

DR. IBUKUN MODUPE ADESIYAN (nee Obayomi)

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Senior Lecturer
Department of Environmental and
Occupational Health,
School of Public Health
University of Medical Sciences

A. RESEARCH INTEREST

Environmental Microbiology
Environmental Health
Microbial culturing and manipulation
Microbial Water quality monitoring
Antibiotic resistance surveillance
Microbial Ecology
Metagenomics
Microbial Source tracking

B. ACADEMIC QUALIFICATION

Ph.D., Ecology and Environmental Science, Obafemi Awolowo University, Ile Ife, Nigeria

Thesis: Assessment of *Vibrio* Species and *Plesiomonas shigelloides* incidences, with their Antibiotics Resistant Genes and Physicochemical Qualities of Selected Rivers in Southwest, Nigeria. (Nov, 2017)

M.Sc., Microbiology, Obafemi Awolowo University, Ile Ife, Nigeria

(Nov, 2012)

Thesis: The Study of Anti-Malaria Resistance in the Obafemi Awolowo University Community, Ile Ife, Osun State, Nigeria.

B.Sc, Microbiology, Obafemi Awolowo University, Ile Ife, Nigeria

(B.Sc., 2006)

Thesis: Microbial examination of Igun gold mine washing water, Itagunmodi, Ilesha, Osun State.

C. CERTIFICATE COURSE

- Introduction to R Programming for Data Science delivered by Coursera 06/2022 – 09/2022
- Impacts of the Environment on Global Public Health Specialization delivered by Coursera 06/2022 – 09/2022
- Crash Course on Python delivered by Coursera 10/01/2022 – 05/04/2022
- Using Python to Interact with the Operating System delivered by Coursera 08/04/2022 – 02/05/2022
- Advanced certificate course in Integrated Water Resources Management, at the International Institute of Ecology and Environmental Management, September 1-16th, 2017, São Carlos, Sao Paulo State, Brazil
- Certificate in Research writing- Environmental Health, AuthorAID and coordinated by INASP and Blacksmith Institute 05/08/2014 – 02/09/2014
- Certificate in Research writing and publication ethics Organized by AuthorAID and coordinated by INASP and Blacksmith Institute (Oct-Nov, 2015)

D. RESEARCH EXPERIENCE

Postdoctoral research fellow – Microbial Data Science Group, UFZ-Helmholtz centre for Environmental Research, Germany. April 2022 – July, 2022

Host: Dr. Ulisses

Recovered Metagenome-Assembled Genomes (MAGs)

Determined the assigned objective taxonomic classifications of the bacterial genomes.

Ran CHECKM for evaluation of MAGs quality

Performed BLASTx searches against Antibiotic Resistance Genes Database (ARDB) using DeepARG.

Analyzed functional capabilities of microbial community genes across different terrestrial biomes.

Deployed excel and python skills in the metagenomic analysis.

Proactively participated in research group discussions meetings

Doctoral Research Fellowship (OWSD), South Africa Medical Research Council University of Fort Hare Sep, 2015-Jun, 2016

- Carried out bacterial culturing and identification
- Determined fecal pollution sources in environmental waters through microbial source tracking (MST)
- Performed DNA extractions of bacteria and carried out PCR assays
- Carried out antibiotic resistance gene confirmation in water samples using PCR
- PCR primer blasting and cocktail preparation
- Analyzed 16s sequenced data and interpreted the result
- Prepared presentation materials including PowerPoint presentations, posters, and other displays
- Presented research findings before the departmental board and also at local and international conferences.

Doctoral Researcher, Institute of Ecology and Environmental Studies, Obafemi Awolowo University, Ile Ife, May, 2012 – Nov, 2022

- Evaluated microbial quality of water samples using molecular assays.
- Assessed the concentrations and human health risk of heavy metals using Atomic Absorption Spectrophotometer.
- Confirmed prevalence of 4 *Vibrio* species, *Plesiomonas shigelloides* and 14 antibiotics resistance genes using PCR.
- Designed posters using MS PowerPoint for presentation at local and international Microbiology conferences.
- Secured 4 research grants towards doctoral research work
- Wrote manuscripts for publication in peer-reviewed scientific journals.
- Learned how to perform statistical analysis using MS excel and SPSS.
- Supervised undergraduate students project, read and corrected their thesis on my professors' behalf.

E. TEACHING EXPERIENCE

University of Medical Sciences, Ondo, Ondo State

April 2022 – till date

Senior Lecturer: Department of Environmental and Occupational Health,
School of Public Health

Courses taught: Environmental Health Laboratory Practice, Environmental Biotechnology, Water Resources Management, Environmental Epidemiology, Ecology, Ecosystem and Biodiversity, Introduction to Environmental Health. Environmental Risk and Impact Assessment

Other Duties

- Presented lectures and teach various Environmental Health courses to students ranging from 11 to 55 number.
- Supervise undergraduates, Masters and Ph.D student projects
- Coordinate monthly Departmental academic staff seminars
- Act as Examination officer and academic adviser to 400level Environmental Health students
- Chaired the organizing committee of the school of Public Health 2nd Grand Round Lecture
- **Total student supervision: Undergraduate-2, Post graduate diploma -2, Masters- 3, Ph.D. -1**

Achievers University, Owo, Ondo State, Nigeria

April 2019-April 2022

Senior Lecturer: Biological Science Department

Courses taught: Petroleum Microbiology (MCB 408), Microbiological Quality Assurance (410), Microbial Ecology (MCB 202), Comparative Animal Physiology (BIO 202) Environmental Microbiology (MCB 303), Introductory Parasitology (MCB 305) Introductory Ecology (BIO 205)

Other duties:

- Designed and updated lesson plans to meet academic objectives and keep pace with new research.
- Presented lectures and teach various microbiology courses to students ranging from 20 to 70 students
- Carried out water quality analysis and antibiotic resistance surveillance research and participated in international collaborative research.
- Organized and hosted field trips to brewing industries in two southwest states in Nigeria
- Coordinate monthly Departmental staff meetings, collaborating with faculties to assess student performance and improve educational outcomes

Total Undergraduate project Supervision: 19 students

NON-TEACHING EXPERIENCE

Houstrip Global, Onikan, Lagos.

Nov, 2017- Feb, 2019

Principal Environmental Officer,

Duties:

- Supervised environmental impact appraisal of the company development projects and processed the document for EIA approval
- Assessed microbial and physicochemical quality of water supplied to 2 housing estates.
- Coordinated and supervised environmental sanitation and cleaning of waste channels.
- Proactively participated in meetings and helped create new environmental sanitation practices.
- Pitched ideas on how to improve performance and efficiency of cleaners.
- Handled residents' sanitation complaints with empathy and liaise with Government environmental agency for prompt intervention.

National Centre for Technology Management O. A. U, Ile-Ife

Nov, 2011- Dec, 2013

Project assistance

- Assisted in conceptualization, management and execution of policy-relevant research in science, Technology and Innovation (ST&I).
- Assisted in writing research and project reports designed to influence the STI policy.
- Collected, analyzed and interpreted field research data and write reports.
- Participated in the execution of the Government Science, Technology and Innovation (STI) policy development project.

F. SCHOLARSHIP AND AWARDS

- Feb 2022 – April, 2022. **Award of £5000 by Society for Applied Microbiology, UK and Award of EUR3050 by Federation of European Microbiology** towards the cost of research visit to UFZ-Helmholtz Centre for Environmental Research, Leipzig, Germany on the project titled: Metagenomic analysis of microbiome and resistomes communities in the rhizosphere: meta-analysis of agricultural samples.
- Jan 2021- Feb 2022 £19,984.00, The Royal Academy of Engineering UK, Frontiers of Engineering for Development Research Seed Fund (FoD-2021-5-8)** Towards a collaborative research project titled: Data and Systems-Mapping for Improving Developing Country Circular Economies.
- 26-28th May, 2019 R14,000 Award of conference attendance grant** to attend the Young Scientist Symposium on Infectious Diseases themed: *ONE HEALTH: A focus on Infectious Diseases in Africa* held at SANTHE Conference Room, Durban, South Africa
- 2015–2017 \$30,000.00, Award of Postgraduate Training Fellowship** by Organization for Women in Science for the Developing World (OWSD) to pursue a sandwich research training leading to a Ph.D. qualification in University of Fort Hare Alice, South Africa.
- September, 2018. \$1500, Award of workshop attendance grant by NIEHS, USA** to attend the workshop titled: Environmental Health in Africa: Opportunities to Expand Research Capacity in the H3Africa Consortium, held at the Radisson Blue Hotel & Kigali Convention Center, Kigali, Rwanda, Sunday
- September, 2017 Award of full scholarship** to attend the São Paulo State Advanced School on Integrated Water Resources Management at the International Institute of Ecology, Management and Water Resources, São Carlos, Brazil.
- July 3rd- 7th, 2017 £1200, Award of studentship grant** to attend annual Society for Applied Microbiology Conference on New Insights into Food Safety, BALTIC Centre for Contemporary Art, Gateshead, UK.
- July 9th -13th, 2017 Award of 600 Euros, FEMS Congress Grant for Early Career Scientist** to attend the 7th Congress of European Microbiologist July 9-13, 2017 Valencia, Spain.
- Aug – Nov, 2017 Award of \$600.00, Graduate Internship Grant** by the Association of African Universities, (AAU) Accra, Ghana
- June 16-20th, 2016 Award of \$750.00, ASM Student and Postdoctoral Travel Award** to attend ASM Microbe 2016,.
- 2015 Award of \$1000** by Blacksmith Institute for a Pure Earth Small Grants (2015) for manuscript support towards the publication of the work titled; “Concentrations and Human Health Risk of Heavy Metals in Rivers in Southwest Nigeria.” in an international, peer-reviewed journal.
- 2009-2010 Award of Carnegie Scholarship** for Female Postgraduate Students in Sciences, Obafemi Awolowo University, by Carnegie Corporation, USA

G. PUBLICATION

Journal Publications Peer-Reviewed

Adesiyan, I.M., Bisi-Johnson, M.A., and Okoh A.I. (2023). Incidence of antibiotic resistance genotypes of *Vibrio* species recovered from selected freshwaters in Southwest Nigeria. A paper accepted for publication in *Scientific Reports*, 12(1), 6ad775de-4eaa-4436-946a-5bead2968f8b | v.2.1

Chukwunonye Ezeah, Joachim C. Osuagwu, **Ibukun M. Adesiyan**, (2023) Chapter 7 - Design principles of sustainable composting and recovery of value from compost, Editor(s): Ashok Pandey, Mukesh Awasthi, Zengqiang Zhang, Current Developments in Biotechnology and Bioengineering, Elsevier, 2023, Pages 143-168, ISBN 9780323918749, <https://doi.org/10.1016/B978-0-323-91874-9.00008-5>.

M. Agunbiade, B. Oladipo, N. Ademakinwa, O. Awolusi, **I.M. Adesiyan**, B. Oladele, Oluwaseun Oyekola, R. Hansen and A. Ojo (2022). Biofloculant produced by *Bacillus velezensis* and its potential application in brewery wastewater treatment. *Scientific Reports*, 12(1), 1-12. 10945 (2022). <https://doi.org/10.1038/s41598-022-15193-8>

Ibukun M. Adesiyan and Yetunde Feruke-Bello (2021) Multiple Antibiotic Resistance Quotients (RQs) of *Plesiomonas shigelloides* recovered from some Rivers in Southwest Nigeria; *Achievers Journal of Science. AJOSR vol..3, Issue 1*

Ibukun M. Adesiyan, Olabisi O. Ojo, Mary A. Bisi-Johnson, Bamidele A. Iwalokun (2021) Genetic Relatedness among Isolates of *Plesiomonas shigelloides* from Fish, Vegetables and Surface water in Southwest Nigeria. A paper published in *African Journal of Medicine and Medical Sciences. AJMMS* 4052

Adesiyan, I.M., Bisi-Johnson, M.A., Ogunfowokan, A.O. and Okoh A.I. (2021). Occurrence and antibiogram signatures of some *Vibrio* species recovered from selected rivers in South West Nigeria. *Environ Sci Pollut Res.* <https://doi.org/10.1007/s11356-021-13603-4>

Adesiyan, I. M., Bisi-Johnson M.A., Ogunfowokan A.O. and Okoh A.I. (2019) “Incidence and antimicrobial susceptibility fingerprints of *Plesiomonas shigelloides* isolates in water samples collected from some freshwater resources in Southwest. *Science of the Total Environment* 665 (2019) 632–640. <https://doi.org/10.1016/j.scitotenv.2019.02.062>

Adesiyan, I. M., Bisi-Johnson M.A., Aladesanmi O.T., Okoh A.I., and Ogunfowokan A.O. (2019). Concentrations and Human Health Risk Assessment of Five Heavy Metals in Selected Rivers of Southwest Nigeria, *Journal of Health & Pollution.* 8(19): 1 -14. <https://doi.org/10.5696/2156-9614-8.19.180907>

Aburawaa, A. A., Adedeji, A. A., **Adesiyan, I. M.**, Andrade, V. C., Bertho, G. G., Bocel, E., ... & Faria, E. J. (2017). Wastewater effluent, reuse, and public health. A conference publication of the São Paulo Advanced School on Integrated Water Resource Management, São Carlos, Brazil. DOI: 10.13140/RG.2.2.14644.48005

Omolara T. Aladesanmi, Isaac F. Adeniyi, and **Ibukun M. Adesiyan** (2014) Comparative Assessment and Source Identification of Heavy Metals in Selected Fishpond Water, Sediment and Fish Tissues/Organs in Osun State, Nigeria. *J Health Pollution* 7: 42-53 <https://doi.org/10.5696/2156-9614-6-11.34>

Akonai K. A, Adeyemi F.M., **Adesiyan I. M.**, Bisi-Johnson M A. and Awojobi O.K. (2012) A survey of Bacterial isolates cultured from apparently healthy individuals in southwestern Nigeria. *International Journal of Tropical medicine* 12734-IJTM . <https://doi.org/10.3923/ijtmed.2012.130.137>

Akonai K.A and **Adesiyan I. M.** (2012) Unusually High Prevalence of malaria in a tertiary Institution settings in Southwestern Nigeria. *International Journal of Tropical medicine* 12702-IJTM. <https://doi.org/10.3923/ijtmed.2012.121.129>

Ayo-lawal, R.A., Elufisan, T.O., **Adesiyan, I. M.**, Ogundari, I.O. and Famurewa, A.J. (2012) Biotechnology: A tool for sustainable Algae-based biodiesel production in Nigeria; a paper published in the Nigerian Journal of solar Energy, Vol 24, 2013.

Adesiyan, I. M., Bisi-Johnson M.A., Ogunfowokan A.O. and Okoh A.I. (2020). Multidrug resistant *vibrio* species recovered from some freshwater Resources in Southwest Nigeria: a public health concern. *Access Microbiology* vol. 2 (2) (2020) pp: 44 <https://doi.org/10.1099/acmi.fis2019.po0077>

Adesiyan Ibukun M. and Bisi-Johnson Mary A. (2020) Antimicrobial Resistance Determinant of *Vibrio* species recovered from selected freshwater in Southwest Nigeria *Environmental Health Perspectives Journal*. <https://ehp.niehs.nih.gov/doi/abs/10.1289/isee.2020>. P-1258

H. CONFERENCES ATTENDED AND PAPERS PRESENTED

O. A. Adepoju, M. A. Bisi-Johnson and **M. Adesiyan** (2022). Antibiotic Resistance and Biofilm Formation Potentials of *Plesiomonas shigelloides* from Selected surface waters in Southwestern, Nigeria presented at the young water congress sponsored by *UNESCO Centre on Integrated and Multidisciplinary Water Resources Management* 4th – 6th April (CIMWRM). ISBN: 978-960-243-729-2

Ibukun Modupe Adesiyan, Oladipo Ayomidotun Abigail and Rine Christopher Reuben (2021) Multidrug resistant *Vibrio* species recovered from Untreated Hospital Wastewater and the Receiving Stream in Owo, Southwestern Nigeria: a public health concern. A paper to be presented at the International Meeting on Emerging Diseases and Surveillance of the International Society of Infectious Societies (ISID) Nov 4-6, 2021, Brookline, MA, USA@ Virtual

Mohit Arora, Caitlin Bentley, **Ibukun Modupe Adesiyan**, Chukwunonye Ezeah, Tasfin Aziz, Shakeel Khan, Liberatha Leonidas Kawamala, and Kenisha Garnett (2021) Data and systems-mapping for circular cities: A paper presented at the 2021 World Resources Forum (WRF) conference @ virtual 12-14th October, 2021

Alaka, O. I., Udoh G, Owei P.U., Kogun O. S., Fawari L.C., Biseni E. A., Akomolafe T.O., Tsado J.A. and **Adesiyan I.M** (2021) Prevalence and Antibiogram Signature of selected *Vibrio* species Recovered from *Giant Shrimps (Penaeus Monodon)* Samples in Malokun Sea, Ilaje, Ondo State, Nigeria. A paper presented at the *CONAS 2021 conference, Achievers University, Owo*, 11th-13th August, 2021

Adesiyan Ibukun M. and Bisi-Johnson Mary A. (2020) Antimicrobial Resistance Determinant of *Vibrio* species recovered from selected freshwater in Southwest Nigeria: a paper presented at the 32nd Annual Conference of the International Society for Environmental Epidemiology, August 24-27, USA, at virtual conference.

Adesiyan I. M., Bisi-Johnson M.A., Ogunfowokan A.O. and Okoh A.I. (2019) Incidence and antimicrobial susceptibility fingerprints of *Vibrio* isolates in some freshwater resources in Southwest

Nigeria, a paper presented at the Young Scientist Symposium on Infectious Diseases themed: *ONE HEALTH: A focus on Infectious Diseases in Africa* held at SANTHE Conference Room, Durban, South Africa, 27-28th May, 2019.

Adesiyan I.M., Bisi-Johnson M.A., Ogunfowokan A.O. and Okoh A.I. (2018) “Multiple Antibiotic Resistance Phenotypes of *Vibrio parahaemolyticus* Recovered from Some Freshwater Environments in Southwest Nigeria”. A paper presented at NIH US organized workshop titled: *Environmental Health in Africa: Opportunities to Expand Research Capacity in the H3Africa Consortium*, held at the Radisson Blu Hotel & Kigali Convention Center, Kigali, Rwanda, Sunday, September 16, 2018.

Adesiyan, I. M., “Bisi-Johnson M.A., Adebayo S. A., Okoh A.I (2017). Studies on multidrug resistant *Vibrio* species recovered from selected rivers in Southwestern Nigeria: a public health concern” a paper presented as poster presentation at the 7th *FEMS Congress of European Microbiologists* July 9-13, 2017, Valencia, Spain.

Adesiyan, I. M., Bisi-Johnson M.A., Adediran K.O, Okoh A.I (2017). “Incidence of multidrug resistant *Plesiomonas shigelloides* isolates recovered from some rivers in Southwestern Nigeria” a paper presented as poster presentation at the SfAM Annual Conference 3-6 July 2017, BALTIC Centre for Contemporary Art, Gateshead, UK

Adesiyan, I.M., Ogunfowokan, A. O., Bisi-Johnson, M.A., and Aladesanmi O.T. (2017). “Assessment of Heavy Metal Concentrations of Selected Rivers in South-West Nigeria” A paper presented at the Alexander Von Humboldt conference (Humboldt-Kolleg), 24th -27th January, Osogbo 2017

Adesiyan, I. M., Bisi-Johnson M.A., Okoh A.I (2016). “Molecular Identification and Antibiotic resistant indexing of *Vibrio Parahaemolyticus* recovered from surface waters in Southwest Nigeria” A paper presented as poster presentation at NSM Southwest zonal conference, December 5th – 9th, 2016. Kings University, Ode-omu, Osun State.

Adesiyan, I. M., Bisi-Johnson M.A., Okoh A.I (2016). “Multiple Antibiotic Resistance Phenotypes of *Plesiomonas shigelloides* Recovered from Some Freshwater Environments in Southwest Nigeria”. A paper presented as poster presentation at the “ASM Microbe, 2016” June 16-20, Boston, MA, U.S.A.

Adesiyan, I. M., Bisi-Johnson M.A., Okoh A.I (2016) "Incidence of *Vibrio* Species and Physiochemical Quality of Some Rivers in Osun State, Nigeria” A paper presented as poster presentation at the “5th OWSD General Assembly and International Conference on Science & Technology in the Developing World” May 16-19, 2016. Kuwait.

Adesiyan, I. M., Bisi-Johnson M.A., Okoh A.I (2016). Antimicrobial Susceptibility Profile of *Vibrio* Species Recovered from Some Rivers in Southwestern Nigeria: Implications for Public Health. A paper presented as poster presentation at the Canadian Society of Microbiology Conference, June 12-15, 2016, Toronto, ON.

Adesiyan, I. M., Bisi-Johnson M.A., Okoh A.I (2016). Antimicrobial Susceptibility Profile of *Plesiomonas shigelloides* Recovered from Some Rivers in Southwestern Nigeria: Implications for Public Health. A paper presented as poster presentation at the Microbiology society annual conference held on 21-24 March, 2016 at the Arena and Convention Centre, ACC, Liverpool, UK.

I. SEMINARS, WORKSHOPS AND CAPACITY BUILDING PROGRAMMES

Frontiers of Development virtual symposium theme: ‘Resilient Resources Use’ organised by the Royal Academy of Engineering UK and the Grand Challenge Research Fund. November 2 – November 12, 2020.

Young Scientist Symposium on Infectious Diseases themed: *ONE HEALTH: A focus on infectious Diseases in Africa* held at SANTHE Conference Room, Durban, South Africa, 27-28th May, 2019.

Women in Science Workshop, organised by OWSD in cooperation with East Africa Institute for Fundamental Research (EAIFR) held at EAIFR premises of the University of Rwanda, Kigali, Rwanda, 16-19th October, 2018.

National Institute of Environmental Health Sciences, US, Environmental Health in Africa: Opportunities to Expand Research Capacity in the H3Africa Consortium Workshop, held at the Radisson Blu Hotel & Kigali Convention Center, Kigali, Rwanda, Sunday, September 16, 2018.

Pathogen Genomics and Surveillance Workshop Obafemi Awolowo University, Ile-Ife Nigeria, Mon July 25 – Weds July 27, 2016 jointly organised by The Carnegie Africa Diaspora Fellow from Albany State University, Albany GA, USA and Obafemi Awolowo University Ile-Ife

A training course on assessing European Union Funding and Scholarships for Researchers in Nigeria. Organized by National Centre for Technology Management (NACETEM). Held between November 22nd and 23rd, 2012.

J. PROFESSIONAL MEMBERSHIPS

Member, Nigerian Young Academy	Membership No., NYA/2021190880/001	2021-present
Nigerian Society of Microbiology		2021-present
Full Member of Organization for Women in Science for the Developing World, (OWSD) ICTP Campus – Strada Costiera, 11 - 34151 Trieste - Italy. Full Membership No., 4692.		2015-present
Member, American Society of Microbiology, membership no 57407959		2010-present
Member, Microbiology society, UK, membership no 20003492		2015-present
Member Society for Applied Microbiology, UK. Membership no 200551		2015-present

K. PROFESSIONAL SERVICES

Peer-Reviewed Articles for
Environmental science and pollution research (ESPR)
Science of the Total Environment

Facillitator/presenter, Microbial Genomics and Surveillance Workshop Osun State University, Abere, Osogbo, Osun State, July 2-4, 2018. Jointly organised by the Carnegie Africa Diaspora Fellow from Albany State University, Albany GA, USA, Department of Microbiology, Osun State University, Osogbo and Nigerian Institute for medical Research, Lagos

L. OTHER SERVICES

Environmental Advocacy, STEM awareness and advocacy school outreaches
Mentoring students on career paths and public speaking
Training final year students on research methodology and PCR techniques

M. SKILLS AND EXPERIENCE

- Molecular analysis: Genomics, PCR, RAPD, Gel electrophoresis, DNA extraction
- Environmental sampling and microbial analysis
- Environmental Impact Assessment

- Pollution monitoring
 - Statistical Package for Social Sciences (SPSS)
 - MS Excel, MS Word, MS Power Point
 - R programming languages (Beginners)
 - Python
-