



Curriculum Vitae

**Personal Information**

First name(s) / Surname(s)	DR. OMAYIO Dennis Ondieki (PhD); Plant pathologist & biotechnologist	
Address(es)	Masinde Muliro University of Science and Technology; P.O. Box 190-50100 Kakamega	
Telephone(s)	+254719270730	
E-mail	denomatec@gmail.com or domayio@mmust.ac.ke	
Nationality	Kenyan;	I.D NO: 25208499
Date of birth	09.09.1986	ORCID ID: https://orcid.org/0000-0002-5793-4168
Gender	Male	WOS RESEARCHER'S ID: AAU-1223-2021

Career Objective

To glorify God through the work of my hands in an innovative manner based on; wisdom, knowledge, humility and understanding towards making the world a better place for all of us.

Professional Body Affiliations

1. American Phytopathological Society (APS) – **MEMBER ID: 264104**
2. International Society for Plant Pathology – **APS associate organization**
3. Horticulture Association of Kenya (HAK)

Authored & Deposited Molecular Sequences in NCBI's GenBank Database

1. Eighteen *Ustilago kamerunensis* isolates' genome elements sequences

	Current research interests <ol style="list-style-type: none"> 1. Papaya fruit trees and seed modification towards enhanced vigour and improved rapid fruit production 2. Hormone signalling and manipulation towards improving resistance of crops to stressors. 3. Juvenile phase reduction and growth vigor enhancement of fruit trees using physical modification strategies. 4. Chromosome manipulation of plants to enhance tolerance to stressors. 5. Role of plant hormones in balancing immune responses.
	Broad Fields of Specialization <ul style="list-style-type: none"> ❖ Microbial biotechnology ❖ General Microbiology ❖ Genetics ❖ Plant pathology ❖ Plant breeding & improvement ❖ Crop protection ❖ Agricultural biotechnology ❖ Plant biotechnology ❖ Molecular biology ❖ Environmental Biotechnology ❖ Plant physiology ❖ Seed Technology ❖ Mycology ❖ Cytogenetics and chromosomal manipulations ❖ Biostatistics
Areas of teaching specializations	Current areas of teaching in postgraduate and undergraduate courses include; <ul style="list-style-type: none"> ❖ Plant pathology ❖ Plant breeding and seed technology ❖ Seed pathology and seed fortification ❖ Crop diseases epidemiology and management ❖ Microbial processes on environmental management ❖ Plant mycology and bacteriology ❖ Microbiology II ❖ Plant structure and function ❖ Survey of the plant kingdom ❖ Genetics

- ❖ Genome organization
 - ❖ Biostatistics
 - ❖ Chromosomal manipulation and cytogenetics
 - ❖ Cytology and cytogenetics
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- ❖ Research and Project work
 - ❖ Plant biotechnology
 - ❖ Mycology I
 - ❖ Molecular biology

Education and training

Date	2015-2018
Title of qualification targeted	Doctor of Philosophy in Plant Pathology
Thesis title	Morphological and molecular characterization, pathogenicity and co-infection of <i>Ustilago kamerunensis</i> with “ <i>Candidatus</i> Phytoplasma oryzae” strain Mbita 1 on napier grass growth tolerance under varying nutrients and moisture levels.
Principal subjects	Plant pathology, Microbiology, Molecular genetics, Biostatistics & modeling, Mycology, Phylogenetics
Institution	Maseno University
Level in international	Tertiary institution
Date	2011-2013
Title of qualification awarded	Master of Science in Crop Protection & Biotechnology
Thesis title	Resistance of napier grass (<i>Pennisetum purpureum</i>) accessions to head smut pathogen <i>Ustilago kamerunensis</i> .
Principal subjects	Molecular biology, microbiology, mycology, plant pathology, Plant genetics, Biotechnology & Biostatistics
Skills acquired	Presentation skills, data analysis, data collection and management, experimentation
Institution	Masinde Muliro University of Science and Technology
Level in international	Tertiary institution
Date	2007-2011
Title of qualification awarded	Bachelor of Science in Biotechnology

Principal subjects	Molecular biology, Genetics, biotechnology, Industrial microbiology and Plant breeding
Name of organisation	Masinde Muliro University of Science and Technology
Level in international Classification	Tertiary institution First Class Honours (80.5 Points)
Dates	2001-2004
Title of qualification awarded	Kenya Certificate of Secondary Education (KCSE)
Principal subjects	Physics, Chemistry, Biology, Mathematics, geography, English
Name of organisation	Alliance High School
Level in international Classification	Secondary education A-
Dates	1996-2000
Title of qualification awarded	Kenya Certificate of Primary Education (KCPE)
Name of organisation	Eronge Adventist Primary School
Level in international Points	Primary education 83/84

Work experience

Dates	From August 2019 to date
Occupation or position held	Lecturer, Academic advisor, Departmental graduate school committee chairman.
Main responsibilities	Lecturing, curriculum review, postgraduate students' supervision, research, knowledge dissemination & community outreach
Employer name and address	Masinde Muliro University of Science and Technology, P. O. Box 190-50100 Kakamega
Faculty and department	School of Natural Sciences; Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From September 2014 to August 2019
Occupation or position held	Assistant Lecturer, Exam coordinator, Academic advisor, Quality assurance coordinator and University Biosecurity officer.
Main responsibilities	Lecturing, Curriculum review, Exam setting, Practicals designing, Exam coordination

Employer name and address	Masinde Muliro University of Science and Technology, P. O. Box 190-50100 Kakamega
Faculty and department	Faculty of Science; Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From August 2012 to August 2014
Occupation or position held	Research Consultant/Partner- Eastern Africa Agricultural Productivity Project Pasture
Main activities	Co-ordinating and Implementing of Biotechnology & Crop protection project
Employer name and address	KALRO-Muguga & Kakamega, P. O. Box 30148 Nairobi
Type of business or sector	Agricultural research sector
Date	From August 2011 to August 2014
Occupation or position held	Graduate assistant and Masinde Muliro University scholar
Main activities	Co-lecturing, Lecturing, Practicals designing/Implementation, Exam marking/Invigilation
Employer name and address	Masinde Muliro University of Science and Technology, P. O. Box 190-50100 Kakamega
Type of business or sector	Higher education sector
Dates	From May 2010 to August 2010
Occupation or position held	Molecular diagnostics laboratory technologist
Main activities	Diagnosis of virus infected plant samples and reporting results
Employer name and address	Kenya Agricultural Research Institute- Njoro; Private bag Njoro, Kenya
Type of business or sector	Agricultural research sector
Dates	From March 2009 to April 2009
Occupation or position held	MMUSO Constitutional review commissioner
Main activities	Review the old constitution, gather views and draft a new MMUSO constitution

Employer name and address	Masinde Muliro University Students Welfare Docket; 190-50100 Kakamega
Type of business or sector	University students' Social and welfare sector
Dates	From May 2008 to February 2009
Occupation or position held	Research assistant
Main activities	Data collection, management and analysis and mushroom spawn developer
Employer name and address	Dr. Valerie Palapala; Masinde Muliro University- 190 Kakamega
Type of business or sector	Private biological research projects

Appointments

Dates	From June 2021 to Date
Occupation or position held	Chairman Alcohol and Drug Abuse (ADA) Committee - MMUST
Main responsibilities	Develop and implement policy on management of alcohol & drug abuse in MMUST. Implement a student/employee assistance program for MMUST focusing on identification, treatment and rehabilitation of individuals with ADA related disorders.
Employer name and address	Vice Chancellor (Masinde Muliro University of Science & Technology)
Section and department	Dean of Students Office
Type of business or sector	Higher Education sector
Dates	From March 2021 to Date
Occupation or position held	Webometric champion DPS MMUST
Main responsibilities	Contribute in improvement of webometric ranking of university through DPS docket
Employer name and address	DVC PRI (Masinde Muliro University of Science & Technology)
Section and department	SOLACE and Webometrics coordinator
Type of business or sector	Higher Education sector
Dates	From April 7 th to 7 th May 2021
Occupation or position held	Acting chairman (COD); department of biological sciences

Main responsibilities	Coordination of departmental processes
Employer name and address	Vice Chancellor; Masinde Muliro University of Science & Technology
Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From November 2020 to December 2020
Occupation or position held	Co-chairperson MMUSO constitution review commission
Main responsibilities	Management of the MMUSO constitution review commission
Employer name and address	Vice Chancellor (Masinde Muliro University of Science & Technology)
Section and department	Dean of Students Office
Type of business or sector	Higher Education sector/Students' Welfare
Dates	From November 2019 to May 2020
Occupation or position held	Deputy chairperson conference logistic sub-committee
Main responsibilities	General organization of the 14 th International research conference
Employer name and address	Vice Chancellor (Masinde Muliro University of Science & Technology)
Section and department	Directorate of Research and Post-graduate Support
Type of business or sector	Higher Education sector
Dates	From November 2019 to May 2020
Occupation or position held	Member conference scientific sub-committee
Main responsibilities	Conference presentations & publications management of the 14 th International research conference
Employer name and address	Vice Chancellor (Masinde Muliro University of Science & Technology)
Section and department	Directorate of Research and Post-graduate Support
Type of business or sector	Higher Education sector
Dates	From February 2019 to date
Occupation or position held	Departmental graduate studies board chairperson (Biological sciences department)

Main responsibilities	Coordination of proposal presentation, seminars, thesis defences and examination
Employer name and address	CoD Biological Sciences
Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From June 10 th to 14 th 2019
Occupation or position held	Acting chairman (COD); department of biological sciences
Main responsibilities	Coordination of departmental processes
Employer name and address	CoD Biological Sciences
Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From February 25 th to 27 th 2019
Occupation or position held	Acting chairman (COD); department of biological sciences
Main responsibilities	Coordination of departmental processes
Employer name and address	CoD Biological Sciences
Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From February 14 th - 14 th February 2018
Occupation or position held	Departmental quality assurance coordinator
Main responsibilities	Coordination of departmental quality assurance processes
Employer name and address	CoD Biological Sciences
Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From February 14 th 2018 to date
Occupation or position held	Academic advisor year two group
Main responsibilities	Guiding the second years on academic matters
Employer name and address	CoD Biological Sciences

Section and department	Department of Biological Sciences
Type of business or sector	Higher Education sector
Dates	From June 4 th 2018 to date
Occupation or position held	DCCM representative directorate of research and linkages and STIPL
Main responsibilities	Participate in field marketing activities, identify and propose training needs.
Employer name and address	Vice chancellor
Section and department	Vice chancellor office
Type of business or sector	Higher Education sector

Consultancies/Collaborations

Date	2015 to date
Occupation or position held	Plant pathology and plant interactions dynamics consultant
Main responsibilities	Participation in development of proposal and collaborative research
Organization	ICIPE- Mbita
Section and department	Crop protection and plant sciences
Type of business or sector	Research sector
Date	2012 to date
Occupation or position held	Pasture improvement and pathology consultant
Main responsibilities	Participation in development of proposal and collaborative research
Organization	KALRO-Muguga south
Section and department	Animal health and production department
Type of business or sector	Research sector

Community service & outreach

Date	2018 to date
Occupation or position held	DCCM representative (Directorate of research-postgraduate support and Income generation unit)

Main responsibilities	Marketing and co-ordination of various university/respective sections programmes
Organization	Masinde Muliro University of Science and Technology
Section and department	DCCM
Type of business or sector	Higher Education sector
Date	2015 to date
Occupation or position held	Chairman Berean financial self-help group (ICOC church organization Kakaemga)
Main responsibilities	General management and formulation of by laws governing the organization
Organization	International Church of Christ Kakamega
Section and department	Welfare section
Type of business or sector	Religious sector
Conferences organized	
Date	20 th November 2019 -15 th May 2020
Conference	14 TH Multi-disciplinary international conference 2020
Theme of conference	Transformational Leadership, Innovation and Technology Transfer for Sustainable Development in Developing Countries
Roles	Logistics and Scientific sub- committee, papers reviewer and general conference logistics
Institution	Masinde Muliro University of Science and Technology
Level of conference	International
Date	19 th -21 st June 2019
Conference	13 TH Multi-disciplinary international conference 2019
Theme of conference	Transformational Leadership, Innovation and Technology Transfer for Sustainable Development in Developing Countries
Roles	Organizing committee, papers reviewer, general logistics and sessions rapporteur
Institution	Masinde Muliro University of Science and Technology
Level of conference	International
Journals involved in review & processing	

Date	1 ST June 2019
Journal	Journal of Science Technology, Education and Management (J-STEM)
Publisher	Directorate of Research and Postgraduate Support, MMUST
Volume	Volume 8 No.1
Institution	Masinde Muliro University of Science and Technology
ISSN	1991-2889
Journal Type	Multi-disciplinary

Examined theses; and the year of examination

- ✓ Evans A. Boge, (Reg. No. SMB/G/01-54625/2017) MSc Microbiology thesis. Biological sciences department, School of Natural Sciences (SONAS), Masinde Muliro university of Science and Technology. **Thesis Title:** Antimicrobial resistance profiles and biofilms in *Escherichia coli* recovered from wastewater treatment plants in Kakamega municipality. April; 2021
- ✓ Omuketi William Emitaro, (Reg. No. PHD/SC/00074/017) PhD Microbiology thesis. Botany department, School of Physical & Biological Sciences (SPBS), Maseno University. **Thesis Title:** Diversity and antagonistic potential of endophytes, phytochemical and antimicrobial activity of selected gro forestry trees against *Xanthomonas campestris* pv *musacearum* and *Cercospora zeae-maydis*. March, 2021
- ✓ Edwin M. Karoney, (Reg. No. SCP/G/09/2015) MSc Crop Protection thesis. Biological sciences department, School of Natural Sciences (SONAS), Masinde Muliro university of Science and Technology. **Thesis Title:** Phytochemical influence on host mediated interactions between root nodulating rhizobium species and the foliar pathogen *Colletotrichum lindemuthianum* in common bean *Phaseolus vulgaris*. October, 2020
- ✓ Anthony Simiyu Mabele, (Reg. No. SCP/G/04/2015) MSc Crop Protection thesis. Biological sciences department, School of Natural Sciences (SONAS), Masinde Muliro university of Science and Technology. **Thesis Title:** Occurrence, distribution and diversity of groundnut rosette assistor virus causing groundnut rosette disease in Western Kenya. October, 2019
- ✓ Andrew Lyani, (Reg. No. SEB/G/07/11) MSc Environmental Biology thesis. Biological sciences department, School of Natural Sciences (SONAS), Masinde Muliro university of Science and Technology. **Thesis Title:** Effects of cropping systems on soil invertebrates diversity, abundance and physicochemical characteristics around Kakamega forest in Kenya. Year, 2019.

Thesis examination / Board examiner	
	<ul style="list-style-type: none"> ✓ Milton Wanyama, (Reg. No. SMB/G/10/14) MSc thesis. Masinde Muliro university of Science and Technology. Antibiotic susceptibility patterns of pathogenic bacteria from unprocessed bovine milk produced by farmers in Ndivisi ward, Bungoma County, Kenya. Biological sciences department, SONAS.
Postgraduate students supervision and mentoring	
	<ul style="list-style-type: none"> ✓ Irene Mutokaa, (Reg. No. SCP/G/01-55586/2017) MSc. research. Masinde Muliro University of Science and Technology. Polyploidization of <i>Solanum nigrum</i> and intercropping with selected plant species towards management of <i>Aphis solanella</i>. (Status: On going) ✓ Omeda Habil Keith (Reg. No. MECO/46369/2016) MSc. research. Mount Kenya University. Assessment of the utilization levels and conservation strategies of <i>Prunus Africana</i> and <i>Mondia whytei</i> around Kakamega forest, Kenya. (Status: On going). ✓ Philistus N. Wambuti, (Reg. No. MSC/SC/00092/2018) MSc. research. Maseno University. Efficacy of selected <i>Beauveria</i> spp and push-pull technology on the control of fall armyworm (<i>Spodoptera frugiperda</i>). ✓ Marccello Nyaoro Aguok, (Reg. No. SCP/G/01-50620/2017) MSc. research. Masinde Muliro University of Science and Technology. Resistance levels of selected onion varieties against onion blight under modified cultural strategies in Kerelwa West Pokot county.
Credited Pathogen isolates in NCBI's GenBank	Successfully characterized pathogen isolates' molecular sequences in the National Center for Biotechnology Information's GenBank which can be accessed by their accession numbers below in the database;
	<ul style="list-style-type: none"> ✓ MUR001 strain ✓ MUR002 strain ✓ MUR003 strain ✓ KIA001 strain ✓ KIA002 strain ✓ KIA003 strain ✓ NYA001 strain ✓ NYA002 strain

- ✓ NYA003 strain
- ✓ NAK001 strain
- ✓ NAK002 strain
- ✓ NAK003 strain
- ✓ KIR001 strain
- ✓ KIR002 strain
- ✓ KIR009 strain
- ✓ NYE001 strain
- ✓ NYE002 strain
- ✓ NYE004 strain

Analytical tools expertise

- ✓ ChromasLite molecular sequence's Base calling analyzing tool
- ✓ BioEdit consensus sequences and trimming molecular software tool
- ✓ MAFFT Online sequence alignment and analysis tool
- ✓ MEGA 5 Phylogenetic analysis tool
- ✓ SPSS Biostatistical analysis tool
- ✓ SAS Biostatistical analysis tool
- ✓ ClustalX and ClustalW sequence analysis tools
- ✓ Genestat Biostatistical tool

Innovations /technologies

- ✓ Enviro-DPEH tool; for monitoring environmental health and productivity (2021).
- ✓ Concept of relative logarithmic abundance; in environmental analysis (2021).
- ✓ OMPT-Algorithm for determining levels of preparedness of ecosystems to mitigate climate change (2021).
- ✓ OMATEC - HTVP Calculator; Invented in 2020
- ✓ OMATEC-PL Tool; Invented in 2020
- ✓ OMATEC-EA Tool; Invented in 2020
- ✓ OMATEC-DPCE Tool; Invented in 2020

- ✓ Novel technique of estimating levels of a plant's resistance to diseases called (**Omatec host plant resistance and pathogen virulence estimator algorithm**)
- ✓ Novel technique of estimating the virulence levels of plant diseases quantitatively
- ✓ Novel technique of estimating environmental wellness levels called (**Omatec algorithm for environmental wellness evaluation**)
- ✓ Technique of standardizing tolerance scale for individual plants
- ✓ Technique of estimating water purity using selected integrated parameters
- ✓ Strategies of managing co-infection of napier grass by NSD and NHSD diseases
- ✓ Eleven napier grass accessions highly tolerant to head smut disease
- ✓ Accession 16806 completely immune to head smut disease

Conferences attended

- ✓ ANSO-MMU-SAJOREC International conference, Maasai Mara University, (4th-6th September 2019).
- ✓ EAAPP End of Phase 1 Regional Conference and Exhibition (14th-18th Sept. 2015)
- ✓ All African Conference on Animal Agriculture (27th-30th October 2014)
- ✓ First International Interdisciplinary Conf. Kisii University (30th July-2nd Aug. 2014)
- ✓ 4TH African Conference on Edible and Medicinal Mushrooms Masinde Muliro University of Science and Technology (May 26th-29th 2014)
- ✓ 8th Egerton University International conference (26th-28th March 2014)
- ✓ EAAPP Scientific conference (12th- 15th November 2013)
- ✓ Sustainable horticultural production in the tropics Meru University of Science and Technology (3rd – 6th December 2013)

Workshops attended

- ✓ Biosecurity High Level session (7th-10th May 2018)

- ✓ Molecular plant disease diagnostics (5th – 10th September 2016)
- ✓ Workshop for curriculum development, review and implementation (MMUST) (24th June 2014).
- ✓ University multiplication training workshop on curriculum development for public universities in Kenya (23rd-24th January 2014).
- ✓ Molecular techniques workshop (22nd -26th July 2013).
- ✓ Gender sensitization workshop (14th March 2008).
- ✓ e-resources training workshop (27th – 30th May 2013).
- ✓ Molecular plant disease diagnostics (5th – 9th November 2012).

Research Grants

- ✓ MMUST Innovation grant (2020/2021)
- ✓ National Research Fund grant (2016/2017)

Exhibitions

- ✓ 8th Kenyan Universities exhibition (March 2010)
- ✓ 9th Kenyan Universities exhibition (March 2011)

Professional affiliations

- ✓ American Phytopathological Society (APS) – **MEMBER ID: 264104**
- ✓ International Society for Plant Pathology – **APS associate organization**
- ✓ Horticulture Association of Kenya (HAK)

Awards

- ✓ HELB Scholar (2016/2017)
- ✓ DAAD scholar (2013/2014)
- ✓ MMUST Scholar (2011/2012)
- ✓ Best undergraduate biotechnology student (2011)
- ✓ Best performing male student faculty of science (2011)

Publications (Books & Book chapters)

- ✓ Dennis.O.Omayio. 2018. **Morphological and molecular characterization, pathogenicity and co-infection of *Ustilago kamerunensis* with “*Candidatus Phytoplasma oryzae*” strain Mbita 1 on napier grass growth tolerance under varying nutrients and moisture levels.** PhD Thesis, Maseno University -publication, Kenya.
- ✓ D.O. Omayio., J.V. Muoma., F.N. Muyekho., S.I. Ajanga., I.W. Kariuki and M.Mulaa .2015. **Epiphytology of Napier Head Smut Disease and Progress in the Search for Tolerant Cultivars: In Napier grass feed resource; production, constraints and implications for smallholder farmers in Eastern and Central Africa.** Kabirizi J., Muyekho F., Mulaa M., Musangi R., Pallangyo B., et al. 2015. ISBN: 978-9970-9269-1-6. EAAPP Publication, 62-74pp.
- ✓ Dennis.O.Omayio. 2013.**Resistance of napier grass *Pennisetum purpureum* accessions to head smut pathogen *Ustilago kamerunensis*.** Masters Thesis, Masinde Muliro University of Science and Technology-publication, Kenya.

Publications (Scientific papers)

- ✓ Robert K. Leitich, Jackson C. Korir, John O. Muoma and Dennis O. Omayio. **"Viral synergism and its role in management of maize lethal necrosis disease."** *African Journal of Plant Science* 15, no. 6 (2021): 151-157. <https://doi.org/10.5897/AJPS2021.2132>
- ✓ Matindu Christine., Sifuna Anthony Wawire., Francis Muyekho and Dennis Omayio. 2020. **Soil bacterial community structure of maize and beans smallholder farms in the river Isiukhu watershed, Western Kenya.** *East African Scholars Journal of Agriculture and Life Sciences*, 3(6):174-180.
- ✓ Omayio Dennis. 2020. **An algorithm for estimating resistance magnitude of plants against disease establishment and pathogen virulence levels.** *Plant pathology Journal*, 19(1):16-21. <http://dx.doi.org/10.3923/ppj.2020.16.21>
- ✓ Omayio Dennis and Mzungu Emmanuel.2019. **Modification of Shannon-Wiener diversity index towards quantitative estimation of environmental wellness and biodiversity levels under a non-comparative scenario.**

Journal of environment and earth science, 9(9):46-57.
<http://dx.doi.org/10.7176/JEES/9-9-06>

- ✓ Okoth Patrick., Muoma John., Omayio Dennis., Barasa Mustafa and Angienda Paul. 2018. **Molecular footprint of Kenya's gene bank repositories based on the Cp-Gene signatures.** American Journal of Molecular Biology, 8:215-244. <http://dx.doi.org/10.4236/ajmb.2018.84019>
- ✓ Elsheba A. Imbaya., Millicent F. Ndong'a., Francis N. Muyekho and Dennis .O. Omayio. 2018. **Control of *Aphis fabae* using leaf extracts of *Artemisia annua* and *Thevetia peruviana* on *Solanum scabrum* during the short and long rain seasons in Kenya.** Researchjournal's Journal of Agriculture, 5:1-11.
- ✓ Kennedy O. Ogonda., Millicent F. O. Ndong'a., Francis N. Muyekho and Dennis .O. Omayio. 2018. **Effect of *Artemisia annua* leaf extract on the incidence and severity of *Aphis fabae* in intercropped and pure stand common bean.** International Journal of Agronomy and Agricultural Research, 13:33-42.
- ✓ Dennis .O. Omayio., David M. Musyimi., Francis N. Muyekho., Samuel I. Ajanga., Charles A.O. Midega, Clabe S. Wekesa., Patrick Okoth and Innocent W. Kariuki .2018. **Molecular diversity of a seemingly altitude restricted *Ustilago kamerunensis* Isolates in Kenya: A pathogen of napier grass.** American Journal of Molecular Biology, 8:119-143. <http://dx.doi.org/10.4236/ajmb.2018.82011>
- ✓ Dennis .O. Omayio., David M. Musyimi., Francis N. Muyekho., Samuel I. Ajanga., Charles A.O. Midega, Zeyaur R. Khan and Innocent W. Kariuki .2018. **Introducing a novel natural logarithmic indices and their corresponding percentages table towards quantitative estimation of plant tolerance levels to stressors.** International Journal of Biosciences, 12:78-98.
- ✓ R.K. Leitich., W. Arinaitwe., B. Mukoye., D.O. Omayio., A.K. Osogo, H.K. Were, J.W.Muthomi, R.M. Otsyula and M.M. Abang .2016. **Mapping of angular leaf spot disease hotspot areas in Western Kenya towards its management.** American Journal of Applied Scientific Research, 2(6):75-81.
- ✓ P. Okoth., J. Muoma., M. Emmanuel., W. Clabe., D.O. Omayio and P.O. Angienda .2016. **The potential of DNA barcode-based delineation using seven putative candidate loci of the plastid region in inferring molecular diversity of cowpea at sub-species level.** American Journal of Molecular Biology, 6:138-158. <http://dx.doi.org/10.4236/ajmb.2016.64014>

- ✓ R.K. Leitch., D.O. Omayio., B. Mukoye., B.C. Mangeni., D.W. Wosula., W. Arinaitwe., R.M. Otsyula., H.K. Were and M.M. Abang .2016. **Pathogenic variability of angular leaf spot disease of common bean in Western Kenya.** International Journal of Applied Agricultural Sciences, 2:92-98. <http://dx.doi.org/10.11648/j.ijaas.20160206.13>
- ✓ R.C. Kawawa., J.F. Obiri., F.N. Muyekho., D.O. Omayio., H. Agevi., A. Mwaura., L. Obiet., D.K. Kimutai and A. W. Sifuna .2016. **Allelopathic potential of invasive Psidium guajava L., against selected native tree species in Kakamega tropical forest, Western Kenya.** Journal of Pharmacy and Biological Sciences, 11: 80-86.
- ✓ M. Karani., E. Omukunda., D. Omayio and S. Ajanga .2016. **Comparative evaluation of the distribution and severity of Busseola fusca and Chilo partellus in selected agro-ecological zones of Western Kenya.** Journal of Agriculture and Veterinary Science, 9: 56-61.
- ✓ I.W. Kariuki., S.W. Mwendia., F.N. Muyekho., S.I. Ajanga and D.O. Omayio.2016. **Biomass production and forage quality of head-smut disease resistant napier grass accessions in Kenya.** African Crop Science Journal, 24: 157-165.
- ✓ D.O. Omayio., J.V. Muoma., F.N. Muyekho., S.I. Ajanga., I.W. Kariuki and M.Mulaa .2015. **Epiphytology of Napier Head Smut Disease and Progress in the Search for Tolerant Cultivars: In Napier grass feed resource; production, constraints and implications for smallholder farmers in Eastern and Central Africa.** Kabirizi J., Muyekho F., Mulaa M., Musangi R., Pallangyo B., et al. 2015. ISBN: 978-9970-9269-1-6. EAAPP Publication, 62-74pp.
- ✓ D.O. Omayio., S.I. Ajanga., J.V. Muoma., F.N. Muyekho., M.K. Yamame., I.W. Kariuki and S. Mwendia .2015. **Using napier grass accessions' origins, neighbour joining groups and their responses to Ustilago kamerunensis to predict a probable co-evolutionary scenario.** International Journal of Recent Scientific Research, 6: 2639-2645.
- ✓ D.O. Omayio., S.I. Ajanga., J.V. Muoma., F.N. Muyekho and I. Kariuki .2014. **Internal transcribed spacer primers detect better Ustilago kamerunensis; a napier grass head smut pathogen constraining the dairy sector in Eastern Africa.** Journal of Agri-food and Applied Sciences, 2: 265-274.
- ✓ B. Mukoye., B.C. Mang'eni., R.K. Leitch., D.W. Wosula., D.O. Omayio., P.A. Nyamwamu., W. Arinuitwe., S. Winter., M.M. Abang and H.K. Were .2014.

First report and biological characterization of cowpea mild mottle virus (CPMMV) infecting groundnuts in Western Kenya. Journal of Agri-food and Applied Sciences, 3: 1-5.

- ✓ D.O. Omayio., S.I. Ajanga., J.V. Muoma., D.M.W. Ochieno., F.N. Muyekho., B. Mukoye and R.K. Leitch .2014. **Predicting endophytes contribution in vivo in napier grass accessions' tolerance against Ustilago kamerunensis using in vitro strategies.** Journal of Agri-food and Applied Sciences, 2: 296-303.
- ✓ D.O. Omayio., S.I. Ajanga., J.V. Muoma., F.N. Muyekho and I. Kariuki .2014. **Towards the management of napier head smut; using in vitro approaches to decipher possible role of antibiosis resistance in selected napier accessions.** Journal of Agri-food and Applied Sciences, 2: 323-329.

Conference Papers

- ✓ Omayio Dennis and Mzungu Emmanuel.2019. **Modification of Shannon-Wiener diversity index towards quantitative estimation of environmental wellness and biodiversity levels under a non-comparative scenario.** ANSO-MMU-SAJOREC International conference, Maasai Mara University, 4th-6th September 2019.
- ✓ I.W. Kariuki., S.W. Mwendia., F.N. Muyekho., S.I. Ajanga and D.O. Omayio. 2015. **Biomass production and forage quality of head-smut disease resistant napier grass accessions in highland and lowland environments of Kenya.** Eastern Africa Agricultural Productivity Programme (EAPP) End of Phase 1 Regional Conference and Exhibition 14th-18th September 2015, 37 pp.
- ✓ D.O. Omayio., S.I. Ajanga., J.V. Muoma., F.N. Muyekho., I. Kariuki and S. Mwendia.2014. **Cultivating napier grass varieties of mixed resistance levels by smallholder livestock farmers; key to sustained head smut pathogen management?** Sub-Theme 2: Which Way for Smallholder Production Systems; All African Conference on Animal Agriculture KICC Nairobi 27th -30th October 2014.
- ✓ D.O. Omayio., E.B. Luvonga., D.M.W. Ochieno., J.V. Muoma. 2014. **Potential of water hyacinth compost formulations as substrates for the cultivation of white oyster mushroom *Pleurotus ostreatus*.** 4th African Conference on Edible and Medicinal Mushrooms MMUST 26th -29th May 2014.
- ✓ D.O. Omayio., J.V. Muoma., F.N. Muyekho and S.I. Ajanga. 2014. **A probable case of quantitatively controlled antibiosis strategy of pathogen**

resistance against napier grass' head smut. 8th Egerton University International conference 26th-28 March 2014.

- ✓ D.O. Omayio., J.V. Muoma., S.I. Ajanga., F.N. Muyekho and I.W. Kariuki. 2013. **A novel technique in estimating the magnitude of established quantitative resistance in selected *Pennisetum purpureum* (Schum.) accessions against head smut disease.** Eastern Africa Agricultural Productivity Project mini-conference 12th-15th November 2013.
- ✓ D.O. Omayio., J.V. Muoma., S.I. Ajanga., F.N. Muyekho., E.I.N. Wamalwa., S. Mwendia and I.W. Kariuki. 2013. **Ustilago kamerunensis imposed resistance and its implications in mitigating napier head smut disease challenge.** Eastern Africa Agricultural Productivity Project mini-conference 12th-15th November 2013.
- ✓ E.I.N. Wamalwa., A.O.C. Midega., S. Ajanga., N.E. Omukunda., D.M.W. Ochieno., D.O. Omayio., F.N. Muyekho., M. Mulaa and R.K. Zeyaur. 2013. **Napier grass accession 16789 tolerant to napier stunt disease (Phytoplasma 16SrXI) constraining dairy industry in Western Kenya/Eastern Africa.** Eastern Africa Agricultural Productivity Project mini-conference 12th-15th November 2013.
- ✓ D.O. Omayio., J.V. Muoma., D.M.W. Ochieno., F.N. Muyekho., B. Mukoye and S.I. Ajanga. 2013. **Endophytes contribution in vivo to the resistance of Ustilago kamerunensis establishment in napier grass *Pennisetum purpureum* accessions.** 13th Workshop on sustainable horticultural production in the tropics 3rd-6th December 2013.

Student's supervised

- ✓ Rachel Muthoni. Reg. No. BTE/0022/15 (2019). Effects of physical modification and varying nutrient formulations in shortening the juvenile phase of *Carica papaya*. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Sharon Varine. Reg. No. SBC/0117/15 (2019). Efficacy of selected chemical formulations in management of *Cuscuta pentagona* parasitic plant. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Isaac Korir. Reg. No. SEC/0069/15 (2019). Efficiency of municipal wastewater stabilization ponds; a case study of mmust pond. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.

- ✓ Khadija Juma. Reg. No. SEC/0021/15 (2019). Potential of vegetative propagation of selected medicinal plants in Lurambi sub-county, Kakamega. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Benard Njuguna. Reg. No. SEC/0014/15 (2019). Evaluation of the efficiency of modified low cost briquette technology products from selected organic wastes. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Polycarp Ojwando. Reg. No. BIO/0076/15 (2019). Banana suckers multiplication using selected modified potting formulations. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Moses Gikundi. Reg. No. BIO/0017/15 (2019). Evaluation of the efficacy of varying feeds and temperature regimen on the growth and development of fall armyworm (*Spodoptera frugiperda*). Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Gloria Lyavoga. Reg. No. SEC/0084/15 (2019). Efficacy of selected organic manure formulations in improving soil fertility. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Wisdom Wanjohi. Reg. No. SBC/0053/15 (2019). Fall armyworm control in selected maize varieties based on the use of natural repellants. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Gladys Ndanu. Reg. No. BTE/0017/15 (2019). Effects of varying levels of *Aloe vera* sap in promoting growth vigor of *Phaseolus vulgaris*. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Bob Anam. Reg. No. BTE/0042/15 (2019). Effects of selected root development promoter agents in initiating growth in *Psidium guajava* marcots. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Eunice W. Wainaina. Reg. No. BTE/0014/14 (2019). Potential of *Spinacia oleracea* polyploidization using varying concentrations of colchicine.

Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.

- ✓ Geoffrey Cheruiyot. Reg. No. SBC/0061/14 (2018). Evaluation of the effects of selected plant concentrates on the growth of field dodder (*Cuscuta campestris*). Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Violet Gitari. Reg. No. SBC/0038/12 (2018). Assessing the allelopathic potential of selected plant species from MMUST botanical garden towards biodiversity management. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Faustine Mwaki. Reg. No. SBC/0014/13 (2017). Shannon Wiener diversity index modification; towards a more informative analysis of its output in an ecosystem evaluation. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Lilian Njeri. Reg. No. SEC/0010/13 (2017). Impact of mixed municipal wastes' in carbon sequestration potential of *Pennisetum purpureum*; Clone 13 variety. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.
- ✓ Allan Wanjala. Reg. No. SEC/0042/13 (2017). Integrated physiochemical parameters in analysis of water quality of Shandivisi river. Undergraduate project, Department of Biological Sciences, Masinde Muliro University of Science and Technology.

Personal competences

Mother tongue(s)	Kisii
Other language(s)	English, Kiswahili
Social skills & competences	Good communicational skills, Leadership skills, Analytical skills and team work
Organisational skills	Leadership skills, management skills and Good experience in meeting deadlines.
Technical skills	Good command of molecular tools such as PCR, sequencer, vortex and laminar flow system, research proposal and technical reports writing/presentation. Excellent skills

	in microbial product formulation, selection of organisms and breeding. Good command of laboratory mathematics and reagent formulation.
Computer skills	Good command of all Microsoft computer packages, data management, analysis and internet/Online research skills.
Artistic skills	Drawing, singing, diverse swimming styles, Karate and dribbling skills.
Others	Dissemination skills and very innovative.
Driving licence	I hold a driving licence (B- Light)

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Signed:



Dr. Dennis Omayio

Date:

13TH JULY 2021