

**CURRICULUM VITAE: PROF. SYLVIA AWINO OPIYO**

**EDUCATION BACKGROUND**

2012-2014: Postdoctorate in organic chemistry, Maseno University.  
2008-2011: PhD (Chemistry) Maseno University, Kenya.  
2003-2006: MSc (Chemistry) Maseno University, Kenya.  
1992-1996: BEd Sc. (Chemistry and Mathematics), 2<sup>nd</sup> Class Upper Division, Kenyatta University, Kenya.  
1987-1990: Kenya Certificate of Secondary Education B Plain, Nyamira Girls Sec. School.  
1979-1986: Kenya Certificate of Primary Education, Maliera Primary School.

**PROFESSIONAL TRAINING**

2021: Strategic Leadership and Development Programme (SLDP), Kenya School of Government, Embu Campus.  
2021: Effective and responsible leadership, Outward Bound School, Oloitokitok, Kajiado.  
2019: Training on Governance and Strategic Leadership held on 28th October to 1<sup>st</sup> November 2019 in the Panorama Park Resort, Naivasha.  
2019: Training on Governance and Strategic Management held on 10<sup>th</sup> to 16<sup>th</sup> March 2019 at Pride Inn Resort, Shanzu-Mombasa.

**EMPLOYMENT HISTORY**

2021-to date: Associate Professor, Department of Physical and Biological Sciences, Murang'a University  
2017-2020: Senior Lecturer, Department of Physical and Biological Sciences, Murang'a University  
2010-2017: Lecturer, Department of Chemistry, Maseno University  
2009: Trainer of Trainers, Kenya National Bureau of Statistics: Training of senior supervisors & supervisors).  
2008-2010: Tutorial Fellow, Department of Chemistry, Maseno University.  
2009: District coordinator, Kenya National Bureau of Statistics, coordination of census activities in Koibatek District.  
1997-2008: Graduate teacher, (Mathematics & Chemistry), Teachers Service Commission

**Administrative Duties/Responsibilities**

2017 to date: Dean, School of Pure and Applied Sciences, Murang'a University  
2021 to date: Member of University Management Board, Murang'a University  
2021 to date: Member, International Conference steering Committee, Murang'a University  
2021 to date: Member of Research, Innovation and Consultant Board, Murang'a University  
2021 to date: Chair person, Promotions and Appraisals Committee for Administrative Staff, Murang'a University  
2019 to date: Chair person, TVET Board, Murang'a University  
2019 to date: Chair person, Linkages, Outreach and Partnerships Board, Murang'a University  
2019 to date: Member, Strategic Plan Implementation Committee, Murang'a University  
2019 to date: Member, Space Allocation Committee, Murang'a University  
2019 to date: Member, Endowment Fund Committee, Murang'a University  
2019 to date: Member, National Cohesion, Values and Principles of Governance Committee, Murang'a University  
2019 to date: Member, Strategic Plan Implementation Committee, Murang'a University  
2019 to date: Member, ICT Advisory Committee, Murang'a University  
2019 to date: Member, Library Committee, Murang'a University  
2019 to date: Member, Appointment and Appraisal for the Teaching Staff Committee, Murang'a University  
2013-2017: Chairperson, School of Physical and Biological Sciences Board of Postgraduate studies, Maseno University.  
2013-2017: Chairperson, Department of chemistry Board of Postgraduate studies, Maseno University.  
2012-2017: Member, Maseno University Ethics Review Committee, Maseno University.  
2011-2017: Chairperson, Department of Chemistry Board of Postgraduate studies, Maseno University.  
2011-2013: Member, Board of Postgraduate studies, Maseno University.  
2010-2017: Academic Advisor, Postgraduate students, Department of Chemistry, Maseno University.  
2011-2017: Programme Co-ordinator - MSc. (Chemistry), Maseno University  
2016-2017: Chairperson Welfare committee, Chemistry dept, Maseno University

**SEMINARS AND WORKSHOPS ATTENDED**

2021: Sensitization of Trainers, Heads of Departments and Examination Officers on Assessment. TVET Curriculum Assessment and Certification Council (TVET CDACC) Virtual Training held on 15<sup>th</sup> January 2021.  
2020: Refresher Training for Murang'a University of Technology Lecturers on use of LMS (Moodle) for Online Teaching, Learning and Assessment. Virtual Training held on November 2020.  
2020: Job Description Analysis Training Workshop, Murang'a University. Virtual training held on 27<sup>th</sup> October 2020  
2020: Training of Teaching Staff on Use of Moodle for Online Exams Marking. Virtual Training Held on 22<sup>nd</sup> September 2020  
2020: Training in Competence Based Curriculum Delivery and Assessment Training for Murang'a University of Technology. TVET Curriculum Assessment and Certification Council (TVET CDACC). Virtual training held on 21<sup>st</sup>-24<sup>th</sup> July 2020  
2019: Supervision Training workshop, Dec 2019, Murang'a University.  
2019: Bulk Elemental Analysis Seminar, held on 5<sup>th</sup> November 2019. EKA Hotel, Nairobi.  
2019: Workshop on Gaps and Lapses in Laws and Policies for Chemical Management Organized by the Kenya Chemical Society on 6<sup>th</sup> March 2019 in Kisumu Hotel  
2018: Training on Principles on Academic Writing, held on 26<sup>th</sup> July 2018, Murang'a University  
2018: ODEL Training 9<sup>th</sup> November 2018, Murang'a University  
2018: Scientific Writing Training Workshop held on 13th June 2018, Karatina University  
2017: ISO 9001:2015 Internal Auditors Training Course, held on 20<sup>th</sup> – 22<sup>nd</sup> September 2017, Murang'a University  
2017: Pedagogy Training Workshop held on 9<sup>th</sup>-11<sup>th</sup> October 2017, Murang'a University  
2012: Bioethics Course held at Vic Hotel, Kisumu in April 2012.  
2010: Attended a Natural Product Research Network for Eastern and Central Africa (NAPRECA) seminar in Kisumu, Kenya.  
2009: Participated in DAAD PhD Proposal Writing Workshop in ICIPE, Nairobi-Kenya.  
2009: Introduction to Microbiology course held in Jomo Kenyatta University of Agriculture and Technology.

2005: Information Technology course on Microsoft Office User Specialists (MOUSE) held at Maseno University Information Technology Center (MITC).

2004: In-Service Training for Secondary Mathematics and Science Teachers (SMASSE) organized by JICA and Kenya Government.

2002: Seminar for Mathematics and Chemistry secondary school teachers organized by Nyando District Secondary School Heads Association at Onjiko Boys High School, Ahero-Kenya.

### **RESEARCH INTEREST**

Analytical chemistry; Organic chemistry of natural systems; Isolation and characterization of secondary metabolites with biological activity; Structure modification of bioactive compounds; Synthesis of natural products with biological activities and Biological activity studies/ bioassays

### **PAPERS PUBLISHED IN REFEREED JOURNALS**

1. **Opiyo, S.A.** 2023. *Warburgia Ugandensis*: A Review of Compounds and Bioactivity. *International Journal of Pharmacognosy and Chemistry*,4(2), 35-45. Retrieved from <https://www.saap.org.in/journals/index.php/ijpc/article/view/457>
2. **Opiyo, S.A.** 2023. A Review of Chemical Compounds and Bioactivity of Conyza Species. *IOSR Journal of Applied Chemistry (IOSR-JAC)*, 16, (6) 36-48.
3. **Opiyo, S.A., Njoroge P.W, Kuria K.M.,** 2023. Chemical Composition and Biological Activity Of Extracts From Conyza Species. *IOSR Journal of Applied Chemistry (IOSR-JAC)*, 16, (4) 61-7.
4. **Opiyo, S.A., Mugendi, B., Njoroge P.W., Wanjiru S.N.** 2023. A Review of Fatty Acid Components in Avocado. *IOSR Journal of Applied Chemistry (IOSR-JAC)*, 16(3),18-27.
5. **Opiyo, S.A.** 2022c. Chemical Composition of Essential Oils from *Ocimum Kilimandscharicum*: A Review. *IOSR Journal of Applied Chemistry (IOSR-JAC)*, 15 (11), 5-11.
6. Haron Bosuben, Peter W. Njoroge, Sylvia A. Opiyo, Isaac W. Mwangi 2022. Facile Removal of Phenol from Aqueous Solution Using Modulated Cornstarch Impregnated With Triethanolamine as Adsorbent: Sorption Isotherms and Kinetics. *IOSR Journal of Applied Chemistry (IOSR-JAC)* e-ISSN: 2278-5736. Volume 15, Issue 8 Ser. II (August 2022), PP 34-45.
7. **Opiyo, S.A.** 2022b. Stored Grains Protection Activity of *Ocimum Suave* Extracts and Compounds on Larger Grain Borer. *IOSR Journal of Biotechnology and Biochemistry*. 8(4), 5-10
8. **Opiyo, S.A.** 2022a. Triterpenes and sterols from *Ocimum suave*. *IOSR Journal of Applied Chemistry*, 15(7), 1-6.
9. **Opiyo, S.A., Njoroge P.W., Ndirangu E.G.** 2022. A Review Pesticidal Activity of Essential Oils against *Sitophilus oryzae*, *Sitophilus granaries* and *Sitophilus Zeamais*.” *IOSR Journal of Applied Chemistry (IOSR-JAC)*, 15(04), 39-51.
10. **Opiyo, S.A.,** 2021c. A Review of insecticidal plant extracts and compounds for stored maize protection. *IOSR Journal of Applied Chemistry*. 14, (10): 23-37.
11. **Opiyo, S.A.,** 2021b. Insecticidal Drimane Sesquiterpenes from *Warburgia ugandensis* against Maize Pests *American Journal of Chemistry*. 11(4): 59-65.
12. **Opiyo, S.A., Muna, K.K., Njoroge P.W., Ndirangu E.A.,** 2021. Analgesic Activity of Conyza Floribunda Extracts in Swiss Albino Mice. *Journal of Natural Sciences Research*, 12(12), 1-6.
13. **Opiyo, S.A., Njoroge P.W., Ndirangu E.A., Kuria K.M.,** 2021. A Review of Biological Activities and Phytochemistry of Rhus Species. *American Journal of Chemistry* 2021, 11(2): 28-36.
14. **Opiyo, S.A.,** 2021a. Repellent Effects of *Ocimum Suave* Extracts and Compounds against *Prostephanus Truncatus* Horn. *American Journal of Chemistry*, 11(2): 23-27.
15. Lomertwala H.M, Njoroge P.W., **Opiyo S.A., Ptonon. B.M** (2020). Assessing Effect of Acid Treatment on the Chemical Properties of Clays from selected sites in Murang'a and Nyeri Counties, Kenya. *Journal of Natural Sciences Research*, 11(22), 20-26.
16. **Opiyo, S.A.,** 2020c. Insecticidal Activity of *Ocimum suave* Willd Extracts and Compounds against *Sitophilus zeamais* Motschulsky. *Basic Sciences of Medicine*, 9(2):32-37 DOI: 10.5923/j.medicine.20200902.03.
17. **Opiyo, S.A.,** 2020b. Evaluation of *Warburgia ugandensis* extracts and compounds for crop protection against *Prostephanus truncates*. *Advances in Analytical Chemistry*, 10(2), 15-19.
18. **Opiyo, S.A.,** 2020a. Insecticidal activity of *Elaeodendron schweinfurthianum* extracts and compounds against *Sitophilus zeamais* Motschulsky. *American Journal of Chemistry*, 10(3), 39-44.
19. Kugeria, P.M., Njoroge, P.W., **Opiyo, S.O., Mwangi, I.W.,** 2020. Impure Hydrazone Preparation from Chicken Dung. *Chemistry and Materials Research*, 12(7), 8-14.
20. Kuria, K.M., **Opiyo S.A.,** 2020. Characterization of Immunogenic Soluble Crude Proteins from *Biomphalaria Pfeifferi* against *Schistosoma mansoni*. *Journal of Natural Sciences Research*, 10(12), 28-34.
21. Ephantus G. Ndirangu, Sylvia A. **Opiyo** and Margaret W. Ng'ang'a (2020). Chemical composition and repellency of *Nigella sativa* L. seed essential oil against *Anopheles gambiae* sensu stricto. *Trends Phytochem. Res.* 4(2), 77-84.
22. Ephantus G. Ndirangu, Sylvia A. **Opiyo**, Margaret W. Ng'ang'a (2020). Repellent Properties of Compounds and Blends from *Nigella sativa* Seeds against *Anopheles gambiae*. *Basic Sciences of Medicine* 9(1): 1-7.
23. Makenzi A.M., Manguro L.O.A, Owuor P.O., **Opiyo S.A.,** 2019. Flavonol glycosides with insecticidal activity from methanol extract of *Annona mucosa* Jacq.leaf. *Trends in Phytochemical Research Trends Phytochem. Res.* 3(4) 2019 287-296.
24. Njoroge P.W., **Opiyo S.A.,** (2019a). Some Antibacterial and Antifungal Compounds from Root Bark of *Rhus natalensis*. *American Journal of Chemistry* 2019, 9(5): 150-158 DOI: 10.5923/j.chemistry.20190905.03.
25. Njoroge P.W., **Opiyo S.A.,** (2019b). Antimicrobial Activity of Root Bark Extracts of *Rhus natalensis* and *Rhus ruspolii* *Basic Sciences of Medicine*, 8(2): 23-28 DOI: 10.5923/j.medicine.20190802.01.
26. Lomertwala H.M, Njoroge P.W., **Opiyo S.A., Ptonon. B.M** (2019). Characterization of Clays from selected sites for Refractory Application. *IJSRP*, 9 (11): 600-603. DOI: 10.29322/IJSRP.9.11.2019.p9581.
27. Makenzi A.M., Manguro L.A.O., Owuor P.O., **Opiyo S.A** (2019). Chemical constituents of *Ocimum Kilimandscharicum* Guerke acclimatized in Kakamega Forest, Kenya. *Bull. Chem. Soc. Ethiop.* 2019, 33(3), 527-539.
28. **Opiyo S.A.** (2019). A review of <sup>13</sup>C NMR spectra of drimane sesquiterpenes, *Trends in Phytochemical Research*. 3(3) 2019 147-180
29. Ochung A.A., Owuor P.O., Manguro L.O.A., Ismael I.O., Nyunja R.A., Ochieng C.O., **Opiyo S.A.** (2018). Analgesics from *Lonchocarpus eriocalyx* Harms. *Trends in Phytochemical Research*, 2 (4), 241-246.
30. **Opiyo S.A.** Manguro L.A.O., Owuor P.O. Ateka E.M. (2017). Triterpenes from *Elaeodendron schweinfurthianum* and Their Antimicrobial Activities against Crop Pathogens. *American Journal of Chemistry*, 7(3): 97-104. DOI: 10.5923/j.chemistry.20170703.03.
31. Ochieng C.O., **Opiyo S.A.,** Mureka E.W., Ishola I., (2017). Cyclooxygenase inhibitory compounds from *Gymnosporia heterophylla* aerial parts. *Fitoterapia* 119: 168-174.

32. Jeruto P., Arama P., Anyango B., Nyunja R., Taracha C., **Opiyo S.** (2017). Morphometric study of *Senna didymobotrya* (Fresen.) H. S. Irwin and Barneby in Kenya. *Journal of Natural Sciences Reserach* 7(6): 54-69. ISSN 2224-3186 (paper), ISSN 2225-0921 (online).
33. **Opiyo S.A.**, Manguro L.A.O., Akinyi D., Ochung A.A., Ochieng C.O. (2015). Biopesticidal Extractives and Compounds from *Warburgia Ugandensis* against Maize Weevil (*Sitophilus zeamais*). *Natural Products Journal* (ISSN: 22103155), 5(4):236 -243.
34. Ochung, A.A., Manguro, L.O.A., Owuor, P.O., Jondiko, J.I.O., Nyunja, R.A., Akala, H., Mwinzi, P., Opiyo, S.A., 2015. Bioactive Carbazole Alkaloids from *Alysicarpus Ovalifolius* (Schumach). *J. Korean. Soc. Appl. Biol. Chem.*, 58(6), 839-846. DOI 10.1007/s13765-015-0100-4
35. Ochieng C.O., Ishola I., **Opiyo S.A.**, Manguro L.O.A., Owuor P.O., Wong K.C.(2013). Phytoecdysteroids from the stem bark of *Vitex doniana* and their anti-inflammatory effects. *Plant Medica*. 2013; 79: 52-59. DOI: 10.1055/s-0032-1327880.
36. **Opiyo S.A.**, Manguro L.O.A., Okinda-Owuor P., Ochieng C.O. Ateka E.M., Lemmen P. (2011). Antimicrobial compounds from *Terminalia brownii* against sweet potato pathogens. *Natural Products Journal* 1: 116-120.
37. **Opiyo S.A.**, Manguro L.O.A., Okinda-Owuor P., Ateka E.M., Lemmen P. (2011). 7a-Acetylugandensolide and antimicrobial properties of *Warburgia ugandensis* extracts and isolates against sweet potato pathogens *Phytochemistry letters*, 4: 161-165.
38. **Opiyo S.A.**, Manguro L.O.A., Ogur J.A., Wagai S.O. (2010). Bioactive constituents of *Conyza floribunda*. *Journal of Pharmacology*, 4(3): 55-59.
39. Manguro L.O.A., **Opiyo S.A.**, Asefa A., Dagne E., Muchori W.P. (2010). Chemical constituents of essential oils from three Eucalyptus species acclimatized in Ethiopia and Kenya. *Essential Oils*, 13(5): 561-567.
40. **Opiyo S.A.**, Owuor P.O., Manguro L.O.A., Ateka E., Miano D.W. (2010). Development of a PCR technique for simultaneous detection of sweet potato chlorotic stunt virus and sweet potato feathery mottle. *Journal of Plant Pathology*, 92(2): 353-356.
41. **Opiyo S.A.**, Owuor P.O., Manguro L.O.A., Ateka E.M., Karuri H.W. (2010). Survey of sweet potato viruses and detection of cucumber mosaic virus in western Kenya. *Journal of Plant Pathology*, 92(3) 795-799.
42. **Opiyo S.A.**, Ogur J.A., Manguro L.A.O., Tietze L.F., Heiko S. (2009). A new sterol diglycoside from *Conyza floribunda*. *South African Journal of Chemistry* 62: 163-167.
43. **Opiyo S.A.**, Manguro L.O.A., Lemmen P., Herdweck E. (2009). Phytochemical analysis of *Commiphora holtziana* oleo-gum. The 13<sup>th</sup> Natural Product Research Network for Eastern and Central Africa (NAPRECA) Symposium Abstracts Book, page 73.
44. Manguro L.A.O., **Opiyo S.A.**, Herdweck E., Lemmen P. (2009). Triterpenes of *Commiphora holtziana* Oleo-gum resin. *Canadian Journal of Chemistry* 87(8): 1173-1179.
45. **Opiyo S.A.**, Ateka E.M., Owuor P.O., Manguro L.O.A. (2009). Development and evaluation of a multiplex PCR technique for simultaneous detection of SPFMV and SPCSV which infect sweet potato. International Livestock Research Institute (ILRI) Graduate Fellow Forum, Entebe, Uganda 19<sup>th</sup> August, 2009.
46. **Opiyo S.A.**, Ogur J.A., Manguro L.A.O., Wagai S.O. (2007). Antimicrobial terpenoids of *Conyza floribunda*. The 12<sup>th</sup> Natural Product Research Network for Eastern and Central Africa (NAPRECA) Symposium Abstracts Book, page 57.

#### PATENT

**REG.NO. KE/UM/2020/1445:** Intelligent Outdoor Solar Powered Non - Contact Hand Sanitizer Dispenser. The field of invention is a programmable outdoor solar-powered non-contact dispenser for hand sanitizer fluids. (Kenya Industrial Property Institute).

#### PAPERS PRESENTED IN CONFERENCES

1. Lomertwala, H.M., Njoroge, P.W., **Opiyo, S.A.**, Ptoon, B.M. Effect of acid treatment on chemical properties of clays from selected sites in Murang'a and Nyeri counties, Kenya. Murang'a University of Technology International Conference on Technology and Sustainable Development. Virtual conference, 3<sup>rd</sup>-5<sup>th</sup> November 2021.
2. Makenzi, A.M., Manguro, L.A.O., Owuor, P.O., **Opiyo, S.A.**, Insecticidal constituents of *Ocimum kilimandscharicum* Guerke acclimatized in Kakamega Forest, Kenya. Murang'a University of Technology International Conference on Technology and Sustainable Development. Virtual conference, 3<sup>rd</sup>-5<sup>th</sup> November 2021.
3. **Opiyo, S.A.** Drimane sesquiterpenes from *Warburgia ugandensis* with insecticidal properties on Zea mays pests. Murang'a University of Technology International Conference on Technology and Sustainable Development Virtual conference, 3<sup>rd</sup>-5<sup>th</sup> November 2021.
4. CO Ochieng, IO Ishola, SA Opiyo, LAO Manguro, PO Owuor, Wong Keng-Chong (2014). Phytoecdysteroids from the stem bark of *Vitex doniana* with anti-inflammatory activities. Humboldt Colloquium. Held at Safari Park Hotel, Kenya 6-8 March 2014.
5. **Opiyo S.A.**, Manguro L.O.A., Okinda-Owuor P. (2012). Bio-activity of extracts and isolates from *Warburgia ugandensis*. The 7th International Conference of the Kenya Chemical Society, held in Maseno University, Kenya October 15<sup>th</sup> - 18<sup>th</sup>.
6. **Opiyo S.A.**, Manguro L.O.A., Okinda-Owuor P., Ateka E.M., Lemmen P. Further Phytochemical and Antimicrobial Activity Studies of *Warburgia Ugandensis* against Sweet Potato Pathogens. 14<sup>th</sup> Natural Product Research Network for Eastern and Central Africa (NAPRECA) Symposium in ICIPE, Nairobi, Kenya, in August 8<sup>th</sup> -11<sup>th</sup>, 2011.
7. **Opiyo S.A.**, Manguro L.O.A., Okinda-Owuor P., Ateka E.M. Development and evaluation of a multiplex PCR technique for simultaneous detection of SPFMV and SPCSV which infect sweet potato. International Livestock Research Institute (ILRI) Graduate Fellow Forum, Entebe, Uganda, August 19<sup>th</sup> -21<sup>st</sup>, 2009.
8. **Opiyo S.A.**, Manguro L.O.A., Lemmen P. Phytochemical analysis of *Commiphora holtziana* oleo-gum. 13<sup>th</sup> Natural Product Research Network for Eastern and Central Africa (NAPRECA) Symposium in Kinshasa, DR Congo in August 10<sup>th</sup> -14<sup>th</sup>, 2009.
9. **Opiyo S.A.**, Manguro L.O.A., Ogur J.A., Wagai S.O. Antimicrobial terpenoids of *Conyza floribunda*. 12<sup>th</sup> Natural Product Research Network for Eastern and Central Africa (NAPRECA) Symposium held in Hotel Africana, Kampala, Uganda, August 22<sup>nd</sup> - 26<sup>th</sup>, 2007.

#### PUBLISHED BOOKS

**Opiyo S. A.** Sweet potato Virus Detection Protocol and Microbial Infection Control (2012). Lap Lambert Academic Publishers, Germany. ISBN: 978-3-8484-9910-6.

#### THESES

**Opiyo S.A** (2011). Development of a multiplex pcr technique for simultaneous detection of sweet potato viruses and evaluation of traditional medicinal plant extracts for antimicrobial activity against the crop pathogens. PhD thesis, Maseno University.

**Opiyo S.A** (2006). Phytochemical, antibacterial and antifungal studies of *conyza floribunda*. MSC thesis, Maseno University.

#### MEMBERSHIP OF PROFESSIONAL BODIES

1. Natural Products Chemistry for East and Central Africa (NAPRECA)
2. Kenya Chemical Society (KCS)

