

# 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
- 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,  $\text{PO}_4^{3-}$ -P  $\text{NH}_4^+$  -N, and  $\text{NO}_3^-$ -N

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

- Biogas Production from cow dung and water hyacinth, analysis for  $\text{CO}_2$ , CO,  $\text{CH}_4$ ,  $\text{H}_2$ ,  $\text{N}_2$ , and  $\text{O}_2$  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. steriscus* 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 Polyethene 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 polyethene 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 Polyethene 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

## **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 (18<sup>th</sup>-22<sup>nd</sup> September, 2017)
2. Chemical security and safety training facilitated by Civilian Research and Development foundation (26<sup>th</sup>-27<sup>th</sup> July, 2016).
3. Natural Product Research Network for Eastern and Central Africa (NAPRECA KENYA). Annual Seminar Day/AGM at JKUAT (22<sup>nd</sup> November, 2013).
4. Wastewater treatment Technology using Membrane bioreactors (Center of Applied Research (CAR), Karlsruhe University of Applied Sciences, Moltkestreet 30, 76133 Karlsruhe, Germany 5<sup>th</sup> – 31<sup>st</sup> 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 6<sup>th</sup> May – 18<sup>th</sup> 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 25<sup>th</sup> February, 2021.
9. Foundation calibration training in determination on uncertainty of measurements, calibration, and traceability for standards, course by Kenya Bureau of Standards (KEBS) 28<sup>th</sup>-March – 1<sup>st</sup> April, 2022
10. Management Systems (ISMS & QMS) Implementation Training Course based on(ISO 9001:2015 AND ISO 27001:2013)

## **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 Polyethylene waste recycling technology).

## REFEREES

1. Prof. Robert Kinyua  
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