Dr. Victor Shikuku, PhD, AMRSC
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RESEARCH INTERESTS

- Materials Chemistry: Tunability of microporous and mesoporous materials for wastewater treatment
- Geopolymers and cementitious materials
- Environmental Chemistry and Climate Action
- Antimicrobial resistance in soil and water

ACADEMIC QUALIFICATIONS

Doctor of Philosophy in Physical Chemistry (PhD)	Maseno University	Awarded on 21st December, 2018
Masters of Science (MSc) in Chemistry	Maseno University	Awarded on 12th December, 2014
Bachelor of Science (Basic Sciences) with IT	Maseno University	Awarded on 10th December, 2010 [1st Class Honors]
Kenya certificate of secondary education (K.C.S.E)	Jamhuri High School	Awarded in 2004 [Grade A- (minus)]
Kenya Certificate of primary education (KCPE)	St. Teresa's Boys Primary School	Awarded in 2000 [504/700 marks]

WORK EXPERIENCE

Senior Lecturer	Kaimosi Friends University	1st April 2025 to date
Lecturer	Kaimosi Friends University	January 2019 to 31st March 2025
Tutorial Fellow	Kaimosi Friends University College	Sept. 2017 to Dec 2018
Head of Laboratory	CSI International Ltd	Jan. 2015 to date
Part-time lecturer	Maseno University	January 2017 to date
Teaching Assistant	Masinde Muliro University of Science and Technology	September 2011 to December 2014

ADMINISTRATIVE RESPONSIBILITIES

Director	Directorate of Research, Innovation and Outreach	1st August 2025 to date
Ag. Director	Directorate of Examinations	1st Dec 2023 to 31st July 2025
Coordinator, University timetabling and examinations	Timetabling Office	Jan 2019 to 31st Nov 2023
Chair, School Graduate Studies Committee (SGSC)	School of Science	Jan 2019 to Dec 2021
School examinations coordinator	School of Science	Jan 2018 to Dec 2019
Departmental examinations coordinator	Department of Physical Sciences	Jan 2018 to Dec 2019

RESEARCH STAYS ABROAD

Trier University, Germany	Postdoc Research visit	15th July-31st Dec 2019
CSIR-National Metallurgical Laboratory, **India**	PhD Research visit	16th December 2017 to 15th March 2018

Laboratory of Pesticides Residues Analysis (LARP), Federal University of Santa Maria (UFSM)-**Brazil**	PhD Research visit	1 September 2015 to 26 February 2016
Laboratory of Pesticides Residues Analysis (LARP), Federal University of Santa Maria (UFSM)-**Brazil**	Masters Research visit	1 July to 30 September 2013

CONFERENCES AND SEMINARS/WORKSHOPS AS LECTURER (2019 to 2024)

"East African Regional Workshop on Research Networking and Proposal Writing" held on 29th April-2nd May 2024, Murang'a University, Kenya

"The UoE Chemical science conference" held virtually on 16-18th March, 2022, Kenya-*Oral presentation*

ALL-IN Capacity Building Workshop; Research Grant Proposal Development Workshop, held on 2nd-4th November 2021, United States International University, Kenya

"**Sub-Saharan Africa Conference on Water Resources Management in Africa**" held virtually on 28-29th October, 2021, Ghana-*Oral presentation*

"**The Alexander Von-Humboldt-Kenya 'Kollegs' Conference**", held virtually on 5-8th October 2021, Kirinyaga University, Kenya-*Oral presentation*

The **QMS ISO/IEC 17025:2017 Testing and Calibration Implementation** Course by ChromAfrica held on 25-26 February 2021, Kisumu-Kenya

AWARDS & RECOGNITIONS

Award	Awarding Body	Recognition	Dates
National Outstanding Researcher Award (NORA), 2024	National Research Fund (NRF)-Kenya	Outstanding Early Career (Young) Scientist in Physical Sciences	23rd August 2024

GRANTS AND FELLOWSHIPS AS LECTURER

TWAS Research grant (for groups), 2024 (47,000 USD): Biosorption isotherms, kinetics and thermodynamics of fluoride and arsenic on nano-enabled hydrochar and Fe-based metal organic framework hydrochar (Collaborators: Dr. V. Okello, Machakos University-Kenya (PI), Dr. E. Ndunda, Machakos University (Co-PI) and Dr. V. Shikuku (Co-PI): contacts: vokello@mksu.ac.ke)

Kaimosi Friends University Research Fund, 2024 (KSh. 300,000): *Development of Pumice-based Low-carbon geopolymer Concretes*

Kaimosi Friends University Research Fund, 2022 (KSh. 150,000): *Development of Feldspar/Solid Wastes Incineration Fly ash Blends Geopolymers: Experimental and Theoretical Analysis and applications*

Alexander von Humboldt Foundation, Research Group Linkage Programme 2022 Grant (55,000 Euros), for Research project *"Enhanced Selective Immobilization of Sulfonamides in Manure onto Functionalized Hydrochars"* (Collaborators: Prof. Dr. Thiele-Bruhn (PI), Trier University-Germany, Prof. Z. Getenga, Machakos University-Kenya (PI), Dr. V. Okello, Machakos University-Kenya (Co-PI), Dr. V. Shikuku (Co-PI): contacts: zgetenga@gmail.com/0729171505)
Grant period: 1st July 2022-30th June 2025

Alexander von Humboldt Foundation, post-doctoral fellowship 2019, for **Research visit** at Trier University, Germany (15,600 Euros)

The reagent project, **Equipment Donation**, 2019. Equipment worth: 14,398 USD

PUBLICATIONS AS SENIOR LECTURER (2025 TO DATE)

2026	• Nzyoki, K., Okello, V., Ndunda, E., & **Shikuku, V**. (2026). Recent trends and prospective challenges in the synthesis, characterization and applications of iron-based metal organic frameworks (Fe-MOFs). Desalination and Water Treatment, 101768. https://doi.org/10.1016/j.dwt.2026.101768 • Onyango, C., Nyairo, W., **Shikuku, V.** (2026). A review on the recent advances in the use of hydrochar for adsorption of methylene blue dye from aqueous systems. Discov. Chem. 3, 20. https://doi.org/10.1007/s44371-026-00474-2 • Dzoujo, H.T., Ondiek, P.A., **Shikuku, V.O**., Tome, S., Pokam, W., Janiak C., Getenga Z. M., Dina, D. (2026). Pozzolan and dodder based geopolymer-hydrochar composites with ultrahigh adsorption capacity for crystal violet removal in saline water. Int. J. Environ. Sci. Technol. 23, 208. https://doi.org/10.1007/s13762-025-07025-9
2025	• Lincold, M.N., Jules, M.L., Guy, N.P., Suzanne, M., Mbouombouo B., Tome S., **Shikuku, V**., Tchieta, G. (2025). Enhanced adsorption of malachite green onto a composite material activated carbon and iron(III) oxide nanoparticles: isotherm, kinetic, and thermodynamic study. Biomass Conv. Bioref. 15, 28497–28516. https://doi.org/10.1007/s13399-024-06277-8 • Njewa, J.B., Dzoujo, H.T., Nyairo, W., **Shikuku V.** (2025). Application of bone chars for the removal of chemical contaminants from water resources: a review. Discov. Chem. 2, 214. https://doi.org/10.1007/s44371-025-00295-9 • Lincold, N. M., Jules, M. L., Guy, N. P., Jacques, M. B., **Shikuku, V**., et al. (2025). Optimization of the Synthetic Procedure for Functionalizing Activated Carbon Produced from Canarium Ovatum with Iron Oxide Nanoparticles Toward Effective Adsorption Using a Central Full Factorial Design. Science Journal of Chemistry, 13(4), 122-139. https://doi.org/10.11648/j.sjc.20251304.13 • **Shikuku, V. O**., Otieno, B., Vunain, E., Biswick, T., & Kowenje, C. (2025). Advances in the synthesis and utilization of waste-derived materials for water purification. Frontiers in Environmental Chemistry, 6, 1651836. https://doi.org/10.3389/fenvc.2025.1651836 • Taquieteu, I.K., Tamaguelon, H.D., **Shikuku, V**., Tome, S., Njouond, D., Dongmo, M., Othman, H., Vollrath, A., Mohabbat, A., Janiak, C., Banenzoué, C., Dina, D. (2025). Synthesis and characterization of lignin-modified geopolymer composites for aqueous phase sequestration of methyl orange dye in a fixed-bed column. Materials Advances, http://dx.doi.org/10.1039/D5MA00248F • Onyango, C., Nyairo, W., Tchieta, G. P., & **Shikuku, V. O**. (2025). Watermelon rind based adsorbents for the removal of water pollutants: A critical review. Frontiers in Environmental Chemistry, 6, 1568695. https://doi.org/10.3389/fenvc.2025.1568695 • Ogora, E.N., Getenga, Z.M., Gichumbi, J.M., **Shikuku, V.O**. (2025). Unary Adsorption of Phthalates from Wastewater onto Water Hyacinth Biochar : Parameters , Drivers and Mechanism. S. Afr. J. Chem. 79, 1-9. https://doi.org/10.17159/0379-4350/2025/v79a01 • Nyairo, W., Njewa, J., **Shikuku, V**. (2025) Adsorption of heavy metals onto food wastes: A review. Frontiers in Environmental Chemistry, 6, 1526366. https://doi.org/10.3389/fenvc.2025.1526366

PATENT/COPYRIGHT/PRODUCT DEVELOPMENT

ChemEzzy App: A digital chemistry learning application through gamification (https://chemezzy.co.ke/)

PUBLICATIONS AS LECTURER (2019 TO 2024)	
Books	• **Shikuku V.O** (2023). Artificial Intelligence Applications in Water Treatment and Water Resource Management. IGI Global Publishers. ISBN13: 9781668467916. DOI: 10.4018/978-1-6684-6791-6 • **Shikuku V.O** (2020). Effects of Emerging Chemical Contaminants on Water Resources and Environmental Health. IGI Global Publishers. ISBN13: 9781799818717. DOI: 10.4018/978-1-7998-1871-7
Book Chapters	• Njewa, J. B., & **Shikuku, V.O.** (2024). Recent advances on activated carbons from Corn Cobs: In Min, H.S., Kusuma, H.S., Sharma, Y.C (Eds) Recent Advances in Activated Carbon Synthesis, Properties and Applications. Taylor & Francis. eBook ISBN 9781003488606. https://doi.org/10.1201/9781003488606 (Chapter 14) • Nyairo W.N., **Shikuku V.O.** (2023). Titanium Oxide for Photodegradation of Organic Pollutants: Synthesis, Limitations, and Future Prospects: In Kumar A. (Ed). Innovative Multifunctional Nanomaterial for Photocatalysis, Sensing, and Imaging. pp 171-184. IGI Global Publishers. ISBN13: 9781668487433. DOI: 10.4018/978-1-6684-8743-3.ch004 (chapter 4) • **Shikuku V.O**., Masinde N. (2023). Machine Learning Applications in Adsorption of Water Pollutants: In Shikuku V. (Ed). Artificial Intelligence Applications in Water Treatment and Water Resource Management. pp 1-30. IGI Global Publishers. ISBN13: 9781668467916. DOI: 10.4018/978-1-6684-6791-6.ch001(chapter 1) • Singh, H., **Shikuku, V**. (2023). Edible Insects as Materials for Food Printing: Printability and Nutritional Value. In: Singh, D., Kumar, R., Singh, S., Ramniwas, S. (eds) 3D Printing of Sustainable Insect Materials. Springer, Cham. https://doi.org/10.1007/978-3-031-25994-4_6 • **Shikuku, V.O.,** Ngeno, E.C., Njewa, J.B. and Ssebugere, P. (2023). "Pharmaceutical and personal care products (PPCPs) and per- and polyfluoroalkyl substances (PFAS) in East African water resources: progress, challenges, and future". Basic Sciences for Sustainable Development: Water and the Environment, edited by Ponnadurai Ramasami, Berlin, Boston: De Gruyter, pp. 21-38. https://doi.org/10.1515/9783111071206-002 • Nyairo W.N., **Shikuku V.O**., Sanou Y. (2022). Carbon Nanotubes in Water Treatment: Progress and Challenges: In Kumar A. (Ed). Innovative Nanocomposites for the Remediation and Decontamination of Wastewater. pp 171-184. IGI Global Publishers. ISBN13: 9781668445532. DOI: 10.4018/978-1-6684-4553-2.ch009 (chapter 9) • Nyasani M., **Shikuku V.O.** (2022). Life Cycle Assessment of Biofuels; Challenges and Opportunities: In Rathoure K. and Khade S. (Eds). Biomass and Bioenergy Solutions for Climate Change Mitigation and Sustainability. IGI Global Publishers. ISBN13: 9781668452691. DOI: 10.4018/978-1-6684-5269-1.ch002 (Chapter 2) • **Shikuku V.O,** Achieng' G.O., Ssebugere P. (2022). Towards sustainable use of algae as adsorbents for wastewater treatment: In El-Sheekh M., Abdullah N., Ahmad I. (Eds). Examining Algae as a Sustainable Solution for Food, Energy, and the Environment. pp 547-561. IGI Global Publishers. ISBN13: 9781668424384. DOI: 10.4018/978-1-6684-2438-4.ch022 (Chapter 22) • **Shikuku V.O,** Nyairo W.N., Kowenje C.O. (2021). Fundamentals and Sources of Magnetic nanocomposites and their Sorption Properties: In Research Anthology on Synthesis,

	Characterization and Applications of Nanomaterials. pp 636-655. IGI Global Publishers. DOI: 10.4018/978-1-7998-8591-7.ch028 (Chapter 28) • Nyairo W.N., Ng'eno E., **Shikuku V.O** and Ssebugere P. (2021). Application of Metal-Organic Framework Adsorbents for Water Defluoridation: In Shimaa M., Elsayed Z., and Abdel-Azim A. (Eds). Emerging Applications and Implementations of Metal-Organic Frameworks. Pp 74-91. IGI Global Publishers. ISBN13: 9781799847618. DOI: 10.4018/978-1-7998-4760-1.ch005 (Chapter 5) • Kwach B., **Shikuku V.O** (2020). Microplastics as Emerging Contaminants: Occurrence, Toxicology, and Analysis: In Shikuku V.O (Editor). Effects of Emerging Chemical Contaminants on Water Resources and Environmental Health. pp. 31-44. IGI Global Publishers. ISBN13: 9781799818717. DOI: 10.4018/978-1-7998-1871-7.ch03 (Chapter 3) • Ng'eno E., **Shikuku V.O** (2020). Emerging Contaminants: Pollution Control and Abatement. In Shikuku V.O (Editor). Effects of Emerging Chemical Contaminants on Water Resources and Environmental Health. pp. 172-192. IGI Global Publishers. ISBN13: 9781799818717. DOI: 10.4018/978-1-7998-1871-7.ch010 (Chapter 10) • **Shikuku V.O,** and Wilfida N. Nyairo (2020). Preparation and Application of Polymer-Metal Oxide Nanocomposites in Wastewater Treatment; Challenges and Potentialities: In Gabriele Clarizia and Paola Bernardo (Editors) Diverse Applications of Organic-Inorganic Nanocomposites: Emerging Research and Opportunities. pp 83-102. IGI Global Publishers. ISBN13: 9781799803119. DOI: 10.4018/978-1-7998-1530-3.ch04 (Chapter 4) • **Shikuku V.O,** Achieng' G.O, Kowenje C.O (2019). Removal of Dyes from Wastewater by Adsorption onto Low-cost Adsorbents: In Khursheed A. Wani & Nirmala K. Jangid (Editors) Impact of Textile Dyes on Public Health and the Environment. pp 239-257. IGI Global Publishers. ISBN13: 9781799803119. DOI: 10.4018/978-1-7998-0311-9.ch011 (Chapter 11) • **Shikuku V.O,** and Nyairo W.N. (2019). Advanced Oxidation Processes for Dye Removal from Wastewater: In Khursheed A. Wani & Nirmala K. Jangid (Editors) Impact of Textile Dyes on Public Health and the Environment. pp 205-238. IGI Global Publishers. ISBN13: 9781799803119. DOI: 10.4018/978-1-7998-0311-9.ch010 (Chapter 10) • **Shikuku V.O** and Tome S. (2019). Application of Geopolymer Composites in Wastewater Treatment; Trends, Opportunities and Challenges: In Noureddine Ramdani (Editor) Polymer Nanocomposites for Advanced Engineering and Military Applications. pp 131-149. IGI Global Publishers. ISBN13: 9781522578383. DOI: 10.4018/978-1-5225-7838-5 (Chapter 5)
PEER REVIEWED JOURNAL ARTICLES	
2024	• Wanyonyi, F.S., Orata, F., Ramasami, P., Ngeno, E., **Shikuku, V.,** Gembo, R., Mutua, G.K., Pembere, A. (2025). Unlocking the adsorptive effectiveness of naturally occurring heulandite zeolite for the removal of $PO4^{3-}$ and NO^{3-} anions from wastewater. Environ Monit Assess 197, 78. https://doi.org/10.1007/s10661-024-13522-0 • Niendjeu Tiomo, C. G., Tamaguelon, H. D., **Shikuku, V.O**., Fotsop, C. G., Oumla, O. K., Kamdem N.D., Dina, D. D. J. (2024). Comparative study of the chemical, structural and adsorptive properties of local thermally activated clay and an imported commercial clay for the depigmentation of crude palm oil. Chem. Eng. Comm., 1–12. https://doi.org/10.1080/00986445.2024.2435909

- Lenou, I., Tchakounte, A., **Shikuku, V**., Kemdjien, L., Valere, K., Dika, J., Kede, C. (2024). Optimization of porous volcanic ash-based geopolymer for crystal violet adsorption using the Box-Behnken design. Canadian J. Chem. https://doi.org/10.1139/cjc-2024-0164
- Tchakounte, A., Lenou, I., **Shikuku, V.,** Kemdjien, L., Dika, J., Kede, C. (2024). RSM-CCD design of volcanic ash/ rice husk ash based phosphate geopolymer for crystal violet adsorption: Kinetics and isotherms. Scientific Reports, 14(1), 1-16. https://doi.org/10.1038/s41598-024-79017-7
- Lincold, M.N., Jules, M.L., Guy, N.P., Makota S., Mbouombouo B. J., Tome S., **Shikuku V.O**., Tchieta G.P (2024). Enhanced adsorption of malachite green onto a composite material activated carbon and iron (III) oxide nanoparticles: isotherm, kinetic, and thermodynamic study. Biomass Conv. Bioref. (2024). https://doi.org/10.1007/s13399-024-06277-8
- Onyango, C., Nyairo, W., Kwach, B., **Shikuku, V**., Sylvain, T., Tamaguelon, H.D., Rüscher, C. (2024). Synthesis of pumice and medical waste incinerator fly ash-based phosphate geopolymers for methylene blue dye adsorption: co-valorization, parameters and mechanism. Materials Advances, 5, 8546-8563. https://doi.org/10.1039/d4ma00779d
- Dzoujo, H. T., **Shikuku, V. O**., Tome, S., Simo, A. C. N., Ng'eno, E. C., Getenga, Z. M., Etoh, M. A., & Joh Dina, D. D. (2024). Recent advances in metal oxide-biochar composites for water and soil remediation: A review. Hybrid Advances, 7, 100292. https://doi.org/10.1016/j.hybadv.2024.100292
- Tchakounte, A., Kede, C., **Shikuku, V**., Lenou, I., & Dika, J. (2024). Adsorption of nickel (II) from aqueous solutions with clay-supported nano-scale zero-valent iron synthesized from green tea extract. Desalination and Water Treatment, 320, 100771. https://doi.org/10.1016/j.dwt.2024.100771
- Thiele-Bruhn, S., **Shikuku, V.**, Dittrich, F., Torjir, D. N., Saini, M., & Getenga, Z. (2024). Soil sorption and effects on soil microorganisms of thymol and carvacrol monoterpenes from essential oils of aromatic plants. Frontiers in Environmental Science, 12, 1379018. https://doi.org/10.3389/fenvs.2024.1379018
- Mboka, J.M., Tamaguelon, H.D., **Shikuku, V**., Tome, S., Pokeya, R., Kandem, D., Titini, F., Limon, A., Janiak, C., Dika, M., Etoh, M., Dina, D. (2024). Synergistic co-adsorptive removal of crystal violet and chromium(vi) from water by pozzolan-charcoal based geopolymer composites. Mater. Adv. https://doi.org/10.1039/D4MA00408F
- Mboka, J.M., Tamaguelon, H.D., **Shikuku, V**., Tome, S., Deugueu, F., Othman, H., Janiak, C., Dika, M., Etoh, M., Dina, D. (2024). Novel Superadsorbent from Pozzolan-Charcoal based Geopolymer Composite for the Efficient Removal of Aqueous Crystal Violet. Water Air Soil Pollut 235, 430. https://doi.org/10.1007/s11270-024-07257-4
- Ngeno, E., Ongulu, R., **Shikuku, V**., Ssentongo, D., Otieno, B., Ssebugere, P., & Orata, F. (2024). Response surface methodology directed modeling of the biosorption of progesterone onto acid activated Moringa oleifera seed biomass: Parameters and mechanisms. Chemosphere, 360, 142457. https://doi.org/10.1016/j.chemosphere.2024.142457
- Tamaguelon, H. D., **Shikuku, V. O**., Tome, S., Titini, F. G., Ondiek, P., Strothmann, T., Getenga, Z., Janiak, C., Etoh, M. A., & Dina, D. D. J. (2024). Unary adsorption of sulfonamide antibiotics onto pozzolan-tyre ash based geopolymers: Isotherms, kinetics and mechanisms. Chemical Engineering Research and Design, 206, 440-452. https://doi.org/10.1016/j.cherd.2024.05.009

2023	• Taquieteu I.K., Tamaguelon, H. D., **Shikuku, V.O**, Banenzoué C., Dina D.J (2023). Fixed-Bed Adsorption of an Azo Dye (Methyl Orange) onto Chemically and Thermally Regenerated Activated Carbons. Journal of Chemistry, vol. 2023, https://doi.org/10.1155/2023/6677710 • Sylvain, T., Tamaguelon, H. D., **Shikuku, V**., Nana, A., Etoh, M. A., Rüscher, C., & Etame, J. (2023). Elimination of malachite green from aqueous and saline water by laterite-derived Na-polyferrosialate and polyferrophosphosialate geopolymers: A comparative study. Ceramics International. https://doi.org/10.1016/j.ceramint.2023.11.252 • Sidjou, A. S., Tchakounte, A. N., **Shikuku, V**., Lenou, I., Djimtibaye, R., & Dika, M. M. (2023). Synthesis of alkali-activated volcanic scoria and rice husk ash based composite materials for adsorptive removal of crystal violet: Optimization, kinetics, isotherms and mechanism. Hybrid Advances, 4, 100113. https://doi.org/10.1016/j.hybadv.2023.100113 • Njewa, J. B., & **Shikuku, V. O**. (2023). Recent advances and issues in the application of activated carbon for water treatment in Africa: A systematic review (2007–2022). Applied Surface Science Advances, 18, 100501. https://doi.org/10.1016/j.apsadv.2023.100501 • Jacques, M.B., Guy, N.P., Jules, M.L. Harlette Z.P., Maffeu E.J., Said M., Doungmo G., **Shikuku V.O**., Tchieta G., Kamdem F. (2023). Removal of crystal violet by TiO_2 loaded alkali-activated carbon hybrid material from *Raphia farinifera* fruit kernels: surface chemistry, parameters and mechanisms. Biomass Conv. Bioref. https://doi.org/10.1007/s13399-023-04988-y • Ngeno, E., Ongulu, R., Orata, F., Matovu, H., **Shikuku, V**., Onchiri, R., Mayaka, A., Majanga, E., Getenga, Z., Gichumbi, J., & Ssebugere, P. (2023). Endocrine disrupting chemicals in wastewater treatment plants in Kenya, East Africa: Concentrations, removal efficiency, mass loading rates and ecological impacts. Environmental Research, 237, 117076. https://doi.org/10.1016/j.envres.2023.117076 • Owino, E. K., **Shikuku, V. O**., Nyairo, W. N., Kowenje, C. O., & Otieno, B. (2023). Valorization of solid waste incinerator fly ash by geopolymer production for removal of anionic bromocresol green dye from water: Kinetics, Isotherms and Thermodynamics studies. Sustainable Chemistry for the Environment, 100026. https://doi.org/10.1016/j.scenv.2023.100026 • Tome S, **Shikuku V.O**, Hermann D, Akiri S, Etoh M, Rüscher C, Etame J. (2023). Efficient sequestration of Malachite green in aqueous solution by laterite-rice husk ash-based alkali-activated materials: Parameters and mechanism. Environ Sci Pollut Res. https://doi.org/10.1007/s11356-023-27138-3 • Luttah, I., Onunga, D., **Shikuku, V.O**., Otieno, B., & Kowenje, C. (2023). Removal of Endosulfan from water by Municipal Waste Incinerator Fly Ash based Geopolymers: Adsorption Kinetics, Isotherms, and Thermodynamics. Frontiers in Environmental Chemistry, 4,1164372. https://doi.org/10.3389/fenvc.2023.1164372
2022	• **Shikuku V.O**., Tome S., Dzoujo T. H., Tompsett G., Timko M. (2022). Rapid adsorption of cationic methylene blue dye onto volcanic ash-metakaolin based geopolymers. Silicon, https://doi.org/10.1007/s12633-021-01637-9 • Okello, V.A., K'Owino, I., Masika, K., **Shikuku, V.O**. (2022). Reduction and Degradation of Paraoxon in Water Using Zero-Valent Iron Nanoparticles. Sustainability, 14(15), 9451; https://doi.org/10.3390/su14159451 • Hermann T. D., Tome S., **Shikuku V.O**., Tchuigwa J.T., Spieß A., Janiak C., Etoh A., Dina D. (2022). Synthesis of pozzolan and sugarcane bagasse derived geopolymer-biochar composites for methylene blue sequestration from aqueous medium. J. Environ. Manage. 318, 115533. https://doi.org/10.1016/j.jenvman.2022.115533 .

	• Kimosop, S., Okello, V.A., **Shikuku, V.O**., Orata, F., Getenga, Z.M. (2022). Synthesis of mesoporous akaganeite functionalized maize cob biochar for adsorptive abatement of carbamazepine: kinetics, isotherms, and thermodynamics. J. Clean. Mater. https://doi.org/10.1016/j.clema.2022.100104 • Ssepuya, F., Odongo, S., Bandowe, B., Abayi, J., Olisah, C., Matovu, H., Mubiru, E., Sillanpää, M., Karume, I., Kato, C., **Shikuku V.O**., Ssebugere, P. (2022). Polycyclic aromatic hydrocarbons in breast milk of nursing mothers: Correlates with household fuel and cooking methods used in Uganda, East Africa. Sci. Total. Environ. 842, 156892 https://doi.org/10.1016/j.scitotenv.2022.156892 • Ngeno E., Mbuci E., Necibi M., **Shikuku V.O**., Olisah C., Ongulu R., Matovu H., Ssebugere P., Abushaban A., Sillanpaa M (2022). Sustainable re-utilization of waste materials as adsorbents for water and wastewater treatment in Africa: Recent studies, research gaps, and way forward for emerging economies. Environ. Adv. 9, 100282. https://doi.org/10.1016/j.envadv.2022.100282 • Chimi T., Hannah U., Nintedem M. L., Mboumbouo B.J. Tome S., Hermann D.T., **Shikuku V.O**., Bissoue A., Tchieta G.P., Meva F. (2022). Preparation, characterization and application of H_3PO_4-activated carbon from *Pentaclethra macrophylla* pods for the removal of Cr(VI) in aqueous medium. J. Iran. Chem. Soc. https://doi.org/10.1007/s13738-022-02675-9 • Mbithi B. M., **Shikuku V.O.**, Getenga Z. M., Lalah J. O., Wandiga S. O., Rothballer M. (2022). Enhanced hexazinone degradation by a *Bacillus species* and *Staphylococcus species* isolated from pineapple and sugarcane cultivated soils in Kenya. Environ. Chem. Ecotoxicol., 4, 106-112 https://doi.org/10.1016/j.enceco.2022.02.002
2021	• Tome, S., Dzoujo, H., **Shikuku, V**., Otieno, S. (2021). Synthesis, characterization and application of acid and alkaline activated volcanic ash-based geopolymers for adsorptive remotion of cationic and anionic dyes from water. Ceram. Int. 47(15), 20965-20973 https://doi.org/10.1016/j.ceramint.2021.04.097 • Dzoujo T. H., Tome S., **Shikuku V.O**., Tchuigwa J.T., Spieß A., Janiak C., Etoh A., Dina D. (2021). Enhanced performance of hydrogen peroxide modified pozzolan-based geopolymer for abatement of methylene blue from aqueous medium. Silicon, https://doi.org/10.1007/s12633-021-01264-4 • **Shikuku V.O**, Mishra T. (2021). Adsorption isotherm modeling for methylene blue removal onto magnetic kaolinite clay: A comparison of two-parameter isotherms. Appl. Water Sci., 11, 103. https://doi.org/10.1007/s13201-021-01440-2 • Mbithi B. M., **Shikuku V.O.**, Getenga Z. M., Lalah J. O., Wandiga S. O., Rothballer M. (2021). Adsorption-desorption and leaching behavior of diuron on selected Kenyan agricultural soils. Heliyon, 7(2), e06073. https://doi.org/10.1016/j.heliyon.2021.e06073 • Osewe E.T., **Shikuku V.O**., Pereira, C.A., Otieno, S., Okoyo A. (2021). Effects of different types of zeolites on the degradation kinetics of malathion pesticide in water. Chem. Sci. Int. J., 30(4) 38-49 • Kowenje C.O., Onyango D.M., Okwiri L., **Shikuku V.O**., Sifuna A., Omondi E., Barasa D., Oduor A., Lung'ayia H., Owigar R., Otuya P. (2021). Effects of temperature and humidity and effectiveness of some selected antioxidants on lipid oxidation of fresh Nile tilapia (*Oreochromis niloticus L*.) of Lake Victoria, Kenya. Int. Res. J. Environ. Sci. 10(1), 39-47
2020	• Marete, G.M., **Shikuku, V.O**., Lalah, J.O., Mputhia, J., Wekesa, V.W. (2020). Occurrence of pesticides residues in French beans, tomatoes and kales in Kenya, and their human health

	risk indicators. Environ. Monit. Assess., 192, 692. https://doi.org/10.1007/s10661-020-08662-y • Mbithi B. M., **Shikuku V.O.**, Lalah J. O., Getenga Z. M., Wandiga S. O., Rothballer M. (2020). Enhanced degradation of diuron by two *Bacillus species* isolated from diuron contaminated sugarcane and pineapple-cultivated soils in Kenya. Appl. Soil Ecol., 157 (2021) 103721. https://doi.org/10.1016/j.apsoil.2020.103721 • **Shikuku V.O**. and Kimosop, S. (2020). Efficient removal of sulfamethoxazole onto sugarcane bagasse-derived biochar: Two and Three-parameter isotherms, kinetics, thermodynamics. S. Afr. J. Chem., 73,111-118. http://dx.doi.org/10.17159/0379-4350/2020/v73a16 • Achieng', G.O., **Shikuku, V.O** (2020). Adsorption of copper ions from water onto fish scales derived biochar: Isothermal perspectives. J. Mater. Environ. Sci., 11, 1816-1827
2019	• Kimosop, S., Orata, F., **Shikuku, V.O**., Okello, V.A., Getenga, Z.M. (2019). Insights on adsorption of carbamazepine onto iron oxide modified diatomaceous earth: Kinetics, isotherms, thermodynamics, and mechanisms. Environ. Res., 180, 108898. https://doi.org/10.1016/j.envres.2019.108898 • Ng'eno, E., **Shikuku V.O**., Orata, F., Lilechi, D.B., Kimosop, S. (2019). Caffeine and Ciprofloxacin Adsorption from water onto clinoptilolite: Linear isotherms, kinetics, thermodynamics and mechanistic studies. S. Afr. J. Chem., 72,136-142. http://dx.doi.org/10.17159/0379-4350/2019/v72a17 • Achieng'G.O., **Shikuku V.O**., Andala, D.M., Okowa, G.M., Owuor, J.J (2019). Assessment of the water quality of the Nyando River (Muhoroni-Kenya) using the water quality index (WQI) method. Int. Res. J. Environ. Sci. 8(2) 27-33

POSTGRADUATE SUPERVISION

- Isaac Luttah (MSC/SC/00020/2018): Master of Science in Chemistry, Maseno University
- Owino Eugene (MSC/SC/00010/2018): Master of Science in Chemistry, Maseno University
- Collins Onyango (MSC/SC/0065/2014): Mater of Science in Chemistry, Maseno University
- Majorie Moraa (S56-6902-2020): Master of Science in Chemistry, Machakos University (Ongoing)
- Dorothy Auma Wafula: Master of Science in Physics, Kaimosi Friends University (Ongoing)

TECHNICAL REPORTS/CONSULTANCY

- Scientific Report on Pesticides in Kenyan Market (2021). https://routetofood.org/wp-content/uploads/2021/09/Scientific-Report-on-Pesticides-in-the-Kenyan-Market-Report_Final-1.pdf on behalf of Heinrich Böll Stiftung (Contact person: Layla.liebetrau@ke.boell.org)

EDITORIAL CONTRIBUTIONS

- Editorial Board Member, Discover Environment (Springer Nature Journal), https://link.springer.com/journal/44274/editors
- Guest Editor: Frontiers in Environmental Chemistry
  Special issue: Advances in the synthesis and utilization of waste-derived materials for water purification (2023-2024)
- Guest Editor: Frontiers in Sustainable Food Systems Agro-Food Safety
  Special issue: Food Safety - Pesticide Residues in Foods and Potential Consumer Risk (2024)

PROFESSIONAL BODIES

Associate Member, Royal Society of Chemistry (Membership Number: 642760)

SCIENCE COMMUNICATION/ADVOCACY/PUBLIC LECTURES

- Podcast on toxic pesticides:
  YouTube: https://www.youtube.com/watch?v=PYUfGzUkBHU
- Public lecture: "Pesticides and Emerging Economies: What does the data say?":
  YouTube: https://www.youtube.com/watch?v=7sqrZbXJum4
- Public lecture: Data and Facts | Pesticides in the Kenyan market: Where are we?
  YouTube: https://www.youtube.com/watch?v=kw0oIwv8Xdg

COMMUNITY SERVICE

- Coordinator for the "**Round Up; Is it Saving or Killing our agricultural sector?**" debate held **on 26th September 2024** at Kaimosi Friends University funded by BIBA-Kenya for creating awareness amongst students and other stakeholders on the effects of toxic agricultural inputs.
- Coordinator for the "**GMOs: Miracle or Tragedy?**" debate held **on 9th November 2022** at Kaimosi Friends University funded by BIBA-Kenya for creating awareness on Genetically Modified Organisms (GMOs), promote our indigenous seed and food varieties and to sensitize the youth on issues of seed and food sovereignty.
- Elder of the Kaimosi Friends University Seventh Day Adventist church (**KAFUSDA**).

PRODUCT DEVELOPMENT

- 2021: Instant Hand Sanitizer: Brand name **KAFUCO SANITIZER** (KEBS Permit number: 43913)

INNOVATIONS AND/OR PATENTS

- Developed/derived a **new equation** for application in adsorption science/theory. The equation, published in 2020 in South African Journal of Chemistry (Shikuku and Kimosop, 2020) allows for calculation of amount of adsorbent required to treat a given volume of water if the concentration of the pollutant is known. The equation is innovative contribution to adsorption theory with practical significance.

CURRICULUM DEVELOPMENT

- **Master of Science in Chemistry**: Program developed by Dr. V. Shikuku and approved at department level

EXTERNAL/INTERNAL THESIS EXAMINER

- Betty Refilwe Mphuthi (2024). **PhD Thesis** "*Synthesis of nanoparticles-hemp based multifunctional materials for the removal of methylene blue dye, toxic metal ions (Cr(VI)), Pb(II), Cd (II) and the*

	immobilization of selected pathogens from synthetic wastewater" Vaal University of Technology, South Africa • Fedinant Okware (2023). **MSc Thesis** "*Mathematical Modelling of Human Papillomavirus Dynamics with Vaccination Incorporating Optimal Control Analysis*" Kaimosi Friends University, Kenya.
PUBLICATIONS AS TUTORIAL FELLOW (2014-2018)	
Book Chapters	• **Shikuku V.O,** Winfida N. Nyairo, Chrispin O. Kowenje (2018). Preparation and Application of Biochars for Organic and Microbial Control in Wastewater Treatment Regimes: In Athar Hussein (Editor) Advanced Treatment Techniques for Industrial Wastewater. pp 19-34. IGI Global Publishers. ISBN13: 9781522557548DOI: 10.4018/978-1-5225-5754-8.ch002 (Chapter 2) • **Shikuku V.O,** George O. Achieng' (2018). Occurrence and Fate of Selected Heavy Metals in a Conventional Municipal Wastewater Treatment Plant in Kisumu City: A Case Study: In Athar Hussein (Editor) Advanced Treatment Techniques for Industrial Wastewater. pp 211-224. IGI Global Publishers. ISBN13: 9781522557548 DOI: 10.4018/978-1-5225-5754-8.ch012 (Chapter 12) • **Shikuku V.O,** Winfida N. Nyairo, Chrispin O. Kowenje (2017). Fundamentals and Sources of Magnetic nanocomposites and their Sorption Properties: In Tawfik A. Saleh (Editor) Advanced Nanomaterials for Water Engineering, Treatment and Hydraulics. pp 58-82. IGI Global Publishers. ISBN13: 9781522521365. DOI: 10.4018/978-1-5225-2136-5 (Chapter 4)
PEER REVIEWED JOURNAL ARTICLES	
2018	• **Shikuku, V.O**., Zanella, R., Kowenje C.O., Filipe F. Donato., Nelson Bandeira, Prestes, O.D. (2018). Single and Binary Adsorption of sulphonamide antibiotics onto iron-modified clay: Linear and nonlinear Isotherms, Kinetics, thermodynamics and mechanistic studies. Applied Water Science, 8:175 https://doi.org/10.1007/s13201-018-0825-4 • **Shikuku V.O.,** Kowenje C.O., Kengara, F. (2018). Errors in Parameters Estimation using Linearized Adsorption Isotherms: Sulfadimethoxine Adsorption onto Kaolinite Clay. Chemical Science International Journal, 23 (4), 1-6
2017	• **Shikuku, V.O**., Zanella, R., Kowenje C.O., Filipe F. Donato., Nelson Bandeira, Prestes, O.D. (2017). Single and Competitive removal of sulfachloropyridazine and Sulfadimethoxine onto natural kaolinite clay: Kinetics, Isotherms and thermodynamics. South Africa Journal of Chemistry, 70, 120-127 • **Shikuku, V.O**., Achieng', G.O., Ng'eno, E., Okowa, G.M., Masitsa, G.A., Owuor, J.J. (2017). Distribution and Removal Efficiency of heavy Metals by a Conventional Activated Sludge at a Municipal Wastewater treatment Plant in Kisumu City-Kenya. Research Journal of Chemical Science 7(8), 19-25 • Jemutai-Kimosop, S., Okello, V.O., Orata, F., Getenga, Z.M., **Shikuku, V.O**. (2017). Green Remediation of carbamazepine from water using iron modified carbonized bagasse: kinetics, equilibrium and mechanistic studies. Chemical Science International Journal 18(3), 1-9
2016	• Ng'eno, E., Orata, F., Lilechi, D.B., **Shikuku V.O**., Kimosop, S. (2016). Adsorption of caffeine and ciprofloxacin onto pyrolytically derived water hyacinth biochar: Isothermal, kinetics and thermodynamics. Journal of Chemistry and Chemical Engineering 10, 185-194

2015	• **Shikuku V.O**., Filipe F. Donato., Kowenje C.O., Zanella, R., Prestes, O.D. (2015). A comparison of adsorption equilibrium, kinetics and thermodynamics of aqueous phase clomazone between Faujasite X and a Natural zeolite from Kenya. South Africa Journal of Chemistry, 68, 245-252
2014	• **Shikuku V.O**., Kowenje C.O., Ongeri, D.M.K., Zanella, R., Prestes, O.D. (2014). Removal of Tebuconazole from wastewater by zeolite X: kinetics and thermodynamic studies. International Journal of Engineering, Research and Technology, 3(8), 1584-1590

GRANTS AND FELLOWSHIPS AS TUTORIAL FELLOW

C.V Raman International Fellowship for African Researchers 2016, for **Research Visit** at the CSIR-National metallurgical Laboratory, Jamshedpur-India

National Research Fund (NRF)-Govt. of Kenya, 2016 PhD **Research grant**: 1,050,000 KShs.

Exceed-SWINDON, PhD scholarship 2015-2016, for **Research Stay** at Federal University of Santa Maria, Brazil

Exceed-Excellence Centre for Development Cooperation, MSc Scholarship 2013, for **Research Stay** at Federal University of Santa Maria, Brazil

NCST and Science, Technology and Innovation **Research Grant** 2012/13 Grant for Masters research

Masinde Muliro University of Science and Technology **Staff Development Scholarship** for Masters in Physical Chemistry, 2011

CONFERENCES AND WORKSHOPS AS TUTORIAL FELLOW

"**Holistic approach to water Resources Management in Africa**" Workshop, held on 3rd-8th June 2018, University of Yaounde I, Yaounde-Cameroon-*Oral presentation*

Regional training on "**Water and Wastewater Treatment**" held on April 28- May 4, 2013, University of Malawi (Chancellor College), Zomba City-Malawi

Expert Seminar on "**Water Issues in Megacities**" held on March 3-10, 2013- Ho Chi Minh City-Vietnam-*Oral presentation*

REVIEWER FOR SELECTED JOURNALS

Journals: *Scientific African, Environmental Research, Heliyon, Science of the Total Environment, Environmental Science and Pollution Research, Scientific Reports, Frontiers in Environmental Chemistry*

Publons review profile: https://publons.com/researcher/1659961/victor-odhiambo-shikuku/peer-review/

REFEREES

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