yenesew (2017) Four Prenylflavone Derivatives with Antiplasmodial Activities from the Stem of *Tephrosia purpurea* subsp. *Leptostachya* *Molecules*, **22**(9), 1514

Awas, E.; Omosa, L. K.; Midiwo, J. O.; Ndakala, A.; Mwaniki, J. "Antioxidant Activities of Flavonoid Aglycoes from Kenyan *Gardenia ternifolia* Schum and Thonn" *IOSR Journal of Pharmacy and Biological Sciences* **2016**, 11 (3), 136-141.

Atilaw, Y.; Heydenreich, M.; Ndakala, A.; Akala, H. M.; Kamau, E.; Yenesew, A. "3-Oxo-14 $\alpha$ ,15 $\alpha$ -epoxyschizozygine: A new schizozygane indoline alkaloid from *Schizozygia coffaeoides*" *Phytochemistry Letters* **2014**, 10, 28-31.

Negera, A.; Matthias, H.; Midiwo, J. O.; Ndakala, A.; Majer, Z.; Neumann, B.; Stammmler, H.; Sewald, N.; Yenesew, A. "A xanthone and a phenylanthraquinone from the roots of *Bulbine frutescens* and the revision of six seco-anthraquinones into xanthenes" *Phytochemistry Letters* **2014**, 9, 67-73.

Abdissa, N.; Induli, M.; Akala, H.M.; Heydenreich, M.; Midiwo, J. O.; Ndakala, Albert; Yenesew, A. "Knipholone Cyclooxanthrone and an Anthroquinone Dimer with Antiplasmodial Activities from the Roots of *Kniphofia foliosa*" *Phytochemistry Letters* **2013**, 6(2), 241-245.

Endale, M.; Ekberg, A.; Alao, J. P.; Akala, H. M.; Ndakala, Albert; Sunnerhagen, P.; Erdelyi, M.; Yenesew, A. "Anthraquinones of the roots of *Pentas micrantha*" *Molecules* **2013**, 18, 311-321.

Endale, M; Alao, J.P; Akala, H.M; Rono, N.K; Eyase, F.L; Derese, S; Ndakala, A; Mbugua, M; Walsh, D.S; Erdelyi, M; Yenesew, A. "Antiplasmodial Quinones from *Pentas longiflora* and *Pentas lanceolata*" *Planta Medica* **2012**, 78(1), 31-35.

Ndakala, A. J.; Gessner, R.K; Gitari, P.W; October, N.; White, K. L; Hudson,A.; Fakorede, F.; Shackelford, D.M; Kaiser, M.; Yeates, C.; Charman, S. A.; Chibale, K. "Antimalarial Pyrido[1,2-a]benzimidazoles" *J. Med. Chem.* **2011**, 54, 4581–4589.

Taboada, R.; Ordonio, G. G.; Ndakala, A. J.; Howell, A. R., "Directed Ring-Opening of 1,5-Dioxaspiro[3.2]hexanes: Selective Formation of 2,2-Disubstituted Oxetanes," *J. Org. Chem.*, **2003**, 68, 1480-1488.

Martinez, I.; Andrews, A. E.; Emch, J. D.; Ndakala, A. J.; Wang, J.; Howell, A. R. "Unusual, Strained Heterocycles: 3-Alkylidene-2-methyleneoxetanes from Morita-Baylis-Hillman-type Adducts," *Org. Lett.* **2003**, 5, 399-402.

Howell, A. R.; Ndakala, A. J. "The Preparation and Biological Significance of Phytosphingosines," *Curr. Org. Chem.* **2002**, 6, 365-391.

Ndakala, A. J.; Hashemzadeh, M.; So, R. C.; Howell, A. R.; "Synthesis of *D-erythro*-Dihydrosphingosine and *D-xyl*o-Phytosphingosine from a Serine-Derived 1,5-Dioxaspiro[3.2]hexane Template," *Org. Lett.* **2002**, 4, 1719-1722.

Howell, A. R.; Ndakala, A. J. "Ring Opening of 1,5-Dioxaspiro[3.2]hexanes: Selective Preparation of  $\beta$ -Heterofunctionalized- $\beta$ '-hydroxy Ketones or 2,2-Disubstituted Oxetanes," *Org. Lett.* **1999**, 1, 825-827.

Dollinger, L.M; Ndakala, A. J.; Hashemzadeh, M.; Wang, G.; Wang, Y.; Martinez, I.; Arcari, J.; Galluzzo, D.J.; Howell, A.R.; Rheingold, A.L.; Figuero, J. S., "Preparation and Properties of 2-Methyleneoxetanes," *J. Org. Chem.*, **1999**, 64, 7074-7080.



Lwande, W.; Ndakala, A. J.; Hassanali, A.; Moreka, L.; Nyandat, E.; Ndungu, M.; Amiani, H.; Gitu, P. M.; Malonza, M. M.; Punyua, D. K., "Gynandropsis gynandra Essential Oil and Its Constituents as Tick (*Rhipicephalus appendiculatus*) Repellents," *Phytochemistry*, **1999**, 50, 401-405.

Ndakala, A. J.; Howell, A. R., "The First General Synthesis of 1,5-Dioxaspiro[3.2]hexanes," *J. Org. Chem.*, **1998**, 63, 6098-6099.

### Teaching Modules

**Ndakala, A. J.** and Onyari, J., "SCH 302: Organic Chemistry 3 (Carbonyls, Carbanions, Carboxylic Acids, Phenols and Amines)", **2010**, University of Nairobi Press, 253 Pages.

### Posters and Presentations at Conferences

**Albert Ndakala**, Solomon Derese and Abdillahi Nasser (2018) Computer-Guided Modelling in Diabetes Drug Discovery presented at the Second ESAEAC-TCCA Conference, Reef Hotel. Mombasa, on 3<sup>rd</sup> September 2018

**Albert Ndakala**, Solomon Derese and Samuel Gachuhi (2016) Antimicrobial Hydroquinones presented at the 7<sup>th</sup> International SEANAC-AFRICA Analytical and Environmental Chemistry Conference, Reef Hotel. Mombasa, on 28<sup>th</sup> November 2017

**Albert J. Ndakala** and Solomon Derese (2016) A Database of Natural products of Kenya for Drug Discovery presentation at the East and Southern Africa Environmental/Analytical Chemistry Conference and The 11<sup>th</sup> Theoretical Chemistry Conference in Africa, Mombasa, Kenya, June 15<sup>th</sup>, 2016.

**Albert J. Ndakala**, Kelly Chibale and Fred Zecri (2012) Prospecting for Antiplasmodial Pyrido[1,2a]benzimidazoles, Poster presentation at the Novartis Summer Forum, Novartis Institute for Biomedical Research, Cambridge, August 7<sup>th</sup>, (2012).

**Albert J. Ndakala** and Amy R. Howell. (2000) 1,5-Dioxaspiro[3.2]hexanes in the synthesis of the glycosphingolipid, KRN7000, presentation at the 220<sup>th</sup> ACS National Meeting, Washington DC, August 20-24, (2000).

**Albert J. Ndakala** and Amy R. Howell. (2000) Synthesis and Reactivity of 1,5-dioxaspiro[3.2]hexanes, Oral presentation at the 29<sup>th</sup> Northeast ACS Regional Meeting, University of Connecticut, Storrs, June 18-21, (2000).

**Albert J. Ndakala** and Amy R. Howell. (2000) Synthesis and Reactivity of 1,5-dioxaspiro[3.2]hexanes, a poster presentation at the Randolph T. Major lecture series, University of Connecticut, Storrs, April 14-20, (2000).

### Workshops/ Trainings and Seminars Attended

Pedagogy, Andragogy, and Mentorship Training Workshop at UNES-ARZIKI Conference Centre, College of Biological and Physical Sciences, University of Nairobi from January 29<sup>th</sup> to 31<sup>st</sup>, 2020

Chemistry Curriculum Review Workshop at University Towers, University of Nairobi from July 27<sup>th</sup>, 2019

Postgraduate Supervision Seminar at Nairobi Safari club on March 28<sup>th</sup>, 2019

Postgraduate Supervision Trainers of Trainers Workshop at Maazoni Lodge on May, 2015

Bioethics and Research Ethics Workshop at College of Health Sciences, University of Nairobi, 5<sup>th</sup> August to 9<sup>th</sup> August 2013.

Seeding Labs Grant Proposal Writing Workshop in Boston, USA, 4<sup>th</sup> June to 11<sup>th</sup> August 2012.

University of Nairobi Writers Workshop for Distance Learners at Agricultural Resource Centre, Egerton University. Njoro, February 21-26, (2010): Authored "SCH 302: Organic Chemistry 3 Module for Distance Learners.

Research Grant and Project Grant Proposal Writing Workshop at Chiromo Campus, University of Nairobi, September 19-23, (2011).

### **Examination of Thesis**

**James Mungai** Concentration of Chlorothalonil and Lambda Cyhalothrin Pesticides Residue Levels in Vegetables Sold in Nairobi City Markets, their Removal and Degradation using Selected Standard Solutions. MSc candidate registered at the Department of Chemistry, University of Nairobi, May 2020

**Sebastian Oloo Otieno** Solar-Driven Photocatalytic Activity of Porphyrin Sensitized TiO<sub>2</sub> in Methylene Blue Degradation and Sacrificial Hydrogen Generation. MSc candidate registered at the Department of Chemistry, University of Nairobi, April 2020

**Mach Paul Achuoth** Phytochemical Investigation of Tephrosia Pentaphylla for Larvicidal Principles MSc candidate registered at the Department of Chemistry, University of Nairobi, October 2019

**Khethobole Cassius Sekgota** Synthesis of Novel Heterocyclic Systems as Potential Inhibitors of HIV-1 Enzymes. PhD candidate registered at the Department of Chemistry, Rhodes University, South Africa, June 2019

**Souaibou Yaouba** Phytochemical Investigation of Selected Plants in the Families Anacardiaceae and Asteraceae for Bioactive Principles PhD candidate registered at the Department of Chemistry, University of Nairobi, October 2018

**Bonface Kamau** Dissipation Studies of Methyl *N*-(Methoxyacetyl)-*N*-(2,6-Xylyl)-D-Alanate (Ridomil Gold) and 3-(2-Chloro-1,3-Thiazol-5-ylmethyl)-5-Methyl-[1,3,5]-Oxadiazinan-4-ylidene (Nitro) Amine (Actara 25WG. MSc candidate registered at the Department of Chemistry, University of Nairobi, June 2017

**Julie Kidaha** Assessment of New Persistent Organic Pollutants-Pesticides in Air and Soil from Sites in Nairobi and Mount Kenya MSc candidate registered at the Department of Chemistry, University of Nairobi, November 2015

**Annah Moraa** Investigation of Mutagenicity of Solar Disinfected (SODIS) Water MSc candidate registered at the Department of Chemistry, University of Nairobi, May 2015

**Robert Masinde** Phytochemical Investigation of *Zanthoxylum Gilletii* (Rutaceae) for Active Biomolecules against Protozoal Diseases MSc candidate registered at the Department of Chemistry, University of Nairobi, July 2015

**Ivan Gumula** Phytochemical Investigation of Three Leguminosae Plants for Cancer Chemopreventive Agents PhD candidate registered at the Department of Chemistry, University of Nairobi, May 2014

### Funded Projects

Derese, Solomon; **Ndakala, Albert**.and Guantai, Eric "Mitishamba Database of Natural Products from Kenyan Plants for Design of Antimalarial Drugs," *Grand Challenges Canada.*, **USD 90,000.**

Midiwo, Jacob; Yenesew, Abiy; Derese, Solomon; **Ndakala, Albert**, Kerubo, Leonidah, and Mwaniki, Joseph "Natural Products Chemistry Research towards Management of Tropical Diseases," *International Science Programme.*, **USD 187,000.**

### Membership of Professional Societies

Kenya DAAD Scholars Association

Kenya Chemical Society

Royal Society of Chemistry

### Committee Duties

Date	Position, Name of Committee
July 2013 –Present	Chair, School of Physical Sciences, Postgraduate Committee
September 2009 –June 2013	Chair, Department of Chemistry, Postgraduate and Seminars Committee
July 2008 - 2018	Coordinator, Chemistry Evening Programmes (CEP)

### Honors, Awards and Scholarships

Date	Granting Organization
26 <sup>th</sup> September 1991 –	A Deutscher Akademischer Austauschdienst (DAAD) Scholarship to pursue MSc.
31 <sup>st</sup> March 1994	degree studies at the University of Nairobi, Kenya
30 <sup>th</sup> September 1996	The East African Industries Chemistry award for the final year student with the best grades in chemistry
30 <sup>th</sup> September 1996	The Montedison award for the best final year student in the Department of Chemistry
30 <sup>th</sup> September 1996	The Enimont award for the best final year student in the Department of Chemistry

## Referees

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