Curriculum Vitae

Numfor Linda Bih

+255742522406

https://orcid.org/0000-0002-6572-3539

nlinda@aust.edu.ng, lilexbih@yahoo.com

Objective

To make a pilot test and commercialization of novel clay aggregate for industrial wastewater (heavy metals) treatment and fluoride adsorption from drinking water. Am energetic, goal oriented, collaborative, and a last-year Material Science and Engineering Ph.D. scholar at The Nelson Mandela African University of Science and Technology (NM-AIST) Arusha, Tanzania (NM-AIST).

Education

Ph.D. (Material Science and Engineering).

- *The Nelson Mandela African University of Science and Technology (NM-AIST) Arusha, Tanzania.* Ph.D. student, January 2021 (**Adsorption of organic and inorganic contaminants onto a novel clay aggregate for industrial wastewater treatment).** Recipient of PASET- Regional Scholarship and Innovation Fund, Ph.D scholarship.

  Supervisors: Dr. Mwemezi. R . Rwiza[a]

  Professor. Machunda Revocatus[a]

  Professor. Choi Joon Weon[b]

  [a]The Nelson Mandela African University of Science and Technology (NM-AIST) Arusha, Tanzania.

  [b]Graduate School of International Agricultural Technology, Seoul National University, Pyeongchang Campus.

Master of Science (Material Science and Engineering)

African University of Science and Technology (AUST) Abuja Nigeria. March 2015-December 2017.

Recipient of The African Capacity Building Foundation (ACBF).

Supervisors: Dr. Emmanuel Boakye[a,b]

Prof. Peter. A. Onwaulu[a]

[a,b]Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson Air Force Base, Dayton, Ohio.

[b]African University of Science and Technology (AUST) Abuja Nigeria.

Bachelor of Science (Chemistry and Minor in Material Science and Technology)

University of Buea, Cameroon. Oct 2006- March 2010.

Relevant Coursework:

- Structure and characterization of Materials.
- Applied Nanotechnology.
- Advanced Materials Characterization.
- Materials' Properties.
- Polymers, Biomaterials and Ceramics.

Project:

Production of activated carbon from waste biomass and characterization at Graduate School of International Agricultural Technology/Green-Bio Science and Technology, Seoul National University (GSIAT/GBST –SNU) South Korea under Professor. Choi Joon Weon.

Activated carbon have varying porous texture, structure, high surface area and properties. The aim of this project is to produce low-cost, easy to source, lower carbon footprint but efficient activated carbon that can be used for soil filter, air filter, water filter and energy

storage that are distributed to different university under same project. Waste biomass (saw-dust milled dust, pine back, baobab husk, sesame husk mushroom log etc) using chemically activated method was employed. Potassium hydroxide is used as the catalyst chemical for activation at ratio of 1:0 and 1:1 to biomass ratio at 500 ℃, 600 ℃ and 700 ℃. The biomass activated carbon was characterized using x-ray diffraction (XRD), scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), Brunauer-Emmett-Teller (BET), Thermogravimetric analysis (TGA) and CHNS/O analyzer at the National Instrumentation Center for Environmental Management (NICEM) South Korea.

Ph.D manuscripts in progress:

1) Adsorption of Organic Contaminants from Wastewater onto High-Performance Catalytic Activated Carbon from Biomass Residues.
2) Biosorption of Cd(II) Ion from Aqueous Solution by *Moringa oleifera* and Baobab (*Adansonia digitata L.) Husks*: Characterization, Adsorption Isotherm, Kinetic Model, and Thermodynamics.

Work plan in laboratory research

- Design prototype for pilot test and commercialization of clay aggregates for wastewater treatment.
- Test prototype for as household filter for fluoride removal in Arusha Tanzania, hence, contributing to mitigate fluoride hazard in Arusha community.

National Diploma: Community Development and Project Management, 2014

CAMCODA Yaounde, Cameroon.

Skills/Research Experience

Technical & Laboratory Skills:

- Mechanical and fracture testing, impact, torsion and fracture analysis.
- Materials characterization and analysis (x-ray diffraction (XRD), scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), Brunauer-Emmett-Teller (BET), Thermogravimetric analysis (TGA), Atomic Absorption Spectrometry (AAS), Inductively Coupled Plasma- Mass

Spectrometry/ Optical Emission Spectrometry (ICP-MS/OE)S, and UV/Vis spectroscopy).

- Knowledge in carbonization of biomass to activated carbon.
- Knowledge in water/wastewater filtration (adsorption).
- Knowledge in Ceramics and geopolymer ceramics.
- Knowledge in cement and concrete.

Software:

Originpro lab, Design Expert, Minitab, Python, Microsoft Office 365 (Word, PowerPoint, Excel).

Languages:

Fluent in English (spoken and written) and French (basic spoken and written).

Work/ Volunteer/ Outreach Experience

AUST-Abuja, Nigeria

- Volunteer on "Cash them Young in Science" and "Empowering the Girl Child", 2015- 2020.
- African material research society (AMRS) Abuja Nigeria branch secretariate 2016-2020.

Douala Cameroon

- Manager at Destiny Rhema Home (orphanage), 2011-2012. Documentation with Social warfare Cameroon, cooking and taking care of orphans and less privilege children.

University of Buea

Health Club, 2006-2009. Outreach on sensitization of Maleria and HIV within the student community and national university games.

Research and Development Co-operation at Graduate School of International Agricultural Technology (*GSIAT-SNU)*, *South Korea*, 2022-2023.

- Volunteer for activated carbon production from biomass, biomass, and bioenergy lab.

Youth volunteer

Bamenda, Cameroon

- Youth community clean-up, 2003-*2009.*

Student Volunteer

- The design of a low-cost, locally-sourced laboratory kit from May-October 2021 on a virtual international team with Women Supporting Women in the Sciences (WS2).
- *Arusha Tengeru* STEMi outreach, guide to primary schools and secondary school students to love and study science, 2021 – 2022.
- *5th Sustainability in the Extractive Industry (SITEI) conference and workshop Abuja Nigeria.* Secretariat and registration of participants, June 2016

Seminar/Workshop/Oral and Postal presentation

- Best presenter award, International Maji Conference January 31st,- February 2nd, 2024, Dar es Saalam Tanzania.
- Poster Presentation at the Korean Wood Chemistry, Microbiology, Energy, Paper and Technology Conference, Poster-66 (Adsorption of Aqueous Cadmium Ion *Moringa oleifera* biochar. 5th April 2023 South Korea.

  East Africa Conference (EAC) Regional Science , Technology, and Innovation (STI) conference, Rwanda 2022. Oral virtual presentation "Preparation and characterization of chemic activated carbon from *Polyalthia longifolia* seeds"
- African Material Research Society (AMRS) conferences and Society of Petroleum Student conferences and memberships 2019.
- Solar Decathlon Africa Morocco 2019 competition, Team Oculus. Built a touristic house power with solar energy and presented to the jury.
- The 4th and 5th Sustainability in the Extractive Industry (SITEI) conference and workshop Abuja Nigeria, October 2015 and 2016.

- Pan African School of Materials (PASMAT): PASMAT Multifunctional Materials, Plastic Recycling, Water filtration, 7th November 2015 and PASMAT Biomaterials Workshop Cancer drug production and drug release, 15th July 2016.
- Society of Petroleum Engineers (SPE) Lectures at Prescobe Hilton Hotel Maitama Nigeria May 2015, 2015/2016, lectures.
- Kidney Disease Awareness: Prevention, Nutrition and Managing Dialysis, North-west Region (Cameroon), 30th December 2015.

Professional Memberships

- AMRS (Material Research Society) Nigeria and Tanzania Chapter, 2014-present
- Organization for Women in Science for the Developing World (OWSD), 2009present.

Some publications

1. Patent application number: ITZ/P/2024/000148. A Method and Composition of Clay-Balls Formation for Decontamination of Wastewater.
2. **Bih, N. L**.; Mahamat, A. A.; Chinweze, C.; Ayeni, O.; Bidossèssi, H. J.; Onwualu, P. A.; Boakye, E. E., The effect of bone ash on the physio-chemical and mechanical properties of clay ceramic bricks. *Buildings* **2022,** *12* (3), 336.
3. **Linda Bih**, N.; Aboubakar Mahamat, A.; Hounkpè Bidossèssi, J.; Azikiwe Onwualu, P.; Boakye, E. E. J. A. S., The Effect of Polymer Waste Addition on the Compressive Strength and Water Absorption of Geopolymer Ceramics. **2021,** *11* (8), 3540.
4. Ripanda, A. S.; Rwiza, M. J.; Nyanza, E. C.; Miraji, H.; **Bih, N. L**.; Mzula, A.; Mwega, E.; Njau, K. N.; Vuai, S. A. H.; Machunda, R. L. J. E. C.; Ecotoxicology, Antibiotic-resistant microbial populations in urban receiving waters and wastewaters from Tanzania. **2023,** *5*, 1-8.
5. Mahamat, A. A.; Leklou, N.; Obianyo, I. I.; Poullain, P.; Stanislas, T. T.; Ayeni, O.; **Bih, N. L**.; Savastano Jr, H., Assessment of hygrothermal and mechanical performance of alkali activated Borassus fiber reinforced earth-based bio-composite. *Journal of Building Engineering* **2022**, 105411.

6. Mahamat, A. A.; Dayyabu, A.; Sanusi, A.; Ado, M.; Obianyo, I. I.; Stanislas, T. T.; **Bih, N. L**. J. H., Dimensionnal stability and strength appraisal of termite hill soil stabilisation using hybrid bio-waste and cement for eco-friendly housing. **2022,** *8* (5).

7. Ayeni, O.; Mahamat, A. A.; **Bih, N. L**.; Stanislas, T. T.; Isah, I.; Savastano Junior, H.; Boakye, E.; Onwualu, A. P., Effect of Coir Fiber Reinforcement on Properties of MetakaolinBased Geopolymer Composite. *Applied Sciences* **2022,** *12* (11), 5478.

8. Mahamat, A. A.; **Bih, N. L**.; Jr., H. S.; Soboyejo, a. W. O., Development of Sustainable and Eco-Friendly Materials from Termite Hill Soil Stabilized with Cement for Low-Cost Housing in Chad. *Buildings 2021, 11, 86* **2021**.

9. Mahamat, A. A.; Obianyo, I. I.; Ngayakamo, B.; **Bih, N. L**.; Ayeni, O.; Azeko, S. T.; Savastano, H. J. H., Alkali activation of compacted termite mound soil for eco-friendly construction materials. **2021,** *7* (3).

10. Mahamat, A. A.; Boukar, M. M.; Ibrahim, N. M.; Stanislas, T. T.; **Linda Bih, N**.; Obianyo, I. I.; Savastano Jr, H., Machine learning approaches for prediction of the compressive strength of alkali activated termite mound soil. *Applied Sciences* **2021,** *11* (11), 4754.

11. Mahamat, A. A.; **Bih, N. L**.; Savastano, H. In Optimization of termite mound soil through alkali activation and cement stabilisation for sustainable and eco-friendly construction materials, 2021 1st International Conference on Multidisciplinary Engineering and Applied Science (ICMEAS), IEEE: 2021; pp 1-5.

Referees

- Supervisor. Dr. Emmanuel Boakye. Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson Air Force Base, Dayton, Ohio 45433. Email: kudor7@aol.com +1 (937) 610-8671.
- Prof. Revocatus Machunda. Water Purification Technologies and Sanitation, School of Materials Energy Water and Environmental Sciences, NM-AIST Arusha Tanzania. E-mail: revocatus.machunda@nm-aist.ac.tz +255 756 773286.
- Dr. Mwemezi. R . Rwiza. PASET-RSIF Coordinator at NM-AST Arusha Tanzania. E-mail: mwemezi.rwiza@nm-aist.ac.tz +25576938202