

UNIVERSITY OF NAIROBI
COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY



Dept. of Chemistry Building

ANNUAL REPORT

2020

Compiled and edited by:

Prof David Kariuki

Ag. Chairman, Department of Chemistry

<http://chemistry.uonbi.ac.ke/>

1.0 INTRODUCTION

The Department of Chemistry is located in Chiromo Campus, Off-Riverside Drive. It is part of the School of Physical Sciences, College of Biological and Physical Sciences. The department has over 1000 students' comprising of PhD, MSc and undergraduate including servicing the School of Pharmacy, Engineering, Agriculture and Education

In the 2019/2020 academic year the Department handled about 700 BSc undergraduates and BSc ODL (Analytical and Industrial Chemistry 46, MSc 34 and 7 PhD. students. In addition, we handled a total of about 603 students from other schools and faculties, which includes College of Architecture and Engineering (Civil, Mechanical and Bio Systems Engineering), College of Agriculture and Veterinary Services (Agriculture and Veterinary Medicine), College of Health Sciences (Pharmacy) and College of Education & External Studies CEES (Kenya Science Campus). These students were served by 70 staff. In this period, we offered 3 undergraduate and 4 postgraduate programs.

Prof John M. Onyari is the Chairman of the Department of Chemistry since August 17, 2015.



Dept. of Chemistry Group photo

STAFF ESTABLISHMENT DECEMBER, 2019

Academic Staff

Professors

Prof. J.O. Midiwo

Prof. I. O. Jumba

Prof. D.O. Orata

Prof. Abiy Yenesew

Associate Professor

Prof. B. Bhatt

Prof. L.W. Njenga

Prof. J.M. Onyari

Prof. H. N. Njenga

Prof. A.O. Yusuf

Prof. J.P. Kithinji

Prof. D.K. Kariuki-

Prof. L. Kerubo Omosa

Senior Lecturers

Dr. W.A Odinga

Dr. J.M. Mwaniki

Dr. Solomon Derese

Dr. J.M. Wanjohi

Dr. J.A. Ndakala

Dr. F. D. Oduor

Dr. P.M. Guto

Dr. D.W. Mbui

Dr. Immaculate Michira

Lecturers

Dr. B. Wamalwa

Dr. D.A. Abong'o

Dr. John Onyatta

Dr. J. N. Wabomba

Dr. Njagi Njomo

Dr. Vincent Madadi

Dr. Joyce G. Njagi-Kithure

Dr. Marina Mukabi

Dr. Beth Ndunda

Dr. Patrick Tum

Dr. G. Bosire

Dr Ruth A. Odhiambo

Dr.. J.M. Makopa

Mr. C.W. Mirikau

Mr. G. Wafula

Tutorial Fellows

Ms. Immaculate A. Odero

Dr. Fredreck M. Mwazighe

Dr. Racheal N. Njogu

1.1 Number of Staff and their Designations

Professor	4
Associate Professor	8
Senior Lecturers	9
Lecturers	15
Tutorial Fellows	3
Principal Technologist	1
Chief Technologist	1
Assistant Chief Technologist	2
Senior Technologist DEF	8
Technologist ABC	9
Technical Assistant II	1

Document list	1
Senior Administrative Assistant	1
Secretary	1
TOTAL	41

1.2 PROGRAMMES OFFERED AND SERVICES OFFERED

The Department has over 1000 students' comprising of PhD, MSc and undergraduate including servicing the Schools of Pharmacy, Engineering, Agriculture and Education.

The Department offers the following undergraduate and postgraduate degree programs:

Undergraduate Programs

B.Sc. in Industrial Chemistry

B.Sc in Chemistry

BSc in Analytical Chemistry

Postgraduate Programs

MSc in Chemistry

MSc in Environmental Chemistry

MSc. in Analytical Chemistry

MSc Industrial chemistry

PhD (Chemistry)

Doctor of Philosophy in Chemistry.

1.3 NUMBER OF STUDENTS ENROLLED IN UNDERGRADUATE AND POSTGRADUATE PROGRAMMES 2019

1.3.1 Undergraduate program Enrolment

Programme	Female	Male	Nos of	Total
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			students	
Bachelor of Science in Chemistry	77	38	115	230
Bachelor of Science (Industrial Chemistry)	52	19	71	
Bachelor of Science (Analytical Chemistry)	27	17	44	

1.3.2 Postgraduate program enrolment

1.3.2.1 Master of Science (MSc)

Programme	Female	Male	No of students	Total
MSc (Environmental Chemistry)	8	2	10	27
MSc (Analytical Chemistry)	6	2	8	
MSc (Chemistry)	8	1	9	
MSc(Industrial Chemistry)				

1.3.2.2 Doctor of Philosophy in Chemistry (PhD)

Programs	Female	Male	Nos of students	Total
PhD (Environmental Chemistry)	1	0	1	3
PhD (Chemistry)	2	0	2	

1.4 INTERNATIONAL STUDENTS

The Department hosts a number of international students undertaking postgraduate programs. They were as follows:

S/No	NAMES OF INTERNATIO NAL STUDENTS & STAFF	REG. NUMBER	COUNTRY	DOCUMENTATIO N*
1	ANDIMA MOSES	I80/50060/2015	UGANDA	SMIS LIST
2	OWOR RICHARD ORIKO	I80/50120/2015	UGANDA	SMIS LIST
3	NCHIOZEM- NGNITEDEM ALEXE	I80/52552/2018	CAMEROON	SMIS LIST
4	BUYINZA DANIEL	I80/96687/2014	UGANDA	SMIS LIST
5	ADEM FOZIA ALI	I80/97548/2015	ETHIOPIA	SMIS LIST
6	KYOMUHIMB O HILDA DINAH	I56/83188/2015	UGANDA	SMIS LIST
7	KAMYA VICENT	I56/7376/2017	UGANDA	SMIS LIST
8	CHILIKWAZI BRIGHT	I56/7376/2017	ZAMBIA	SMIS LIST

9	ACHUOTH MACH PAUL	I5689425/2016	SOUTH SUDAN	SMIS LIST
10	OZIOKO UCHENNA SANDRA	I56/11843/2018	NIGERIA	SMIS LIST
11	MAKANI RACHEAL BUNGISHABA KU	I56/11841/2018	CONGO	SMIS LIST
12	NAMANYA LOYCE	I56/11843/2018	UGANDA	SMIS LIST
13	RUGIMBANA CLAUDE	I56/5767/2017	RWANDA	SMIS LIST
14	IBRAHIM HASHIM	I80/54101/2019	NIGERIA	SMIS LIST

2.0 STRATEGIC ISSUES

2.1 RESEARCH FACILITIES IN THE DEPARTMENT

The department conducted trainings and provided consultancy services to various clients from both Public and Private sectors. The major clients included Pest Control Products Board, KEWI, Nation Media, various Universities on application of GC/MS, HPLC, FTIR, AAS, UV/Visible, as well as emissions measurements etc.

THE DEPARTMENT OF CHEMISTRY HAS ACQUIRED MAGRITEK SPINSOLVE 60 NMR, SPECTROMETER





Spin solve 60 NMR, Spectrometer

The National Research Fund – Kenya (NRF-K) has awarded the Department of Chemistry, University of Nairobi **KSH 42,796,236** to establish a Kenya National Nuclear Magnetic Resonance (NMR) Centre (KNMRC). The center is to provide services by analyzing samples using NMR spectrometers for researchers and postgraduate students from various universities and research institutions. NMR is the single most important analytical tool for identification of unknown compounds. In this regard, the Department of Chemistry has acquired a brand new 60MHz Nuclear Magnetic Resonance Spectrometer (**Magritek Spinolve 60 NMR, Germany**) at a cost of **KSH 11,072,727.80** from the NRF-K grant and the instrument is already installed, staff trained and is functional. This instrument is capable of analyzing ^1H , ^{13}C and ^{19}F , both one-dimensional and two-dimensional spectra, which will substantially improve the teaching, research and consultancy capability of the department. We are highly grateful to the National Research Fund – Kenya for the award of the Infrastructure Development Grant, and the University of Nairobi for facilitating and handling of the grant.

The Department also has a Physical Chemistry laboratory with capacity to do various analyses and specialized equipment such as bomb calorimeter, GC, HPLC and Ion Chromatograph that has also increased the scope of analyses. The Department has specialized laboratory for analysis of water, air, natural products, biodiesel and fuels, amongst others samples.

GAS CHROMATOGRAPH MASS SPECTROMETRY (GC/MS) EQUIPMENT



ATOMIC ABSORPTION SPECTROMETER (AAS)

The equipment is important in analysis of heavy metals in environmental samples such as water, soil and sediment; and industrial samples. The AAS is also important in teaching of undergraduate and postgraduate students undertaking units in spectroscopic methods of analysis. It has also been used to support analysis of postgraduate research on heavy metals. The equipment can be used for analysis of heavy metals: Cd, Cu, Pb, Fe, Hg, Mg, Mn, Ni and Zn.



AAS Machine

2.2 Research activities

2.2.1 PhD research

Table 2 (Appendices) shows a list of students undertaking PhD projects and their supervisors.

PhD STUDENTS SUPERVISION

S/N	NAME/REG. NO.	TITLE OF PROPOSAL	SUPERVISORS
1	Moses Oyagi Ondabu I80/95787/2014	New Electrochemical Sensor for Selected Heavy Metal Pollutants in Drinking and Wastewaters	Dr. P. Guto Dr. J. Onyatta Prof. G. N. Kamau
2	Nicholas j. Mwenda I80/9448/2012	Detoxification of Aflotoxin Contaminated Maize	Prof. S. Wandiga Prof. D. K. Kariuki Dr. V. Madadi
3	Davis Amboga	Biosorption of heavy metal ions from aqueous solutions using macrophytes (<i>Vossia cuspidate</i> and <i>Cyprus papyrus</i>) (Registered 2013)	Prof. J. Onyari Dr. A. Salim (JKUAT) Dr. J. Wambomba
4	Yoseph Atilaw I80/92721/2013	Phytochemical Investigation of Selected Fabaceae and Rutaceae Plants for Anti-inflammatory Principles	Prof. A. Yenesew Dr. A. Ndakala Dr. H. Kariuki
5	Veronica Muinde I80/92722/2013	Adsorption of pesticides and organic dyes in water on selected adsorbents and their biodegradation using selected microorganisms	Prof. J. Onyari Dr. Wamalwa Dr. Wambomba
6	Patrick K. Tum	Photocatalytic Treatment of Wastewater from Selected Tea Factories in Kenya	Dr. D. Kariuki Dr. F. Oduor, Dr. J. Wanyoko Tea Research Foundation of Kenya Kericho, Kenya
7	Souaibou Yaouba	Phytochemical Investigation of three Lannea Species for Hepatoprotective Principles	Prof. A. Yenesew Dr. S. Derese
8	Florence Masese	Synthesis and Characterization of Titanium (IV) Oxide Nanoparticle Components Composites for Water Purification	Prof. S. Wandiga Dr. V. Madadi Dr. D. Mbui
9	Alfred Maingi	Detection of Melamine and its derivatives in food stuffs sold in Kenya.	Prof. Kamau Dr. J. Onyatta Dr. J. Mwaniki
10	Richard Owor Oriko I80/501202015	Phytochemical Investigation of Selected Plants for Control of Maize Weevil	Dr. A Ndakala Dr. S. Derese Dr. G. O. Ong'amo Dr. L. Kerubo
11	Moses Andima I80/50060/2016	Natural Product-loaded Nanoparticles for Cancer Therapy: Synthesis, Characterization, Cellular and Proteomic Studies	Dr. Derese Dr. Ndakala
12	Judith Kananu	Modeling soil to tobacco plants' transfer factor of naturally occurring radioactive elements and heavy metals and efficiency of cigarette filters	Prof. G. N. Kamau Dr. V. Madadi Prof. H. Njenga

**2.2.2 MSC
Research**

	Name of student/ Reg. N0.	Supervisors
1	LANGAT PETER KIPNGENO I56/34910/2019	1. PROF. KITHINJI 2. PROF. J, ONYARI
2	OMONDI VICTOR OCHIENG I56/35025/2019	1. PROF. J. ONYARI 2. PROF. F. MULAA 3. DR. W. WANYONYI (Kabianga University)
3	ERICK ONYANGO APUNDA I56/36065/2019	1. PROF. J. ONYARI 2. DR. MWAZIGHE 3. DR. KIMILU (DEPT OF MECH MANUF. ENG, UoN).
4	CHOGO SOLOMON INDIAZI I56/35049/2019	1. DR. G. BOSIRE 2. PROF. J. ONYARI 3. DR. LATTORFF (ICIPE)

MSC 2019/2020 STUDENT - SUPERVISORS

2.3INTERNATIONAL LINKS AND COLLABORATIONS

As part of efforts to promote innovation and technology transfer; the Department Linked/Collaborated with the following;

S/No	TITLE	INDUSTRY PARTNERS	DETAILS	DURATION
5	1 ALBERT YOMBUI OBARA I56/30777/2019 cooperation anchored on	1. PROF. L. KERUBO 2. DR. J. WANJOHI 3. DR. C. KITONDE (SBS- UoN)	UNIVERSITY –industry cooperation anchored on science, technology engineering and mathematics.	5years
6	OMONDI LEON OWADE I56/34353/2019 Technology, Engineering and	1. PROF. L. KERUBO 2. PROF. F. MULAA 3. DR. W. WANYONYI	The purpose of the cooperation is to enhance the capacity of both institutions'	
7	Mathematics. NDUNG'U MAINA 56/35478/2019	1. DR. P. GUTO 2. DR. WAITA (Dept. Physics)	to fulfil their corporate objectives through educational and industrial	
8	LOISE NDUNGE NJAU I56/36007/2019	1. DR. P. GUTO 2. DR. J. ONYATTA 3. DR. I. MICHIRA	engagements.	
9	SERAH WANJIKU NIOROCE	1. DR. I. MICHIRA 2. DR. P. GUTO		

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2.4 LIST OF RESEARCH PUBLICATIONS 2019

The Department produced the following Journal publications in the year 2020;

SUMMARY OF PUBLICATIONS

S/ No.	AUTHOR	TITLE	JOURNAL	MONTH & YEAR
1.	Hilda Dinah Kyomuhimbo, Immaculate Nyambura Michira, Francis B Mwaura, Solomon Derese, Usisipho Feleni, Emmanuel I Iwuoha	<i>Silver–zinc oxide nanocomposite antiseptic from the extract of Bidens pilosa</i>	Journal:SN Applied Sciences Volume: 1 Issue: 7 Pages: 681 Publisher: Springer International Publishing	1 st July 2019

2.	Rahab W Kamau, Jacob O Midiwo, Quintino A Mgani, Veronica M Masila, Leonidah K Omosa, Regina N Bwire, Melissa R Jacob, Frank T Wiggers, Ilias Muhammad	Oleanolic Acid and other Compounds Isolated from Cordia africana Lam which Inhibit Vancomycin Resistant Enterococcus.	Journal: Pharmacognosy Communications Volume: 9 Issue: 3 DOI: 10.5530/pc.2019.3.19	1 st July 2019
3.	Victor Kuete, Leonidah K Omosa, Jacob O Midiwo, Oğuzhan Karaosman oğlu, Hülya Sivas	Cytotoxicity of naturally occurring phenolics and terpenoids from Kenyan flora towards human carcinoma cells	Journal:Journal of Ayurveda and integrative medicine Volume:10 Issue:3 Pages: 178-184 https://doi.org/10.1016/j.jaim.2018.04.001	1 st July 2019
4.	R Mogwasi, DK Kariuki, MZ	Comparison of aqueous and enzymatic extraction combination with sequential filtration for the profiling of selected trace elements in medicinal plants	Journal: Journal of Trace Elements in Medicine and Biology Volume: 54 Pages:1-7	1 st July 2019

	Getenga, V Nischwitz	from Kenya	Publisher: Urban & Fischer https://doi.org/10.1016/j.jtemb.2019.03.003	
5.	P.K Tum	Spectral and Sorption Characteristics of Acid Orange II and Methylene Blue Dyes on TiO ₂ photocatalyst	Journal International Journal of Science and Technology Volume:7 Issue:7 Pages:27-34 DOI No.: 10.24940/theijst/2019/v7/i7/ST1907-023	July 2019
6.	CM Gerrard, JM Wanjohi	Factors influencing the implementation of prisons health projects in Kenya: A case of prisons in Meru region	©2019 International Academic Journal of Information Sciences and Project Management (IAJISPM) ISSN 2519-7711 Volume: 3 Issue: 3 Pages: 185-209	5 th July 2019
7.	Ruth Anyango Omole, Mainen Julius Moshi, Matthias Heydenreich, Hamisi Masanja Malebo, Jeremiah Waweru Gathirwa, Richard Owor	Antiplasmodial Biflavanones from the Stem Bark of <i>Garcinia buchananii</i> Engl.	Journal Pharmacognosy Communications Volume 9 Issue 3 Pages 96-99 Publisher EManuscript Services DOI: 10.5530/pc.2019.3.20.	1 st July 2019

	Oriko, Leonida Kerubo Omosa, Jacob Ogweno Midiwo			
8.	Kennedy Olale, Abiy Yenesew, Ramni Jamnadass, Andrew Sila, Keith Shepherd	A simple field based method for rapid wood density estimation for selected tree species in Western Kenya	Journal: Elsevier Vol. 5 Pages: e00149 https://doi.org/10.1016/j.sciaf.2019.e00149	27 th Aug 2019
9.	Hiram Kirimi, John Wanjohi	Factors Influencing Use Of Alternative Dispute Resolution In Construction Projects: Case Of Imenti North Sub County, Meru County	International Academic Journal of Information Sciences and Project Management Volume 3, Issue 4, pp. 572-602	9 th Aug 2019
10.	Majau, D. K. & Wanjohi, J.	Factors Influencing Employee Job Performance In County Government Departmental Projects: A Case Of Meru County Government, Kenya	International Academic Journal of Information Sciences and Project Management Volume 3, Issue 4 , pp. 518-543 518	6 th Aug 2019
11.	Mary Njenga, Nancy Karanja, Jacob Kithinji, Ramni Jamnadaa,	Evaluating Fuel Briquette Technologies and their Implications on Greenhouse Gases and Livelihoods in Kenya	Publisher World Agroforestry-Research Data Repository https://doi.org/10.34725/DVN/HTPFERS , World Agroforestry - Research Data Repository, V1	6 th Aug 2019

	Miyuki Iiyama, Aya Yonemitsu			
12.	Daniel Buyinza, Li Jun Yang, Solomon Derese, Albert Ndakala, Paolo Coghi, Matthias Heydenreich, Vincent Kam Wai Wong, Heiko M Möller, Abiy Yenesew	<i>Cytotoxicity of isoflavones from Millettia dura</i>	Journal Natural Product Research Pages 1-4 Publisher Taylor & Francis https://doi.org/10.1080/14786419.2019.1660335	5 th Sept 2019
13.	Fozia A Adem, Victor Kuete, Armelle T Mbaveng, Matthias Heydenreich, Andreas Koch, Albert	Cytotoxic flavonoids from two <i>Lonchocarpus</i> species	Journal: Natural product research Volume: 33 Issue: 18 Pages: 2609-2617 Publisher: Taylor & Francis https://doi.org/10.1080/14786419.2018.1462179	17 th Sept 2019

	Ndakala, Beatrice Irungu, Abiy Yenesew, Thomas Efferth			
14.	R Mogwasi, DK Kariuki, ZM Getenga	Effect of Farm Additives on the Potential Bioavailability of Some Nutritional Elements from Kenyan Wild Plants	Journal Biological trace element research Pages 1-11 Publisher Springer US https://doi.org/10.1007/s12011-019-01855-8	10 th Sept 2019
15.	Harry Amuguni Chanzu, John Mmari Onyari, Paul Mwanza Shiundu	Brewers' spent grain in adsorption of aqueous Congo Red and malachite Green dyes: Batch and continuous flow systems	Journal: Journal of hazardous materials Volume: 380 Pages: 120897 Publisher: Elsevier https://doi.org/10.1016/j.jhazmat.2019.120897	15 th Dec 2019
16.	JM Mwaniki, JO Onyatta, AO Yusuf	Adsorption of Heavy Metal Ions from Aqueous Solutions and Wastewater using Water Hyacinth Powder	Journal: International Journal of Trend in Scientific Research and Development (IJTSRD) Volume: 4 Issue: 1	Dec 2019
17.	Veronica M Masila, Albert J	Synthesis, structural assignments and antiinfective activities of 3- <i>O</i> -benzyl-carvotacetone and 3-hydroxy-2-	Journal Natural Product Research Pages	27 th Jan 2020

	Ndakala, Robert Byamukama, Jacob O Midiwo, Rahab W Kamau, Mei Wang, Mallika Kumariham y, Jianping Zhao, Matthias Heydreich, Ilias Muhammad	isopropyl-5-methyl- <i>p</i> -benzoquinone	1-9 hSttps://doi.org/10.1080/14786419.2020.1716346	
18.	Kiplangat Rop, Damaris Mbui, George N Karuku, Immaculate Michira, Njagi Njomo	Characterization of water hyacinth cellulose-g-poly (ammonium acrylate-co-acrylic acid)/nano-hydroxyapatite polymer hydrogel composite for potential agricultural application	Journal Results in Chemistry Volume 2 Pages 100020 Publisher Elsevier https://doi.org/10.1016/j.rechem.2019.100020	1 st Jan 2020
19.	Ruth Anyango Omole, Mainen Julius Moshi,	In vitro Antiplasmodial and Cytotoxic activity of Three Medicinal Plants used Traditionally for Treatment of Malaria.	Journal Pharmacognosy Communications Volume 10 Issue 1	1 st Jan 2020

	Muhammad Ilias, Walker Larry, Hamisi M Malebo, Leonida Kerubo Omosa, Jacob O Midiwo		DOI:10.5530/pc.2020.1.2	
20.	Moses Andima, Paolo Coghi, Li Jun Yang, Vincent Kam Wai Wong, Chrispus Mutuku Ngule, Matthias Heydenreich, Albert Jairo Ndakala, Abiy Yenesew, Solomon Derese	Antiproliferative Activity of Secondary Metabolites from <i>Zanthoxylum zanthoxyloides</i> Lam: In vitro and in silico Studies.	Journal Pharmacognosy Communications Volume 10 Issue 1 DOI: 10.5530/pc.2020.1.8	1 st Jan 2020
21.	Patrick	Photocatalytic Degradation of 4-	Journal	14 th

	Kimutai Tum, David K Kariuki	Chlorophenol by Titanium Dioxide: Role of Annealing Temperature and Morphology	International Journal of Innovative Research and Development Volume 8 Issue 11 Pages 235-244	Feb 2020
22.	Valerie Bauza, Vincent Madadi, Robinson Ocharo, Thanh H Nguyen, Jeremy S Guest	Enteric pathogens from water, hands, surface, soil, drainage ditch, and stream exposure points in a low-income neighborhood of Nairobi, Kenya	Journal Science of The Total Environment Volume 709 Pages 135344 Publisher Elsevier https://doi.org/10.1016/j.scitotenv.2019.135344	20 th March 2020
23.	Richard Oriko Owor, Kibrom Gebreheiwo t Bedane, Yolande Ikala Openda, Sebastian Zühlke, Solomon	Synergistic anti-inflammatory activities of a new flavone and other flavonoids from <i>Tephrosia hildebrandtii</i> vatke	Journal Natural Product Research Pages 1-8 Publisher Taylor & Fran https://doi.org/10.1080/14786419.2020.1736065	31 st March 2020

	Derese, George Ong'amo, Albert Ndakala, Michael Spiteller			
24.	Richard Oriko Owor, Kibrom Gebreheiwo t Bedane, Sebastian Zühlke, Solomon Derese, George Otieno Ong'amo, Albert Ndakala, Michael Spiteller	<i>Anti-inflammatory Flavanones and Flavones from Tephrosia linearis</i>	Source Journal of Natural Products Publisher American Chemical Society and American Society of Pharmacognosy https://doi.org/10.1021/acs.jnatprod.9b00922	10 th March 2020
25.	Vaderament -A Nchiozem- Ngnitedem, Leonidah Kerubo Omosa,	Two new flavonoids from <i>Dracaena usambarensis</i> Engl.	Journal: Phytochemistry Letters Volume: 36 Pages:80-85 https://doi.org/10.1016/j.phytol.2020.01.001	1 st April 2020

	Solomon Derese, Pierre Tane, Matthias Heydenreich, Michael Spiteller, Ean-Jeong Seo, Thomas Efferth			
26.	Emily B Chebet, Joshua K Kibet, Damaris Mbui	The assessment of water quality in river Molo water basin, Kenya	Journal: Applied Water Science Volume:10 Issue:4 Pages:1-10	April 2020
27.	Olivia Osiro, Bernina Kisumbi, David Kariuki, Loice Gathece	Implications of the Minamata Convention on Mercury on Oral Health in Kenya	Journal: Kenya Policy Briefs Volume: 1 Issue: 1 Pages: 17-18	26 th APRIL 2020
28.	Chrispine M Oloo, John M Onyari, Wycliffe C	Adsorptive removal of hazardous crystal violet dye from aqueous solution using <i>Rhizophora mucronata</i> stem-barks: Equilibrium and kinetics studies	Journal Environmental Chemistry and Ecotoxicology Publisher Elsevier https://doi.org/10.1016/j.eneco.2020.05.001	8 th May 2020

	Wanyonyi, John N Wabomba, Veronica M			
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2.5 CONSULTANCIES/RESEARCH PROJECTS

	Funder	Project	Principal Investigator/Project leader	Amount (currency)	Duration	comments
2	Bill gates	Zeolite hydrogel nano-mop for contraception	Dr. Benson Wamalwa	US Dollars 100,000	01/05/2010 - 30/11/2021	Active
4	Grand challenge s Canada	Saving lives at birth a loyally program		USD 331383	01/01/2016 - 31/12/2018	Active
5	Grand challenge Canada	Bar codes for improved child vaccination and famine nutrition		USD 113000	23/03/2012 - 01/04/2014	Active
6	IDRI	Infectious diseases research	Prof. Jacob Midiwo		10/05/2011	Active

7	Uppsala university	Ken02 chemistry		Sek 2,881,975	01/01/2011 - 31/12/2017	
8	National Research Fund (NRF)	Xploring Kenya Biodiversity Chemistry, Phamacology and Commercialization		Euro 44,000	01/04/17- 31/05/2018	Active
9	GEF-NPIF (Kenya Wildlife Service)	Developing the microbial biotechnology industry from soda lakes in Kenya	Prof. L. Kerubo	USD 440,000	31/08/2017	Active
10	ICIPE	Promoting small holder access to fungal bio pesticides through public private partnership in East Africa		USD 54,758	01/03/2018 - 30/12/2021	Active
11	The welcome trust	Cement dust exposure and related effects in	Dr. Faridah Were	KES400,000	13/10/2017	Active

		Kenya				
1	Uppsala	Capacity building	Prof. Lydia Njenga	SEK	9/02/2016-	Active
2	University	for PhD students		101,760	31/05/2016	

2.6. The virtual 64th Graduation Ceremony



The poster for the University of Nairobi 63rd Graduation Ceremony features a photograph of two graduates in black and white academic regalia. The text on the right side of the poster reads:

UNIVERSITY OF NAIROBI

THE CHANCELLOR,
Dr. (Mrs.) Vijoo Rattansi, OGW,
 D.Litt. (Hon.), (Nairobi), D.Litt. (Hon.), (Moi),
 COUNCIL, SENATE AND MANAGEMENT
 invite you to join,

The Virtual **63rd** **Graduation Ceremony**
FRIDAY, SEPTEMBER 25TH 2020 8.00 AM
 at the Great Court, Main Campus

Academic Dress for Academic Procession | Guests are requested to be seated or tuned in by 7.30 a.m.
 Access a copy of the 63rd Graduation Booklet on www.uonbi.ac.ke

Live Streaming: uonbi.ac.ke/livestream
<https://vc.uonbi.ac.ke/live>
[youtube.com/user/UniversityofNairobi](https://www.youtube.com/user/UniversityofNairobi)

@uonbi universityofnairobi University of Nairobi

"Sustaining higher education through adaptation of technology and innovation amidst COVID-19 pandemic"

The University of Nairobi 63rd Graduation ceremony Department of Chemistry making his speech.

2.6.1. The Table below shows the number of students per program graduated in Sept. 2020

Acade	BSc in	BSc	BSc	MSc In	MSc	MSc	MSc.	Ph.D in	Total
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Year	chemistry	Industrial Chemistry	Analytical Chemistry	Chemistry	Industrial Chemistry	Environmental Chemistry	Analytical chemistry	Chemistry	
2019/2020	35	45	17	3	2	1	3	2	108

2.6.2 Postgraduate Students graduated in September 2020

Master of Science in Analytical Chemistry

- Moenga, David Nyamweya
- Mungai, James
- Oloo, Sebastian Otieno

Master of Science in Chemistry

- KHISA, Jackline Nangila
- OBONGO, Rael Akoth Kasera.
- OLOO, Chrispine Moses Oder

Master of Science in Environmental Chemistry

- Kundu, Bevin Nabai

Master of Science in Industrial Chemistry

- Mwakazi, Eva Dama.
- Ochieng, Sharon Alice Okuku

Doctor of Philosophy Degree in Chemistry

- Andima, Moses
- Buyinza, Daniel

2.6.3. Number of Bsc Graduands in Various Programs, December 20, 2020

The Table below shows the number of students graduated in 2019 per program.

Year	BSc in Chemistry	BSc Industrial Chemistry	BSc Analytical Chemistry	MSc In Chemistry	Msc Analytical	MSc Environmental Chemistry	MSc INDUSTRIAL CHEMISTRY	Ph.D in Chemistry	Tot al
2019/2020	2	2	4	2	1	1	1	3	16

2.6.4 Postgraduate Students graduated, Dec 2020 per program.

1. Master of Science in Environmental Chemistry

chilikwazi bright

2. Master of Science in Chemistry

Ochiba, Nancy Khayongo

Msc analytical

Bernard isaiah

4. PHD students

- Mbugua, Simon Ngigi .
- Njogu, Rachael E. Njeri .
- Waswa, Gabriel Andati

2.7 Papers Presented at Conferences

S/N	CONFERENCE	THEME	Paper presented	DATE
1	Expert consultative meeting for sustainable global monitoring of POPs under the Stockholm convention	Expert consultative meeting for sustainable global monitoring of POPs under the Stockholm convention	Cytotoxic flavonoids from two Lonchocarpus species by Fozia Ali Adem	12 th Feb 2019
2	Pan Africa Chemistry Network Congress 2019	Riches of the Natural world: sustainable use of Africa's natural products and materials	Cytotoxicity of plumbagin, rapanone and 12 other naturally occurring quiniones from	5 th -7 th Nov 2019, Addis Ababa

			Kenyan flora towards human carcinoma cells presented by Prof. Leonidah Omosa Kerubo	
3	Pan Africa Chemistry Network Congress 2019	Riches of the Natural world: sustainable use of Africa's natural products and materials	The Kenyan higher plant diversity: a source of anti-parasitic compounds for neglected tropical diseases presented by Prof. Jacob Midiwo	5 th -7 th Nov 2019, Addis Ababa
4	Pan Africa Chemistry Network Congress 2019	Riches of the Natural world: sustainable use of Africa's natural products and materials	Red hot compounds from the Red hot poker plant, Kniphofia, and related taxa presented by Prof. Abiy Yenesew	5 th -7 th Nov 2019, Addis Ababa

5	Pan Africa Chemistry Network Congress 2019	Riches of the Natural world: sustainable use of Africa's natural products and materials	Anti-vancomycin-resistant Enterococcus faecium and E.Faecalis activities of (-)-Gossypol and Derivative from Thespecia garckeana	5 th -7 th Nov 2019, Addis Ababa
6	Pan Africa Chemistry Network Congress 2019	Riches of the Natural world: sustainable use of Africa's natural products and materials	Rotenoids from East African Plants-Structure, Stereochemistry and Biological Activity	5 th -7 th Nov 2019, Addis Ababa
7+	Royal Society of Chemistry	14 th International Conference on Materials Chemistry (MC14)	Ruthenium (II) Oxathia Crown Ether Complexes: synthesis, Characterization and their	8 th -11 th July 2019

			Application in the Detection of Mercury (II) Ions'	
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S/N	VOTE	TITLE	AMOUNT	CORDINATOR	DOCUMENTATION
1.	500653378	To Establish NMR Centre of Excellence	42,796,236.00	Prof. John Onyari	Receipt and Statement from the Grants Office
2.	500661862	Strategic Partnership For Higher Education	2,669,437.652	Prof. John Onyari	Statement from Grants office
3.	500661797	Promoting Smallholder Access to Fungal Biopesticides	120,000	Prof Leonida Kerubo	Statement from Grants office
4.	500661347	PAN African Chemistry Network	509,986.500	Professor Midiwo	Statement from Grants office
5.	500661739	Kenya GMP2 POPS Project	1,645,045,490		Statement from Grants office

1.8.

2.8. Programmes Engaging Guest Lecturers/Speakers

S/No	GUEST LECTURER/SPEAKERS	PROGRAMME	DETAILS	DATE
6.	Dr. Wanyonyi,	Project	Part-Time lecturer	11 th

S/No	GUEST LECTURER/SPE AKERS	PROGRAMME	DETAILS	DATE
	Wycliffe	Management		January 2019
7.	Prof. Dr. Dr. h.c Michael	Chemical Interactions of Plant-microbes	Chemical Interactions of Plant- microbes	1 st April 2019
8.	Dr Cecil Kingondu	Seminar	Specific Capacitance-pore Texture Relationship of Biogas Slurry Mesoporus Carbon/ MnO ₂ composite Electrodes for supercapacitors.	10 th April 2019
9.	Dr, Agnieszka Wegrzyn	Synthesis, characterization and application of new materials obtained from natural and synthetic layered minerals in environmentally friendly adsorption and	Synthesis, characterization and application of new materials obtained from natural and synthetic layered minerals in environmentally friendly adsorption and catalytic processes presented by Dr, Agnieszkka Wegrzyn, Jagiellonian University in Krakkow, Faculty of Chemistry	3 rd July 2019

S/No	GUEST LECTURER/SPEAKERS	PROGRAMME	DETAILS	DATE
		catalytic processes		
10.	Prof Fulgentius Nelson Lugemwa	Organic Chemistry	Visiting Professor from Pennsylvania State University-York, US	1 st Sep 2019

FOURTH YEAR PROJECT ORAL EXAMINATION FOR CLASS 2020 WEDNESDAY 18 TH JUNE 2020 VIRTUAL DEFENSE ON “GOOGLE MEET”				
07.45-08:00 am: Opening Remarks: Chairman, Department of Chemistry				
Session 1: CO-CHAIRS: DR. PETERSON GUTO/DR. G. BOSIRE				
Time	Registration Number	Name	Project Title	Main Session Examiners
08:00-08:20	I64/5189/2017	Mumbua Josephine Mutisya	Isolation and Characterization of Anticancer Compounds from the Leaves of <i>Aspilia pluriseta</i>	Prof. J. Onyari Prof. J.P. Kithinji Prof. A. Yenesew
08:20-08:40	I08/1437/2017	Christine Achieng Otieno	Synthesis and characterization of zeolite x for use in industrial application	Prof. L. Kerubo Dr. G. Bosire Dr. J. Mwaniki Dr. S. Derese
08:40-09:00	I64/5184/2017	Kavayi Kenneth Munyoike	Phytochemical investigation of the root bark extract of <i>dracaena usambarensis</i> for	Dr. A. Ndakala Dr. N. Njagi Dr. R. Odhiambo

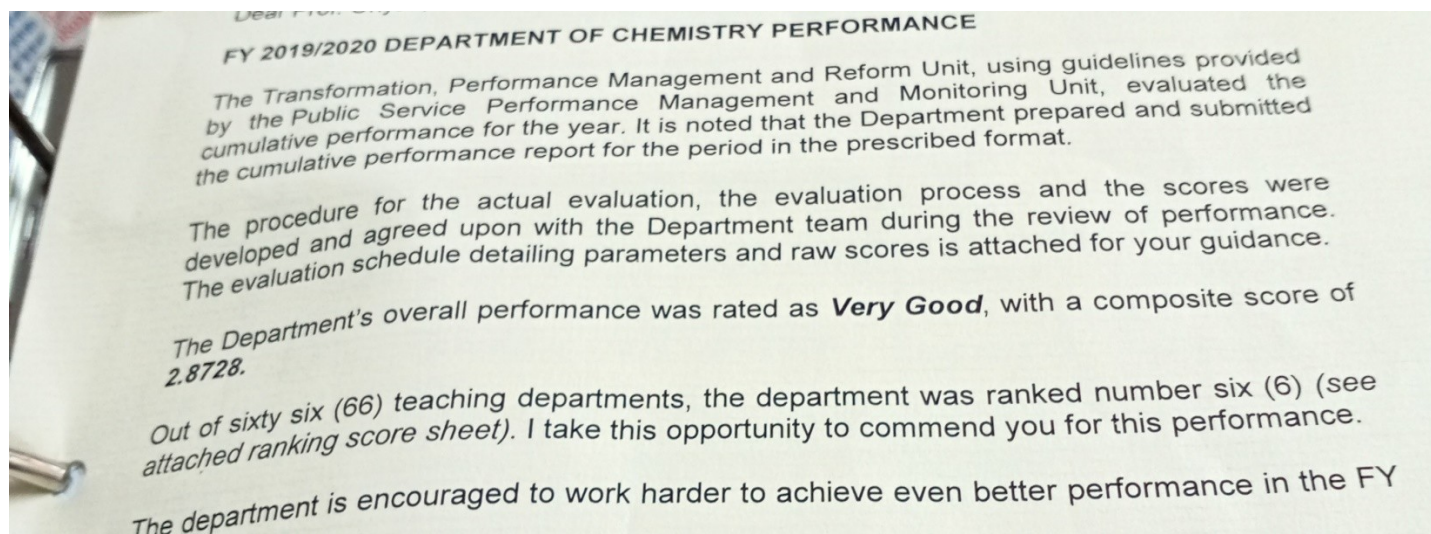
			anticancer principles	Dr. J. Onyatta
09:00-09:20	I64/5355/2014	Linzy Chepkorir Sigey	Assessment of red soil in adsorption of fluoride from an aqueous solution	
09.20-09:40	I64/2074/2017	Mostune Mary Obuya	Phytochemical investigation of aerial part of <i>pentas bussei</i> for antileishmanial activity	
09:40-10:00	I64/5218/2018	Ekesa Elizabeth Sarah	Phytochemical investigation of stem bark of <i>pentas parvifolia</i> for anticancer principles	
10:00-10:20	I64/5202/2017	Shekina Ruth Lumumba	Phytochemical studies of <i>Macaranga conglomerata</i> for anticancer principles	
11:00-13:20 Tea Break				
Session 2: CO-CHAIRS: Mr. C. MIRIKAU/DR.VINCENT MADADI				
Time	Registration Number	Name	Project Title	Main Session Examiners
11:00-11:20	I64/5422 /2016	Cornelius Wanyonyi	Phytochemical Investigation of <i>Millettia usaramensis</i> for Anticancer Principles	Prof. J. Midiwo Prof. R. Munavu Prof. H. Njenga Dr. V. Madadi Ms. R. Njogu Dr. B. Wamalwa
11:20-11:40	<u>I64/5201/2017</u>	Chantal Antoinette Aloo		
11:40-12:00	I64/5546/2016	Jackline Okello	Determination of levels of selected heavy metals in soil in parts of industrial area in Nairobi	

			County, Kenya	
12:00-12:20	I64/1592/ 2016	Kimani Mbuthia	Remote sensing air quality monitor	
12:20-12:40	I64/2082/2016	Peter Absolom Njoroge	Phytochemical investigation of <i>Fagaropsis angolensis</i> for anticancer principles	
12:40-13:00	I08/4438 6/2017	Meeme Michelle Kendi	A study on efficiency and emission characteristics of the aleurites moluccanus (candlenut) seeds as a biofuel	Mr. C. Mirikau Dr. D. Mbui Dr. W. Odinga Mr. J. Makopa
13:00– 13:20	I64/5181/ 2017	James Njoroge Munyui	The effect of environmental exposure on the lead levels in borehole water consumed in nairobi	Prof. A. Yusuf Prof. L. Njenga Dr. J. Wabomba Mr. G. Wafula
14:00-15:00 Lunch				
Session 3: CO-CHAIRS: DR. J. WABOMBA /DR. M. MUKABI				
14:00-14:20	<u>I08/1452/ 2017</u>	Lawrence Oduor Ouma	<u>Phytochemical investigation of <i>gnidia apiculata</i> for antiplasmodial principles</u>	Prof. D. Kariuki Prof. J. Midiwo Dr. S. Derese
14:20-14:40	<i>I08/4352 4/2017</i>	Tracey Njoroge	In silico studies for anti-inflammatory activity of tephrosia linearis	
14:40-15:00	<u>I14/1442 7/2017</u>	Patra Nyabate	Comparative study of paracetamol 500 mg tablets from local manufacturers	

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3.0 Performance Contract

The Performance contract between the School of Physical Sciences Management Board and Department of Chemistry for the period 1st July 2020 and 30th June 2021 was signed on 1st July 2021. The Performance matrix was circulated to all staff. It will be measured by its success in meeting or surpassing the performance targets set out in the Performance matrix..



THE 8TH NATIONAL LEAD POISONING PREVENTION WEEK OF ACTION 29TH OCTOBER 2020

1.2. Sub-Regional Lead Poisoning Prevention Week Of Action Campaigns To Ban Import, Export And Use Of Lead Paint Across The East Africa Region Held Online On 29th October 2020.

SUB-REGIONAL LEAD POISONING PREVENTION WEEK OF ACTION

26TH TO 31ST OCTOBER 2020

INTENSIFIED CAMPAIGNS TO BAN THE IMPORT, EXPORT, MANUFACTURE, SALE AND USE OF LEAD PAINT ACROSS THE EAST AFRICA REGION

VIRTUAL EVENT: HOSTED BY THE DEPARTMENT OF CHEMISTRY, UNIVERSITY OF NAIROBI



BAN LEAD PAINT



LEARN the Risks



JOIN the Action

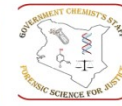


ELIMINATE Lead Paint

EVENT SPONSORS



PARTNERS



www.who.int/lead_campaign/en/
#ILPPW2020 #BanLeadPaint

banleadpaint@uonbi.ac.ke

The aim of International Lead Poisoning Prevention Week is to draw attention to the health impacts of lead exposure, highlight efforts by countries and partners to prevent childhood lead exposure, and accelerate efforts to phase out the use of lead in paint.

The sub-regional Event sponsors are University of Nairobi, Basco Paints, Dura Coat and the partners in this campaign includes; KEBS, The Architectural Association of Kenya, UNEP, KIRDI, NEMA, Ministry of Environment & Forestry, Ministry Health, World Health Organization and many other Partners.

UON-BASF Chiroklean Liquid Soap Hand Wash Distribution To The University Of Nairobi Community



The University of Nairobi, Department of Chemistry in collaboration with BASF Company distributed Chiroklean Hand wash to the University of Nairobi community.

The event was graced with the presence of the UoN Vice Chancellor, Prof. Stephen Kiama. Please click the link below to see the Vice Chancellor's speech during the ceremony

3.5. Staff members who travelled outside Kenya In 2019

Academic Staff

1. Prof. Abiy Yenesew, PACN CONFERENCE IN Addis Ababa

2. Dr. Solomon Derese, PACN Conference, Addis, Ethiopia

3. Chemistry Staff Team Building



3.8. Corporate Social Responsibility/Outreach Services

1. Faridah Hussein Were: Chairlady, Technical Committee for the East Africa Standard for Paints and Allied Products & Member of Advisory Council of Lead Alliance Partner.
2. Prof. D. K Kariuki, External Examiner, University of Zambia & University of Malawi, Harzadious & Toxic Matyerials Committee member, NEMA, Threshold Pollution in Waste Water Committee, WARMA.
3. Dr. Wanjohi John: External Examiner; Kenyatta University.
4. Dr. Derese, Solomon: External Examiner; Masinde Muliro & Karatina University.

3.9 Other Activities

3.9.2. Conference/workshop/symposium

The Department organized the following events;

- Revised chemistry undergraduate programs: Bachelor Of Science Chemistry, Bachelor of Industrial Chemistry and Bachelor of Analytical Chemistry.
- Launch of Uon-Basf Chiroklean Liquid Soap Hand Wash

Challenges

- Delay in postgraduate students in completion of thesis.
- Procurement process (EPMIS) –delay in procuring and delivery of lab materials.
- Virtual teaching challenges against face to face