

# CURRICULUM VITAE

**DAVID AZANU, PhD**

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## CAREER OBJECTIVE

To be a professor in environmental-analytical chemistry with the requisite knowledge, skills, and experience in ecotoxicology, ecological modeling, and environmental sustainability to address and manage pressing ecological issues effectively.

## EDUCATION

- 07/2016: **PhD** - Doctor of Philosophy (Analytical Chemistry). KNUST.
- 07/2011: **MSc**- Master of Science (Analytical Chemistry). KNUST.
- 05/2007: **BSc**- Bachelor of Science (Chemistry). KNUST, Kumasi, Ghana.

## SOME GRANTS/AWARDS/HONOURS/FELLOWSHIPS RECEIVED

- Nov 2023-Oct. 2024: KREF/23/175/M26 Clean Manure Project-Principal Investigator (GHC 44,690)
- 2022- Dec 2023: FSPI NYANSAPO 2022-32 project- Co-Investigator (39, 930€)

## RESEARCH INTERESTS

My research interest is an intersection of water treatment technologies, the growing challenge of emerging pollutants. Here are some specific areas that captivate me:

- **Environmental Toxicology of Emerging Pollutants:** Understanding the effects of pharmaceuticals, disinfection byproducts (DBPs), per- and polyfluoroalkyl substances (PFAS), and microplastics on aquatic ecosystems and human health. This includes investigating their uptake, bioaccumulation, and potential transformation products.
- **Water and Wastewater Treatment Systems:** Promoting the integration of wastewater treatment into circular economic systems, where treated wastewater is reused for agricultural, industrial, or urban purposes. Developing robust methods for assessing the risks posed by emerging contaminants and monitoring their presence in water and wastewater.
- **Ecological Modeling of Emerging Pollutants:** Developing and applying ecological models to predict the fate and transport of emerging pollutants in water bodies. These models can be used to assess environmental risk and guide treatment system design.
- **Environmental Laboratory Instrumentation and Innovations:** Exploring and evaluating novel analytical techniques and instrumentation for sensitive and efficient detection and quantification of

emerging pollutants in water samples. This could involve research on biosensors, advanced chromatography techniques, and mass spectrometry advancements. By combining these areas of research, I aim to contribute to the development of more effective and sustainable water and wastewater treatment systems that can address the growing challenge of emerging pollutants. My ultimate goal is to ensure clean and safe water for both human consumption and ecological health.

## RESEARCH EXPERIENCE/PUBLICATIONS /CONFERENCE PRESENTATIONS

- Research experience and articles can be assessed at:
  - Scholar: <https://scholar.google.com/citations?hl=en&user=15wje5IAAAAJ>
  - Researchgate: <https://www.researchgate.net/profile/David-Azanu-2>
  - ORCID iD: 0000-0002-1003-9270

## PUBLICATIONS LIST

Awewomom, J., Benjamin, B. K., Osei, F. E., **Azanu, D.**, Opoku, F., Sackey, L. N. A., and Akoto, O. (2024). Health risks and birth defects associated with exposure to galamsey-related pollutants: A review. *HSI Journal*, 5. 2: 726-734

Dia, N., **Azanu, D.**, Darmey, J., & Sanogo, A. (2023). Adsorption of ciprofloxacin using composite microplastics. *International Journal of Innovation and Development*, 76–84.

Darmey, J., **Azanu, D.**, Amoatey, N. K., Adu, A. O., and Dia, N. (2023). Antibiotics in the Ghanaian environment: Occurrence, uptake, risk assessment, and removal. *Technological Innovation Driving Sustainable Entrepreneurial Growth in Developing Nations*, 124–155. doi: 10.4018/978-1-6684-9843-9.ch006

**Azanu, D.**, Adu-Poku, D., Saah, S. A., and Appaw, W. O. (2021). Prevalence of Pharmaceuticals in Surface Water Samples in Ghana. *Source. Journal of Chemistry*, 1–11.

**Azanu, D.**, Oppong, A., Poku Asare, O., Acquah, C., and Bempah, O. (2021). Health Risk Assessment of Sugarcane Grown in an Area under the Influence of Hospital Wastewater. *The International Journal of Science and Technoledge*, 9(11), 11–17.

**Azanu, D.**, Jørgensen, S. E., Darko, G., Styrihave, B., and Abaidoo, R. C. (2020). Antibiotic Uptake by Plant Model. *Environmental Modeling and Assessment*, 25: 545–553. <https://doi.org/10.1007/s10666-020-09712-y>

Odai, B. T., Tano-Debrah, K., Addo, K. K., Saalia, F. K., Akyeh, M. L., Torgby-Tetteh, W., Mills, S. W. N., and **Azanu, D.** (2019). The role of gamma irradiation and storage at  $28 \pm 2$  °C on the inactivation of *Listeria monocytogenes*, *Escherichia coli* and *Salmonella enterica* serotype Typhimurium in sun-dried Legon-18 pepper (*Capsicum annum*) powder. *Journal of Food Contamination*, 6.

**Azanu, D.**, Styrihave, B., Darko, G., Weisser, J. J. and Abaidoo, R. C. (2018). Occurrence and risk assessment of antibiotics in water and lettuce in Ghana. *Science of Total Environment*, 622-623: 293-305.

**Azanu, D.**, Mortey, C., Darko, G., Weisser, J.J., Styrihave, B., and Abaidoo, R.C. (2016). Uptake of Antibiotics from irrigation water by plants. *Chemosphere*, 157: 107-114.

Darko, G., Azanu, D., Logo N. K., (2016). Accumulation of toxic metals in fish raised from sewage-fed aquaculture and estimated health risks associated with their consumption. *Cogent Environmental Science*. DOI: [doi.org/10.1080/23311843.2016.1190116](https://doi.org/10.1080/23311843.2016.1190116)

Azanu, D., Jørgensen, S.E., Darko, G., Styrihave, B., (2016). Simple metal model for predicting uptake and chemical processes in sewage-fed aquaculture ecosystem. *Ecological Modelling*, 139: 130-136

Adengala, J. K., Voegborlo, R. B., Azanu, D. and Adam, J. I. (2016) Distribution of total lead, copper, zinc and cadmium in soils along the highway from Tafo to Aboaso in Kumasi in the Ashanti region of Ghana. *Journal of Science and Technology*, 36: 61-74.

Hagarty, J., Azanu, D., Atosona, B., Voegborlo, R., Smithwick, E. A. H., Singha, K., (2015). Chemistry of natural waters and its relation to Buruli ulcer in Ghana. *J. Hydrol. Reg. Stud.* 3, 457–472.

Azanu, D., Kyei, S.K., Oppong, A., (2015). Street Sugar Cane Vendors Practices, Metals and Microbial Levels of Sugarcane Sold in Kumasi, Ghana. *Int. J. Sci. Technol.* 4, 99–104.

Azanu, D., Acheampong, M. A. and Woode, M. Y. (2014) Heavy metals and organochlorine pesticides residue levels in natural spices sold in Kumasi, Ghana by, *IJEST*, Vol. 2 pp. 130- 135

Woode, M. Y., Acheampong, M. Y. and Azanu, D. (2014) Optimal conditions for Ammonia leaching of Copper/Chalcocite- Rimmed Pyrite: Part 2, *IJERT*, Vol. 3 pp. 2049-2053.

Azanu, D and Voegborlo, R. B. (2013). Sorption of inorganic mercury on soils from the Ankobra Basin in the South-western part of Ghana. *Journal of Science and Technology*, Vol. 33, pp 1-15.

#### CONFERENCE PAPER PROCEEDING

**Azanu, D.**, Oppong, A. and Setordzie, G (2018). Interlaboratory Comparison Exercise for the Determination of Cu and Pb in Ghana. *International Conference on Applied Science and Technology*. 5: 11-19.

#### CONFERENCE ABSTRACT PRESENTATIONS

**Azanu, D.**, Osman, H. M., Oppong, A. and Benney, R. (2021). Coagulation activity of tropical almond and neem tree leaf extracts as natural coagulant for water treatment. In: *Proceedings of the 10th GSA Research Seminar and Poster Presentation on COVID-19 Pandemic: Scientific Updates and The Way Forward*, via Zoom on 27-28th April, 2021.

**Azanu, D.**, Oppong, A., Darko, C., Bondzie, S. and Owusu-Ansah, G. (2019). Physio-chemical properties studies of some selected plants gum exudate in Ghana. In: *Proceedings of the 8th GSA Research Seminar and Poster Presentation on Using Science Technology and Innovation to improve quality health care delivery in Ghana at College of Science, KNUST, Kumasi, Ghana on 24th April, 2019*.

**Azanu, D.**, Ankar-Brewoo, G. M., Antwi, I., Antwi, P., Oppong, A. and Darko, C. (2019). Calcium Carbide Treatment of Cavendish Banana: Consumers And Producers Perception Studies, Biochemical And Sensory Evaluation. In: *Proceedings of the 8th GSA Research Seminar and Poster Presentation on*

Using Science Technology and Innovation to improve quality health care delivery in Ghana at College of Science, KNUST, Kumasi, Ghana on 24th April, 2019.

**Azanu, D.** Setordzie, G. and Oppong, A. (2018). Interlaboratory Comparison Exercise for the Determination of Cu and Pb in Ghana. 2018 ICAST Proceedings, at Anita Hotel, Kumasi, Ghana

**D. Azanu,** S. K. Kyei, A. Oppong, (2016). Street sugarcane vendors' practices, metals and microbial levels of sugarcane sold in Kumasi, Ghana. In: Proceedings of the 1st Food fraud conference on Combating Food Fraud: A Multi-Disciplinary Approach, Kumasi, Ghana (27th January, 2016)

**D. Azanu,** and G. Darko, (2015) Health risk hazard and ecotoxicological model for toxic metals in fish raised from sewage-fed aquaculture. In: Proceedings of the 18th Annual conference and general meeting Ghana Chemical Society on solving Ghana's energy and environmental challenges: the role of the chemist, Cape Coast, Ghana (27th – 28th August, 2015)

**D. Azanu** and R. B. Voegborlo (2013) Sorption of inorganic mercury on soils from the Ankobra Basin in the South-western part of Ghana. In: Proceedings of the 5th International Toxicology Symposium in Africa, Kumasi, Ghana (12th – 13th September, 2013)

**D. Azanu,** B. Styryshave and G. Darko, 2013, Characterization and uptake of pharmaceuticals in Environment to Plants. In: Proceedings of the 6th Ghana Biomed Conference on Communicating Health and science for a Better Africa (GBC 2013), Kumasi, Ghana (29th – 31st July, 2013)

**D. Azanu,** P. Tschakert, R. Amankwah, S. Gawu, H. Hausermann, E. Klutse, F. Nyame, J. Oppong, E. Parker, K. Singha, E. Smithwick, R. B. Voegborlo, A. Ward, L. Bug, C. Abbey, (2011). The human-environmental relationships influencing Buruli ulcer outbreaks in Ghana. In: Proceedings of the 4th Ghana Biomed Conference on Harnessing Biomedical science for national development (GBC 2011), Kumasi, Ghana (27th -29th July, 2011)

## BOOK

**Azanu D.** (2011). Sorption of Inorganic Mercury on Soils from Ankobra Basin. Author: Publisher: VDM Verlag Dr. Muller Aktiengesellschaft & Co. KG, ISBN: 9783639298932.

## TEACHING/WORK EXPERIENCE

- |  |                   |
|--|-------------------|
| (i) Lecturer: Department of Environmental Science, KNUST         | From 2023 to date |
| (ii) Senior Lecturer: Department of Laboratory Technology, KsTU  | From 2021 to 2022 |
| (iii) <i>Lecturer:</i> Department of Laboratory Technology, KsTU | From 2017 to 2021 |
| (iv) <i>Lecturer:</i> Chemical Engineering Department, KsTU      | From 2016 to 2017 |
| (v) <i>Lecturer:</i> Chemical Engineering Department, KsTU       | From 2011 to 2014 |

## DOCTORAL/MASTERS/UNDERGRADUATE STUDENTS ADVISED

- One (1) doctoral student co-advising
- Three (3) master's students supervised since 2016. Currently co-advising four (2) students.
- Forty-five (45) undergraduate students since 2012. Now advising seven (7) students.

## SOME PROFESSIONAL AFFILIATIONS

### RESEARCH FELLOWS

- The Regional Water and Environmental Sanitation, Kumasi (**RWESCK**)
- The Brew-Hammond Energy Centre: Fellow: Member of the bioethanol and biofuel research group.

### PROFESSIONAL

- Ghana Young Academy of Ghana Academy of Art and Sciences, Status: Member (2024 to date)
- Ghana Science Association; Status: Member (2016 - to date); Contribution: Rep. KsTU (2020- to date), Rep KNUST- Obuasi Campus (2023- to date)
- Ghana Chemical Society: Member (2011-to date)
- Royal Society of Chemistry, Status: Member (2017- date)
- Institute of Engineering Technology, Ghana; Status: Professional Member (2017- date); Contribution: Member, Membership committee; Member, Curriculum supervision and CBT development committee

## SOME RECENT LEADERSHIP POSITIONS HELD

- 2024- to date: Environmental Science Programme Coordinator, KNUST Obuasi Campus
- 2016 – date: Rep. for Ghana Science Association Obuasi Campus
- 2017 - 2022: Head of Department, Central Instrumentation and Laboratory Services, KsTU

## SERVICE TO COMMUNITY

### SERVICES RENDERED TO KNUST COMMUNITY

#### Position Held

1. Coordinator, Environmental Science Programme, KNUST Obuasi Campus- (2024- Present)

#### COMMITTEE

Member, Committee for development of professional development curriculum for Technicians in the College of Science (August 2023- January 2024)

### SERVICES RENDERED TO KsTU COMMUNITY

1. Position headed

Acting Head, Central Instrumentation and Laboratory Service Department - (August 2016 - Present).

#### Achievements

Repair of laboratory instruments including: Electronic balance, Microscope, Heating mantle, Spectrophotometers, etc

Finished the installation of HPLC at CREK

Assisted in the Repair of Fume hood Cabinet at Chemistry Lab of Department of Pharmaceutical Science

Assisted in the purchase and installation of Fume hood Cabinet at Analytical Lab of Department of Chemical Engineering

Organized Hand-on training for Technicians in various Department

Assisted in the installation and training of lab equipment purchased for Department of Pharmaceutical Sciences

Head, Analytical Lab, Department of Chemical Engineering, (January 2016 – July 2017).  
Examination officer; Department of Chemical Engineering (January 2014- October 2014).

2. Membership of Statutory Committees

Member, Laboratory Technology Departmental Board (Jul 2017- present)

Member, Chemical Engineering Departmental Board (Nov 2011- Oct 2014, Nov 2016- June 2017)

Member, Energy and Environment Management team approved by the Executive Committee of KsTU (October 2018- date)

Organizer, KsTU Women in Technical Education Development (October 2018-Date)

3. Membership of (Ad hoc) Committees

Member, Scientific/Local Organizing sub-committee for Pure and applied sciences for the 2022 ICAST conference.

Chairman, Committee to develop BTECH Science and Industrial Laboratory Technology program (January 2018-Date)

Member; Committee to design an appropriate structure for the Mini project for the HND Science and Industrial Laboratory Technology (12th September, 2019).

Member, Tender opening and Evaluation (Wednesday 4th July 2018)

Member, Phase out of intermediate and advanced Fashion programmes Committee (Feb 2017)

Member, European Union (EU) Erasmus+ funding proposal committee (December 2017- January 2018)

Member/Secretary, Green Campus Design and Implementation Committee (October 2017)

Member, Nuclear Energy Education committee (January 2017 – Date).

Presentations/Seminars

Presentation on Laboratory and Instrument management at 2019 National Service Orientation programme held at Great Hall on 20th September 2019.

Patron Position

KsTU Chapter Patron, Science and Industrial Laboratory Technology Students of Ghana, KsTU  
SERVICE TO THE NATIONAL COMMUNITY

Expert Member, Team to develop occupational standard for HND Science Laboratory Technology for CTVET from 10-22 October 2021 at Accra.

KsTU LOC member, for organizing workshop for media practitioners on nuclear held from 10th – 12th July, 2017 at Anita hotel

Exhibitor, National Skills Exhibition on the World Youth Skills Day held from 13th -15th July 2017 at Kumasi Technical University.

Moderator, for Laboratory Demonstrations for the Science Education Seminar Series for Females in First Cycle Institutions held at Centre for Disability at KNUST, Kumasi from 2-3rd July 2018.

Patron Position

National Patron, Ghana Science and Industrial Laboratory Technology Students Association

## SERVICE TO THE INTERNATIONAL COMMUNITY

1. External Examiner

Department of Laboratory Technology, Malawi Technical University, Malawi (from 2020- to

2. Reviewer/Editor

Editorial member, EC Pharmacology and Toxicology

3. Reviewer

Reviewer, Science of Total Environment (Elsevier Journal) - (June 2016 – Present)

Reviewer, Environmental Monitoring and Assessment (Elsevier Journal)– (February 2016 – Present)

Reviewer, Environmental Science and Pollution Research (Elsevier Journal)– (February 2016 – Present)

Reviewer, African Journal of Environmental Science and Technology – (February 2016 – Present)

Reviewer, Journal of Pharmacy and Pharmacology – (January 2014 – Present)

Reviewer, African Journal of Agricultural Research- (July 2016 – Present)

## REFEREES

Upon request