

CURRICULUM VITAE

DR. JANE NJOKI MBURU

ACADEMIC QUALIFICATION

PhD.(Environmental Technology (JKUAT) / Karlsruhe University of Applied Sciences, Germany]
MSc. Environmental legislations and Management (JKUAT), **BSc.** Analytical Chemistry (JUKAT),
Diploma Analytical Chemistry(Murang'a Technology),

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Languages: English, Swahili
Religion: Christian



CAREER OBJECTIVE

“To become a Lead Researcher in Environmental Pollution Control and the Application of Innovative Technologies for Solid Waste Management and Wastewater Treatment To Promote Sound Approaches for Abatement and Mitigation of Environmental Problems”

CURRENT POSITIONS

Academic: Lecturer/ Researcher: Muranga University

EDUCATION

- 2021: PhD. Environmental Technology JKUAT / Karlsruhe University of Applied Sciences, Germany
Thesis: Development of novel low-fouling membranes for wastewater Treatment
- 2016: MSc. Environmental legislations and Management (JKUAT)
Thesis: Pyrolysis of Post-consumer polyethene waste, Conversion and Upgrading of the Pyrolysis Oil, Research done in, JKUAT.
- 2014: BSc. Analytical Chemistry(JKUAT)
- 1999: Diploma Analytical Chemistry (Murang'a Technology)

TEACHING AND WORK EXPERIENCE

- 2024 - To date: Academic: Lecturer/ Researcher: Muranga University
- Supervision of Postgraduate Student's projects
- 2022-2023: Jomo Kenyatta University of Agriculture and Technology (Part-time Lecturer)
- 2016-2023 To Date: Chief Technician Kenyatta University (KU) Department of Chemistry.
- 2014-2023- To date: Research: Jomo Kenyatta University of Agriculture and Technology
- Trainer on wastewater treatment technologies (Workshop and Training Session for Solar-Powered MBR for Wastewater Treatment and Reuse for Hospitals in Uganda)
 - Research assistant, Lake Victoria Basin (VicInAqua) Project
 - Research assistant, JICA's technical co-operation "BRIGHT" Project
 - Research assistant (KU-VC'S Research Grant Project)
 - 2013-2016: Part-time technician (JKUAT)

RESEARCH EXPERIENCE AND INTERESTS

2017-2021: Research Assistant in the Lake Victoria Basin (VicInAqua) Project

- Wastewater treatment Technology using Membrane bioreactors
- Characterization of novel low-fouling membranes using FTIR (ATR), Automated cross-flow testing cell, Contact angle measurement (CAM instrument (Data Physics SCA 20)
- Water analysis using UV-VIS and Dissolved oxygen (DO) meter for COD, BOD, PO_4^{3-} -P NH_4^+ -N, and NO_3^- -N

2014-2016: Research Assistant in the JICA's technical co-operation "BRIGHT" Project

- Biogas Production from cow dung and water hyacinth, analysis for CO_2 , CO, CH_4 , H_2 , N_2 , and O_2 using Gas Chromatograph (GC-TCD)

2006-2013: Part-time technician (JKUAT)

- Organize and supervise practicals for undergraduate students
- Carry out maintenance of equipment and ensure procurement of reagents for undergraduate practical's.
- Ensure safety and proper storage of chemicals, maintain good lab practices

2018-2020: Research assistant (KU-VC'S Research Grant Project)

- Analysis and characterization of Silver and Gold Nanoparticles using UV-VIS and FTIR (ATR)
- Analysis of Phytochemicals extracted from tubers of *D. stercorarius* using; UV-Vis, and HPLC-MS
- Team member for the production of KU-Hand Sanitizer (test quality of materials and finished product)

PARTICIPATION IN RESEARCH WORK

1. Biogas Production using Water Hyacinth as feed stock for electricity generation. Funded by Japanese International Cooperation Agency (research assistant, JKUAT-IEET)
2. Gasification of Rice Husk for Electricity Generation. Funded by JICA (research assistant, JKUAT-IEET).
3. Integrated aquaculture based on sustainable water recirculating system for the Victoria Lake Basin (VicInAqua) project (PhD research student).
4. Process Study, the Development and application of Novel Low-Fouling Membranes for Fish Processing Wastewater Treatment through Membrane Bioreactor (MBR) Technology (PhD research work).
5. Phyto-Mediated Biosynthesis of Novel Metal Nanoparticles and their Antimicrobial Activity. VC'S research grant project KU (research assistant)
6. Professional Association
EIA Associate Lead Expert: National Environmental Management Authority
Royal society of Chemistry

PhD THESIS

2017-2021: Thesis, Mburu, J. N., Process Study, the Development and application of Novel Low-Fouling Membranes for Fish Processing Wastewater Treatment through Membrane Bioreactor (MBR) Technology

MSc THESIS

2014-2016: Thesis, Mburu, J. N., *Pyrolysis Process Studies for Post Consumer Polyethylene Waste Conversion and Upgrading Of Resultant Fuel Oils*. MSc. Environmental legislations and Management Jomo Kenyatta University of Agriculture and Technology, Nairobi.

PUBLICATIONS AND PAPRES PRESENTED IN CONFERENCES

1. **Mburu, J.**, Hoinkis, J., Njogu, P., Kinyua, R., Gukelberger, E., & Talha, A. (2019). Pilot Trials on Testing and Optimization of Polyethersulfone Membranes for Treatment of Fish Processing Wastewater through Membrane Bioreactor Technology. *International Journal of Water and Wastewater Treatment*, 5(1), 1-10. doi:10.16966/2381-5299.158
2. **Jane, M.**, Ephraim, G., Paul, M., Robert., K., Francesco, G., Raffaella, M., Bartolo, G.,Alberto, F., and Jan, H. (2020). Application of Novel Low-Fouling Membranes for Fish Processing WastewaterTreatment and Comparison to PES Commercial Membranes in a Lab Scale Membrane Bioreactor. *International Journal of Water and Wastewater Treatment*, 6(1-12). doi: 10.16966/2381-5299.166
3. **Jane, M.**, Ephraim, G., Paul, M., Robert, K., & Jan, H. (2020). Cost-benefit Analysis for A Containerized MBR system for Treatment and Reuse of Fish Processing Wastewater by Industries in Kisumu, Kenya and Comparison to Wastewater Stabilization Ponds and the Activated Sludge Process. *Journal of Water Technology and Treatment Methods*, 3(1), 1-7. doi: 10.31021/jwt.20203127

4. **Jane, M.**, Ephraim, G., Paul, M., Robert, K., & Jan, H. (2020). Cost-benefit Analysis for A Containerized MBR system for Treatment and Reuse of Fish Processing Wastewater by Industries in Kisumu, Kenya and Comparison to Wastewater Stabilization Ponds and the Activated Sludge Process. *Journal of Water Technology and Treatment Methods*, 3(1), 1-7. doi: 10.31021/jwt.20203127
5. **Jane, N., Mburu.** (2020). Pilot Trials on Testing and Optimization of Polyethersulfone Membranes for Fish Processing Wastewater Treatment through Membrane Bioreactor Technology. *Journal of Environmental Waste Management and Recycling. In Recycling 2020 International Scientific Conference Proceedings*, 2, 13.
6. **Mburu, J.**, Njogu., P., Kinyua., R., & Hoinkis., J. (2018). Process studies on efficiency of commercial flat polyethersulfone (PES) water purification membranes on fish process wastewater treatment through Membrane Bioreactor (MBR) Technology. *The 13th JKUAT Scientific, Technological and Industrialization Conference*, 334-350.
7. Wilson, Njue., Jackson, Kilonzo., Sauda, Swaleh., **Mburu, Jane.**, & Mwangi., H. (2020). Green ultrasonic synthesis, characterization and antibacterial activity of Silver and Gold Nanoparticles mediated by Ganoderma lucidum extract. *Journal of Applied Chemistry Material Science & Engineering Research*, 4(2), 1-7: ISSN: 2689–1204.
8. Wilson, N., Jackson, K., **Jane, M.**, Henry, M., & Sauda, S. (2020). Green Sonochemical Synthesis of Silver Nanoparticles Using Adansonia Digitata Leaves Extract and Evaluation of Their Antibacterial Potential. *European Journal of Advanced Chemistry Research*, 2(41-45). doi: <http://dx.doi.org/10.24018/ejchem.2020.1.2.5>.
9. Tapera, M., Wanjau, R., Dzomba, P., Machocho, A. K., & **Mburu, J.** (2020). Phytochemical study to validate the ethnobotanical importance of Dioscorea stercus tubers obtained from Zimbabwe. *STED Journal*, 2(1), 1-10. doi: 10.7251/STED2002001T
10. **Mburu, J. N.**, Njogu., P. M., & Muthengia., J. W. (2015). Pyrolysis Process Studies For Post-Consumer Polyethylene Waste Conversion and Upgrading of the Pyrolysis Oil. *The 2015 JKUAT Scientific Conference, Basic and Applied Sciences*, 87-95.
11. **Mburu, J., N.**, Njogu, P., M. , & Muthengia, J., W. (2016). Thermal Catalytic Pyrolysis Process Studies For Post-Consumer Polyethylene Waste Conversion. In Scientific Conference Proceedings. *11th JKUAT Technological and Industrialization Conference*.
12. **Jane, N.M.**, Paul, N.M., and Jackson, W.M. (2016). Pyrolysis process studies for post-consumer polyethylene waste conversion and upgrading of the Pyrolysis oil. *International Journal of Science and research* 5, 101-105
13. **Mburu, J. N.**, Mwangi, P. N., & Muthengia, J. W. Pyrolysis of Post-Consumer Polyethylene Waste and Composition Analysis for Pyrolysis Fuel Oils and Solid Residue. *International Journal of chemistry and chemical science* Vol.6(4), 406-417, April 2016
14. **Jane, M., Paul, N., Robert, K., & Jan, H.** (2024). Process Performance and Nutrient Removal in Fish Processing Wastewater Using a Membrane Bioreactor (MBR) Unit for Reuse for Irrigation. *Global Research in Environment and Sustainability* , Vol. 2, No. 8, pp. 11-18. ISSN 3033-3644

SCHOLARSHIP AWARD RECEIVED

HELB POSTGRADUATE SCHOLARSHIP AWARD 2017/2018

NATIONAL RESEARCH FUND (NRF) 2018/2019

TRAINING AND SEMINAR ATTENDED

1. Royal Society of Chemistry Liquid Chromatography-Mass Spectroscopy (LC-MS) Training (18th-22nd September, 2017)
2. Chemical security and safety training facilitated by Civilian Research and Development foundation (26th-27th July, 2016).
3. Natural Product Research Network for Eastern and Central Africa (NAPRECA KENYA). Annual Seminar Day/AGM at JKUAT (22nd November, 2013).
4. Wastewater treatment Technology using Membrane bioreactors (Center of Applied Research (CAR), Karlsruhe University of Applied Sciences, Moltkestreet 30, 76133 Karlsruhe, Germany 5th – 31st December 2016)
5. Water treatment technology in the context of the student exchange program of VicInAqua project (G.A. 689427). (CAR Karlsruhe University of Applied Sciences, Germany 16 July – 28 July 2018)
6. Water treatment and Membrane Science on preparation and characterization of novel low-fouling membranes in membrane bioreactors (MBRs) for treatment of wastewater from fish processing industry. (CAR Karlsruhe University of Applied Sciences, Germany 6th May – 18th 2019)
7. Renewable energy concept of water treatment plants (JKUAT 27th-28th November 2017).
8. State of the Art Particle Analysis for the Pharmaceutical Industry Webinar organized by Microtrac Retsch GmbH, Avant-Garde FZCO and Vision Scientific held on 25th February, 2021.
9. Foundation calibration training in determination on uncertainty of measurements, calibration, and traceability for standards, course by Kenya Bureau of Standards (KEBS) 28th-March – 1st April, 2022
10. Visited to San Leandro wastewater treatment plant in San Leandro City in California, USA as part of connecting and developing my professional skills and knowledge (10th February, 2023).
11. Management Systems (ISMS & QMS) Implementation Training Course based on(ISO 9001:2015 AND ISO 27001:2013)
12. Cyber security and Emerging Technologies Awareness Training (May 24th , 2024)
13. Training Course on 17025:2017 Laboratory ISO Standards (17th -21st June 2024)
14. Training Course on Effective Graduate Students' Supervision Training Course (9th – 13th Sep. 2024).

AREA OF SPECIALIZATION, RESEARCH INTERESTS AND COMPETENCIES

1. Analytical chemistry (Advanced Instrumentation and Spectroscopic Methods of Analysis)
2. Environmental technology (Water and wastewater treatment technology, Post Consumer Polyethene waste recycling technology).

REFEREES

1. Prof. Robert Kinyua
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