



PROF. PAUL MWASHIMBA GUYO (PhD)

CURRICULUM VITAE

1. PERSONAL INFORMATION

Name: Paul Mwashimba Guyo
Date of Birth: 14th November 1966
Nationality: Kenyan
Languages: English and Kiswahili
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2. PERSONAL PROFILE AND CORE SKILLS

Personal Profile

Scientist with over six years' experience in the pharmaceutical industry. Expertise in the application of synthetic organic chemistry and heterocyclic chemistry for pharmaceuticals production. Strong project management, good team leadership and team working abilities.

Core Skills

- Strategic planning
- Performance monitoring and evaluations
- Program and project evaluations
- Program and project design
- Management
- Delivery of capacity building initiatives
- Workshop design and facilitation
- Design and delivery of stakeholder processes
- Work planning

3. ACADEMIC QUALIFICATIONS

University Education

Oct. 1995-Sept. 1998 (Ph.D.)

University of Manchester (UK), Department of Chemistry

Birch Reduction and Stereoselective Birch Reductions of Electron-Deficient Pyrroles Using Group I and II Metals in Ammonia.

Supervisor: **Prof. Timothy J. Donohoe**

Oct. 1995-Sept. 1996 (MPhil.)

University of Manchester (UK), Department of Chemistry

Birch Reductions of Electron-Deficient Pyrroles.

Supervisor: **Prof. Timothy J. Donohoe**

Nov. 1987-Aug. 1990 (B.Sc. Hons.)

Moi University (Kenya), Department of Chemistry

Isolation and characterisation of some major and minor constituents of *Warburgia ugandensis*: Formal synthesis of Polygodial.

Supervisor: **Prof. Mohamed S. Rajab**

School Education**Jan. 1985-Dec. 1986 (KACE, A-Level): High School F5 and F6**

Kenyatta High School (Taita-Taveta, Kenya),

Jan. 1981-Dec. 1984 (KCSE, O-Level): Secondary School F1 to F4

Khamis High School (Mombasa, Kenya),

Jan. 1974-Dec. 1980 (CPE): Primary School STD 1 to STD 7

Makande Primary School (Mombasa, Kenya)

4. PROFESSIONAL WORK EXPERIENCE**Academic Career**

Sept. 2013 – To date: Dean School of Pure of and Applied Sciences (Pwani University-Kenya)

Sept. 2012 – Sept. 2013: Acting Dean School of Pure of and Applied Sciences (Pwani University-Kenya)

Sept. 2011 – Sept. 2013: Chair of Department of Chemistry and Biochemistry (Pwani University-Kenya)

Sept. 2014 – To date: Associate Professor (Pwani University-Kenya)

Sept. 2010 – Aug. 2014: Senior Lecturer (Pwani University-Kenya)

Undergraduate: Teaching and tutoring students (at all level) in;

- Basic and Modern concepts in Organic Chemistry
- Medicinal/ Pharmaceutical Chemistry
- Natural Product Chemistry
- Heterocyclic Chemistry

Postgraduate: Teaching and tutoring in;

- Modern Organic Synthetic Chemistry
- Special topics in the advances of Organic Synthesis
- Advanced Heterocyclic Chemistry

Aug. 2008 – Aug 2010: Break to relocate back to Kenya

Pharmaceutical Industry Career (in AstraZeneca PLC)

April 2002 – July 2008: Senior Research Scientist

- Responsible for the synthesis and delivery of pre-toxicological compounds for drug nomination across all therapeutic areas. Delivered three (3) drugs, in cancer and infection, which are currently on Phase III clinical trial.
- Industrial supervisor of PhD students.

- Chair of chemical knowledge sharing team for the AstraZeneca (Cancer Section), Alderley Edge site.
- Seconded for twenty four (24) months (Jan 2006 - Dec 2007) to AstraZeneca Process Research and Development division. Acquired experience in process development (early to late phase), good manufacturing practice (cGMP) and quality assurance.
- Development of manufacturing process for a fast tracked cancer drug from Phase I to early Phase III.

Postdoctoral Fellowship (Research and Supervision)

May. 2001 – April 2002: Postdoctoral fellow (The University of Manchester-UK);

Supervisor: **Prof. Eric J Thomas**

Developed the synthesis of fluoro-benzazepin-4-one based compounds to be tested as potentially selective Muscarinic (M (3)) receptor antagonists.

May. 2000 – April 2001: Postdoctoral fellow (The University of Manchester-UK);

Supervisor: **Prof. Timothy J. Donohoe**

- Designed and optimised a synthetic route for preparation of Lactacystin *via* a Birch reductive aldol reaction. Lactacystin is a novel microbial metabolite which induces neurogenesis of neuroblastoma cells.

Feb. 1999 – April 2000: Postdoctoral fellow (University of Southern California-USA);

Supervisor: **Prof. George A. Olah (Nobel laureate)**

- Worked on the partial oxidation of methane using high-pressure supercritical and hydrothermal systems, incorporating super-electrophilic catalysis and noble metal catalysts; for the use in the conversion of methane to methanol.
- Investigated new stereoselective fluorination procedures for incorporating a fluorine atom in organic compounds.

Graduate and Teaching Assistantship (Research, Supervision and Teaching)

Oct. 1995 - Oct. 1998: Teaching Assistantship (The University of Manchester-UK);

Supervisor: **Prof. Timothy J. Donohoe**

- Supervised final year under graduate research projects, and 1st and 2nd year Ph.D. students.
- Organised weekly problem sessions and research presentations within the research group; designed for knowledge sharing and research problems solving.

Feb. 1991 - Aug. 1995: Research/ Teaching Assistantship (Moi University, Kenya);

Supervisor: **Prof. Mohamed S. Rajab**

- Taught and tutored undergraduate students
- Assisted in the supervision of 6 student final year undergraduate research projects during that period.
- Isolated and characterised some major and minor constituents of *Calodendrum capense*, *Azadirchta indica* and *Ajuga remota*.
- Assisted in the design of a formal synthesis of (\pm) Calodendrolide; to be tested for insect anti-feedant activity.
- Performed some synthetic modifications on Ajugarin-1 (from *Ajuga remota*) to be used in models for testing antihypertensive activity

Teaching Career in Secondary Schools

Aug. 1990 - Jan.1991: Likoni Secondary School (Mombasa)
Mathematics/ Chemistry/ Physics Teacher

5. ADMINISTRATIVE APPOINTMENTS

Sept 2012 to date: Dean, School of Pure and Applied Sciences Pwani University

Sept 2011 to Sept 2012: Chair of Department, of Chemistry and Biochemistry

Jan 2011 to Date: Science Technology and Innovation (STI) Desk Co-ordinator

Appointments to University Committees

- Member, PUC Academic Board: 2011-2013
- Chair, SPAS Postgraduate Committee for Pwani University: 2012 to date
- Chair, PUC Special Committee for Examination Results Audit (SEAC): 2012
- Member, PUC School of Medicine Steering Committee (SMSC): 2012
- Member, PU, Deans Committee: 2012 to date
- Member, PU Tender Committee: 2012 - 2016
- Member, PU Reference Team For Expression of Interest: 2012
- Member, Pwani University Statutes Committee-2013
- Member, PU Senate-2013 to date
- Member, PU Graduation Committee 2013 to date
- Member, PU Senate Budget Committee 2013 to date
- Chair, Special Committee to look into the Extraneous, Non-Practicing, Clinical and Other Allowances: 2013
- Chair, Special Committee of the Deans Committee for Faculty Capacity Development Framework -2014
- Chair, Special Committee of the Senate for Preparation of the University Catalogue-2014
- Chair, Special Committee of the Management Board for Academic Programmes Audit-2014
- Pwani University-KCDP Coordinator 2014 to date

6. SUPERVISION OF POSTGRADUATE STUDENTS

Doctor of Philosophy (PhD)

Nyinge Mwadzombo Nyinge: Registered for PhD (Chemistry) at Pwani University (2013)

- **Title:** Pollution Assessment of selected Organometallic and Organochlorine Derivatives along the Kenyan Coastal Marine Ecosystem using Coral Reefs as Environmental Indicator

Everlyne Nafula Kasima: Registered for PhD (Chemistry) at Pwani University (2016)

- **Title:** The Use of Molecular Modelling Techniques to Design New Budmunchiamine Structured Analogues As Probable Antimalarials

Others

- Supervised AstraZeneca funded PhD students during their industrial visits
- Supervised Ph.D. students as part of my Postdoctoral responsibilities

<p>Masters (Graduated)</p> <p>George Nyaboga Nyarieko: Registered for MSc (Microbiology) at Pwani University (2012)</p> <ul style="list-style-type: none"> • Title: Evaluation of <i>Acacia Stuhlmannii</i> Plant Extracts for their efficacy on management of Bacteria Wilt tomato caused by <i>Ralstonia solanacearum</i> • Graduated September 2016
<p>Masters (Defended)</p> <p>Saidi Salim Saidi: Registered for Masters of Environment Science at Pwani University (2014)</p> <ul style="list-style-type: none"> • Title: Evaluation of <i>Acacia Stuhlmannii</i> Plant Extracts for the control of Bacteria Wilt Disease. <p>Defended in September 2016</p> <p>Agnes Samba Kiungu: Registered for Masters of Environment Science at Pwani University (2014)</p> <ul style="list-style-type: none"> • Title: Phytoremediation of Kipevu Waste Water Using Vetiver Grass <p>Defended in September 2016</p>
<p>Masters (Studying)</p> <p>Mwandogo Omari Chigodi: Registered for MSc (Chemistry) at Pwani University (2011)</p> <ul style="list-style-type: none"> • Title: Isolation and Characterization of Active Anti-Pulmonic Compounds of <i>Acacia Stuhlmannii</i> Plant <p>Due to defend by early of 2017</p> <p>Collins Omondi Owino: Registered for MSc (Chemistry) at Pwani University (2013)</p> <ul style="list-style-type: none"> • Title: Direct Electrochemical α-Cyanation of Cyclic Amines using Potassium HexaCyanoFerrate (II), $(K_4Fe(CN)_6)$ as a Source of Cyanide and Sunlight as a Source of Energy <p>Due to complete in 2017</p>

<p>7. REVIEWER OF JOURNAL ARTICLES, PROPOSALS AND CURRICULA</p>	
<p>Journal Article Reviewer</p> <p>East African Journal of Pure and Applied Sciences-EAPAS (Review of articles for publication)</p> <ul style="list-style-type: none"> • <i>Activity of extractive from Albiza anthelmintica Brongu and Teclea trichocarpa Engl as birational alternatives to control the maize weevil (Sitophilus zeamais)</i> MS/EAPAS/1001/12 • <i>HIV drug design: Synthesis of reverse transcriptase double-drugs.</i> MS/EAPAS/1014 	
<p>Proposal Review</p> <p>Pwani University Research Board-PURB (Full Proposal Review)</p> <ul style="list-style-type: none"> • <i>An evaluation of Moringa Oleifera in the supportive treatment of patients with HIV/AIDS in the Bahari Division, Kilifi County Kenya</i> 	
<p>Curricula Review and Evaluation</p>	
<p>Pwani University</p> <ul style="list-style-type: none"> • BA in Islamic Studies • BA in Child Care and Protection 	<p>Taita-Taveta University</p> <ul style="list-style-type: none"> • BSc in Industrial Chemistry • BSc in Analytical Chemistry • Diploma in Science Laboratory Technology

8. PUBLICATIONS

1. Studies on the Antihypertensive effects of Ajugarin-1 on Experimentally Hypertensive Rats and the Syntheses of closely related Ajugarin derivatives. M. S. Rajab and **P. M. Guyo** (published in The Kenya Chemical Society Proceedings 1991).
2. A formal Synthesis of (\pm)-Calodendrolide. M. S. Rajab and **P. M. Guyo**, Bull. Chem. Soc. Ethiop. 1994, 8, 35-38.
3. Application of Stoichiometric Organotransition Metal Complexes in Organic Synthesis. T. J. Donohoe, **P. M. Guyo**, P. R. Moore and C. A. Stevenson, Contemp. Org. Synth., 1996, 4, 22-39.
4. Birch Reduction of Electron-Deficient Pyrroles. T. J. Donohoe and **P. M. Guyo**, J. Org. Chem., 1996, 61, 7664-7665.
5. The Reduction of Electron-Deficient Pyrroles Using Group II and I Metals in Ammonia. T. J. Donohoe and **P. M. Guyo**, R. L. Beddoes and M. Helliwell, J. Chem. Soc., Perkin Trans. 1, 1998, 667-676.
6. Birch reduction of nitrogen-containing heterocycles. Donohoe, Timothy J.; **Guyo, Paul M.**; Harji, Rakesh R. Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27 (1998),
7. The Birch Reduction of 3-Substituted Pyrroles. T. J. Donohoe and **P. M. Guyo**, R. R. Harji, M. Helliwell and R. P. C. Cousins, Tetrahedron Letters, 1998, 39, 3075-3078.
8. The Birch Reduction of Aromatic Heterocycles. T. J. Donohoe, **P. M. Guyo** and A. Raoof, Targets in Heterocyclic systems, Italian Society of Chemistry, 1999, 3, 117-145 (Review article).
9. The Stereoselective Birch Reduction of Pyrroles. T. J. Donohoe and **P. M. Guyo** and M. Helliwell, Tetrahedron Letters, 1999, 40, 435-438.
10. The Reductive Aldol Reaction of Aromatic Heterocycles. T. J. Donohoe K. W. Ace, **P. M. Guyo**, M. Helliwell, J. Mckenna, Tetrahedron Letters, 2000, 41, 989-993
11. Synthesis of a 5-alkoxyprido[4,3-d]pyrimidin-4(3H)-one derivative via a regioselective Meisenheimer N-oxide rearrangement. E. J. Williams, P. W. Kenny, J. G. Kettle and **P. G. Mwashimba** Tetrahedron Letters, 2004, 45, 3737-3739
12. Utility of the ammonia-free Birch reduction of electron-deficient pyrroles: Total synthesis of the 20S proteasome inhibitor, clasto-lactacystin beta-lactone. T. J. Donohoe, H. O. Sintim, L. Sisangia, K. W. Ace, **P. M. Guyo**, A. Cowley and J. D. Harling. Chemistry: A European Journal, 2005, 11, 4227-4238
13. Synthesis of 5-hydroxy-2,3,4,5-tetrahydro-[1H]-2-benzazepin-4-ones: selective antagonists of muscarinic (M₃) receptors. Benjamin Bradshaw, Paul Evans, Jane Fletcher, Alan T L Lee, **Paul G Mwashimba**, Daniel Oehlrich, Eric J Thomas, Robin H Davies, Benjamin C P Allen, Kenneth J Broadley, Amar Hamrouni, Christine Escargueil Org Biomol Chem., 2008, 6 (12), 2138-2157.
14. Screening for Bioactivity of Phytochemical Extracted from *Acacia stuhlmannii* Against *Ralstonia solanacearum*. Nyaboga Nyarieko, Mwafaida Mghalu, **Paul Guyo**, Mwandogo Chigodi, Journal of Biology, Agriculture and Healthcare, 2016, 6 (16), 65-70.

15. Management of Tomato Bacterial Wilt Using Root Bark Extracts of *Acacia Stuhlmannii*. Nyarieko George Nyaboga, Mghalu Joseph Mwafaida, **Guyo Paul Mwashimba** and Rose Kigathi, *Afr. J. Hort. Sci.* (submitted)

9. WORKSHOPS, CONFERENCE SHORT COURSES AND TRAINING

Short Courses and Training

- Breathing Apparatus: Handling and Use: Manchester-UK (**5th June, 2003**)
- Breathing Apparatus: Handling and Use: Manchester-UK (**8th June, 2004**)
- Breathing Apparatus: Handling and Use: Manchester-UK (**7th June, 2005**)
- Introduction to Global Electronic Library (GEL) for Authors: Manchester-UK (**16th August, 2006**)
- Heterocycles Synthesis, a Two-Day Course: AstraZeneca, Macclesfield, (**October, 2007**)
- Basics of Regulatory Affairs: London-UK (**13th August, 2009**)
- ISO 9001-2015 Quality Management Systems Internal Auditors Training Course: Kilifi (**27th to 28th January, 2016**)
- Change Management and Strategic Leadership: Q-Point BV: Malindi (**11th to 13th July 2016**)

Workshops

- Advanced Synthetic Strategy Workshop: AstraZeneca, Alderley Park (**13th-14th January, 2003**)
- Palladium Catalysed Synthesis workshop?: AstraZeneca, Alderley Park (**5th November, 2003**)
- Mechanism and Synthesis Workshop: AstraZeneca, Alderley Park (**22nd-23rd November, 2004**)
- Retrosynthesis and the use of Illogical Disconnections Workshop: AstraZeneca, Alderley Park (**2nd February, 2005**)
- Process Chemistry Literature Review for (2005-2006), AstraZeneca, Macclesfield, (**15th November, 2006**)
- Asymmetric Synthesis Workshop: AstraZeneca, Alderley Park (**4th-5th July, 2005**)
- Capacity Building: Higher Education and Corporate Social Responsibility workshop: *Quality Management of Higher Education*. Pwani University College (**15th June, 2011**)
- Impact of Social Change: UN Convention on the Rights of Persons with Disabilities (UNCRPD) as a trigger? Pwani University College (**16th-17th June, 2011**).
- Capacity Building: Higher Education and Corporate Social Responsibility workshop: *The UN Convention on Rights of Persons with Disabilities*. Pwani University College (**20th June, 2011**)
- Capacity Building: Higher Education and Corporate Social Responsibility workshop: *Didactics in Higher Education*. Pwani University College, (**21st June, 2011**)
- Capacity Building: Higher Education and Corporate Social Responsibility workshop: *Good Governance*. Pwani University College, (**25th June, 2011**)
- AAU-EARN Conference on HIV/AIDS Mainstreaming and integration into the University Curriculum: Getting to Zero. North Coast Beach Hotel (**27th-28th March, 2013**)
- Stakeholders Meeting on Curriculum Review (Discussant role): Pwani University, (**20th January, 2014**)

- Strengthening Aid Control Unit (ACU) Capacity on Early Identification of ADA among Employee and Students: Pwani University, (24th January, 2014)
- Resource Mobilization, Business Plan & Strategy for Medical Training Colleges: Elementaita (20th to 24th April 2015)

Conferences

Presented

- The Kenya Chemical Society (KCS), Nairobi, Kenya (1991).
- Society of Chemical Industry (SCI) Colloquium Competition. Manchester-UK (1998)
- Society of Chemical Industry (SCI) and the Royal Society of Chemistry (RSC) Greater Manchester Prize Colloquium Competition. Manchester-UK (1998)

Attended

- The 18th Lakeland Heterocyclic Symposium [RSC Heterocyclic & Synthesis Group] Grasmere (10th-14th May, 2007)
- Coast Education Conference, held at Pwani University College in collaboration with the National council for Science and Technology (3rd July, 2012).

Seminars

- Boronic Acid Mannich Reaction: A Few Applications: AstraZeneca (17th July, 2003)
- EGFR Selective Kinase Inhibitor Back-up Project: AstraZeneca (26th May, 2004)
- EGG-5 Project, AstraZeneca, Macclesfield- (10th May, 2005)

Posters

- The Pfizer Organic Chemistry Poster symposium: London (December, 1997)
- CCTAP Poster Event 2004: EGFR Selective Kinase Inhibitor Back-up Project: AstraZeneca (25th May, 2005)

10. RELEVANT SKILLS AND OTHER PROFESSIONAL ATTRIBUTES

Research Interests

My research interests lie in the development of new organic synthetic methodologies, synthesis of natural products of pharmaceutical significance and enhancing efficacy of known anti-malarials through functional group/s modification.

Strategic Planning and Policy Formulation

Key role in preparation of:

- Pwani University Charter
- Pwani University Statutes
- Pwani University Strategic Plan (2014-2024)
- Education for Sustainable Development (ESD) Policy

Curricula and Other Academic Documents

- Development of Curricula for Degree level programmes
 - MBChB,
 - BED Science
 - BSc. Industrial Chemistry
 - BSc. in Chemistry
 - BSc. in Physics
 - BSc. in Botany

- BSc. in Zoology
- BSc. in Mathematics
- Development of Other Academic Documents
 - University Prospectus
 - University Calendar
 - Faculty Capacity Development Framework

Report Writing

- Research reports: AstraZeneca
- Self-Assessment Reports (Annual planning and review report): AstraZeneca
- Quarterly Performance reports: Pwani University

Computer Literacy

- Competence in packages such as Chemdraw[®], ISIS, MS-Project, MS-Power Point, MS-Excel, MS-Word[®] etc).
- Competence in use of Apple Macintosh[®] and Chemical databases (e.g. MDL Cross Fire, SciFinder, ACD-Labs etc).

Instrumental techniques:

- NMR (Bruker and Gemini), FT-IR, DSC
- GC-FID, GC-MS, LC-MS, HPLC
- Companion[®] (small scale preparative chromatography)
- Microwave reactors, High-pressure reactors and

11. PROFESSIONAL SOCIETIES AND LINKAGES

Professional Affiliations memberships

- The Royal Society Chemistry (*MRSC*)
- The Organisation for Professionals in Regulatory Affairs (*TOPRA Member*)
- The Kenyan Chemical Society (*K.C.S*)

Linkages

- Member, Kenya Coast Development Project (KCDP)-Capacity Building Committee
- Member, Pwani University Health Research Institute (PUHRI) Steering Committee
- Member, Community Based Development Agency Pwani University (COBA-PU)
- Partnership Steering Committee

12. HONOURS AND ACHIEVEMENTS

- MPhil Scholarship (The Government of Kenya)-**1995**
- PhD Scholarship (The University of Manchester)-**1996**
- Society of Chemical Industry (*SCI*) Colloquium Competition.(Financial Award)-**1998**
- Society of Chemical Industry (*SCI*) and the Royal Society of Chemistry (*RSC*) Greater Manchester Prize Colloquium Competition. (Certificate-Silver)-**1998**
- Lead applicant for the Seeding Labs equipment grant worth over USD 350,000 (grant no. SL2012-5)-**2013**

13. REFEREES**Professor Justin Irina**

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Technical University of Mombasa
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Mombasa-Kenya.

Professor James Kahindi

Deputy Vice Chancellor (ASA)
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