

PROFESSOR LAWRENCE ONYANGO AROT MANGURO



Curriculum Vitae

1 Personal data

Name: Lawrence Onyango Arot Manguro
Postal address: P. O. Box 346-40105 Maseno, Kenya.
Date of birth: 23rd - 12 - 1958
Place of birth: Homa Bay County, Kenya.
Nationality: Kenyan.
Marital status: Married with five children.
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2 Education background

Period	Name of institution	Subject studied	Certificate/Degree
1989-1994	University of Nairobi, Kenya and Universitaet Hohenheimn, Germany.	Chemistry (Natural Products Chemistry)	Ph.D
1984-1989	University of Nairobi	Chemistry	MSc
1980-1984	University of Nairobi	Chemistry(3.1.1)	BSc
1978-1979	St Paul's Amukura High School	Math/Physics/Chem	EAACE
1974-1977	Gendia High school	-	EACE
1966-1973	Lala Primary school	-	CPE

3 Postdoctoral /Senior fellowship Awards

Period (from-to)	Name of Institution	Sponsor
May 2017-Aug. 2017	Helmholtz Centrum, Muenchen, Germany	Humboldt Foundation
May 2013-Feb 2014	University of California, Berkeley, USA	Fulbright
May 2012-Aug 2012	CDRI, India	CV Raman
July 2011-Sept. 2011	USM, Malaysia	TWAS-USM
May 2009-Aug. 2009	University of Saarland, Germany	Humboldt Foundation
May 2007-Aug. 2007	Chinese Institute of Chemistry	TWAS-CAS
July 2005-Sept. 2005	Georg-August-University Goettingen, Germany	DAAD
Feb 2003-Aug 2003	University of Hohenheim, Germany	Germany Government fund
Aug 2003-Oct 2003	Technical University of Munich, Germany	Alexander von Humboldt Foundation
Aug.1997-Mar.1999	Technical University of Munich, Germany	Alexander von Humboldt Foundation
July1995-Oct.1995	Tokyo University, Japan	JICA

4 Community Services offered

Period	Institution/School	Responsibility
2010-2014	Lala Primary	Chairman, Board of Management
2017-to date	Kochungo Primary	Chairman, Board of Management
2009-2021	Lala secondary	Board Member
2013-to date	Maguti secondary	Vice chairman, Board of Management
2018-to date	Magare Girls	Board Member
2013-2017	Rongo University College	External examiner, Chemistry
2014-2018	Masai Mara University	External Examiner, Chemistry
2015-2020	Bondo University	External Examiner, Chemistry
2016-2019	TUK University	External examiner, Chemistry
2017-to date	Kibabi University	External examiner, Chemistry

2020-to date	Moi university	External examiner, Chemistry
2020-to date	Masinde Muliro University	External examiner, Chemistry
2020-to date	Turkana University College	External examiner, Chemistry

5 *Employment record*

Period	Employer	Position	Responsibility
October 2013-to date	Maseno University	Full Professor	
May 2008-Oct. 2013	Maseno University	Associate Professor	Chairman, Chemistry department
May 2012-Oct. 2012	Maseno University	Associate Professor	Acting Dean, Faculty of Science
May 2005-May 2007	Maesno University	Senior Lecturer	Coordinator Foundry and high temperature furnaces
Oct 2003-May 2005	Maseno University	Senior Lecturer	Departmental time table and examination coordinator
Feb 2003-Oct.. 2003	University of Hohenheim	Postdoctorial	Research fellow
Sept 2000- Dec. 2002	Maseno University	Temp. Senior Lecturer	Teaching and supervision of undergraduate and postgraduate students
Jan 2000-Aug. 2000	Moi University	Temp. Lecturer	Teaching postgraduates
June 1996-Oct.1999	University of Nairobi	Lecturer	Teaching and Supervision of undergraduate and postgraduate students
June1992-June 1996	Kenya Forestry Research Institute	Senior Research Officer	Head, Non Wood Forest Products program
OCT.1988-June1992	Kenya Forestry Research Institute	Research Officer I.	Deputy Head, Forest products division.
Sept.1986-Sept.1988	Muhoroni Sugar Company Ltd	Production chemist	Shift superintendent in charge of processing.

6 *Parttime lecturing experience*

Period	Name of institution	Positon	Subject taught
1994-1997	Moi University	Part time lecturer	Wood Chemistry

1999-2000	Moi University	Part time lecturer	Chemistry
2000	Daystar University	Part time Lecturer	Chemistry

7 *Student thesis supervision*

Completed Projects

Name of student	Project title	University	Degree and year of Completion
Odak Jenipher	Variability of overhead volatile organic compounds in clonal tea (<i>Camellia sinensis</i>) and their influence on red crevice mite (<i>Brevipalpus phoenicis geijskes</i>) infestations	Maseno	PhD, 2012-2016
Ochung A. Otieno	Phytochemical investigations of three Plants in the family Fabaceae for antiplasmodial and antimicrobial agents	Maseno	PhD, 2010-2016
Zablon O. Odumba	Heavy metal levels in soil and major Sugar cane varieties CO945, CO421 and CO617 grown in same agricultural plots of Muhoroni, Kenya	Maseno	MSc, 2011-2016
Peris Ocholla	Potassium and nitrogen use efficiency in increased sucrose yield of new Sugarcane variety	Maseno	MSc, 2007-2014
Samita F. Nekesa	Chemical evaluation of indigenous <i>Tinospora oblongifolia</i> and <i>Triclisia Sacleuxii</i> species and the antibacterial and Cytotoxicity effects	Maseno	PhD, 2010-2014
Okeyo E. Ochieng	Phytochemical, antibacterial and antifungal activities of <i>Maesa Lanceolata</i> stem bark	Maseno	MSc, 2006-2014
Chepkoech Nancy	In vitro management of <i>Phomopsis</i> On tea (<i>Camellia sinensis</i>) using some plants Extracts and selected fungicides.	Maseno	MSc, 2006-2014

Ligawa Stephen	Levels of certain physiological parameters and heavy metal residues within the aquatic ecosystem in South Nyanza Sugar zone	Maseno	MSc, 2007-2012
Ochieng C. Otieno	Chemical analysis of the antipyretic, antinoceptive and antioxidant principles of some four antimalarial plants from the families Rhamnaceae and Fabaceae.	Maseno	PhD, 2009-2012
Luvaha G. Mwochi	Phytochemical investigation of <i>Ajuga remota</i> (Labiata) for anti-plasmodial	Maseno	MSc, 2008-2012
Albert M. Mulianga	Antiplasmodial evaluation of compounds from <i>Warburgia stuhlmanni</i> species of Kenya	Maseno	MSc, 2008-2012
Otengo A. Otinga	Toxicity of synergized crude essential oil extract from <i>Tagetes minuta</i> on <i>Periplanata americana</i> under laboratory conditions	Maseno	MSc, 2008-2011
Opiyo Sylvia	Evaluation of some Kenyan medicinal plants in the management of microbes infecting sweet potato in Kenya	Maseno	Ph.D, 2007-2011
Odak Jenipher	Phytochemical evaluation of <i>Elaeodendron buchananii</i> for antimicrobial activities	Maseno	MSc, 2008-2011
Amos Akal	Influence of area of production, nitrogenous fertilizer rates and plucking intervals on the production of fatty acids in clonal tea (Camellia Sinensis leaves)	Maseno	MSc, 2007-2011
Wagura A. Gathoni	Anti-bacterial properties of <i>Ocimum basilicum</i> and <i>Brassica rapa</i> on <i>Pseudomonas solanaceanrum</i>	Maseno	MSc, 2006-2010

Atieno W. Otieno	Antimicrobial activity of <i>Moringa</i> spp	Maseno	Msc 2006-2010
Nyahanga Thomas	Isolation and characterization of microbial compounds in <i>Toddalia asiatica</i>	Maseno	MSc, 2006-2009
Mumbo John	Ahero irrigation scheme water quality survey: status and environment impact	Maseno	MSC, 2006-2009
Mzungu Daniel	Utilization of <i>Ipomea</i> sp to minimize heavy metals and nutrients pollution in lake Victoria environment	Maseno	MSc, 2006-2009
Opiyo A. Sylvia	Evaluation of <i>Conyza Floribunda</i> for antimicrobial agents.	Maseno	MSc, 2004-2006
Kiprop Richard	Effect of geographical variation on quantity and quality of essential oils of Burseraceae plants.	Moi	M.Phil 1999-2001
Achieng Dorothy	Use of plant extracts as viable alternatives to methyl bromide in soil fumigation.	Moi	M.phil. 2000-2002
<i>On going projects</i>			
Otieno W. Atieno	Antimicrobial activity of extracts of <i>Moringa oleifera</i> and <i>Moringa stenopetalla</i> on selected pathogenic bacteria	Maseno	PhD, 2013-
Alice A. Onyango	And fungi Possibilities for mitigation of climate Change in smallholder livestock systems In Eastern Africa	Maseno	PhD, 2012-
Thomas Nyahanga	Efficacy of isolates from roots and stem bark of <i>Garcinia buchananii</i> and <i>G. livingstonei</i> against <i>Plasmodium falciparum</i> in vitro	Maseno	PhD, 2012-
Albert M. Mulianga	Evaluation of insecticidal properties Of <i>Gnidia subcordata</i> , <i>Annona Mucosa</i> , <i>Tagetes Erecta</i> , <i>Chemopodium ambrosoides</i> and <i>Ocimum kilimandscharicum</i> against	Maseno	PhD, 2013-2019

	major Coleopteran pests of stored Food products		
Hellen Onyango	Evaluation of <i>Cassia didymobotryria</i> flowers For antimicrobial activity	Maseno	MSc, 2013-2019
Nyongesa D. Wasiali	Evaluation of indigenous <i>Hypericum</i> species used in traditional health remedies in Kenya for antimicrobial health products	Maseno	MSc, 2015-2019

8 *Research Grant Awards*

Financing agency	Project title	Amount in US \$	Year
NARCOSTI	Bioprospecting Medicinal plants acclimatized in Rusinga island for anti-diabetic biomolecules	Kes 12,000,000	2015
TWAS	Exploitation of Kenyan grown <i>Burseraceae</i> phyto-family for value added products: essential oils and other secondary metabolites of economic importance	29500	2015-2017
NCST	Assessment of Acacia species for nitrogen fixation and nitrogen availability in the Lake Victoria Basin, at Kendu Bay, Rachuonyo District of Western Kenya	KShs 6,500,000.	2007
TWSNO	Exploitation of Moringa species to provide valuable products	15,000.00	2007-2009
IFS	Nutritional value study of <i>Tamarindus indica</i> fruits.	12,000.00	1999-2001
TWAS	<i>Hypericum</i> species: sources of non wood forest products with anti-microbial properties	10,000.00	1999-2000
AAS	Exploitation of <i>Burseraceae</i> plants for essential oils.	10000.00	1996-1997
CEC	Development of <i>Moringa</i>	75,000.00	1994-1997

oleifera and *M. stenopetalla*

to produce valuable products

IDRC (Canada) Ethnobotany of plants for life 80,000.00 1992-1994

9 Professional Society Membership.

Member of the following organizations.

- German Academic Exchange Services
- Alexander von Humboldt Stiftung
- Aulumni of Fulbright
- Natural Products Chemistry for East and Central Africa
- Kenya Chemical Society
- Global Facilitation for Underutilized Plant species
- Kenya National Academy of Sciences

10 Papers in refereed journals

1. Jacob O. Midiwo, **Lawrence O. Arot Manguro** and Lumumba C. Mbakaya (1988). Distribution of benzoquinone pigments in Kenyan Myrsinaceae. *Bull. Chem. Soc. Ethiop.*, **2**, 83-85.
2. Jacob O. Midiwo, Joseph O. Odingo and **Lawrence O. Arot Manguro** (1990). Benzoquinone pigments in Kenyan Myrsinaceae: a new 2, 5-dihydroxyalkyl derivative from *Maesa lanceolata*. *Bull. Chem. Soc. Ethiop.*, **4**, 71-73.
3. Robert Ralph, Lawrence A. D. Williams and **Lawrence O. Arot Manguro** (1991). Acaricidal and insecticidal activities of three synthetic oxazolidinones. *Pesticide Science*, **33**, 393 - 398.
4. Jacob O. Midiwo, Yesnew Ghebremskel, **Lawrence O. Arot Manguro**, K. Koyama and S. Natori (1992). Benzoquinones in Kenyan Myrsinaceae part III. A new 2, 3 -dihydroxyalkyl-1, 4-benzoquinone (myrsinone) and 5-*O*- methylembelin from *Myrsine africana*. *Bull. Chem. Soc. Ethiop.*, **6**, 15-19
5. Jacob O. Midiwo and **Lawrence O. Arot Manguro** (1993). Polynuclear acetogenic pigments in the fruits of the Myrsinaceae. *International Journal of Biochemiphysics*, **2**, 115-116.
6. **Lawrence O. Arot Manguro**, Kavaka W. Mukonyi and Joseph K. Githiomi (1995). A new flavonol glycoside from *Eucalyptus globulus*. *Natural Products Letters*, **7**, 163 - 167.
7. **Lawrence O. Arot Manguro**, Joseph K. Githiomi and Kavaka W. Mukonyi (1996). Bisabolenes and furanosesquiterpenoids of Kenyan *Commiphora kua* resin. *Planta Medica*, **32**, 85 -86.
8. Jacob O. Midiwo and **Lawrence O. Arot Manguro** (1996). New dialkylbenzoquinones from

- fruits of *Myrsine africana* and *Maesa lanceolata*. *Natural Products Letters* , **8** , 11-14.
- 9 **Lawrence O. Arot Manguro** and Lawrence A. D. Williams (1996). Phenolic compounds from *Embelia keniensis* leaves. *Planta Medica* , **62**, 178-179.
 10. **Lawrence O. Arot Manguro** and Lawrence A. D. Williams (1997). A new flavonol glycoside from *Embelia schimperi* leaves. *Phytochemistry*, **44**, 1397-1398.
 11. **Lawrence O. Arot Manguro**, Jacob O. Midiwo and Wolfgang Kraus (1997). A flavonol glycoside from *Myrsine africana*. *Phytochemistry*, **43**, 1107-1109.
 12. **Lawrence O. Arot Manguro**, Jacob O. Midiwo and Wolfgang Kraus (1997). A new flavonol tetraglycoside from *Myrsine africana* leaves. *Natural Products Letters*, **9**, 121-126.
 13. **Lawrence O. Arot Manguro**, Jacob O. Midiwo and Wolfgang Kraus (1997). Triterpenoids and steroids from *Myrsine africana*. *Planta Medica*, **33**, 156-157.
 - 14 Ermias Dagne, A. Asefa, **Lawrence O. Arot Manguro**, Pauline Muchori and Ben Chikamai (1997). Essential oils of *Eucalytus* species grown in Kenya. *Bull. Chem. Soc. Ethiop.* **23**, 24-35.
 - 15 **Lawrence O. Arot Manguro**, Jacob O. Midiwo and Wolfgang Kraus (1997). Further flavonol glycosides from *Myrsine africana* leaves. *Natural Product Sciences*, **3**, 8-10.
 - 16 **Lawrence O. Arot Manguro**, Ivar Ugi and Peter Lemmen (2002). Flavonol glycosides of *Maesa lanceolata*. *Natural Product Sciences*, **1**, 54-65
 - 17 **Lawrence O. Arot Manguro**, Jacob o. Midiwo, Wolfgang Kraus and Ivar Ugi (2003). Benzoquinone derivatives of *Myrsine africana* and *Maesa lanceolata*. *Phytochemistry* , **64** (4), 855-862.
 - 18 **Lawrence O. Arot Manguro**, Ivar Ugi and Peter Lemmen (2003). Further bisabolenes and dammarane triterpenoids of *Commiphora kua* resin. *Japan Bull. Pharm. Chem.* **51** (5), 479-482.
 - 19 **Lawrence O. Arot Manguro**, Ivar Ugi and Peter Lemmem (2003). Dammaranes triterpenes of *Commiphora confusa* resin. *Japan. Pharm. Bull.*, **51** (5), 483-486.
 - 20 **Lawrence O. Arot Manguro**, Ivar Ugi , Rudolf Hermann and Peter Lemmen (2003). Flavonol glycosides from *Warburgia ugandensis* leaves. *Phytochemistry* , **64** (4), 891-896.
 - 21 **Lawrence O. Arot Manguro**, Ivar Ugi, Rudolf Hermann and Peter Lemmen (2003). Flavonol and drimane type sesquiterpene glycosides from *Warburgia stuhlmannii* leaves. *Phytochemistry* , **63** (4), 497-502.
 - 22 **Lawrence O. Arot Manguro**, Ivar Ugi and Peter Lemmen (2004). Flavonol glycosides of *Embelia schimperi*. *Bull. Chem. Soc. Ethiop.*, **18** (1), 51-57.
 - 23 **Lawrence O. Arot Manguro**, Ivar Ugi and Peter Lemmen (2005). Flavonol glycosides of

- Embelia kieniensis*. *Natural Product Science*, **5** (1), 5-10.
- 24 **Lawrence O. Arot Manguro**, Jacob O. Midiwo and Wolfgang Kraus (2005). Flavonol glycosides of *Embelia kieniensis*. *Journal Chinese Chemical Society*, **52**, 2001-2008.
- 25 **Lawrence O. Arot Manguro**, Samuel O. Wagai and Peter Lemmen (2006). Flavonol and iridoid glycosides of *Ajuga remota* aerial parts. *Phytochemistry*, **67** (8), 830-837.
- 26 **Lawrence O. Arot Manguro**, Steve O. Okwiri and Peter Lemmen (2006). Oleanane type triterpenes of *Embelia schimperi*. *Phytochemistry*, **67**, 2641-2650.
- 27 **Lawrence O. Arot Manguro**, Samuel O. Wagai and Peter Lemmen (2007). Flavonol and iridoid glycosides of *Ajuga remota* aerial parts. *J. Asian Nat. Prod. Research*, **9**, 617-629
- 28 **Lawrence O. Arot Manguro** and Peter Lemmen (2007). Phenolics of *Moringa oleifera* leaves. *Natural Products Research*, **21**, 56-68.
- 10 Publications after promotion to Associate Professor**
- 29 Sylvia A. Opiyo, Joseph A. Ogur, **Lawrence O. Arot Manguro**, Lutz F. Itietze and Heiko Schuster (2009). A new sterol diglycoside from *Conyza floribunda*. *South African J. Chemistry*, **62**, 9-13.
- 30 **Lawrence Onyango Arot Manguro**, Peter Lemmen, Sylvia Awino Opiyo and Eberhardt Herdweck (2009). Triterpenes of *Commiphora holtziana* oleo-gum resin. *Canadian Journal of Chemistry*, 1173-1179.
- 31 Sylvia A. Opiyo, E. M. Ateka, Phillip O. Owuor, **Lawrence. O. Arot Manguro** and H. Wangare (2010). Survey of sweet potato viruses and detection of cucumber mosaic virus in Western Kenya. *Journal of Plant pathology*, **92** (3), 795-799.
- 32 Thomas Nyahanga, Job I. Jondiko, **Lawrence Onyango Arot Manguro**, Jennipher A. Orwa (2010). Antiplasmodial and larvicidal principles of *Toddalia asiatica* root bark. *International Journal of Essential Oil therapeutics*, **4**, 54-58
- 33 **Lawrence O. Arot Manguro**, Sylvia A. Opiyo, Abera Asefa, Ermias Dagne and Pauline W. Muchori (2010). Chemical constituents of essential oils from three eucalyptus species acclimatized in Ethiopia and Kenya. *Journal of Oil bearing Plants*, 561-567
- 34 Sylvia A. Opiyo, E. M. Ateka, Phillip O. Owuor, **Lawrence O. Arot Manguro** and W. Miano (2010). Development of a multiplex PCR technique for simultaneous detection of sweet potato feathery mottle virus and sweet potato chlorotic stunt virus. *Journal of Plant pathology*, **92** (2), 363-366.
- 35 Sylvia A. Opiyo, Joseph A. Ogur, **Lawrence O. Arot Manguro** and Samuel Otieno Wagai (2010).

- Bioactive constituents of *Conyza floribunda*. *Asian Journal of traditional Medicine*, **6**, 57-67.
- 36 **Lawrence O. Arot Manguro**, Jacob O. Midiwo, Lutz, F. Tietze and Pang Hao (2010). Triterpene saponins of *Maesa lanceolata* leaves. *Arkivoc*, **72**, 328-332.
- 37 **Lawrence O. Arot Manguro**, Peter Lemmen and Pang Hao (2010). Iridoid glycosides of *Ajuga remota* underground part. *Records of Natural Products*, **5**, 147-157.
- 38 **Lawrence O. Arot Manguro**, Sylvia A. Opiyo, Phillip O. Owuor and Peter Lemmen (2010). A diacetoxy drimane sesquiterpene from *Warburgia ugadensis* stem bark. *Phytochemistry Letters*, **4**, 161-165
- 39 Alice G. Wagura, Samuel O. Wagai, **Lawrence O. Arot Manguro** and Gichimu B. M. (2011). Effects of selected plants' extract on in vitro growth of *Ralstonia solanacearum* (Smith), the casual agent of bacterial wilt of Irish potatoes. *Plant Pathology Journal*, **10**, 66-72.
- 40 Sylvia A. Opiyo, **Lawrence O. Arot Manguro**, Phillip Okinda Owuor, Charles Otieno Ochieng, Elijah Minda Ateka and Peter Lemmen (2011). Antimicrobial compounds of *Terminalia brownii* against sweet potato pathogens. *Natural Products Journal*, **1**, 116-120.
- 41 Charles O. Ochieng, Phillip O. Owuor, **Lawrence O. Arot Manguro**, Hosea Akala and Ismaeli O. Ishola (2012). Antinociceptive and antiplasmodial activities of cassane furanoditerpenes of *Caesalpinia volkensii* H, root bark. *Fitoterapia*, **83**, 74-80.
- 42 Amos W. Okal, Phillip O. Owuor, **Lawrence O. Arot Manguro** and David Kamau (2012). Variation of fatty acid levels of young shoots of clonal tea (*Camellia sinensis*) with area of production and plucking intervals in the Kenyan highlands. *Journal of agricultural Science and Technology (JAST)*, **14**, 1543-1554.
- 43 Amos W. Okal, Phillip O. Owuor, **Lawrence O. Arot Manguro** and David Kamau (2012). Effects of production, location and plucking intervals on clonal tea fatty acid levels in the Kenyan highlands. *Food Science Technology Research*, **16**, 351-356.
- 44 Lawrence O. Arot. Manguro, Peter Lemmen , Lutz F. Tietze and Pang Hao (2013). Triterpene saponins of *Maesa lanceolata* stem wood. *Asian Journal of Natural Products Research*, **62**, 1-15
- .45 Charles O. Ochieng, Phillip O. Owuor, **Lawrence O. Arot Manguro** and Hosea Akala (2013). Voukensin.C-E, new 11-oxocassane type diterpenoids and a steroid glycoside from *Caesalpinia volkensii* stem bark and their antiplasmodial activities. *Biorganic and Medicinal Chemistry Letters*, **23**, 3088-3095.

- 46 Charles O. Ochieng, Ismael O. Ishiola, Sylvia Opiyo, Phillip O. Owuor, **Lawrence O. Arot Manguro** and Keng-Chong Wong (2013). Phytoecdysteroids from stem bark of *Vitex doniana* and their anti-inflammatory effects. *Planta Medica*, **79**, 52-50.
- 47 Thomas Nyahanga, Job I. Jondiko, **Lawrence O. Arot Manguro** and Jennipher A. Orwa (2013). Antiplasmodial and larvicidal principles of *Toddalia asiatica* root bark. *Journal of Chemical Sciences*, **125**, 1115-1121.
- 48 Charles O. Ochieng, Atul Shrivastava, Upma Chaturvedi, Ravi Sonkar, Ashok K. Khanna, Gitika Bhatia, Rakesh K. Asthana, Phillip O. Owuor, **Lawrence O. Arot Manguro** and Anil Saxena (2013). Effects of **Senna didymobotrya** root extract and compounds on tritoninduced hyperlipidaemic rats and differentiation of 3T3-LiPreadipocytes. *The Natural Products Journal*, **3**, 212-217
- 49 Phillip O. Owuor, Amos W. Okal, David M. Kamau, Solomon W. Msomba, Marie A. Uwimana, Samson M. Kimunya and **Lawrence O. Arot Manguro** (2013). Influence of nitrogen fertilizer rates and harvesting intervals on clonal tea green leaf fatty acids levels in the lake Victoria basin of Kenya. *Journal of Food, Agriculture and environment*, **11**, 667-674
- 50 Fidelis Samita, Charles O. Ochieng, Phillip O. Owuor and **Lawrence O. Arot Manguro** (2014). New ceramide from aerial part of *Tinospora oblongifolia* with cytotoxic activity. *Natural product research*, **34**, 57-63.
- 51 George M. Luvah, Charles O. Ochieng, Phillip O. Owuor, Ismael O. Ishiola and **Lawrence O. Arot Manguro** (2014). Anxiolytic-like effect of underground parts of *Ajuga remota* Benth (Lamiaceae) and its bioactive constituents in mice: A behavioural study. *The Natural products Journal*, **4**, 211-216.
- 52 **Lawrence O. Arot Manguro**, Antony J. O. Otinga, David M. Onyango and Dickson O. Owiti (2015). Efficacy of synergized and non-synergized *Tagetes minuta* methanol extract in controlling *Periplaneta americana* within households. *Journal of Entomological Research*, **39** (3): 203-208.
- 53 Sylvia A. Opiyo, **Lawrence O. A. Manguro**, Dorothy A. Okoth, Anjeline A. Ochung and Charles O Ochieng (2015). Biopesticidal Extractives and Compounds from *Warburgia ugandensis*. against Maize Weevil (*Sitophilus zeamais*). *The Natural Products Journal*, **5** (4):236-243.
- 54 Ochung' Angeline Atieno, **Lawrence Arot O. Manguro**, Phillip O. Owuor, Isaac O. Jondiko, Regina A. Nyunja, Hosea Akala, Pauline Mwinzi (2015). Bioactive carbazole alkaloids from

- Alysicarpus ovalifolius* (Schumach). *Journal Korean Soc Applied Biological Chemistry*, 58:839–846.
- 55 **Lawrence O. Arot Manguro** and Samuel Otieno Wagai (2016). Bioactive triterpenoids of *Boswellia rivae* resins. *Journal Asian Natural Product Research*. DOI: 10.1080/10286020.2016.1165674
- 56 **Lawrence O. Arot Manguro**, Samuel Wagai and Joab Onyango (2016). Triterpenes of *Boswellia neglecta oleo-resin* gum. *Bull. Chem. Soc. Ethiop.*, 30(2), 317-323.
- 57 Fidelis Samita, Charles O. Ochieng, Phillip O. Owuor, **Lawrence O. Arot Manguro** and Jacob O. Midiwo (2016). Chemical constituents from *Triclisia sacleuxii* and their antibacterial and cytotoxicity effects. *Natural products Research*. DOI: 10.1080/14786419.2016.1201666
- 58 Jenipher Odak Akinyi, **Lawrence Arot Manguro**, Francis N. Wachira, Everlyne Cheramgoi and Phillip O, Owuor (2016). Evaluation of tea clones for resistance as strategy of managing mites and the influence of weather parameters on mite dynamics in Kenya tea farms. *International Journal of Tea Science*, Vol. 12 (1&2). **DOI : 10.20425/ijts.0iof.9573**
- 59 Jenipher A. Odak, Francis N. Wachira, Lawrence **Onyango Arot Manguro**, Evelyn Cheramgoi and Phillip Okinda Owuor (2016). Variability of overhead volatile organic compounds in clonal tea (*Camellia sinensis*) and their influence on red crevice mite (*Brevipalpus phoenicis* geijskes) infestations. *International Journal of Tea Science*. **DOI : 10.20425/ijts.0iof.9574 Vol. 12 (1&2) 2016**
- 60 Jenipher A. Odaka, Phillip Okinda Owuora, **Lawrence Onyango Arot Manguro**, Evelyn Cheramgoi and Francis N. Wachira (2016). Evaluation of tea clones for resistance/tolerance to mites infestations and the influence of environmental factors on mites dynamics in Kenyan tea farms. *International Journal of Tea Science*. Vol. 12 (1&2). **DOI : 10.20425/ijts.0iof.9573**
- 61 Jenipher Odak Akinyi, **Lawrence Arot Manguro** and Phillip O, Owuor (2018). *In vitro* antibacterial and antifungal activities of extracts and constituents of *Elaeodendron buchananii* stem bark. *Journal of Asian Natural Products Research*, VOL. 20, NO . 6, 510–524
<https://doi.org/10.1080/10286020.2017.1420648>
- 62 Angeline A. Ochung, **Lawrence Oyango Arot Manguro** and Phillip Okinda Owuor (2018). A flavone glycoside from *Lonchocarpus eriocalyx* (Harms). *Philippine Journal of Science* Vol. 23, No. 5, 56-61
- 11 **Papers in press**

63 Angeline A. Ochung', Phillip O. Owuor, **Lawrence Onyango A Manguro**, Charles Otieno. Ochieng, `Sylvia Awino.Opiyo and Regina A. Nyunja (2021). Analgesic compounds from *Lonchocarpus eriocalyx* (Harms). *Trends in Phytochemical Research*

64 **Lawrence O. Arot Manguro**, Antony J. O. Otinga, David M. Onyango and Dickson O. Owiti (2021). Effect of synergized and non-synergized *Tagetes minuta* MeOH extract on the physiology of *Periplaneta americana* L. under laboratory condition. *Journal of Entomological Research*

12 **Papers under review**

65 **Lawrence O. Arot Manguro**, Eratus O. Okeyo and Sylvia Opiyo (2021). Hydroxyalkylbenzoquinones and triterpenes of *Myrsine africana* and *Maesa lanceolata* stem barks, *Zeitschrift Naturforschung*.

13 **Papers undergoing preparation**

66 **Lawrence Onyango Arot Manguro**, Phillip Okinda Owuor and Mulianga Albert Mackenzie (2021). Bioactive Drimane-type sesquiterpenes of *Warburgia stuhlmannii* stem bark. *Phytochemistry Letters*.

67 **Lawrence Onyango Arot Manguro**, Phillip Okinda Owuor and George Luvaha (2021). Unusual iridoid glycoside from *Ajuga remota* underground part. *Zeitschrift Forschung*

68 **Lawrence Onyango Arot Manguro**, Jacob Ogweni Midiwo and Erastus Ochieng Okeyo (2020). Benzoquinones from *Embelia schimperi* and *Maesa lanceolata*. *Phytochemistry Letters*

13 **Conference presentations**

1 Joseph K. Githiomi and Lawrence O. Arot Manguro (1989). Status of Non Wood Forests Products research in Kenya - a paper presented at Kengo seminar at Jomo Kenyatta College of Agriculture and Technology.

2. Lawrence O. Arot Manguro and Ben Chikamai (1990). Chemical evaluation of *Acacia senegal* and *A. seyal* gums - a paper presented at KEFRI conference, October 1990.

3 Ben Chikamai and Lawrence O. Arot Manguro (1990). Significance of sustained Management and utilization of Non Wood Forest Products to the environment- a paper presented at Kengo sponsored conference, October, 1990.

4. Lawrence O. Arot Manguro, Kavaka W. Mukonyi and Joseph K. Githiomi (1995) Flavonol glycosides of *Eucalyptus globulus*- a paper presented at the sixth NAPRECA symposium on Natural Product Chemistry, September 10-15, 1995, Kampala, Uganda.

5. Jacob O. Midiwo, Lawrence O. Arot Manguro and Wolfgang Kraus (1995). Benzoquinone derivatives from *Myrsine africana* and *Maesa lanceolata* fruits- a paper presented at the sixth

NAPRECA symposium on Natural Products Chemistry, September 10-15, 1995, Kampala, Uganda.

6. Lawrence O. Arot Manguro and Ben Chikamai (1996). Analytical study of selected gum resins of *Commiphora* species growing in Northern Kenya-a paper presented at the Domestication and commercialization of Non-Timber Forest Products in agroforestry systems symposium, 19- 23 February, ICRAF, Nairobi , Kenya
7. Lawrence O. Arot Manguro (2007). *In vitro* activities of *Ajuga remota* extracts and pure isolates against *Plasmodium falciparum* parasites. a paper presented at the annual Chinese National Academy of Sciences Symposium on Natural Products Chemistry, July 16-21, 2007, Beijing, China.
8. Lawrence O. Arot Manguro (2007). *Warburgia ugandensis*, a Kenyan medicinal plant with potential antibacterial and antifungal activities. A paper presented at Green Chemistry symposium, Beijing Institute of Chemistry, Chinese Academy of Science June 11-16, 2007, Beijing, China.
9. Lawrence O. Arot Manguro (2007). Burseraceae species: plants of arid and semi-arid lands (ASALs) as sources of non wood forest products (NWFPs) with economic potential. A paper presented at Quanzhou Institute of Chemistry seminar, Chinese National Academy of Science, May 31st, 2007, Quanzhou, Quangdong province, China.
10. Lawrence O. Arot Manguro (2008). The chemistry of edible indigenous wild fruits in the Kenyan Lake Victoria basin: present research status and future directions. A paper presented at the International Symposium “Underutilized Plants for Food, Nutrition, Income and Sustainable development”, Arusha, United Republic of Tanzania, 3rd-7th March, 2008.
11. Lawrence O. Arot Manguro (2013). Phytochemistry and biological activities of Kenyan Myrsinaceae species. A paper presented at the Norvatis International Symposium at the “Drug Development from Natural Resources”, Arizona, USA
12. Lawrence Onyango Arot Manguro (2015). Phytochemicals and antioxidant activities of *Hypericum lanceolatum* extracts. A paper presented at the South African Chemical Society symposium, University of Pretoria, South Africa.

14 Technical reports

1. Lawrence O. Arot Manguro (1996). A report on CEC funded project- "development of the *Moringa oleifera* and *M. stenopetalla* trees to provide valuable products".
2. Lawrence O. Arot Manguro (1996). African Academy of Sciences (AAS) and International Foundation of Sciences (IFS) funded project. "Exploitation of some Burseraceae plants for

essential oils and other value added products".

- 3 Lawrence O. Arot Manguro and Ben Chikamai (1990). A report on Overseas Development Agency funded project. "Chemical analysis of water-soluble gums (*Acacia senegal* and *A. seyal* gums)".

15 Current research interest

- 1 Phytochemical analysis of indigenous edible wild tree fruits and medicinal plants in support of conservation, management and sustainable utilization.
- 2 Exploitation of arid and semi-arid land plants for value added products.
- 3 Synthesis of natural products with biological activities.
- 4 Ozone layer protection: use of plant extracts as viable alternatives to methyl bromide in soil fumigation.
- 5 Development of *Moringa oleifera* and *Moringa stenopetalla* to produce valuable products: coagulant for vegetable, vegetable oil, potable water and wastewater treatment and supplement for animal feed.

16 Referees

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