

Academic Staff Profile

1.1 Personal Profile

1.1.1 Personal Details

Name: Muchemi Kariuki Peterson

Title/Qualification: Msc,
PhD Up to date....

Department: Plant Sciences

Email: muchemi.kariuki@ku.ac.ke

Contact Address:

Area of Specialization:

- Genetics
- Breeding
- Avocado quality and export
- Crop protection
- Botany

Research Interests:

-Plant Genetics

-Crop Breeding-Production and Training

-Avocado production, breeding, management toward quality for export market

-Biofertilizer efficacy Research

-Agriculture baseline survey and implementations

Orcid Account: [0000-0001-6452-4792](https://orcid.org/0000-0001-6452-4792)

Google Scholar:

<https://scholar.google.com/citations?user=BFH5dkMAAAAJ&hl=en>



1.1.2 Academic & Professional Qualifications

- Kenyatta University (KU), Nairobi , Kenya
PhD Genetics to Date..
- Kenyatta University (KU), Nairobi , Kenya
Master of Science Biotechnology
- Jomo Kenyatta University of Agriculture and Technology (JKUAT), Nairobi
Bachelor of Science Botany and Biotechnology,

1.1.3 Employment History

- To Date Tutorial Fellow--Kenyatta University, Lecturing at the Department of Plant Sciences
- 2015-2018 Part-Time Lecturer Tangaza University CTIE Institute of Saint Mary University of Minnesota Minnesota United State of America (USA)
- 2012-2013- Part-Time Lecturer and Researcher, Technical University of Mombasa, Plant Bio-systematic and Genetics Laboratory
- 2013-2014-Sasumua High School Nyandarua
- 2010-2012- Kirima High School
- 2010-Research Assistant Characterization of Pollinators in Marigat, Baringo County
- 2008-2009- Coffee Research Foundation—Tissue culture of Plants like Banana, muringa, Muteta and *Catha edulis*
- 2005-2008- Biology, Agriculture, Kiswahili and Geography teacher-Lake olobo lossat Secondary School
- 2005- Huhirio Secondary School-Agri/Bio Teacher

1.2.3 Conference/Seminar Papers/Publications

1. Jedidah Wangari Mwangi, Oduor Richard Okoth, **Muchemi Peterson Kariuki**, and Ngugi Mathew Piero (2021). Genetic and phenotypic diversity of selected Kenyan **Mung bean** (*Vigna radiata* L. Wilczek) genotypes- **Springer**
2. Kabachi Timothy, Stanley Kimaru and **Peterson Muchemi** (2021). Evaluation of fungicides on *Colletotrichum gloeosporioides* in **Avocado** which causes Anthracnose disease in Kenya, Kenyatta University.
3. Njambi Waraga, Stanley Kimaru and **Peterson Muchemi** (2021). Evaluation of the effects of Biofertilizers on tomatoes (*Solanum lycopersicum*) yields. Kenyatta University
4. Christine Wanjiru, Stanley Kimaru and **Peterson Muchemi** (2021). Evaluation of the effects of Biofertilizers on Beans Family yields, Kenyatta University
5. Hilda Michieka, Stanley Kiamaru and **Peterson Muchemi** (2021). Effects of pepper (*Capsicum annuum*) and *onion* (*Allium cepa*) on *Colletotrichum gloeosporioides* causal of Anthracnose in **Mangoes in Kenya**, Kenyatta University

6. Mwaka Jone Mwanzo, Stanley Kiamaru and **Peterson Muchemi (2021)**. Evaluation of Effectiveness between home-made traps and commercial traps in managing **mango** fruit fly in mango production in Kenya
7. Pauline W. Njoroge; Joseph Kamau and **Peterson Muchemi. 2021**. Screening of selected maize (*Zea mays L.*) genotypes for resistance to maize chlorotic mottle virus (M.C.M.V) in Kenya. Kenyatta University
8. Jeneffer Wamucii, Joseph Kamau and Peterson Muchemi. **2021**. Screening of selected maize genotypes for resistance to sugarcane mosaic virus (SCMV) in Kenya. Kenyatta University
9. K. S Kimaru , **K. P Muchemi** & J. W Mwangi (**2020**) Effects of anthracnose disease on avocado production in Kenya, Cogent Food & Agriculture, **6:1**, 1799531: <https://doi.org/10.1080/23311932.2020.1799531>
10. **Muchemi, PK.**, Kamau, J.W., **Nchore, S. B**, Mathew P. N, Kimaru, S.K.Mwangi. JW, Joyce.W, Florence. M. 2019. Genetic Response of Selected Maize Germplasm Screening for MLND Resistance in Kenya. Kenyatta University Biennial research and innovation Conference, Kenyatta University, Nairobi, Kenya, 23-25 October 2019.
11. **Muchemi, PK**, Kamau, J.W., **Nchore, S. B**, Mathew P. N, Kimaru, S.K., Mwangi, JW., Waithira, J.,Munguti, F. 2019. The relationship between level of education, Farmers varietal prevalence, control and distribution of Maize Lethal Necrosis in Bomet County. Kenyatta University Biennial research and innovation Conference, Kenyatta University, Nairobi, Kenya, 23-25 October 2019.
12. **Muchemi, PK.**, Kamau, JW., **Nchore, S. B**, Omwoyo, RO., Kimaru, SK., Mathew, PN. 2019. The use of low Tissue Culture Technology towards food sustainability in Kenya. Kenyatta University Biennial research and innovation Conference, Kenyatta University, Nairobi, Kenya, 23-25 October 2019.
13. **Muchemi PK**, Kamau, JW., **Shem, B.N.**, Mathew. PN. Omwoyo, RO., Kimaru, SK., 2018. The use of low Tissue Culture Technology towards food sustainability in Kenya. RUFORUM Biennial Conference.
14. **Muchemi Peterson**, Joseph Kamau, Emily Wabuye (2018). The Effects of Invasive Plants in East Africa and its Wild Beauty Beast. RUFORUM Biennial
15. Morris Muthini, Mercy Muindi, **Muchemi Peterson (2018)**. Symbiotic Efficiency of Native Rhizobia Nodulating Common Bean (*Phaseolus vulgaris L.*) in soils of Eastern Regions of Kenya. **RUFORUM Biennial**
16. **Muchemi Peterson**, Joseph Kamau, Mathew Piero, Shem Nchore and J. Mwangi (2018) The currents status of Maize Lethal Necrosis Disease in Nyandarua County, Kenya, Horticultural Association of Kenya
17. Jiveri Bonface, Adhiambo Brendah, Kahindo John, Dianah Kwanyi, Malala Bonface and **Muchemi Peterson (2015)**. Bio-alkanol gel as a form of renewable energy. National Science Council

18. **Muchemi Peterson** (2015). Somatic embryogenesis and regeneration of DHO4 and SC DUMA 43 maize genotypes at coastal region of Kenya. Master of Science Thesis submitted to Kenyatta University,
19. Jiveri B, **Muchemi P**, Mwadime L, Malala B. Potential of Lubricating Oil (MGALO) and organic bio-fertilizer production from Marine Green Algae (**patent No.KE/UM/2012/00295**). Applied Research & Innovation for Development.
20. Jiveri B, **Muchemi P**, Mwadime L, Malala B. Bio-alkanol gel as a form of renewable energy. Kabianga University 2nd Annual Postgraduate Conference, 17 – 18 December, **2013**, Main Campus, Kabianga. Theme:”Crossing Boundaries: Critical Debates in Quality Postgraduate Research”
21. Jiveri B, **Muchemi P**, Mwadime L, Malala B. Potential of Lubricating Oil (MGALO) and organic bio-fertilizer production from Marine Green Algae (patent No.KE/UM/2012/00295). Sustainable Dev.
22. Jiveri B, **Muchemi P**, Mwadime L, Malala B. Potential of Lubricating Oil (MGALO) and organic bio-fertilizer production from Marine Green Algae (**patent No.KE/UM/2012/00295**). Global Development.
23. Jiveri B, **Muchemi P**, Mwadime L, Malala B. Potential of Lubricating Oil (MGALO) and organic bio-fertilizer production from Marine Green Algae (**patent No.KE/UM/2012/00295**). African Green Rev.
24. Jiveri B, **Muchemi P**, Mwadime L, Malala B. International Conference on Integrated Ecosystem and Water Management in the Lake Victoria Basin: “From Science To Integrated Socio-Economic Development” held at Maseno University, Kisumu Hotel from 3rd -6th February 2015
25. **Muchemi P**, Mwadime L, A Jalemba Mgtu, S Anami, J Mwangi, Malala B and Jiveri B. (**2014**). *Somatic Embryogenesis and Regeneration of SC DUMA 43 and DHO4 Maize: Genotypes Adapted to Arid, Semi Arid and Coastal Ecosystems of Kenya* in “Bridging the gap between society, science and industry” 1st African Green Revolution Students Conference & 14th workshop on sustainable horticulture in the tropics: 1st - 5th December, Kenyatta University, Nairobi- Kenya. Abstract pp 71
26. Mwadime L, **Muchemi P**, A Jalemba Mgtu, S Anami. (**2013**). Independent somatic embryogenesis and regeneration of PHO4 and DK831 Coastal genotypes.”The JKUAT Scientific Technological and industrialization Conference and Exhibition.”
27. Mwadime L, **Muchemi P**, A Jalemba Mgtu, S Anami. (**2013**). Independent somatic embryogenesis and regeneration of PHO4 and DK831 Coastal genotypes. “2nd The Biosafety Annual Conference at KICC”

1.2.3 Workshops/Short Courses Training

1. Online Module development Training Certificate- COLEACP **Belgium**
2. Good Practices for harvest and post-harvest handling of Avocado for **export Market-Next Kenya**
3. **Horticultural Stakeholders** in Kenya toward development of practical guide use for Avocado and Fresh beans Hosted by Next Kenya-COLEACP Program
4. Undergraduate Module development and vetting- **Digital School Kenyatta University**
5. COIL-Training on International Collaboration of Global University Staff for enhancing research exchange-**UNIVERSITY DELASALLE-MEXICO**
6. Trainer of trainee-New modern methods of teaching online students and Module development-**COLAECF** with collaboration with Department of Plant Sciences
7. The scientific methods of Certified Potatoes seeds Production in Kenya- **KEPHIS POTATOES RESEARCHERS AND STAKEHOLDERS WORKSHOP-2019**
8. The Role of Tissue Culture, Aeroponic, Hydroponic and Apical grafting toward mass production of Certified Irish Potato seeds in Kenya- **KEPHIS 2019 Oct**
9. Training and Networking on Dissemination Strategies and Statistical Data Analysis- Hortilinea Diversifying Agricultural Food Systems, DAAD, and Jomo Kenyatta University of Agriculture and Technology (**JKUAT**)
10. Molecular Biology Tools for Research in Plant Agriculture- **Inqaba Biotec**
11. Scientific Communication and Publishing-DAAD and Training Centre in Communication
12. Leadership Coaching a Tool for effective communication and Community Training- Tangaza University and **DePaul University**
13. Leading Community Change: The Challenge- Tangaza University and **DePaul University**
14. Workplace and Community Coaching for Organizational Performance- Tangaza University and **DePaul University**
15. Training Workshop at Tangaza University and **DePaul University** on Proposal and Grant writing
16. Training on modern molecular tools toward striga elimination in Africa-Kenyatta University
17. Kenya Standing Technical Committee on Imports and Export (**KSTCIE**) Stakeholders Conference-Kenya Plant Health Inspectorate Services (KEPHIS)
18. Kenya Standing Technical Committee on Imports and Export (**KSTCIE**)- Ministry of Agriculture-Nov 2017
19. Kenya Standing Technical Committee on Imports and Export (KSTCIE)- KEPHIS Sept 2017
20. Kenya Standing Technical Committee on Imports and Export (KSTCIE)- KEPHIS Feb 2017
21. Sensitization seminar on funding opportunity with **IFS** Kenyatta University - 2015
22. National Debate on effect of banning GMO, s Food production and Consumptions in Kenya at Kenyatta University.

23. Work Ethics, Setting, Marking examinations, Teaching methodology, Innovation, Research in modern teaching environments, E-Learning and use of ICT in teaching Sciences (**SMASSE**)-Magomano Girls High School
24. Conference on Ecological Biodiversity at National Museum Kenya-2010

1.3 Research

- a. Avocado maturity Test, efficacy trials *in vitro* and export Research- on going
- b. -Molecular Characterization of Kenyan Maize Germplasm- On going
- c. -Maize Breeding for MLND Resistant- On going
- d. -Bio-fertilizers Trials- on going
- e. -Somatic Embryogenesis of Maize Germplasm in Coastal Region, Kenya. completed

1.4 Funded Projects

Organization	Academic/Research	Year
DAAD-Germany	Research Grant Maize Breeding	2018-Date
Kenyatta University	Academic Award for RUFORUM Exhibition	2018
DAAD-Germany	Research Maize	2016-2017
DAAD-Germany	Research Maize	2017-2018
DAAD-Germany	Academic Maize	2016-2018
Kenyatta University	Training KEMRI	2017

1.4.1 Undergraduate Students undertaking Research Graduated-2021

1. Pauline W. Njoroge. Screening of selected maize (*Zea mays*) genotypes for resistance to Maize Chlorotic Mottle Virus (M.C.M.V) in Kenya
2. Jeneffer Wamucii. Screening Of Selected Maize Genotypes For Resistance To Sugarcane Mosaic Virus (SCMV) in Kenya
3. Kabachi Timothy. Evaluation of fungicides on *Colletotrichum gloeosporioides* in Avocado which causes Anthracnose disease in Githurai, Kiambu County, Kenyatta University.
4. Njambi Waraga. Evaluation of the effects of Bio-fertilizers on tomatoes (*Solanum lycopersicum*) yields. Kenyatta University
5. Christine Wanjiru. Evaluation of the effects of Bio-fertilizers on Beans Family yields. Kenyatta University

6. Hilda Michieka. Effects of pepper (*Capsicum annuum*) and onion (*Allium cepa*) on *Colletrotrichum gleosporiodes* causal of Anthracnose in **Mangoes in Kenya**, Kenyatta University
7. Mwaka Jone Mwanzo. Evaluation of Effectiveness between home-made traps and commercial traps in managing **Mango** fruit fly production in Kenya

On Going Research-2022

1. Godhard Kimani - Investigating on drought tolerance among various maize genotypes grown in Kenya
2. Margaret Nyambura. Identification of resistant maize genotypes (*Zea mays* L.) for sugarcane mosaic virus (SCMV) in Murang'a County
3. Vida Obora Ananga. Identification of selected maize (*Zea mays* L) genotypes resistant to Maize Chlorotic Mottle Virus (MCMV) in Kisumu county
4. Naomi Chepng'etish- Evaluation of the effects of Bio-fertilizers on Potatoes yields at Narok County, Kenya,
5. Chepkoech Lily-Evaluation of the effects of Bio-fertilizers on Potatoes yields at Nakuru County, Kenya,
6. Margret Kipkemoi. Evaluation of the effects of Bio-fertilizers from selected plant extracts on Potatoes yields, Baringo County Kenya
7. John Otieno- Evaluation of the effects of Bio-fertilizers on Tomatoes at Kiambu County, Kenya,

1.7 Professional/Consultancy (Editor/Peer review in journals, Networks/Collaborations, External Examiner, Patents)

- Bio-fertilizer Efficacy trials for commercialization and Plant Breeding
 - Avocado Agronomic Practices and managements (Pest and Diseases), Commercialization and Export Market Requirements
 - Digital learning, Manual Development and Vetter for face-face teaching and Online Digital Platform- Kenyatta University trained, COLEACP DIGITAL TRAINING AND CURENTLY OPEN UNIVERSITY-UK

1.8 Community Service and Other Engagements

1. **2018-Date-PATRON-KENYATTA UNIVERSITY NYANDARUA STUDENTS ASSOCIATION (KUSA).**
2. Academic motivator to High Schools and Young People toward overcoming low self-esteem and emerging technological use and challenges
3. Board Member Health (Treasurer)- Shalom PCEA- Mwihoko Parish-Nairobi North Presbytery
4. Deacon Shalom PCEA
5. Network Evangelistic Team International- Visits High school to mentors the young people on career, self-awareness, overcoming emerging challenges and donate Sanitary and underpants to Girls and Boys in Primary Schools
6. Train farmers on need to diversify agricultural through adoption of Avocado (Hass) production
7. Train Farmers on safe use of pesticides on vegetables, fruits and other food crops
8. Train young farmers on fodder production, zero grazing set up and requirement toward food and economic sustainability

2.1.2 Other administrative positions Held

1. 2021-To date- Co-ordinator- Undergraduate Research Projects

Responsibilities

1. Organize Seminars for Undergraduate Students
2. Take students through research gaps related to current market Needs/gaps

Other Administrative Duties

1. Committee member, Departmental Time-Tabling Team
2. Committee Member Online Staff Group-Department of Plant Sciences
3. Committee member, Departmental Undergraduate and Postgraduate Seminars
Organiser
4. Committee member, Research and Linkages committee- Secretary
5. Committee member, Library, Archive & Herbarium
6. Committee member, Staff Welfare Committee
7. Library and Archive-member
8. Assistant Secretary-Departmental Board Meeting
9. Secretary Website Departmental Committee