

CURRICULUM VITAE

NAME: **George Ogello Obiero**, PhD
Senior Lecturer-(January 2012 upto Date)-Centre of Biotechnology and Bioinformatics-
University of Nairobi-Kenya

Platform Manager/Senior Research Scientist (Nov. 2010 –December 2011) –Bioprocessing
Platform :**Technology Innovation Agency-Durban-South Africa**

Senior Research Scientist (2009 upto November 2010)-Bioprocessing Platform :**Technology
Innovation Agency-Durban-South Africa**

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MARITAL STATUS: Married

EDUCATION: UNIVERSITY

- 1993-1997 : B.Sc. University of Nairobi, Faculty of Science
Major: Biochemistry and Chemistry
Award: Second Class Honours
- 1999-2001 : Msc (Natural Products Chemistry), University of Botswana,
Department of Chemistry.
Thesis title: Flavonoids from *Erythrina lysistemon* and their biological activities.
Supervisor: Prof Runner Majinda
- 2002-2006 : Ph.D., University of Free State, Department of Microbial,
Biochemical and Food Biotechnology.
Thesis title: Evaluation of *Yarrowia lipolytica* as a host for cytochrome P450
expression
Supervisor: Prof. Martie Smit
- 2006-Dec 2007 : Post Doc Fellowship. University of Cape Town,
Bioprocessing Engineering Research Unit.
Department of Chemical Engineering.

Research Focus: (1) Using Cytochrome P450 monooxygenases for the production of value added products from alkanes and optimisation of productivity using sixfors multireactor/bioreactor system
The project involved bioreactor (20 L Braun Biostat), multireactor (6 vessel sixfors multireactor) and shake flask optimisation studies

OTHER TRAININGS ATTENDED

2011 November 28th to December 2011: WIPO-South Africa Summer School on **INTELLECTUAL PROPERTY: Cape Town South Africa**

2011 October: **Management Course for New Managers**, at AstroTech Training (Pty) Ltd, Johannesburg, South Africa

2009, June/July: Professional Program in Fermentation Technology [20.48s], at **Massachusetts Institute of Technology (MIT), US**

2009 August: Certificate Course in Project Management, **North West University**

2010: Clearance Training Course at Heartland Leasing:
Skills: Safety Clearance for work on Industrial and laboratory site

2005: Industrial Quality Management Course, **University of Free State**
Skills: statistical Process Control and HACCP

2005 Principles of Bioprocess Engineering, **University of Free State**

Batch and Continuous Culture of Micro organisms

Death and Growth of Micro organisms

2001: UNESCO training course on ABC transporters overexpressed in yeasts as drug targets,

Department of Chemical Pathology, **University of Cape town, South Africa**

SUMMARY OF PROFILE

George Obiero, PhD worked as a Senior Research Scientist, at Technology Innovation Agency (TIA). Since November 2010, George was the Platform Manager on top of his work as a Senior Scientist at the Bioprocessing Platform. The main duties included: mentoring other staff members, researchers, interns, work integrated learners and entrepreneurs as well as ensuring that the platform provides adequate technical and administrative support to its tenants and projects. He was also in charge as the Management representative in the Safety, Health and Environment Committee.

Dr George Obiero also served in the advisory board, School of Biotechnology and Food Technology, Durban University of Technology and has been a Guest lecturer at Durban University of Technology and the School of Chemical and Minerals Engineering, University of North West, Potchefstroom where he teaches Bioprocessing/Biotechnology related courses to post graduate students. Dr George Obiero has over 7 years experience in biosciences research, focused strategically in advanced biosciences as applied in enhancing institutional capacity building and Technology Innovation. The compelling evidence is provided by research outputs consisting of over, 10 papers in journals and proceedings;

over 6 conferences and workshops attended as well as over 6 scientists trained and mentored at MSc, Honors, intern and B.Tech and Diploma levels.

To date among the outstanding achievements of Dr George Obiero, includes successfully acting as the Platform Manager, Bioprocessing Platform, and ensuring that projects meet their milestones. George has also been involved in the accreditation work towards ISO 17025 for the analytical laboratory section at the Bioprocessing platform

KEY RESPONSIBILITIES-Acting Platform Manager/Senior Research Scientist

- Responsible for all the daily operations and safety issues at the Bioprocessing platform
- Develop effective business plan and budgeting at the Bioprocessing Platform
- Establish appropriate processes-for platform activities
- Collate, Draft and submit quarterly plans detailing activities, milestones and finances for the platform
- Manage Human Resources at the Bioprocessing platform including determination of human resource needs
- Perform collaboration and network with other researchers and industry
- Ensures that platform achieves its strategic goal of supporting innovative projects
- Overall management of activities at the Bioprocessing platform
- Ensures that the platform provides adequate technical and infrastructural support to its tenants and projects
- Mentoring of other staff members, researchers and interns in terms of scientific research
- Develop and implement a maintenance plan for the platform
- Member of Management Representative in the Platform SHE Management Team

SOME RECENT ACHIEVEMENTS

- Successfully applied for registration of platform facility with Directorate of Biosafety, Department of Agriculture, Forestry and Fisheries, South Africa. A Certificate awarded on the 15th of August 2011 to the Platform in terms of GMO act, of 2007 as a containment level 2 facility
- Compiled and submitted platform operational plan for the year 2011/12
- Compiled and submitted platform budget for the financial year 2011/12
- Successfully developed bioprocess platform staff performance contracts and job profiles for the year 2011/2012
- Successfully mentored platform staff towards achieved their post graduate degrees on platform based projects. Industrial mentor of M.Tech and B.Tech internal projects by Platform staff. several interns graduated with excellent marks for their work integrated learnership
- Successfully wrote a documentary, via the TIA Communication Team on platform activities that appeared in one of the heartland industrial complex's community newspapers
- I have successfully acted previously as the Platform Manager a post which involved taking managerial responsibilities in 2009
- Successfully given technical support to platform tenants and project to meet their set milestones and deliverables

LEADERSHIP IN INSTITUTIONAL DEVELOPMENT & NETWORKS

- November 2010 - to January 2012: Platform Manager, Technology Innovation Agency Bioprocessing Platform
- April 2010 –May 2010 : Acting Platform Manager, Bioprocessing Platform, Technology Innovation Agency
- May 2010 -Member of Advisory Board: Durban University of Technology, School Biotechnology and Food technology
- November 2010 upto January 2012-Management Representative to the SHE Committee, Bioprocessing Platform
- 2009 – to Date: Member of Senior Management Team: Bioprocessing Platform
- 2001 - 2006: Member of Post Graduate Admissions Committee, University of Free State
- 2008-2009-Member of Steering Committee: Thusaneng Community Project: South Africa National Energy Research Institute (SANERI) sponsored project with the participation of the SANERI associate Chair, Biofuels Group, North West University
- 1997: Member to Nairobi University Biochemical Students Association (NUBSA)

INSTITUTIONAL LINKAGES & PARTNERSHIP

1. TIA – Durban University of technology (2010 – to Date) - : Has lead to Research Facility strengthening through joint research projects & student supervision
2. TIA – National Bioproducts Institute (NBI)–Has lead to on use of TIA infrastructure and equipment to test for NBI's new commissioned automatic filling facility
3. Research Collaboration with the School of Chemical and Minerals Engineering, North West University

EMPLOYMENT EXPERIENCE

1. **2010 Nov - to January 2012:** - Platform Manager, Bioprocessing Platform, Technology Innovation Agency

Key Responsibilities

- Responsible for all the daily operations at the Bioprocessing platform
- Develop effective business plan and budgeting at the Bioprocessing Platform
- Establish appropriate processes-for platform activities
- Collate, Draft and submit quarterly plans detailing activities, milestones and finances for the platform
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2. **2009 - up to 2012** Senior Research Scientist, Bioprocessing Platform, Technology Innovation Agency

Key Responsibilities

- Providing Scientific leadership, mentorship and support to a multi-disciplinary team of Researchers/Scientists, and entrepreneurs at the Platform
- Perform collaboration and network with other Scientists, Industrial stakeholders and Researchers
- Help with Planning fermentation and bioprocessing experiments
- Supervisory and mentorship to junior staff, interns as well as teaching and demonstrate to students and community
- Provide technical assistance to Platform Manager with regard to research and applications
- Oversee all activities in the laboratory. Assist with equipment and laboratory management
- In charge of academic interns who come for Industrial mentorship at the bioprocessing platform
- Stand in for Platform Manager in his/her absence taking managerial responsibilities
- Present Bioprocess Technology Course to TIA staff, industrial interns and tenants/entrepreneurs at the platform through Internal training programme

3. **2008 - to 2009:** Researcher- Under SANERI Associate Chair, Biofuels Research Group. University of North West (Potchefstroom Campus), School of Chemical and Mineral Engineering, Potchefstroom
4. **2006-Dec 2007:** Post Doc Research Fellow/Researcher, Bioprocess Engineering Research Unit, Department of Chemical Engineering, University of Cape Town.
5. **2003 June - 2006:** - Demonstrator, University of Free State, Department of Microbial, Biochemical and Food Biotechnology
6. **2000- 2002:** Teaching Assistant , Department of Chemistry, University of Botswana

SCHOLARSHIP AWARDS

1. **2002-2006:** - Awarded the National Research Foundation PhD scholarship to study for
2. PhD degree at the University of Free State.
3. **2006-2007:** - Awarded the South African Government-Scholarship under the Centre of Excellence in Biocatalysis (*C Change) Scholarship for my Post Doctoral at Department of Chemical Engineering, Bioprocessing Research Unit , South Africa

TEACHING EXPERIENCE

1. **2000-2006:** Teaching assistant/demonstrator-University of Botswana, and University of Free State: Supervision of undergraduate students
2. **2006 – to date:** Supervision of Postgraduate Undertaking, Diploma, Honours Msc & PhD studies
3. **2008 – to date:** Conducting lectures for Msc students undertaking Biotechnology and Bioprocessing Courses at University of North West, Potchefstroom Campus and Durban University of Technology

4. **2010 – to date:** Conducting lectures for the following undergraduate student degree courses in Bioprocessing (Introduction to Bioreactors and Solid State Fermentation: , Bachelor of Technology (Biotechnology)-Durban University of Technology

EXTERNAL APPOINTMENTS

1. 2009: Reviewer- National Research Fund, Department of Science and Technology.
2. 2012: External Examiner, Post graduate Master's thesis-School of Chemical&Mineral Engineering-North West University

SELECTED RESEARCH PROJECTS INVOLVED IN

1. Use of appropriate micro-organisms to produce products as Biological Control Agents
2. Production and optimization of Soy milk production from commercial and Udamame beans
3. Production of useful enzymes from agricultural wastes for use in animal health
4. Optimization of liquid spawn mushroom using submerged fermentation

RESEARCH PROJECTS GRANTS AWARDED

1. African Women in Agricultural Research and Development States Agency for International Development (USAID)-CDR grant: For optimization of xanthum gum production from cassava using microorganisms - 2011): U.S Dollar \$ 30,000 (Awarded). Work towards PhD
2. Platform Internal Project grant, LIFElab (2010): Optimization of soy milk production from Edamame beans: R.40,000

NATIONAL TRAINING COURSE PROGRAMMES ORGANISED

1. Training Course on Fermentation Technology organized at the Bioprocessing Platform for staff, tenants, 19th – 23 April 2010. Was the lead Trainer
2. Training Course on Fermentation Technology to be organized at the Bioprocessing Platform for staff, tenants, To be held on the 20th – 22nd September 2011

POSTGRADUATE SUPERVISION

MSc. Students Supervision (completed)

1. β -galactosidase production by *Kluyveromyces lactis* in batch, fed-batch and continuous fermentation. Elaine Ram (M.Tech - 2011) Durban University of Technology
2. Optimization of ethanol yield from cassava (Msc Thesis-2010). Thandokazi Nguma., Department of Chemical and Minerals Engineering, University of North West, Potchefstroom Campus
3. Production and optimization of ethanol through pervaporation (Msc Thesis-2011). Aubrey Nengauza. Department of Chemical and Minerals Engineering, University of North West, Potchefstroom Campus

4. Optimization of enzymatic production of ethanol production from corn stover (Msc Thesis 2011). Nombongo Mabitsela. Department of Chemical and Minerals Engineering, University of North West, Potchefstroom Campus

B.Tech Student Supervision (Completed)
5. β -galactosidase production by *Aspergillus oryzae* by solid state and liquid fermentation. Wayne Mackay (B.Tech-2011) Durban University of Technology

MSc. Students Supervision
6. Nozi Gumede an Msc. (2011) student carrying out studies on: Production of Sophorolipids by *Candida bombicola* through batch and fed-batch fermentation for antimicrobial application-ongoing
7. Moses Monye an MSc. (2011) student carrying out studies on: Ethanol Gel Production from South African Cacti-*Graduated*

PhD Students Supervision
8. Deborah Wendi (2011) Student carrying out studies on: to develop a process for derivation of high quality xanthan gum from cyanogenic cassava using *Xanthomonas campestris pv.campestris* (*Xcc*)

RESEARCH PUBLICATIONS AND SEMINARS

JOURNALS

1. Wanjala W Cornelius, Teresa Akeng'a, **George O Obiero**, Kyetu P Lutta. (2009). Antifeedant activities of Erythrinaline alkaloids from *Erythrina latissima* against *Sporoptera littoralis* (*Lepidoptera noctuidae*). Records of Natural Products, 3:2: 96-103
2. Shiningavamwe, AN, **Obiero, G.O**, Albetyn, K., Nicaud, J-M., Smit, M. (2006). Heterologous expression of the benzoate *para*-hydroxylase encoding gene (CYP53B1) from *Rhodotorula minuta* by *Yarrowia lipolytic*. Journal of Applied Biotechnology and Biotechnology. 72: 323-329

ABSTRACT PROCEEDINGS

3. Tandokazi Yvonne Nquma, Sanette Marx and **George Obiero** (2009). Optimisation of ethanol yield from cassava. Poster/oral presentation at the South African Chemical Engineering Congress, 20th-23rd September 2009, at Somerset West, South Africa. Book of Abstracts, page 128
4. N.Mabetsela, S.Marx, and **G.O.Obiero** (2009). Optimization of enzymatic conversion of maize stover to bioethanol. Poster presentation at the South African Chemical Engineering Congress, 20th-23rd September (2009), at Somerset West, South Africa. Book of Abstracts, page 141-**Won the Best Poster Award**

5. Cris Theron, Khajamohiddin Syed, Andreas Shiningavamwe, Evodia Setati, **George Obiero**, Newlande van Rooyen, Limpho Ramarobi, Simbarashe Mabwe, Jacobus Albetyn, Jean-Marc Nicaud, Martha Smit (2008). *Yarrowia Lipolytica* as a host for heterologous expression of cytochrome P450 monooxygenase. Poster presentation at Bio-08 conference in January held at Grahamstown, South Africa
6. **George Obiero**, Martha Smit, Sue T.L. Harrison (2008). Bioconversion of linear alkanes to dicarboxylic acids using genetically engineered yeast strains. Oral presentation at Bio-08 conference in January held at Grahamstown, South Africa
7. Cris Theron, Khajamohiddin Syed, Andreas Shiningavamwe, Evodia Setati, **George Obiero**, Newlande van Rooyen, Limpho Ramarobi, Simbarashe Mabwe, Jacobus Albetyn, Jean-Marc Nicaud, Martha Smit (2008). *Yarrowia Lipolytica* as a host for heterologous expression of cytochrome P450 monooxygenase. Poster presentation at Biotrans 2007 conference held in Oviedo, Spain
8. Sue T.L. Harrison, **G.O. Obiero**, A. Hughes, A. McMahon, R. Rawatlal, M.S. Smit (2007). Activation of Linear Alkanes to Oxygenated Intermediates and Products using Genetically Engineered Yeast streams. Catalysis Conference of South Africa (CATSA) held between 11th-14th November 2007 at Richards Bay, South Africa. Book of Abstracts, Oral presentation
9. **Obiero G.O.**, and M.S Smit (2006): Biotransformation of phenylnonane using *Yarrowia lipolytica* overexpressing a benzoate *para*-hydroxylase from *R. minuta*. - 14th Congress of the South African Microbiology Society held between 9th-13th April, 2004 at Pretoria, South Africa, Book of Abstracts
10. **Obiero G.O.**, and M.S Smit (2006): Production of dioic acids using genetically engineered *Yarrowia lipolytica* - C-Change conference held between 9th-13th April, 2006 at Mussel bay, South Africa, Oral Presentation
11. **Obiero G.O.**, and M.S Smit (2006): Biotransformation of *trans*-Cinnamic acid and phenylnonane by an engineered *Yarrowia lipolytica* strain overexpressing benzoate *para*-hydroxylase- Catalysis Conference of South Africa (CATSA) held between 9th-13th April, 2006 at Mussel bay, South Africa, Book of abstracts
12. LM ramarobi , N van Rooyen, **G.O Obiero** and M.S. Smit. (2006); Biotransformation of decyl-and butylbenzene by engineered *Yarrowia lipolytica* strains -19th Congress of the South African Microbiology Society between 4th-7th April, 2006 at Pretoria, South Africa, Book of Abstracts.
13. C Theron, LM Ramorobi, **G.O Obiero** and M.S. Smit. (2006); Biotransformation limonene and p-cymene by engineered *Yarrowia lipolytica* overexpressing different alkane hydroxylases -19th Congress of the South African Microbiology Society between 4th-7th April, 2006 at Pretoria, South Africa, Book of Abstracts.
14. **Obiero G.O.**, and M.S. Smit. (2004); Biodegradation of benzoic acid derivatives by Yeast *Rhodotorula minuta* - 18th Congress of the South African Genetics Society held jointly with the South African Microbiology Society between 4th-7th April, 2004 at Stellenbosch, South Africa, Book of Abstracts

15. **Obiero G.O.**, A.N. Shiningavamwe, J.M. Nicaud, and M.S. Smit. (2004); Biotransformation of Benzoic Acid by an engineered *Yarrowia lipolytica* -18th Congress of the South African Genetics Society held jointly with the South African Microbiology Society between 4th-7th April, 2004 at Stellenbosch, South Africa, Book of Abstracts
16. M.S. Smit, J-M. Nicaud, M.E. Setati, **G.O. Obiero**, A.N. Shiningavamwe, N. Van Rooyen, and J. Albertyn (2004); Aromatic hydrocarbon degradation in ascomycetous and basidiomycetous yeasts-121th Event of the European Federation of Biotechnology-Physiology of yeasts and filamentous fungi-March 24-28, 2004 in Anglet-France, Book of Abstracts

WORKSHOPS ATTENDED

1. Complete conference on biofuel policies in Africa, 25-27, June 2008, Mali Bamako-Rappateur in one of the sessions
2. Workshop; 2nd Annual Biofuels: food Vs Energy Debate Forum, March, 10-13th, 2009 Bloemfontein, South Africa
3. Workshop on Mentorship-March 2011.Organised by Department of Science and Technology and National Research Fund..28th March, at CSIR Pretoria, South Africa
4. Workshop on Labour relations: 29th June 2011, at CatoMano Conference room, TIA regional Office

THESIS

1. Obiero G.O., (1996): Evaluation of *Yarrowia lipolytica* as a host for Cytochrome P450 expression

OTHER ACTIVITIES

1. Reviewer National Research Foundation.

MEMBERSHIP OF PROFESSIONAL ORGANISATIONS

1. 2000 - to date:- South African Microbiology Society
2. 2010 - to 2012: Member of Heartland Industrial Complex Safety Forum
3. 2010 to date: Member of Chemical and Allied Process Safety Forum
4. 2010 to 2012: Member of Management Representative to Platform SHE Committee

REFEREES

1. **Professor Martie Smit**
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