

CURRICULUM VITAE

MR. ZACHARY NJIRU NKUNU

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1. PERSONAL DETAILS

Nationality : Kenyan

Gender : Male

Date of Birth : 16th September, 1983

Marital Status: Married

Religion: Christian (Seventh Day Adventist Church)

Official Languages Spoken: English, Kiswahili

2. EDUCATION/ACADEMIC QUALIFICATIONS

Year	Institution	Major Field	Award
2020 - Present	University of Nairobi	Chemistry	Ph. D. (<i>Ongoing</i>)
2014 - 2018	University of Nairobi	Analytical Chemistry	M.Sc.
2003 -2011	University of Eastern Africa, Baraton	Chemistry/Physics	B. Sc.
1998 - 2001	Kiriiria SDA Secondary School	'O' Level	K.C.S.E.
1990 - 1997	Gacigongoni Primary School	Primary Level	K. C. P. E.

3. PROFILE SUMMARY FOR MR. ZACHARY NJIRU NKUNU

I am Self-motivated and a team player with good analytical skills. I have ability to use technology in development and dissemination of scientific knowledge. I hold a Master of Science in Analytical Chemistry from the University of Nairobi, where I am a Ph.D. Student. My Ph.D. proposal (**successfully defended and accepted**) title is “ Dissipation studies and Assessment of Selected Organophosphate pesticide Residues in Kathita River catchment, Tharaka-Nithi County, Kenya”, The study is aimed at establishing the dissipation rates of selected pesticides in the environment and food substance matrix in order to ensure quality food and water to the consumers. My Master of Science in Analytical Chemistry thesis title was “Electrocatalytic Degradation of Tetrachlorvinphos in Acetonic-Water Media Using Cyanocobalamin”. In this research, I was able to degrade the pesticide by using the catalyst. At the moment I have published 2 peer reviewed papers and made 1 conference presentation. Currently I am supervising 1 undergraduate student in a private University where I teach as a part-time Lectures. Since graduating in December 2018 and up to date, I have been teaching in

both Public and Private universities within Kenya on part-time contract bases both online (**especially during the intense Covid -19 period**) and face to face. Since graduating in 2011 to 2017, I have taught for about 7 years in Secondary School, and, also in Diploma and Certificate level students in Medical Training colleges. I have worked for 1 year as a research assistant with Kenya Marine and Fisheries Research Institute (K.M.F.R.I.), Mombasa under Marine Environment Programme (MEP) project. At national level, as a trained examiner by Kenya National Examinations Council (K.N.E.C.) and Kenya Educational Management Institute) K.E.M.I., and participated in Physics Practicals examination marking exercise for 2 consecutive years. I have hands-on experience in the use of UV-vis Spectrophotometer, Potentiostat, Gas Chromatography and XRD analytical instrumentation.

4. CAREER DEVELOPMENT

Duration	Position	Institution	Responsibility
January 2020- to Date	Part-time Lecturer	Catholic University of Eastern Africa - Langata Campus	-Teaching Degree undergraduate students -Research and supervision of undergraduate students
September 2022 - to date	Part-time Lecture	Murang'a University of Technology	Teaching Degree undergraduate students
January 2020 - July 2021	Part-time Lecturer	South Eastern Kenya University - Kwa Vonza, Main Campus	Teaching Degree undergraduate students
January 2016 - April 2016	Tutor	Thika School of Medical and Health Sciences, Kitui Campus	Teaching Diploma and Certificate undergraduate students
September 2012 - December 2013	Tutor	Kenya Medical Training College, Kitui Campus	Teaching Diploma and Certificate undergraduate students
March 2011 to July 2017	Board of Management (BOM) (Untrained High School Teacher)	Kitui SDA Secondary School	Teaching High School students
July 2010 - July 2011	Intern Research Assistant	Kenya Marine and Fisheries Research Institute, Mombasa Head quarters	sampling, sample collection and sample preparation, entry, analysis and reporting.

5. UNDERGRADUATE COURSES TAUGHT

I have over 3 year of experience of online and onsite teaching at the University Level since January 2020. I Taught in High School from January 2011 - July 2017 ($6\frac{1}{2}$), and also Taught in 2 Medical Training Colleges on part-time bases. The courses I have taught at college and University level since 2012 are listed below.

No.	Institution	Course Code	Course Title	Level
1.	Catholic University of Eastern Africa	CHEM 103	Acids and Bases	1
		CHEM 200	Descriptive Inorganic Chemistry of S- and P- Block Elements	2
		CHEM 300	Introduction to Instrumental Methods	3
		CHEM 308	Analytical Chemistry I	3
		CHEM 405	Material Chemistry	4
		CHEM 408	Analytical Chemistry II	3
2.	Murang'a University of Technology	ACH 114	Engineering Chemistry	1
		ACH 304	Separation Techniques	3
		ACH 309	Coordination Chemistry	3
3.	South Eastern Kenya University	SCH 103	General and Physical Chemistry	1
		SCH 201	Chemistry of Main Block elements	2
		SCH 404	Organometallic Chemistry	4
		SCH 405	Further Chemical Kinetics and Electrochemistry	4
4.		DIP	Applied Chemistry	1
		DIP	Applied Physics	1
5.	Kenya Medical Training College	DIP	Applied Chemistry	1
		DIP	Applied Physics	1
		CET	Applied Biology	1
6.	Kitui SDA Secondary School	MATH	Secondary Mathematics	1-4
		PHYS	Secondary Physics	1- 4

6. RESEARCH SUPERVISION AT POSTGRADUATE LEVEL

No.	Name	Title	Level	Year of Admission	Status
1.	Mr. Kimutai Ronoh	Exhaust Emissions Pollutants Along Selected Major Roads In Nairobi County, Kenya. Co- supervising with: Dr. John Mumbo, of National Environment Management Authority (NEMA) - Nairobi Head Quarters.	4 th Year	2019	Proposal Development Stage (Ongoing)

7. ACADEMIC PUBLICATIONS

7.1 REFEREED JOURNAL ARTICLES

Nkunu, Zachary. "Electrocatalytic reduction and characterization of Tetrachlorvinphos in acetonitrile-water (1: 1) media in presence of cyanocobalamin." *Africa Journal of Physical Sciences ISSN: 2313-3317* 4 (2020).

Nkunu, Z. N., Kamau, G. N., Kithure, J. G., & Muya, C. N. (2017). Electrochemical studies of potassium ferricyanide in acetonitrile-water media (1: 1) using cyclic voltammetry method. *Int. J. Sci. Res. Innov. Technol*, 4, 52-58.

7.2 OTHER CONTRIBUTIONS TO LITERATURE

Nkunu, Z. N. (2018). Electrocatalytic Decomposition of Tetrachlorvinphos in Acetonitrile-water Media Using Cyanocobalamin (Master of Science dissertation, University of Nairobi). **Thesis.**

8. PAPERS PRESENTED AT CONFERENCES

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| 1. | October 23- 23, 2018: "Electrocatalytic reduction and characterization of Tetrachlorvinphos in acetonitrile-water (1:1) media in presence of cyanocobalamin," at the College of Biological and Physical Sciences, Chiromo Campus, University of Nairobi, Kenya. |
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9. SCIENTIFIC TRAININGS & CONFERENCES ATTENDED

9.1.	November 14 th -18 th , 2022: Electrochemistry: Fundamental and Applications in sensing, Energy Production and Storage Workshop, organized by the Department of Chemistry, Faculty of Science, University of Nairobi, Kenya.
9.2.	28 th July 2022: Gender workshop on empowerment of Women in basic Sciences to support achievement of sustainable development goals at Arziki Conference Center, Chiromo Campus, University of Nairobi. The conference was jointly organized by the Department of Chemistry University of Nairobi in collaboration with the International Program (ISP) Sweden, through KEN01 project.
9.3	6 th -8 th November, 2018: Pan African Chemistry Network Congress 2018: Managing resources through Chemistry; Wealth not waste at Chiromo Campus, University of Nairobi.
9.4.	February 11-14, 2018: Air Pollution Training Workshop at Chiromo Campus, University of Nairobi in collaboration with University of Leicester, UK.

9.5.	<p>July 2010 - May 2011: Worked as a research assistant Intern, Department of Marine Ecology and Environmental Pollution Programme, Kenya Marine and Fisheries Research Institute (KMFRI), Mombasa Head Quarters.</p> <ul style="list-style-type: none"> ● Issued with the certificate of Industrial Attachment by National Industrial Training Authority (NITA) under the authority of National Industrial Training Board (NITB) Cap 237 Laws of Kenya - Serial No: 53264.
9.6	<p>2009 – 2010: Chemistry Laboratory assistant, Department of Chemistry, University of Eastern Africa, Baraton under Work-study programme.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Cleaned and sterilized laboratory glassware and equipment along with calibrating as needed various laboratory equipment. • Maintained laboratory equipment and instrumentation in good working order, following appropriate procedures for usage, clean-up and maintenance.

10. MEMBERSHIP OF LEARNED PROFESSIONAL BODIES

2014 - 2016: Student Member Royal Society of Chemistry (RSC). Membership Reference number **560060**.

11. UNDERGRADUATE PROJECTS DONE

Nkunu Z. N. (2011). Nutrient pollution status in Mtwapa, Makupa and Malindi Creeks. *Bachelor of Science (Bsc) Project II*. University of Eastern Africa, Baraton, Kenya. Supervised by Dr. Shadrack Mule M., UEAB. **(Not published)**.

Nkunu Z. N. (2010). Qualitative analysis of Lead, Cadmium and Chromium in Safaricom and Zain Scratch cards by UV/VIS Spectrophotometric method. *Bachelor of Science (Bsc) Project I*. University of Eastern Africa, Baraton, Kenya. Supervised by Dr. Shadrack Mule M., UEAB. **(Not published)**.

12. IN-SERVICE TEACHER/EDUCATOR TRAINING AND SEMINARS ATTENDED

April 21, 2021: Attended the online Moodle Teaching and online examination administration training programme conducted via Zoom Platform at South Eastern Kenya University (**Series I**). I later adopted the skills in teaching at the SEKU during the severe COVID - 19 season.

April and September , 2020: Attended the online Moodle Teaching and online examination administration training programme conducted via Zoom Platform at Catholic University of Eastern Africa (**Series I and II**) during the severe COVID - 19 season. Since then, I now use both skills in teaching and administration of exams.

April 15th, 2017: Participated in Kitui County Secondary Schools Science and Engineering Fair (KSEF) clinic held at Kitui High School. The clinic was organized by the State Department of Education, Ministry of Education, Science and Technology -Kenya.

April 21 – 26th, 2014: Kenya National Examinations Council (KNEC) & Kenya Educational Management Institute (KEMI) joint training for Physics232/3 at Kamwenja Teachers Training College, Nyeri on April 2014.

Awarded Certificate No: 047001.

Topics covered:

Measurement, Assessment and Evaluation; Principles and Procedures of Effective Marking; Coordination of Examiners, The importance of report writing; Ethics and Integrity in Marking; Application to conveyor belt in Marking; Establishing and maintaining Examination Standards; Detecting and handling cheating in Examinations during Marking and ICT integration in Examinations.

December, 2013: East-central Africa Division Teachers’ Conference at the Gahogo Adventist Academy Muhanga, Republic of Rwanda.

April, 2012: Kitui SMASSE INSET Programme at Mulango Girls’ Secondary School from 15th-20th April, 2012. **Theme:** Further enhancement of Practice of ASEI-PDSI through study and ICT integration.

13. REFEREES

<p>Dr. Joyce Gatiiria Njagi-Kithure Lecturer Department of Chemistry Faculty of Science and Technology University of Nairobi Phone No: +254(0)714013056 Email Adress: jkithure@uonbi.ac.ke</p>	<p>Dr. Mugambi J. Linturi Senior Lecturer Department of Physical Sciences South Eastern Kenya University. Phone No. +254(0)723 833 996 E-mail Address: jmugambi@seku.ac.ke or jlinturi@gmail.com</p>
<p>Dr. Guto Peterson Momanyi Senior Lecturer Department of Chemistry Faculty of Science and Technology University of Nairobi Phone No: +254(0)713 887854 Email Adress: Peterson.guto@uonbi.ac.ke</p>	<p>Dr. Abong’o Deborah Atieno Lecturer Department of Chemistry Faculty of Science and Technology University of Nairobi Phone No: +254(0)715458338 Email Address: dabongo@uonbi.ac.ke</p>

<p>Dr. Sharon Kiprotich Chairperson Department of Physical and Biological sciences, Murang'a University of Technology, P.O Box 75-10200 Murang'a - Kenya Cell: +254(0)794-418079 E-mail Address: skiprotich@mut.ac.ke; sharonkiprotichj@gmail.com</p>	<p>Dr. Vincent Odongo Madadi Senior Lecturer Department of Chemistry Faculty of Science and Technology University of Nairobi Phone No: +254(0)720742415 Email Adress: vmadadi@uonbi.ac.ke;</p>
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