

# **CURRICULUM VITAE**

## **Dr. Wycliffe Chisutia Wanyonyi**

*B.ED (Sc). (KU); M.Sc. (UON); PhD (UoN)*

### **Work Address:**

*University of Kabianga,  
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### **Education Background**

- Jun/2012 - Dec/2015: Doctor of Philosophy in Chemistry, University of Nairobi. Thesis titled "Isolation and Characterization of Biomass Modifying Enzymes for Bioremediation and Production of "Green Specialty Products".
- Oct/2008 - Dec/2011: Master of Science in Chemistry, University of Nairobi. Thesis title "Biosorption of Organic Dyes from Aqueous Solution using Water Hyacinth (*Eichhornia Crassipes*) from Lake Victoria".
- Sep/2002 - Dec/2006: Bachelor of Education B.ED (Science), Kenyatta University 2<sup>nd</sup> Class Honors (Upper Division) specializing in Chemistry (major) and Mathematics (minor).
- Jan/1997 - Dec/2000: Kenya Certificate of Secondary Education (K.C.S.E), Result B (Plain), Kivaywa Secondary School.
- Jan/1987 - Dec/1996: Kenya Certificate of Primary Education (K.C.P.E.), Result B (Plain), Makhukhuni Primary School.

### **Other Courses**

- 13<sup>th</sup> -16<sup>th</sup> April 2015: Integrated pest management (IPM), Responsible Pesticide Use, Pesticide Application and Counterfeit and Illegal pesticides Training at The International Centre of Insect Physiology and Ecology (ICIPE) Nairobi.
- 25<sup>th</sup> - 29<sup>th</sup> Aug/2014: Instrumentation Workshop on GC-MS covering mainly basic aspects in theoretical and practical aspects of Gas Chromatography, Electron Ionization (EI) Mass Spectrometry, quantitative analysis and spectral interpretation. Workshop took place at the Department of Chemistry, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.

### **Employment Records**

- April/2016 – Date: Lecturer at University of Kabianga (UoK), School of Science & Technology, Department of Physical Sciences.
- Oct/2015 – Mar/2016: Tutorial fellow at University of Kabianga (UoK), School of Science & Technology, Department of Physical Sciences.
- Feb/2014 – Mar/2016: Session Assistant lecturer at Technical University of Kenya, Department of Chemical Science.
- Jul/2013 – Dec/2015: Research assistant in Chemistry and Biochemistry department, University of Nairobi working on research project titled "Industrial enzymes for bio - pulping and bioremediation applications"
- Aug/2014 - Jun/2015: Environmental Monitoring Analyst interns at Land O'Lakes International Development under the Kenya Feed the Future Innovation Engine.
- Apr/2009 – Jul/2013: Clerk in Charge of RTGS (Real time gross settlement); foreign payment; fixed deposits; Call deposits; T-bill; T-bond and Customer Enquiries in the Treasury and Operation division, Kenya Commercial Bank.

### **Research Grants Awarded**

- October/2017: Awarded the National Research Fund for Multidisciplinary and Multi-Institutional Proposals for implementation of the project entitled “Development of Biodegradable Thermoplastic and Polymers from Waste Feathers Using Enzymatic Technology for Clean Environment” KES 15,000,000.00
- Sep/2017: Part of the team awarded the BioInnovate Africa Research Grant for implementation of the project entitled “Piloting and commercialization of economically viable leather processing technology for environmental protection and zero waste discharge” US\$ 750,000
- March/2017: Awarded the University of Kabianga, Research Grant for the implementation of project titled “Adsorption and Removal of Organic Dyes from Aqueous Solution Using Different Parts of Mangrove Tree from Indian Ocean: Kinetic and Equilibrium studies” KES 300,000.00
- Sep/2016: Awarded the PHOSAGRO/UNESCO/IUPAC Research Grant in Green Chemistry for young scientists for implementation of the project entitled “Enzymatic Hydrolysis of Feathers using a Newly Isolated thermostable Alkaline Protease for the Formulation of Animal Feeds and Cosmetics” USD 30,000.00
- Feb/2013: Awarded the World Federation of Scientists Scholarship in support of PhD project entitled “Characterization of the selective White-rot fungus Kraft pulp - modifying enzymes to improve selected paper properties and degradation of recalcitrant organic dyes”. Swiss Franc (CHF) 170.00 per month for 18 month.
- Aug/2012: Awarded the Science, Technology and Innovations Research Grant by National Council for Science and Technology (NCST) in support of PhD project entitled “Characterization of the selective White-rot fungus Kraft pulp - modifying enzymes to improve selected paper properties and degradation of recalcitrant organic dyes”. KES 963,000.00.

## **Publications in Refereed Journals**

### **A : Patents Filed**

1. Wycliffe Chisutia Wanyonyi, John Mmari Onyari, Paul Mwanza Shiundu, Francis Jackim Mulaa (2016). New Eco-friendly and Clean Method of Processing Hides and Fish Skins into Leather Using Alkaline Protease Enzyme. *Patent Cooperation Treaty (PCT)/World Intellectual Property Organization (WIPO)*. International Publication Number. WO 2016/159394A8). International Publication Date. 6<sup>th</sup> October 2016
2. Wycliffe Chisutia Wanyonyi, John Mmari Onyari, Paul Mwanza Shiundu, Francis Jackim Mulaa (2017). New Eco-friendly and Clean Method of Processing Hides and Fish Skins into Leather Using Alkaline Protease Enzyme. *Kenya Industrial Property Institute (KIPI)*: Patent Number: KE 748. Date of grant: 06<sup>th</sup> February 2017

### **B: Papers**

3. Gilbert K. Cheruiyot, **Wycliffe C. Wanyonyi**, Kiplimo J. Joyce and Esther N. Maina (2019). Adsorption of Toxic Crystal Violet Dye Using Coffee Husks: Equilibrium, Kinetics and Thermodynamics Study. *Scientific African Journal - Elsevier* (Accepted for publication)
4. **Wycliffe C. Wanyonyi** and Francis J. Mulaa (2019) Alkaliphilic Enzymes and Their Application in Novel Leather Processing Technology for Next-Generation Tanneries. *Advances in Biochemical Engineering/Biotechnology-Springer* 1-26
5. Wycliffe C. Wanyonyi, John M. Onyari, Paul M. Shiundu, Francis J. Mulaa (2019) Effective biotransformation of Reactive Black 5 Dye Using Crude Protease from *Bacillus Cereus* Strain KM201428: *Journal of Energy Procedia- Elsevier Journal of Energy Procedia- Elsevier* 157: 815–824
6. **Wycliffe Chisutia Wanyonyi**, John Mmari Onyari, Paul Mwanza Shiundu, Francis Jackim Mulaa (2017) Biodegradation and Detoxification of Malachite Green Dye Using Novel Enzymes from *Bacillus cereus* Strain KM201428: Kinetic and Metabolite Analysis. *Journal of Energy Procedia- Elsevier* **119**: 38–51

7. Ann Wangari Mureithi, John Mmari Onyari, **Wycliffe Chisutia Wanyonyi**, Francis Jackim Mulaa (2017) Amino acid Composition of Gelatin Extracted from the Scales of Different Marine Fish Species in Kenya. *International Journal of Scientific Research in Science, Engineering and Technology*. 3(3): 558-563
8. **Wycliffe Chisutia Wanyonyi**, John Mmari Onyari, Paul Mwanza Shiundu, Francis Jackim Mulaa (2014). Enzymatic Decolorization of Malachite Green Dye by a Newly Isolated *Bacillus Cereus* Strain *wwcp1*. *Journal of Environmental Science, Toxicology and Food Technology* **8 (12)**: 58-64
9. Esther N. Maina, Helen W. Kinyi, Dominic O. Ochwang'i, Amos M. Meroka and **Wycliffe C. Wanyonyi** (2014). Liver toxicity of Crude extract of *Ficus natalensis* traditionally used in South Western Uganda. *African Journal of Pharmacology and Therapeutics*. **3(4)**: 116-121
10. **Wycliffe Chisutia Wanyonyi**, John Mmari Onyari, Paul Mwanza Shiundu (2014). Adsorption of Congo Red Dye from Aqueous Solutions Using Roots of *Eichhornia crassipes*: Kinetic and Equilibrium Studies. *Energy Procedia* **50**: 862 – 869
11. **Wycliffe Chisutia Wanyonyi**, John Mmari Onyari, Paul Mwanza Shiundu (2013) Adsorption of methylene blue dye from aqueous solutions using *Eichhornia crassipes*. *Bull Environ Contam Toxicol* **91(3)**: 362-366

#### **Novel DNA/Proteins Submitted to Gene Bank: (<http://www.ncbi.nlm.nih.gov/>)**

1. *Bacillus cereus* strain *wwcp1* 16S ribosomal RNA gene, partial sequence GenBank accession Number.| KM201428
2. *Bacillus cereus* strain *wwcp2* 16S ribosomal RNA gene, partial sequence GenBank accession Number.| KM201429
3. *Bacillus cereus* strain *wwcp3* 16S ribosomal RNA gene, partial sequence GenBank accession Number.| KM201430

#### **Presentations at Conferences, Symposia & Workshops Attended:**

1. Wycliffe C. Wanyonyi, Ester E. Maina and Victor O.Ocheng. Adsorptive Removal of Crystal Violet Dye from Aqueous Solution Using Water Hyacinth Roots. East and Southern Africa Environmental/Analytical Chemistry Conference And Theoretical Chemistry Conference In Africa (ESAEECC-TCCA) on 3<sup>rd</sup> to 7<sup>th</sup> September, 2018 at Reef Hotel, Mombasa, Kenya
2. Wycliffe C. Wanyonyi, John M. Onyari, Paul M. Shiundu, Francis J. Mulaa. Biodegradation and Detoxification of Malachite Green Dye Using Novel Enzymes from *Bacillus cereus* Strain KM201428: Kinetic and Metabolite Analysis. Paper Presented at the International Conference on Technologies and Materials for Renewable Energy, Environment and Sustainability, TMREES17, 21-24 April 2017, Beirut Lebanon
3. W. C. Wanyonyi, J. M. Onyari, F. J. Mulaa and P.M. Shiundu. Enzymatic Hydrolysis of Feathers Using a Newly Isolated Thermo-stable Alkaline Protease for the Formulation of Animal Feeds. Paper Presented at the 6<sup>th</sup> International IUPAC Conference on Green Chemistry held at Centro Culturale Candiani and Teatro Toniolo in Venezia, Italy on 4<sup>th</sup> -8<sup>th</sup> September 2016.
4. Wycliffe C. Wanyonyi, John M. Onyari, Paul M. Shiundu and Francis J. Mulaa. Efficient Catalytic Decolorization of Malachite Green Dye using *Bacillus Cereus* Strain *wwcp1*. Paper Presented at 2<sup>nd</sup> CONFERENCE of JOURNAL OF AFRICAN RESEARCH AND DEVELOPMENT (JARD) held at the Community Centre, University of Eastern Africa, Baraton on 10<sup>th</sup> to 12<sup>th</sup> October, 2016.
5. **Wycliffe Chisutia Wanyonyi**, John Mmari Onyari, and Paul Mwanza Shiundu. Adsorption of Congo Red Dye from Aqueous Solutions Using Roots of *Eichhornia crassipes*: Kinetic and Equilibrium Studies. Paper Presented at the Technologies and Materials for Renewable Energy, Environment and Sustainability (TMREES14 International Conference), Euro-Mediterranean Institute For Sustainable Development, Beirut-Lebanon 10<sup>th</sup> to 13<sup>th</sup> April, 2014.

### **GRADUATE RESEARCH PROJECTS SUPERVISED**

#### **M.Sc. Students & Research Projects Successfully Supervised to Completion**

1. Ann Wangari Muriithi, "Determination of Amino acids Composition of Gelatin Extracted from Marine Fish Scales and Polymer Blends Characterization". Graduated in December, 2018.

#### **Continuing M.Sc. Research Students & Research Projects**

1. Gilbert Kipkorir Cheruiyot "Adsorption of Organic Dyes from Aqueous Solution Using Coffee Husks Waste from Kenya's Coffee Industry". Continuing M.Sc. student at University of Kabianga (2016).

- Chrispine M. Oloo, "Adsorption of Organic Dyes Using Two Mangrove Species (*Xylocarpus Mollucensis* and *Rhizophora Mucronata*) from Kenyan Coastal Regions". Continuing M.Sc. student at University of Nairobi (2016).
- Mwakazi Eva Dama "Comparative Biodegradation of Feathers Using Enzyme, Amino Acid Composition and Proximate Analysis of Metabolites". Continuing M.Sc. student at University of Nairobi (2017).
- Sharon Alice Okuku Ochieng "Enzymatic Hydrolysis of Fish Waste, Characterization of Metabolites and Proximate Analysis". Continuing M.Sc. student at University of Nairobi (2017).
- Mutunga Mumo Felista "Comparative Adsorption of Methylene Blue and Reactive Black Dyes onto Macadamia Seeds Husks". Continuing M.Sc. student at University of Kabianga (2017).
- Wekoye N. Joan "Biosorption of Recalcitrant Organic Dyes from Aqueous Solution Using Cabbage Waste". Continuing M.Sc. student at University of Kabianga (2017).
- Wilson Kipkemai Busienei "Removal of Selected Heavy Metals From Aqueous Solutions By Adsorptive Using Cabbage Waste". Continuing M.Sc. student at University of Kabianga (2017).
- Edwin Cheruiyot Rono "Adsorption of heavy Metals from Aqueous Solution Using Macadamia Seeds Husks". Continuing M.Sc. student at University of Nairobi (2017).
- Moim Chemtai Faith "Formulation and characterization of bio-plastics from enzymatically degraded chicken feather" Continuing M.Sc. student at University of Kabianga (2018).
- Cheruiyot Sylvester "Comparative Analysis of Bioactive Molecules, Essential Mineral Composition and Antioxidant Levels in Purple Leaf Cultivars and Popular Green Leaf Cultivars in Kericho County" Continuing M.Sc. student at University of Kabianga (2018).

#### **Undergraduate Research Projects Supervised:**

- Muasya Nicholas Musau, Analysis of Selected Essential Elements In *Senna Didymobotrya* and Milk In Kericho County Undergraduate student at University of Kabianga (2015).
- Enock Kibet, "Adsorption of Methyl blue dye from aqueous solution using Orange fruit peels" Undergraduate student at University of Kabianga (2016).
- Jepkoech Ruth, "Adsorption of Crystal Violet dye from aqueous solution using Orange fruit peels" Undergraduate student at University of Kabianga (2016).
- Oluoch John Nyagaya, "Adsorption of Malachite Green dye from aqueous solution using Orange fruit peels" Undergraduate student at University of Kabianga (2016).
- Victor Ochieng, "Adsorption of crystal violet dye from aqueous solution using roots of water hyacinth" Undergraduate student at University of Kabianga (2016).
- Erick W Wanyonyi "Determination Of Selected Alkali Metals, Alkaline Earth Metals And Heavy Metals In River Chemosit, Kericho County" Undergraduate student at University of Kabianga (2018).
- Chepkemai Ann "Adsorption of Methyl Blue Dye Using Onion Roots" Undergraduate Student At University Of Kabianga (2018).

#### **Professional Affiliations:**

2014 – to Date: Member of Royal Society of Chemistry (RSC) Membership number.552297

2013 – to Date: Member of Kenya Chemical Society (KCS).

2013 – to Date: Member of Natural Product Research Network for Eastern and Central Africa (NAPRECA)

#### **Referees:**

- PROF. JOHN M. ONYARI  
Associate Professor of Chemistry, Department of Chemistry,  
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