

# MOSES KOLADE DAVID

Via Sant'Alberto 163,  
Department of Chemistry "Giacomo Ciamician"  
University of Bologna  
48123 Ravenna, Italy

(+39) 351 4991486

[moseskolade.david2@unibo.it](mailto:moseskolade.david2@unibo.it)

<https://www.linkedin.com/in/moses-kolade-david>

<https://www.unibo.it/sitoweb/moseskolade.david2/en>

## RESEARCH INTEREST

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Water Remediation  
Resource Recovery  
Waste valorization  
Biotechnology  
Environmental Sustainability  
Circular economy

## Education

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- MSc** University of Barcelona, Spain/University of Algarve, Portugal/University of Bologna, Italy, **Chemical Innovation and Regulation**.  
Thesis: *Enhancing Phosphate Recovery: Magnesium Oxide-Modified Biochar for Wastewater Treatment*  
Supervisor: Professor Bernadi Bayarri Ferrer  
September 2024.
- MSc** University of Nigeria, Nigeria, **Industrial Chemistry**.  
Thesis: *Synthesis of micro-porous zeolite materials from natural kaolin clay for the removal of divalent Pb ions from aqueous solutions*.  
Supervisor: Professor Uchechukwu Chris Okoro.  
February 2018.
- BSc** Kebbi State University of Science and Technology, Nigeria, **Applied Chemistry**.  
Research Project: *Comparative study on the effectiveness of various antacid brands available in the Nigerian market*.  
September 2013.

## RESEARCH EXPERIENCE

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### Research Fellow

Department of Chemistry "Giacomo Ciamician", University of Bologna, Ravenna, Italy.  
Supervisor: Cristian Torri (Associate Professor).

- Monitoring and conducting pilot-scale conversion of VFA into PHA-rich sludge using mixed microbial cultures.

- Contributing to designing and testing a pilot system for crotonic acid production from PHA-rich sludge.
- Assisting in developing processes combining HTC, microbial fermentations, and thermolysis.
- Gaining expertise in biopolymer recovery and waste-to-value biotechnological processes.

September 2024 – September 2025.

### **Graduate Student**

Faculty of Chemistry, University of Barcelona, Barcelona, Spain.

Supervisor: Bernadi Bayarri Ferrer (Assistant Professor)

- Performed colorimetric analysis to monitor phosphorus in wastewater.
- Optimized pyrolysis experiments for biochar production.
- Analyzed adsorptive properties of biochar for phosphorus recovery from wastewater.

January 2024 – September 2024.

### **Research and Development Intern**

Process Chemistry Development Unit, Hovione PharmaScience, Lisbon, Portugal.

Supervisor: Ricardo Mendonca (PhD).

- Analyzed sustainability of chemical processes.
- Applied environmental metrics (Atom economy, E-factor, iGal) for the internal analysis of Hovione processes.
- Managed green metrics data.
- Proposed a procedure to quantify CO<sub>2</sub> emission from chemical processes.

August – December 2023.

### **Graduate Student**

Department of Pure and Industrial Chemistry, University of Nigeria, Nigeria.

Supervisor: Professor Uchechukwu Chris Okoro.

- Experimented the adsorptive properties of kaolin.
- Analyzed the effects of modification on the physico-chemical properties of kaolin.
- Analyzed Pb adsorption onto natural and modified kaolin.

January 2016 – February 2018.

## **HONOURS AND AWARDS**

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### **Research Fellowship Grant Award**

CROtonic acid from Sewage Sludge – LIFE21-ENV-IT-CROSS-LIFE, (Grant Agreement no. 101074164), Alma Mater Studiorum University of Bologna  
2024 – 2025

### **European Union Erasmus Mundus Masters Scholarship Award**

Fully funded scholarship for Erasmus Mundus joint masters degree.  
2022 – 2024.

## TEACHING EXPERIENCE

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**Kogi State College of Education, Nigeria.**

**Lecturer III**, Department of Chemistry.

- Teaching a class of 50 – 120 students introduction to organic chemistry and topics from natural products and amines.
- Academic advising and counseling of students.
- Participation in departmental committee work.

October 2021 – September 2022 – Leave of absence.

**Course Facilitator**, Department of Science Education, Directorate of Undergraduate Studies.

- Teaching a class of third-year undergraduates process science.

January 2022 – September 2022.

## PUBLICATIONS

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Obayomi, O. O., Sulaiman, M. B., Oluwasola, H. O., Sulaiman, A. B., Akpomie, K. G., Odewole, O. A., Otunomo, I. I., & **David, M. K.** (2023). Ecological risk assessment of potentially toxic elements in the bottom sediments of a stream in Oke-Ere, Kogi State, North Central Nigeria. *International Journal of Environmental Science and Technology*, 20(12), 13107–13118. <https://doi.org/10.1007/s13762-023-04851-7>

Maduagwu, R. A., Omotade, E. T., & **David, M. K.** (2022). Graft Co-polymerization of Dextrin onto Concentrated Natural Rubber for the Production of Baby Feeder Teat. *Journal of Chemical Society of Nigeria*, 47(2). <https://doi.org/10.46602/jcsn.v47i2.735>

Olumayowa Oluwasola, H., Oluoye, O., Mohammad Bashir, S., Odewole, O. A., Onyeka Abugu, H., Akpomie, K. G., **Kolade David, M.**, Inumidun Fagorite, V., & Aishatu Umar, M. (2021). Geochemical and health risk assessment of heavy metals concentration in soils around Oke-Ere mining area in Kogi State, Nigeria. *International Journal of Environmental Analytical Chemistry*, 103(3), 685–700. <https://doi.org/10.1080/03067319.2020.1862817>

**David, M. K.**, Okoro, U. C., Akpomie, K. G., Okey, C., & Oluwasola, H. O. (2020). Thermal and hydrothermal alkaline modification of kaolin for the adsorptive removal of lead(II) ions from aqueous solution. *SN Applied Sciences*, 2(6), 1134. <https://doi.org/10.1007/s42452-020-2621-7>

## CONFERENCES AND SEMINARS

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**David M. K.**, Llopart-Roca P., Sans C. Enhancing Phosphate Recovery: *Magnesium Oxide-Modified Biochar for Wastewater Treatment*. The 2024 Symposium of Chemical Innovation and Regulation, University of Barcelona, Barcelona. July 8 – 9, **2024**.

[https://emmcchir.org/symposium2024/resources/ChIR-symposium\\_Abstract-Book-2024\\_light.pdf](https://emmcchir.org/symposium2024/resources/ChIR-symposium_Abstract-Book-2024_light.pdf)

**David M. K.**, Llopart-Roca P., Sans C. *Preliminary investigation into Enhancing Phosphate Recovery: Magnesium Oxide-Modified Biochar for Wastewater Treatment*. VII IdRA Young Researchers Conference, Water Research Institute (Institut de Recerca de l'Aigua IdRA), University of Barcelona, Barcelona. 29 May **2024**.  
<http://hdl.handle.net/2445/213504>

**David M. K.**, Oluwasola H. O., Mohammad B. S., Maduagwu R. A. *Wind power in a power deficient nation – the Nigerian case*. The 11th Annual and International Conference of the Renewable & Alternative Energy Society of Nigeria, held at Nnamdi Azikiwe University, Awka, Nigeria. April 25 – 28, **2023**.

Oluwasola H. O., **David M. K.**, Ochonogor A. E., Ani J. U. Akpomie K. G., Fagorite V. I., Ahmed A., Olorunleke D. O. *Properties and characteristics of sensible heat storage systems for solar energy; past, present and future advances*. The 11th Annual and International Conference of the Renewable & Alternative Energy Society of Nigeria, held at Nnamdi Azikiwe University, Awka, Nigeria. April 25 – 28, **2023**.

**David M. K.**, Oluwasola H. O., Mohammad B. S. *Nigeria's sustainable energy development: a post-Covid-19 Pandemic review*. 1st International Conference of the Center for Environmental Management and Control, held at University of Nigeria, Enugu Campus. March 15 – 18, **2022**.

Oluwasola H. O., **David M. K.** *Biomass energy; a pathway for sustainable development in Nigeria*. 10th Annual and International Conference of the Renewable & Alternative Energy Society of Nigeria held at University of Nigeria, Nsukka Nigeria. March 22 – 25, **2021**.

Oluwasola H. O., Ejikeme P. M., Obasi N. L., Ahmed A., Gaila N. M., **David M. K.**, Mbaeze M. C., Fombu A. H., Akor J. E., Terhemba D., Ominyi K. O. *Current trends in the synthesis of nanocomposite materials for brackish water desalination*. 4th African Conference/Workshop on Applications of Nanotechnology in Energy, Environment, Health and Agriculture held at University of Nigeria, Nsukka Nigeria. July 18 – 22, **2021**.

## **PROFESSIONAL DEVELOPMENT AND TRAINING**

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**Introduction to assessment and management of chemicals**  
Department of Environmental Science, Stockholm University  
April – June 2024.

**Fundamentals in Regulatory Management (Chemicals)**  
Regulatory Representatives and Manager Association (RRMA).  
September 2023 – February 2024.

**HSE- Basic Fire Extinguisher Training | OPX - Operational Excellence | GMP – Good Manufacturing Processes | Document Control | Logbook Management.**

Hovione PharmaScience.

August 2023 – December 2023.

**Nature Education - Professional Development Online Course**

Civic Ecology Lab, Cornell University.

October 2021 – November 2021.

**Entrepreneurship & Business Management Training**

Nsukka Chamber of Commerce, Industry, Mines, and Agriculture,

August 2021,

**Plastics: Impacts and Action – Professional Development Online Course**

Civic Ecology Lab, Cornell University.

May 2021 – June 2021.

**Research Methodology and Application of ICT in Research**

School of Postgraduate Studies, University of Nigeria.

March 2017.

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**PROFESSIONAL AFFILIATIONS AND NETWORKS**

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Member, American Chemical Society (ACS)

2024 – Current

Member, Regulatory Representatives and Managers Association (RRMA)

2023 – Current

International Younger Chemists Network (IYCN)

2023 – Current

Quality Assurance Coordinator, Erasmus Mundus Association (EMA)

2022 – Current

Member, Erasmus Student Network (ESN).

2023 – 2024.

Member, Africa Students and Alumni Forum (ASAF).

2023 – Current.

Member, Chemical Society of Nigeria (CSN).

2021 – Current.

## **PROFESSIONAL SERVICE**

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### **Peer – Reviewed Articles for:**

- African Journal of Science, Technology, Innovation and Development – Taylor & Francis Online.
- Discover Environment – Springer Nature

## **COMMUNITY SERVICE**

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### **National Youth Service Corps**

2014 – 2015.

- Health sensitization.
- Environmental sanitation.
- Charity.

### **Health Extension Officer; Npower**

2017 – 2020.

- Advocating for underserved individuals or communities to receive services and resources to address health needs.
- Providing counselling, health screenings.

## **LANGUAGES**

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**English:** Native Language, Distinguished levels in Listening, Speaking, Reading, and Writing.

**French:** Basic levels in Listening, Speaking, Reading, and Writing.

## **DIGITAL SKILLS**

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### **Computer Packages**

Microsoft Office package: (Microsoft Word, Excel, PowerPoint) – Advanced user.

### **Video Conferencing**

Zoom, Teams, Skype, Webex, Meet – Advanced user.

## **LEADERSHIP AND MANAGEMENT SKILLS**

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### **Student Representative; EMMJD - Chemical Innovation and Regulation (ChIR)**

2022 – Current.

- Represent students within the ChIR management structures as a full member of the Program Committee.
- Observer at the Program Management Team (PMT) level.

### **Corps Liaison Officer, National Youth Service Corps**

2014 – 2025.

- Deal with fellow corps members and report same to the Local Government Inspector.
- Liaise with the local government council where necessary.
- Host communities and refer same to appropriate authorities.

### **VOLUNTEERING**

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#### **Mindful Mundus Logistics Fellow** (mental health program).

June 2023 – November 2023.

- Hosted workshop webinars.
- Facilitated support group activities.