

**UNIVERSITY OF NAIROBI
COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
SCHOOL OF PHYSICAL SCIENCES**

DEPARTMENT OF CHEMISTRY

ANNUAL REPORT

2011

**DEPARTMENT OF CHEMISTRY
ANNUAL REPORT**

1.1 INTRODUCTION

The Department of Chemistry is located in Department of Chemistry Building, Chiromo Campus, Off-Riverside Drive. It is one of the four departments in the School of Physical Sciences in the College of Biological and Physical Sciences.

The Department offers the following undergraduate degree programmes:

Bachelor of Science in Chemistry, Bachelor of Science in Chemistry combined with another subject, Bachelor of Science in Industrial Chemistry, Bachelor of Science in Environmental Chemistry and Bachelor of Science in Analytical Chemistry. In addition the department also offers service courses to the College of Health Sciences (School of Pharmacy), College of Architecture and Engineering (Mechanical and Manufacturing Engineering, Civil and Construction Engineering, Environmental and Biosystems Engineering) and College of Agriculture and Veterinary Sciences (Food Science and Technology, Agriculture).

At postgraduate level the Department offers the following degree programmes:

Master of Science in Chemistry and Master of Science in Environmental Chemistry. The Department is awaiting Senate approval for the following new and revised MSc programmes: MSc Analytical Chemistry (New), MSc Industrial Chemistry (New), MSc Environmental Chemistry (Revised), MSc Organic Chemistry (New) and MSc Inorganic Chemistry.

In addition to our dayprogrammes, the Department is offering module II evening programs at both the undergraduate (BSc Analytical and BSC Industrial) and post-graduate levels (MSc Chemistry and MSc Environmental). The chemistry laboratory at Kenya Science is now complete and ready to accommodate practical sessions.

1.2 ACADEMIC STAFF MEMBER AND THEIR DESIGNATION

Professors	6
Associate Professors	6
Senior Lecturers	9
Lecturers	14
Tutorial Fellows	6

Assistant Lecturer	1
Graduate Assistants	3
TOTAL	45

2.0 STAFF APPOINTMENTS, PROMOTIONS

2.1 NEWLY APPOINTED/RECRUITED ACADEMIC STAFF

NAME	GENDER	TITLE
Mr Fredrick Mwanzighe Mzee	M	Graduate Assistant
Ms Rachael N. Njogu	F	Graduate Assistant
Mr. Wilson K. Tonkei	M	Graduate Assistant

2.2 ACADEMIC STAFF PROMOTED

NAME	GENDER	PREVIOUS TITLE	PRESENT TITLE
Dr Solomon Derese	M	Lecturer	Snr Lecturer

2.3 STAFF RETIRED, ON LEAVE OF ABSENCE, TERMINATED, DECEASED

NAME	GENDER	TITLE	STATUS
Prof. Raphael Munavu	M	Professor	Leave of absence
Dr. Evans Kituyi	M	Snr. Lecturer	Leave of absence
Prof. Paul Shiundu	M	Professor	Leave of absence
Mr Japhet Amani	M	Snr Technologist	Retired
Dr. Wenwa A. Odinga	F	Snr. Lecturer	Leave of absence

3.0 ACADEMIC PROGRAMMES

Undergraduate Programmes

B.Sc. Industrial Chemistry

B.Sc Chemistry

BSc Analytical Chemistry

BSc Environmental Chemistry

Postgraduate Programmes

M.Sc. in Chemistry

M.Sc. in Environmental Chemistry

4.0 NUMBER OF STUDENTS ADMITTED INTO EACH UNDERGRADUATE PROGRAMME

PROGRAMME	NUMBER
BSc.	572
BSc –Industrial Chemistry	144
BEd (Sc)-Kenya Science	275
BSc- Analytical Chemistry	14

5.0 NUMBER OF STUDENTS ADMITTED INTO EACH POSTGRADUATE PROGRAMME

PROGRAMME	NUMBER
M.Sc.	35
Ph.D.	11

6. NUMBER OF STUDENTS WHO GRADUATED FROM EACH PROGRAM

Ph.D.	3
M.Sc	7

B.Sc Industrial chemistry	28
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7. NUMBER OF STUDENTS DISCONTINUED ON ACADEMIC GROUNDS

BSc	0
MSc	1
Ph.D	0

8.0 ONGOING RESEARCH PROJECTS IN DEPT OF CHEMISTRY

8.1 Undergraduate research projects

NAME	SUPERVISOR	SUPERVISOR(S)
Mapili Millicent Mapili	Structural Modification of Flavonoids from Surface Exudate of <i>Polygonum senegalense</i>	Prof. Jacob Midiwo and Dr. Joseph Mwaniki
Koimbori Washington K.	Phytochemical Analysis of the Root Bark of <i>Millettia usaramensis</i> for Antiplasmodial Activity	Prof. Abiy Yenesew
George Gitonga Munyeki	Formulation of a Long Life Etching Additive for Aluminium Etching Bath	Dr. Helen. N. Njenga and Mr. Godfrey A. Wafula
Mosite Tipaya Dennis	Determination of Fluoride Levels and other Physio-Chemical Parameters in some Selected Borehole Waters in Kajiado North District	Dr. Amir O. Yusuf
Agina Olwitchi Parpai	Determination of Resistivity of Rocks from Various Parts of Kenya when Soaked in Different Types of Water	Prof. Geoffrey N. Kamau
Dennis Morland Kutsushi	Flouride Levels and Deflouridation Method in Selected Boreholes in Athiriver And other Selected Water Parameters	Dr. Amir O. Yusuf
Vane Bonareri Ondiere	Defluoridation of Water using Polyaluminium Chloride	Dr. David K. Kariuki
Ng'ang'a John Kinyanjui	Determination of Flouride Ions and other Physio-Chemical Parameters in Water from Selected Boreholes in Kitengela Township	Dr. Immaculate Michira
Audrey Nduta Muthuki	Adsorption of Methylene Blue Dye by Eucalyptus Saw Dust	Prof. Paul M. Shiundu and Mr John M. Wabomba
Muchui Josephat Kamiri	Evaluation of Borehole Water Treatment using <i>Moringa oleifera</i>	Dr. Fredrick D.O. Oduor

Robinson Hinga Njoroge	Determination of Fluoride in Various Herbal Teas	Prof. Lydia W. Njenga
Erick Ngunjiri Njoki	Chemotoxonomic Significance of Compounds from <i>Dodonaea angustifolia</i>	Prof. Jacob Midiwo and Dr. Leonidah kerobo
Avina Andrew	<i>Mondia whytei</i> for Flavouring Ice-cream and Formulation of the Reagent Spray	Prof. Jacob O. Midiwo and Dr. L Kerubo
Saima Kwemoi	Survey on Electronic Waste Generation in Chiromo Campus: A Case of Mobile Phone Recycling	Dr. Patricia W. Gitari
Harriet Wanja Rwanda	Removal of Printing Ink by Eucalyptus Saw Dust	Prof. Paul M. Shiundu and Mr. John M. Wabomba
Otieno Maurice Atieno	Adsorption of Cu ²⁺ ions using ground fish (<i>Lates Niloticus</i>) bones	Prof. Shem O. Wandiga
Ngwaro C. Kimucha	Removal of Copper (II) Sulphate by eucalyptus saw dust	Prof. Paul M. Shiundu and Mr. John M. Wabomba
Ouma Jared Otieno	Elemental Analysis of rocks and minerals from Selected Regions of Kenya	Prof. Geoffrey N. Kamau
Kariuki Victor Murithi	An analysis of Chang'aa to check for compliance to set standards	Dr. Austin O. Aluoch
Irungu Kevin Luvaga	Synthetic Structure Modification of Surface Exudates Flavanoids for their Antiplasmodial Activity Enhancement	Prof. Jacob O. Midiwo and Dr. Joseph M. Mwaniki
Mwangi Virginia Wamaitha	Bio-ethanol Production from Cassava	Mr. Jumaa Makopa
Nyambane Anne Wanjiru	Deflouridation Efficiency Evaluation of Alum and activated carbon	Dr. David K. Kariuki
King'oro Paul Muthama	Assessment of Tannery Wastewater from Limuru Bata Shoe Company	Dr. Fredrick D.O Oduor
Waweru James Gitau	Assessment of pesticide residues in drinking water from Nairobi	Mr. Vincent O. Madadi
Hesbon Nyangena	Indoor Air Pollution: Analysis of Biomass Briquettes as a Source of indoor Air Pollution	Dr. Jacob Kithinji
Kasmani Mohamed	Low Cost and Low Voltage Anodizing of Architectural Aluminium	Dr. Helen N. Njenga and Ms. Marina Mukabi
Kimani M. Michael	Biodiesel from fish by products	Dr. Benson M. Wamalwa
Abdub G. Huri	Phytochemical Analysis of the Roots of <i>Pentas micrantha</i>	Prof. Abiy Yenesew
Daniel K. Malinga	Relative Content of Humic Acids in Kenyan Soils	Prof. Raphael Munavu
Njoroge Sarah Wambui	Biosorption of Heavy Metals in Aqueous Solutions Using Spent Brewery Grains	Dr. John M. Onyari and Prof. Paul M. Shiundu
Orang'o Symon	Adsorption of Atrazine by Nairobi River Sediment: Apparent Thermodynamic	Prof. Geoffrey N. Kamau

	Properties	
Micah O. Otieno	Manufacture of Carbonised and Biomass Charcoal Briquettes	Prof. Raphael Munavu
Njoroge P. Wangui	Prevalence of Aflatoxin Contamination in Maize in Kenya	Mr. Charles W. Mirikau
David M. King'ori	Investigation of Physical and Chemical Properties of Diatomite from Soysambu and Kariandusi Mines	Dr. F. O. ODUOR
Ondiek Peter Ganga	Manufacture of Low Cost Disinfectant	Dr. Amir O. Yusuf
Wamuhu Esther Njeri	Piped Water Quality Monitoring	Prof. G. N. Kamau
Nyambane Okong'o James	Determining the Critical Micelle Concentration of Aqueous Surfactants Solutions Using a Novel Calorimetric Method	Prof. Geoffrey N. Kamau
Mwaniki John Gitonga	Test for Biopesticidal Properties for Microbes in the Rhizosphere	Dr. Benson Wamalwa, Dr. Muge E.K. and Dr. Ochieno Dennis
Stephen Kimani	Emission from Briquette Fuels made from Sawdust Waste	Dr. Jacob Kithinji

8.2 Ongoing Postgraduate research projects (M.Sc)

NAME	TITLE	SUPERVISORS
Mr. Nicholus Mwenda	Assessment of pesticide residues in cow milk, water and blood from Nairobi region	Prof. S.O. Wandiga Prof. P.M. Shiundu Dr. Mbaabu Mathiu
Kerandi, Anne Moraa. I56/76301/09	Investigation on Genotoxicity of Solar Disinfected (SODIS) Water.	Prof Wandiga
Pembere, Anthony M I56/77607/09	Investigation of Heavy Metals in Vegetables Grown in the Agricultural and Industrial Areas of Webuye and Mumias	Prof Jumba, Dr Oduor
Okanga, Boventure. I56/60505/09	Determination of the Alcoholic Content of Various Spirits: Denatured and Undenatured Among Selected Small Scale Production Units with Respect to Excise	Dr Benson Wamalwa

	Legislation in Kenya	
Muinde, Veronica. I56/78955/09	Investigating the Factors Affecting Levels of Omega-3-Polyunsaturated Fatty Acids (PUFA) Levels in Commercial Fish from Lake Victoria	Prof Shiundu, Dr Dorington Ogoyi and Dr Edward Nguu
Chanzu, Harry I56/76520/09	Biosorption of organic dyes using spent brewery grains in batch and continuous systems	Prof Shiundu and Dr Onyari
Njogu, Rachael. I56/77605/09	Investigation of Leaf Nutrient Uptake of Camellia Sinensis in the Eastern and Western Highlands of Kenya Following Foliar and Compound Fertilizer (NPK) Application	Dr Kariuki and Dr D.M. Kamau (TRFK)
Karani, Christopher I56/60531/10	Industrial Production of Sodium Hydroxide and Chlorine Gas from locally available Materials	Prof Kamau
Kavivi, Lynnette I56/60282/09	Use of Homology Modelling in the Development of the G-Coupled Protein Receptor of the Migratory Locust. Use of Homology Modelling in the Development of the G-Coupled Protein Receptor of the Migratory Locust.	Dr Damaris Mbui
Riungu, Emily I56/60538/10	Municipal Wastewater Treatment with Anodizing Solid Waste	Dr H. Njenga and Prof L. Njenga
Olang, Oliver I56/76679/09		Dr F. Oduor
Kathambu Muriithi I56/78601/09	Bioassay Guided Characterization of Rheumatic Principles from Cyperus Articulatus (Ndago) Plant	Prof Midiwo and Prof Abiy
Fredrick Mzee	“Physico-chemical characterization	Prof Kamau, Dr Mwaniki

Mwazighe I56/60158/2010	of chamomile extract and stability monitoring of the extract”.	
Kennedy Owuor Olale I56/78094/09	Phytochemical Screening and Infrared Predictions of Wood Density and Carbon with Emphasis on <i>Prinus Africana</i> of Kenya	Prof Abiy, Dr.Ramni Ramnadass Dr Keith Shepherd
Bernard Macharia I56/77604/2009	Phytochemical Investigation of <i>Milletia Oblata ssp.teitensis</i> for Antiplasmodial and Larvicidal Principles	Dr Derese and Prof Abiy, Dr Yusuf
Tonkei, Wilson I56/77606/09	Development of an Electrochemical Sensor for the Detection of Heavy Metals in Waste Water.	Dr Aluoch Prof Shiundu
Ms. Amina Bakari	A survey of mercury pollution from fluorescent lamps disposal in selected sites in nairobi and environs.	Dr Aluoch Austin, Dr Kituyi Evans
Ms. Begum Nusrat Mutta	Determination of volatile organic compounds (vocs) emitted in petrol stations	Prof S.O. Wandiga, Dr Austin Aluoch
Mr. Amboga Davis Anzeze	Adsorption Studies of plant biomass from water hyacinth(<i>eichhornia crassipes</i>) and possible utilization in removal of heavy metals from polluted water streams	Prof Shiundu P.M. Dr Onyari J.M. Dr Gichuki
Mr. Dennis Ndaya	Biodiesel production from <i>Calodendrum capense</i> seeds: Process design and technological assessment	Dr John Onyari Prof Shiundu P.M. Dr James Nyangaya Prof F. Mulaa
Mr. Evans Nangulu	GIS clustering and mapping pollution from industries within nairobi	Dr Aluoch Austin Dr Martin Marani
Mr. Murimi J. Mbugua.	To improve on lead acid battery	Prof Kamau G.

	manufacture in a more environmental friendly manner	Dr Guto P.
Ms. Judith Ngugi Joseph	Chemical analysis of borehole and shallow well water in arid and semi-arid regions of kenya.	Prof Lydia Njenga Dr Kithinji J.P.
Mr. Leonard Baraza	Phytochemical investigation of <i>Millettia oblata</i> for antiplasmodial and larvicidal principles	Dr Solomon Derese Prof Abiy Yenesew
Mr. Michael Bugigi Sangale	Antioxidant and antiplasmodial activities of structurally modified flavonoids derived from abysynone v & abysynone methyl ether.	Prof Yenesew Abiy Dr Mbugua Martin Dr Ndakala Albert
Mr. Wanyonyi Peter Namutala	Electroanalytical determination of trace metals using stripping voltammetry technique	
Mr. Rael Obong'o Kasera	Determination of effectiveness of untreated and edta-treated <i>Luffa cylindrica</i> in removal of Cr^{3+} and Cu^{2+} from waste water.	Prof Shiundu P.M. Dr Austin Aluoch
Mr. Tom Oduor Okumu	Investigation of nutritional components of <i>Tylosema fassoglense</i>	Dr David K.Kariuki Dr Peterson Guto
Mr. Wycliffe Chisutia Wanyonyi	Biosorption of organic dye from aqueous solution using <i>Eichhorinia crassipes</i> from lake victoria	Prof Shiundu P.M. Dr John Onyari
Gitari, Florence K.	Assessment of Polychlorinated Biphenyls (PCBs) in Sediments and Water from Ngong and Mathare Rivers	Prof Wandiga S.O. Prof Shiundu P.M.
Ndiritu, Cecilia W.	Mobility of Heavy Metals, Microorganisms and Hydrodynamics	Prof Kamau G. Prof Mwaura,

	of a Section of Nairobi River	Dr Kithinji J.P.
Kundu, Bevin N.	Comparison of Burning effectiveness of Liquid Biofuels and their Blends with Kerosene as Alternative Fuel for Lighting and Cooking	Dr Onyari J.M. Dr Kithinji J.P.
Masenge, Edna M.	Total Petroleum Hydrocarbons in Sediments and Water in Ngong and Mathare River	Prof Wandiga S.O. Prof Shiundu P.M.
Muya, Catherine N.	Electrocatalytic Decomposition of Organochlorine Pollutants	Prof G. Kamau Dr Peterson Guto
Musyoki, Michael	Phytochemical Investigation of <i>Lannea Schimperii</i> for Bioactive Principles	Prof Yenesew Abiy Dr Martin Mbugua
Everlyne Kasima N.	Phytochemical Investigation of Kenyan <i>Tarchonanthus Camphoratus</i> for Bioactive Principles	Prof Midiwo J.O. Prof Abiy Yenesew
Mulwa, Lucky S.	Investigation of <i>Psidia Punctualata</i> as Potential Analgesic Agents	Prof Yenesew Abiy Prof Midiwo J.O.
Mbewa, Tom Joseph	Heavy Metal Analysis of Thermoplastic Paints in the Kenyan Market and the Environmental Implications of Application as road Marking Paints	Prof Kamau G. Dr F. Oduor Dr Kariuki D.K.
Ogange, Elphas O.	The Role of Fertilizer Usage and Agrochemical Effluents on the Persistence of Algae Bloom on Kenyan Shores of Lake Victoria	Dr F. Oduor Dr Kariuki D.K.
Musakala, Justus	Stabilization of Soil for Making the Road Sub-Grade Using Cement-Comparison of Different Cement Types	Dr Aluoach Austin Prof Rading (Engineering)

Wanyama, George N.	An Account of the Phyto-Bioconcentration of Copper in the Control of <i>Eichhornia Crasspies</i> (Water Hyacinth)	Prof Jumba I.O. Dr Oduor F.D.
Murimi, John Mbugua	An Alternative Metal/Electrolyte for Lead Acid Battery Making	Prof Kamau G. Dr Guto Peterson

8.3 Ongoing Postgraduate research projects (Ph.D)

NAME	TITLE	SUPERVISORS
Madadi O. Vincent	Studies of pesticide and macronutrient interaction dynamics in water-sediment/soil systems	Prof. Shem O. Wandiga Prof. Paul M. Shiundu
Godfrey A. Wafula	A Study of atmospheric fine particulate matter and their toxic components in Nairobi and its environs	Prof. Shem O. Wandiga Prof. Paul M. Shiundu
C.W. Mirikau	A computerized model for the identification and location of water polluting industries in Nairobi	Prof. G.N. Kamau Prof. I.O. Jumba
Wabomba J. N	Kinetics of copper adsorption on a micaceous mineral of kenyan origin	Prof. P.M. Shiundu Dr. J. Onyari
Naziriwo Betty Bbosa	Interaction of trace metals with natural particles and their influence on phytoplankton production in waters of lake victoria	Prof. Shem O. Wandiga Prof. John P. M. L. Ssebuwufu
Mrs. Marina Mukabi		Prof. Duke Orata Dr. Austin Ochieng'
Ms. Joyce G. Njagi-	Distribution of diazinon and	Prof. S.O. Wandiga

Kithure	chlorpyrifos in selected aquatic matrices from the upper Tana River in Kenya	Prof. I.O. Jumba
Mrs. Ruth Odhiambo	Synthesis of bionucleating macrocycles incorporating thiolato and polyether compounds fused to 1,10-phenanthroline as sensors for soft heavy metal	Prof. S.O. Wandiga Dr. Austin Ochieng'
Milkyas Endale	Phytochemical analysis of selected pentas species for antiplasmodial principles	Prof Abiy Yenesew Dr. Albert Ndakala Dr. Martin Mbugua Dr. Mate Erdelyi
Ivan Gumula	Phytochemical investigation of selected leguminosae species for cancer chemo preventive agents	Prof. Abiy Yenesew Prof. I.O. Ndiege Dr. Solomon Derese Dr. Faith Okalebo
Farida Hussein Were	Assessment of levels of selected heavy metals and their effects on the health of industrial health workers in Nairobi and Athi River, Kenya	Prof. Geoffrey Kamau Prof. P.M. Shiundu Dr. C.M. Muturi
Ms. Elizabeth Nthambi Ndunda	Assessment of estrogenicity of Nairobi River using vitellogenin in Tilapia as a biomarker and remediation of the river using iron III tetra amido macrocyclic ligand	Prof. S.O. Wandiga Prof. P.M. Shiundu
Immaculate Achieng'	Evaluating the efficacy of selected lignocellulosic materials of Kenyan origin in the adsorption of textile dyes and inks from aqueous industrial effluents	Prof. P.M. Shiundu Dr. A. Aluoch Dr. B. Wamalwa
Beatrice Irungu	Bioprospecting for antiplasmodial compounds from some albizia, turea and zanthozylum species in Kenya	Prof. Abiy Yenesew
Mr. Francis Machumi	Phytochemical investigations of six Kenyan plants from families verbenaceae, asteraceae and fabaceae for their anti-malarial and anti-oxidant activities	Prof J.O. Midiwo Prof Abiy Yenesew

9.0 LIST OF RESEARCH PUBLICATIONS

1. P.M. Guto, G.N. Kamau, J.M. Kiratu, L.S. Daniel, E.M. Kiremire (2011): Electron transfer properties of 2-acetylferrocenyl-2-thiophenecarboxylsemicarbazone, International Journal of BioChemiPhysics, 19, p.47-55.

2. M. Endale, Alao J.P., Akala J.M., Rono N.K., Eyase F.L., S. Derese, A. Ndakala, M.N. Mbugua, D.S. Walsh, P. Sunnerhagen and A. Yenesew (2011): Antiplasmodial quinines from *Pentas longiflora* and *Pentas lanceolata*, *Planta Med*, 77, p.1-5.
3. Juma, W.P., Akala, H. M., Eyase, F.L., Muiva, L.M., Heydenreich, M., Okalebo, F.A., Gitu, P.M., Peter, M.G., Walsh, D., Imbuga, M., **Yenesew, A.** (2011). Terpurinflavone: An Antiplasmodial Flavone from The Stem of *Tephrosia purpurea*. *Phytochemistry Letters* 4, 176-178.
4. Muthaura, C.N., Keriko J.M., Derese, S., **Yenesew, A.**, Rukunga, G.M. (2011). Potential of *Kenyan* Medicinal Plants in *Malaria* Control. *Exp Parasitol. Review Article 127, 609-626.*
5. Endale, M., Alao, J.P. Akala, H.M., Rono, N. K., Eyase, F.L., Derese, S., Ndakala, A., Mbugua, M., Walsh, D.S., Sunnerhagen, P., Erdelyi, M., **Yenesew, A.** Antiplasmodial Quinones from *Pentas longiflora* and *Pentas lanceolata*. *Planta medica* (In press).
6. Ivan Gumula, I., Mathias Heydenreich, M., Derese, S., Isaiah O. Ndiege, I.O., **Yenesew, A.** Four Isoflavanones from the stem bark of *Platyclaphium voënsse*. *Phytochemistry Letters* (In press).
7. **Yenesew, A.**, Akala, H.M., Twinomuhwezi, H., Chepkirui' C., Irungu, B.N., Eyase, F.L. Kamatenesi-Mugisha, M., Kiremire, B.T., Johnson, J.D., Norman C. Waters, N.C. The Antiplasmodial and Radical Scavenging Activities of Flavonoids of *Erythrina burttii*. *Acta Tropica* (under review).

10.0 WORKSHOPS AND CONFERENCES ATTENDED

1. Prof Wandiga S., OPCW conference, 11TH SEPT 2011, HAGUE, NETHERLANDS
2. Prof L. Njenga, ISP workshop, 21-27TH SEPT 2011, UPPSALA, SWEDEN
3. Prof J. Midiwo, ISP workshop, 21-27TH SEPT 2011, UPPSALA, SWEDEN
4. Mr Assefa Y., NAPRECA conference, 8-12TH AUG 2011, ICIPE, NAIROBI, KENYA
5. Mr Awas Erick, NAPRECA conference, 8-12TH AUG 2011, ICIPE, NAIROBI, KENYA
6. Mr Buyinza D., NAPRECA conference, 8-12TH AUG 2011, ICIPE, NAIROBI, KENYA
7. Mr Chepkurui C., NAPRECA conference, 8-12TH Aug 2011, Icipe, Nairobi, Kenya
8. Mr Dersse S., NAPRECA conference, 8-12TH Aug 2011, Icipe, Nairobi, Kenya
9. Mr Endale M., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
10. Mr. Gumula I., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
11. Ms. Irungu B., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
12. Ms. Karambu M., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
13. Mr. Korir E., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
14. Machumi F., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
15. Mr Mulwa L., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
16. Ms. Mutisia L., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
17. Ms Ndunda B., Napreca Conference, 8-12th Aug 2011, Icipe, Nairobi, Kenya
18. Prof S. Wandiga, Unep-Gef, 27th July 2011, United Kenya Club, Nbi

19. Dr. A. Yusuf, Unep-Gef, 27th July 2011, United Kenya Club, Nbi
20. Prof. L. Njenga, Unep-Gef, 27th July 2011, United Kenya Club, Nbi
21. Ms Nusrat B., Unep-Gef, 27th July 2011, United Kenya Club, Nbi
22. Ms. Ndunda E., Unep-Gef, 27th July 2011, United Kenya Club, Nbi
23. Mr Mwenda J., Unep-Gef, 27th July 2011, United Kenya Club, Nbi
24. Mr Mirikau C., Unep-Gef, 27th July 2011, United Kenya Club, Nbi
25. Ms Muinde V., Unep-Gef, 27th July 2011, United Kenya Club, Nbi
26. Mrs. Ruth Odhiambo, Unep-Gef, 27th July 2011, United Kenya Club, Nbi
27. Ms Dorice Situma, Unep-Gef, 27th July 2011, United Kenya Club, Nbi
28. Dr. D. Abongo, Unep-Gef, 27th July 2011, United Kenya Club, Nbi
29. Dr F. Oduor, UNEP-GEF, 27TH July 2011, United Kenya Club, Nbi
30. Ms Nusrat B., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
31. Ms Muinde V., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
33. Ms Dorice Situma, Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
34. Dr A. Yusuf, Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
35. Mr Tom Okumu, Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
36. Ms Florence Gitari, Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
37. Prof G. Kamau, Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
38. Mr Mwenda J., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
39. Mr Wanyama G., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
40. Mr Oyagi M., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
41. Ms Ndunda E., Kenya Chemical Society, 27th Aug 2011, SPS Chiromo, NBI
41. Prof L. Njenga, OPCW Conference, 8-9TH DEC 2011 Helsinki, Finland
42. Prof L. Njenga, ANSTI/UNESCO Workshop, 23-25TH NOV 2011, JO'BURG, SOUTH AFRICA
43. Mr V. Madadi, ANCAP Conference, 10-14TH Oct2011, Zanzibar
44. Dr D. Abongo, ANCAP Conference, 10-14TH Oct2011, Zanzibar
45. Prof S. Wandiga, ANCAP Conference, 10-14TH Oct2011, Zanzibar
46. Ms V. Muinde, VICRES Conference, 9-13TH Oct 2011, Munyonyo, Uganda
47. MS V. MUINDE, VICRES Workshop, 19-23RD NOV 2011, Kisumu, Kenya
48. Prof G. Kamau, NEP Workshop , 19-23RD September 2011, Mombasa, Kenya
49. Mr C. Mirikau, Instituto National Conference, 9-17 Oct 2011, Mexico City, Mexico
51. Mr C. Mirikau, UNEP Conference, 27/11/11-1/12/11 2011, Geneva, Switzerland
52. Prof S. Wandiga, UN conference, 16-22ND OCT 2011, Addis Ababa, Ethiopia
53. Dr L. Kerubo, IFS conference, 3-7TH OCT 2011, KANDYI, SRI LANKA
54. Prof S. Wandiga, PACN conference, 20-24TH NOV 2011, ACCRA, KENYA
55. Prof S. Wandiga, OPCW workshop, 11-13TH SEPTEMBER 2011, HAGUE, NETHERLANDS
56. Dr Amir Yusuf, OPCW conference, 27-28TH OCT 2011, TARNOW, POLAND
57. Dr J. Onyari, KEMFRI workshop, 21-23RD NOV 2011, MOMBASA, KENYA

11.0 RESEARCH THESIS TITLES

11.1 Ph.D. Thesis Titles

NAME	TITLE
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Mr. Francis Machumi	Phytochemical investigations of six Kenyan plants from families verbenaceae, asteraceae and fabaceae for their anti-malarial and anti-oxidant activities
Wabomba J. N	Kinetics of copper adsorption on a micaceous mineral of kenyan origin
Naziriwo Betty Bbosa	Interaction of trace metals with natural particles and their influence on phytoplankton production in waters of lake victoria

11.2 M.Sc Thesis Titles

Mr. Leonard Baraza	Phytochemical investigation of millettia oblata for antiplasmodial and larvicidal principles
Musyoki, Michael	Phytochemical Investigation of <i>Lannea Schimperi</i> for Bioactive Principles
Mr. Tom Oduor Okumu	Investigation of nutritional components of <i>tylosema fassoglense</i>
Ms. Begum Nusrat Mutta	Determination of volatile organic compounds (vocs) emitted in petrol stations
Gitari, Florence K.	Assessment of Polychlorinated Biphenyls (PCBs) in Sediments and Water from Ngong and Mathare Rivers
Mr. Nicholus Mwenda	Assessment of pesticide residues in cow milk, water and blood from Nairobi region
Ndiritu, Cecilia W.	Mobility of Heavy Metals, Microorganisms and Hydrodynamics of a Section of Nairobi River

12. OUTREACH AND COMMUNITY SERVICE ACTIVITIES

1. Prof. J.O. Midiwo: NAPRECA Executive secretary; External examiner, Maseno University

2. Prof. Abiy Yenesew: External examiner Kenyatta University, Maseno University, University of Botswana, University of Dar-es-Salaam; Journal of Bulletin of Chemical Society of Ethiopia Referee
3. Dr. D.K. Kariuki: KEBS Water Quality committee; NEMA Hazardous and Toxic Materials committee member; WRMA Threshold Pollution in Waste Water Committee.
4. Dr. B.M. Wamalwa: Board member of Japan Government scholarships
5. Prof. Wandiga S.O.: Chairman Bondo University Council; Pan African Chemistry Network Chairman, Regional Chapter; UNEP/GEF-UoN Project coordinator, UNEP POPs project coordinator
6. Dr. A.O. Yusuf: External examiner JKUAT, Kenyatta University; IDB Scholarship Selection Committee Board Member.

13. NEWLY ESTABLISHED LINKAGES

The Department has the following new links:

1.UNEP-Persistent Organic Pollutants (POPS) Project

Cooperation with Department in supporting the implementation of the global monitoring plan of Persistent Organic Pollutants (POPs) in Eastern and Southern African countries. The project is funded to the tune of \$179,000. It covers:

- strengthening capacity of Egypt, Ethiopia, Kenya, Mauritius, Uganda and Zambia in monitoring POPs concentrations in air and mothers' milk
- facilitate reporting and drafting regional reports
- developing detailed guidelines, protocols and manuals in sampling and analysis
- facilitation of laboratory visits and training by UNEP staff
- generation of POPs results from laboratories during training

2.Bill & Melinda Gates Foundation

The purpose of this grant is to support Dr. Benson Wamalwa undertake research in use of zeolite hydrogel nano-mop for contraception. The funding amounts to \$100,000.

3.UNICEF/UNDP/WB/WHO

This project is funded to the tune of \$15,000

4. International Foundation Of Science (IFS)

IFS has provided a research grant amounting to \$12,000 to help Ms. Joyce Kithure in advancing her research career in finding out the distribution of organochlorines in River Tana. The grant is intended for:

- purchase of equipment, consumables, literature, travels etc
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5.NCST

IFS has provided a research grant amounting to KShs 1,835,000 to help Ms. Farida Hussein in advancing her research career in finding out the assessment of occupational exposure in industrial. The grant is intended for:

- purchase of equipment, consumables, literature, travels etc

6.NCST

IFS has provided a research grant amounting to KShs 1,200,000 to help Ms. Ruth Odhiambo in advancing her research career in synthesizing sensor for heavy metal removal from water. The grant is intended for:

- purchase of equipment, consumables, literature, travels etc
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7.Volkswagen Stiftung

IFS have provided a research grant amounting to Euro 1,100,000 to help Dr. B. Wamalwa in advancing his research career in polyextremophiles. The grant is intended for:

- purchase of equipment, consumables, literature, travels etc

8.NCST

IFS has provided a research grant amounting to KShs 1,302,260 to help Dr. D. Mbui in advancing her research career in biosensors synthesis using polyaniline. The grant is intended for:

- purchase of equipment, consumables, literature, travels etc

14. RESEARCH EQUIPMENT PURCHASED

The Department received a donation from Seeding labs comprising of the following:

1. Drying ovens, microwave oven, water baths, hot plate stirrers, heating mantles, shakers, pH meters, centrifuges, ammeters, voltmeters, vacuum pumps, fax machine, printer, beakers, filter flasks, conical flasks, volumetric flasks, round bottomed flasks, separating funnels, beakers, Bunsen burners, syringes, vials, desiccators, clamps, pipettes.

15. STAFF IN DEPARTMENT OF CHEMISTRY

NAME	DESIGNATION
1. Prof. Shem O. Wandiga	Professor
2. Prof Raphael Munavu	Professor
3. Prof Isaac O. Jumba	Professor
4. Prof Geoffrey N. Kamau	Professor
5. Prof. Jacob O. Midiwo	Professor
6. Prof. Peter M. Gitu	Professor
7. Prof. Duke O. Orata	Associate Professor
8. Prof David N. Kariuki	Associate Professor
9. Prof Abiy Yenesew	Associate Professor
10. Prof Bhalendu M. Bhatt	Associate Professor

11. Prof Lydia W. Njenga	Associate Professor
12. Prof Paul M. Shiundu	Associate Professor
13. Dr. Jacob P. Kithinji	Snr. Lecturer
14. Dr. Helen N. Njenga	Snr Lecturer
15. Dr. John M. Onyari	Snr Lecturer
16. Dr. Amir O. Yusuf	Snr Lecturer-(Chairman)
17. Dr. Evans Kituyi	Snr Lecturer
18. Dr. Wenwa A. odinga	Snr Lecturer
19. Dr. David K. Kariuki	Snr Lecturer
20. Dr. Joseph M. Mwaniki	Snr Lecturer
21. Dr. Solomon Derese	Snr Lecturer
22. Mr. Charles W. Mirikau	Lecturer
23. Dr.Fredrick O. Oduor	Lecturer
24. Dr. Patricia Gitari	Lecturer
25. Dr.Martin N. Mbugua	Lecturer
26. Mr. Jumaa M. Makopa	Lecturer
27. Mr. Godfrey A. Wafula	Lecturer
28. Dr. Benson M. Wamalwa	Lecturer
29. Immaculate N. Michira	Lecturer
30. Dr. Peterson M. Guto	Lecturer
31. Dr. John M. Wanjohi	Lecturer
32. Dr. Leonida O. Kerubo	Lecturer
33. Dr. Damaris W. Mbui	Lecturer
34. Dr Deborah Abongo	Lecturer
35. Dr. Jairo A. Ndakala	Lecturer
36. Ms. Immaculate Achieng' Odera	Tutorial Fellow
37. Mr. Erick K. korir	Tutorial Fellow
38. Mr. Njagi Njomo	Tutorial Fellow
39. Ms. Beth Ndunda	Tutorial Fellow
40. Mr. John N. Wabomba	Tutorial Fellow

41. Mr. Vincent O. Madadi	Tutorial Fellow
42. Mrs. Marina Mukabi	Assistant Lecturer
43. Mr Fredrick Mwanzighe	Graduate Assistant
44. Mr Wilson Tonkei	Graduate Assistant
45. Ms Rachael Njogu	Graduate Assistant
46. Mr. Joseph M. Ng'ang'a	Principal Technologist
47. Ms. Annanciata M. Muia	Chief Technologist
48. Mr. Gregory K. Katiku	Snr. Technologist
49. Mr. Peter K. Njoroge	Snr. Technologist
50. Mr. Frank Waiharo	Snr. Technologist
51. Ms. Rose Mutungi	Snr. Technologist
52. Ms. Felistas Wainaina	Snr. Technologist
53. Mr. Evans Kimega	Snr. Technologist
54. Ms. Veronica Muinde	Snr. Technologist
55. Mr. Ephantus Mwangi	Snr. Technologist
56. Ms Alice Ndekei	Snr. Technologist
57. MrJohn Njenga	Snr. Technologist
58. Mr. Stephen Katembu	Snr. Technologist
59. Ms Mary Nyuthe	Snr. Technologist
60. Mr. B.K. Rop	Technologist
61. Mr. Geoffrey K. Kaptich	Technologist
62. Ms. Emma N. Kamau	Technologist
63. Emmanuel K. Terer	Technologist
64. Mr. Douglas Okumu	Technologist
65. Mr. Esseyangwa F. Odanga	Technologist
66. Mr. Wilfred Orangi	Technologist
67. Ms. Marion Checha	Technologist
68. Mr. Patrick Lekimain	Trainee Technologist
69. Mr. S. Shilamala	Documentalist
70. Ms. Nginyo Catherine	Laboratory Attendant

71. Mr. Margaret Gitonga	Secretary
72. Mrs. Elizabeth Juma	Secretary
73. Mrs. Ruth A. Odhiambo	Snr. Admin. Ass.
74. Ms Doreen Alusa	Snr Admin. Ass.