

## **CURRICULUM VITAE**

### **NAME:**

Oyaro Nathan  
Maasai University  
P. O. Box 861-020500  
Narok  
Tel: 0729003363: Email: oyarokema@yahoo.com  
oyaro.nathan@mmarau.ac.ke

### **PLACE OF BIRTH:**

Nyamira County, Kenya

### **NATIONALITY:**

Kenyan

### **RECOGNITIONS**

- 2011, **Albert Einstein Award of Excellence** for 2011, ABI, American Biographical institute, Inc publisher of Biographical reference works since 1967, CALIFORNIA, USA
- 2008, **2000 Outstanding intellectuals of the 21st century**, International Biographical Centre, CAMBRIDGE, ENGLAND
- 2007, **Inclusion in Marquis who's who in science and engineering** in the world, USA

### **Leadership Positions held at the University**

2021-	Dean, School of Pure Applied and Health Sciences
2019-2020	Director, Research
2009 – 2017	Dean School of Science at Maasai Mara University
2011 - 2012	Academic Board Representatives to Narok University College Council,
2010 - 2012	Co-Chairman to Ethics & Anti-corruption at Narok University College,
2009-2014	Dean School of Science at Narok University College,
2011	Acting Chairman, Physical Sciences
2007 - 2012	Departmental procurement officers
2005 - 2009	Examination officer Chemistry departments (JKUAT)

### **Career Progression:**

2015	Professor of atmospheric Chemistry at Maasai Mara University
2011-2015	Associate professor in chemistry at Narok University College,
2009 - 2011	Senior lecturer at Narok University College,
2004 - 2009	Lecturer at Jomo Kenyatta University of Agriculture & Technology
2001 - 2004	Tutorial fellow at Jomo Kenyatta University
1996 - 2001	Teaching Assistant in Jomo Kenyatta University

### **Education:**

2004	Graduated with a DSc. in Physical Chemistry (Atmospheric Chemistry) from <b>University of Oslo, Norway</b> ,
2001	Graduated with Masters of Science from <b>Kenyatta University</b> ,
1993	Graduated with a Bachelor of Science from <b>Kenyatta University</b>

<b>1988</b>	3 Principals and one subsidiary, KACE- in MPC form <b>Cardinal Otung'a High School</b>
<b>1986</b>	19 points, Division II from <b>Mang'u High School</b>
<b>1982</b>	34 point, CPE from <b>Nyabworoba Primary School</b>

#### **Study scholarships:**

2001-2004	Quota program, from the government of Norway for PhD course awarded funds from CEC Environment and Climate program contract NO.VK2-99-00099
1997-2000	Award JKUAT award for MSc course

#### **Recent Research Grants:**

- Grant from UKAid for development of Chemistry and Pharmacy programmes in collaboration with Nottingham university, UK, 39 million (Kenya shillings)
- Chinese Academy of Science and Wuhan Botanical Garden grant of Ksh. 61 million.
- Kenya-South Africa co-operation(NRF), grants, Ksh.1.5 million.
- Grant from NCST for ST&I grant Ksh. 1.2 million for biodiesel production from algae
- Grant from NCST for ST&I grant (Ksh. 5 million) for Socio-economic impact of wheat rust, Kenya
- Grant from NCST for Atomic Absorption Spectrometer (AAS)
- HIV funds from Commission of High Education Kenya (Ksh.0.5 million)

#### **Committee Appointments;**

- Chairman of disposal committee in university
- Member of tender committee in university
- Team leader to spearhead the formation of an MOU between Maasai Mara University and Kenya Industrial Estates
- Member of University College Income Generating Committee
- Budget sub-Committee of Graduation and Awards Committee

#### **Training Undertaken**

- Senior Management Course NO. 260/2016, Kenya School of Government
- KBS Certificate, Quality Management Systems, Implementation of ISO 9001.2008 no. NQ1/2011/781
- ACAL, Certificate, Internal quality auditing based on ISO 19011;2002 standard
- ACAL, Certificate, implementation of a quality management System based on ISO 9001;2008

### Research track record:

1. Suter K. Evans, Omwoyo N. Wesley, Oyaro Nathan, Makwena J. Moloto, Chemically purified cellulose and its nanocrystals from sugarcane baggase: isolation and characterization, *Heliyon*, vol.,5, (10) 2019)
2. Brenda K., Omwoyo, W. Oyaro, N., Synthesis and characterization and antimicrobial activity of ZnS nanoparticles. *Indian Journal of Nanoscience* vol. 4(2), 2016
3. Nyaigoti W. O. Mutinda, F. S., Oyaro N., Florence, O., Removal of Chromium and Cadmium ions from water using grapheme oxide and sodium grapheme oxide nanocomposites. *International Journal of Science and Engineering Invention*, vol 2, pg, 54-58, 2016.
4. Oyaro, N., Mesoppirr L., Okongo, E., Kiptoo, J., and Magoma, G. Analysis of the levels of phosphates, nitrates and sulphates in wheat growing area of Ntulele in Narok County, Kenya., *Journal of Environmental and Earth Sciences* 2015: 116-119, ISSN 2225-0948
5. Ndubi, D., Oyaro, N., Githae, E., and Afullo, A. Determination of physico-chemical properties of source of water in Narok North sub-county, Kenya., *International Research Journal of Environmental Sciences* 2015, vol.4(1): 1-5. ISSN 2319-1414.
6. Kirumba, W. M., Shushu, D. D., Masundire, H., and Oyaro, N. Diversity of algae and potentially toxic cyanobacteria in a river receiving treated sewage effluent: A case of Notwane river (Gaborone, Botswana). *International Research Journal of Earth Sciences* 2014 79-86, ISSN 2319-1414
7. Oyaro, N., Mosima, A. Osano, and Bethpurity Makena. Determination of the levels of selected heavy metals in medical plants from Narok county, Kenya, and variations in their levels due to hot water infusion. *International Research Journal of Earth Sciences* 2014: 5-10, ISSN 2319-1414
8. Matei, M., Kiptoo, J.K., Oyaro, N., Anam O. Onditi, A.O. Biosorption of selected heavy metals by the biomass of green alga *Spirogyra* sp. *Facta Universitatis*, 2014, 12: 1-18, DOI:10.2298/FUPCT1401001M
9. Mesoppirr, L., Oyaro, N., Okongo, E., Kiptoo, J., and Magoma, G. Determination of concentration of nutrients limiting wheat production in Olollunga in Narok County, Kenya. *International research Journal of Earth Sciences* 2014, 22-26, ISSN 2321-2527
10. Rutikanga, A., Gitu, L.M., and Nathan Oyaro, N. Mineral composition, antioxidants and antimicrobial activities of freshwater algae (*Spirogyra* genus) from Jomo Kenyatta University of Agriculture and Technology. *World Rural Observations* 2014, 2: 86-90
11. Onyango, P. V., Oyaro, N., Osano, A. Assessment of the physicochemical properties of selected commercial soaps manufactured and sold in Kenya. *Open Journal of Applied Sciences*. 2014. 4: 432-440. DOI.104236/OJAPPS.2014.48040.
12. Osano, A. M., Okong'o, E. R., Oyaro, N., and Kiptoo, J. A study of heterogeneous dilute indigenous carbonate salt hydrolysis of non-woody lingo-cellulosic plant samples *International Journal of Scientific and Engineering Research* 2013, 4 (6): 333-338

13. Oyaró, N., Kemenyu, P., Okong'ó, E. R., and Chacha, J. S. The potential of *Zea Mays*, *Commelina bengelensis*, *Helianthus annuus* and *Amaranthus hybridus* for the pyto remediation of water. *Revista Ambiente & Aqua-Interdisciplinary Journal of Applied Science* 2012 7 (3): 1-8
14. Oyaró, N., Mailutha, J. T., and Makayoto, M. Determination of the levels of nitrogen and phosphorous in Dandora Domestic water treatment Plant in Nairobi: The current status. Sewe, H., Njenga, J. *Journal of Chemical Society* 2013, 7:28-39
15. Oyaró, N., Mailutha, J. T., and Makayoto, M. The efficiency of Dandora domestic and industrial waste treatment plant Nairobi. *Journal of Chemical Society* 2013, 7: 40-49.
16. Osano, A. M., Okong'ó, E. R., Oyaró, N., and Kiptoo, J. Composition and structural characterization of indigenous salts in Kenya: A case study of 'para', 'magadi' and 'lebek' crystalline salts. *International Journal of BioChemPhysics* 2013, 20: 39-46
17. Mbiri, A., Onditi, A. O., Oyaró, N., and Murago, E. Analysis of Kenya honey for determination of essential and heavy metals by atomic spectroscopy. *International Journal of Physical Science* 2010, 2(3): 87-91
18. Onditi, O. A., Mutembei, J. K., Chacha, J. S., and Oyaró, N. Determination of heavy metals and nutrients in water samples of rivers Naka and Irigu, Chuka Meru-South District-Kenya using atomic absorption spectroscopy and UV/Visible spectrophotometry. *International Journal of Pure and Applied Science* 2010, 3(4): 1-7
19. Oyaró, N., Kemenyu, P., Chacha, J. S. The potential of *Commelina bengelensis*, *Amaranthus hybridus*, *Zea mays* for phyto remediation of heavy metals from contaminated soils. *Sains Malaysiana* 2009, 38(1): 61-68
20. Morozov, I., Oyaró, N., Morozova, O., Vasiliev, E., and Nielsen, C. J. A study of the reactions of chloroethenes with Cl in air at atmospheric pressure. *Asian Chemistry Letters* 2007, 11: 145- 151 ISSN 0971-9822.
21. Oyaró, N., Ogendi, J., and Gitonga, E., The content of Pb, Cu, Zn and Cd in meat in Nairobi, Kenya. *Journal of Food, Agriculture and Technology* 2007, 5(3&4): 119-121
22. Oyaró, N., Murungi, J. I. and Chacha, J. S. Heavy metals in soils in Nairobi city, Kenya. *Journal of the Kenya Chemical Society* 2006 3(1): 49-55.
23. Oyaró, N., Sellevåg, S. R., and Nielsen, C. J., Atmospheric chemistry of hydrofluoroethers: Reaction of a series of hydrofluoroethers with OH radicals and Cl atoms, atmospheric lifetimes, and global warming potentials. *Journal of Physical Chemistry A* 2005, 109: 337-346
24. Oyaró, N., Sellevåg, S. R., and Nielsen, C. J., A study of OH and Cl-initiated oxidation, IR absorption cross-section, radiative forcing and global warming potential of C<sub>4</sub>-hydrofluoroethers. *Environmental Science and Technology* 2004, 38(21): 5567-5576
25. Oyaró, N., and Nielsen, C. J. Kinetic study of the OH reaction with the hydrofluoroethers C<sub>4</sub>F<sub>9</sub>-O-CH<sub>3</sub> and C<sub>4</sub>F<sub>9</sub>-O-CH<sub>2</sub>CH<sub>3</sub> by the relative rate method, *Asian Chemistry Letters* 2003, 7: 119-122.

Papers presented

- 1 May 29, 2013 presented a paper at Eldoret polytechnic 'effects of heartwood extractive of *Terminalia spinosa* on wood degradation by fungi
- 2 August, 1999 presented a paper at Kenya Chemical Society International Conference at Jomo Kenyatta University entitled "Heavy metal content in soil as an indicator of pollution in the city of Nairobi"
- 3 November, 2009, presented A paper at SETAC Africa meeting, Uganda entitled "Determination of NO<sub>x</sub> and SO<sub>x</sub> levels in Nairobi City using passive and active samplers
- 4 September, 2010, presented a paper at 6<sup>th</sup> annual international conference, Moi University entitled "Genetically modified crops will not be the solution to alleviation of food shortages in Kenya"
- 5 May, 2011, presented a paper at National Council For Science and Technology at KICC entitled "Growth and analysis of algae species as a source of biodiesel"
- 6 May, 2011, presented A paper at SETAC Europe, Milan, Italy, entitled " FT-IR as a promising method for rapid determination of adulteration of gasoline with kerosene.
- 7 AUGUST, 2008 presented a paper at 5<sup>th</sup> SETAC Congress in Sydney, Australia entitled 'The potential of *C. bengelensis*, *A hybridus*, and *Z. mays* for phytoemediation of heavy metals from contaminated soils.
- 8 December, 2007 presented a paper at East and Southern Africa Environmental Chemistry conference (ESAECC) at Victoria Falls in Zimbabwe, entitled 'Phytoremediation of heavy metals from contaminated soils''
- 9 December, 2007 presented a paper at East and Southern Africa Environmental Chemistry conference (ESAECC) at Victoria Falls in Zimbabwe, entitled 'Determination of the quantity of the active ingredients in pain killers using GC-MS''
- 10 October, 2006 attended International Conference on Pesticide Use in Developing Countries: Environmental Fate, Effects and Public Health Implications in Arusha Tanzania and presented a paper on '*Study of the atmospheric Degradation of pesticides mimics*' Authors: Oyaró, N. (pp. 34.)
- 11 August, 2005 presented a paper at the 5<sup>th</sup> International conference of Kenya chemical society at Kenyatta University. Title ' the fate of pesticides in the environment at Kenya' Authors: Oyaró, N. and Gitu, L. (pp. 30).

12 June, 2006 presented a paper at the first annual conference Faculty of Science vol. 1, 2006, proceedings pp 10-21, 'Phytoremediation of wastewater' at Jomo Kenyatta University.

#### **Talks:**

- **June 2022**, Encapsulation of herbal medicine in cellulose in Maasai Mara University
- **August, 2020**, the fate of pesticides in the environment at Kenya Chemical society conference at Nairobi University.
- 
- **May, 2009**, GMO Savior or Killer? at Kenya Chemical society workshop at Nairobi University
- **August, 2008** Ozone formation, use and Depletion at Kenya Chemical society workshop at Kenyatta University
- **August, 2006**, A talk on 'what is this thing called science' at Jomo Kenyatta university of Agriculture and technology
- **August, 2005**, the fate of pesticides in the environment at Kenya Chemical society conference at Kenyatta University.
- **June, 2004**, the fate of pesticides in the environment at Oslo University, Norway
- **June, 2003** 'Alternatives to CFCs' at Copenhagen Denmark
- **June, 2003** 'The status of pollution in Kenya' at Oslo University, Norway

#### **Reviewer**

- Journal of atmospheric environment- Elsevier
- Journal of Kenya Chemical Society
- The chemical society of Ethiopia

#### **BOOKS PUBLISHED**

- Foundation Physical Chemistry for 'A' Level, Colleges and Universities Published by Jomo Kenyatta Foundation Educational Publishers, 2012, By *Okong'o, E. Rang'ondi and Oyaro, N. Mayora*; ISBN 9966-22-904-3
- Laboratory Studies on the Impact of Fluorinated Ethers on the Environment, *inipubavandinger, ISSN 1501-7710-533*

#### **Posters**

- Assessment of gasoline and diesel adulteration in Kenya, at 5<sup>th</sup> SETAC Congress in Sydney, Australia
- *Study of the atmospheric Degradation of pesticides mimics, Eurotrac-2 Symposium 2002, Germany.*

- *Environmental Impact of Chlorofluoroethenes from Industrial and Combustion Sources: Morozov, Igor; Nielsen, Claus Jørgen; Vasiliev, Evgenii; Oyaro, Nathan, The Fifth Informal Conference on Reaction Kinetics and Atmospheric Chemistry; 11.06.2004 - 13.06.2004*

#### **STUDIES UNDERWAY:**

- Phytoremediation potential of plants for heavy metals in Kenya
- Determination of heavy metal content in the liver and kidney of cattle
- Measurement of Nitrogen dioxide and sulphur dioxide in Nairobi City, Using passive and active samplers
- Determination of the quantity of acetaminophen, caffeine and aspirin in pain-killers
- Preparation of active charcoal from coconut shells
- Screening of the purity of petrol and Diesel sold in Kenya
- Screening the soils to see which soil has the bacteria which can degrade the pesticides easily
- Screening the quality of quinine and amodiaquine used to control malaria parasites in Kenya
- Assessment of gasoline and diesel adulteration in Kenya
- Bio-sorption of heavy metals by blue algae
- Biodiesel from algae
- Bioactive compounds isolated from algae

#### **RESEARCH INTEREST:**

My research interest is basically on analytical/environmental chemistry and is mainly on environmental pollution, Ozone depletion, global warming, phytoremediation, and innovation on methods to deal with pollution, quality control, Biodegradation of pesticides in the soil, degradation of compounds in air by OH radicals and research on renewable energy, biofuel from algae.

Trainings attended:

April, 2011, ISO-Training at NUC

March, 2008, Research into use at ICRAFT Compus, Gilgil, Nairobi

20 October, 2006 in Arusha, Tanzania, the title of the course was ‘pesticide use, occupational health risks, and environmental risk assessment procedures to protect surface waters with emphasis on extrapolation between temperate and tropical systems’

Membership to international scientific organizations:

- Associate Member of Royal of Chemistry (559960)
  - Member to ‘The Society of Environmental Toxicology and Chemistry (SETAC) *Europe*’
  - Member to ‘The Society of Environmental Toxicology and Chemistry (SETAC) *AFRICA*’
  - Member to Kenya Chemical Society
- 
- **Supervision projects**
    - Ph.D. students
  
    - Masters students
  
    - Undergraduate students
  
  - **Examination of Thesis**
    - Several Masters Students

## INNOVATIONS

- Detergents (cleaning)
- Disinfectants
- Lotion
- Paint
- Ant-Inflammatory

**ASSIGNMENTS:** Team Leader for ISO- Certification of Maasai      Mara University

## REFEREES:

- Prof Mabel Imbuga, Jomo Kenyatta University of Agriculture and Technology, Box 62000-00200, Nairobi, Kenya, Tel. 0733730531

- Prof Claus Nielsen Jorgen, , Department of Chemistry, University of Oslo, 1033 Blindern, N-0315 Oslo, Norway, tel. +47-22855680: email: [c.j.nielsen@kjemi.uio.no](mailto:c.j.nielsen@kjemi.uio.no)