



Prof. Titus K. Mukiyama

CURRICULUM VITAE

PERSONAL

Name	Titus K. MUKIAMA
Date of Birth	11 August 1948
Marital status	Married
Languages	English, Swahili (Fluent) French (50% lapsed)
Country of birth	Kenya
Citizenship	Kenya

ACADEMIC QUALIFICATIONS

Ph.D	1980, Genetics, University of Nairobi
B.Sc. (Hons)	1973, Botany, Zoology & Chemistry; University of Nairobi.

POST-DOCTORAL TRAINING

1981/82

Analysis of enzyme loci using starch gel electrophoresis

Laboratory

Genetics Laboratory, MAVERL

USDA/University of Florida, Gainesville, FL, USA.

1985

Use of chromosomal inversion polymorphism for the identification of insect sibling species.

Laboratories

Genetics Laboratory, IAEA Seibersdorf Laboratories Vienna, Austria.

Medical Entomology Laboratory, University of Rome "La Sapienza", Rome, Italy.

Evaluation of insecticides as tools for genetic sexing of insects.

Laboratory

Genetics Laboratory, Department of Zoology University of Manchester, England.

1990

DNA cloning techniques

Laboratory

Molecular Biology Laboratory

Department of Biological Sciences, University of Sussex, Falmer, Brighton, UK.

1993/4

Use of DNA cloning tools for the development and use of DNA probes.

Laboratory

Genetics Laboratory, MAVERL USDA/University of Florida Gainesville, FL, USA.

EMPLOYMENT HISTORY

1998 June to Present	Professor, Department of Botany
1992 March to 1998 March	Chairman of Department
1991 April to 1998 June	Associate Professor
1986 April to 1998 June	Senior Lecturer
1980 May to 1986 April	Lecturer
1977 May to May 1980	Tutorial Fellow
1975 January to 1977 May	Demonstrator, Department of Botany, University of Nairobi
1973 May to 1974 December	Biology & Chemistry Teacher, Nkubu High School, Meru

UNIVERSITY TEACHING

Undergraduate courses

Introductory biochemistry and genetics
General genetics

Postgraduate courses

Molecular genetics
Population genetics
Quantitative genetics
Ecological and behavioural genetics
Mutations
Biostatistics

RECOGNITION AND MERIT AWARDS

1993/94

Senior Fulbright Scholar, USDA/University of Florida, Gainesville, Florida, USA.

1990

British Council Fellow, University of Sussex, UK.

1985

IAEA Fellow, IAEA Seibersdorf Laboratory, Vienna., Austria.

US National Academy of Sciences Scholar, University of Rome, Italy.

US National Academy of Sciences Scholar, University of Manchester, UK.

1983

UNEP travel award, International Congress of Genetics, New Delhi, India

1981/82

Fulbright Scholar, USDA/University of Florida, Gainesville, FL, USA.

1978

UNEP travel award, International Congress of Genetics, Moscow.

1973

Gandhi-Smarak-Nindhi Prize, Best student in Biological Sciences, University of Nairobi.

1972

Treetops Award, Best Field Report on Conservation, Block Hotels & University of Nairobi

POSTGRADUATE RESEARCH SUPERVISION

Ph.D.

1. Amugune N.O. (2001) *Agrobacterium*-mediated transformation and regeneration of common bean *Phaseolus vulgaris* L. cultivars grown in Kenya.
2. Kimani S.W. (1995) Morphological and biochemical systematics of the *Cotesia* parasitoid complex (Hymenoptera: Braconidae)

M.Sc

1. Mjombah N.S.S. (2000) Isolation and characterization of a gene encoding a potential vaccine and diagnostic antigen of *Theileria lestoquardi*.
2. Mugo J.K. (2001) Biological nitrogen fixation of *Acacia drepanolobium*.
3. Ochieng A.O. (2001) Identification of the key pollinators of the eggplant *Solanum melongena* in Nguruman area.
4. Macharia S.M. (1998) Intraspecific genetic variation among populations of the Kenyan African violet *Saintpaulia rupicola*: A molecular approach.
5. Mwitari P.G. (1997) Karyotype analysis amongst indigenous *Sesbania* species from Southern Africa.
6. Lusweti D.E (1992) testing for genotoxicity of some commonly used face creams
7. Muraya J.K. (1989) Genetic variation in wild Kenyan populations of the Mediterranean fruit fly *Ceratitis capitata* Wied.
8. Oningo R. (1989) Reaction of potato cultivars to early blight *Alternaria solani* in Kenya.
9. Mudegu J.V. (1989) Genetic variation in wild *Anopheles pharoensis* Theobald of Mwea Irrigation Scheme.
10. Wangai M.W. (1985) A preliminary immunogenetics study of a Kenyan population of *Camelus dromedarius*.

EXTERNAL EXAMINATION

2001-03	External examiner, University of Swaziland, Swaziland
1999	External examiner, Makerere University, Uganda
1995-99	External examiner, Moi University, Kenya
1991-94	External examiner, University of Dar es Salaam, Tanzania
1992-93	External examiner, Kenyatta University, Kenya

RELEVANT NON-ACADEMIC LEADERSHIP POSITIONS

2001-Present	Chair, Kenya Working Group on Medicinal & Aromatic Plant Species (KWG-MAPS).
1996-1998	Chair, Kenya National Biodiversity Sub-Committee
1995-1996	Chair, Taskforce on the Kenya National Biodiversity Strategy and Action Plan
1994 - 1995	Vice-Chair, Kenya National Biodiversity Sub-Committee

PROJECT DEVELOPMENT SKILLS

1. Problem Analysis and the Logical Framework Analysis.
2. Participatory Tools and Methodologies
3. The Project Cycle, including Monitoring and Evaluation.
4. Baselines and Incremental Costs

SIGNIFICANT DONOR PROJECT SUPPORT

1. 2003 - Effective integration of biodiversity resources and management as a tool for promoting rural agricultural reform, IDRC, CAD 100,000.
2. 2001 - First Kenya national workshop on Medicinal & Aromatic plant species, USD 40,000.
3. 2000-Present - Assessment of capacity building needs and country specific priorities in conservation of biodiversity in Kenya, GEF - UNEP, USD 244,000.
4. 2001 - Medicinal Plants of the Mt. Kenya Region, UNESCO, USD26,000.
5. 1999-Present - Botanical and Zoological networks of Eastern Africa (BOZONET), GEF, USD 10.0 m (In GEF Pipeline for project development funding).
6. 1996-2002 - Reducing biodiversity loss at cross-border sites in East Africa, GEF, USD12.655 m
7. 1985-1990 - Genetic sexing studies of East African races of the Mediterranean fruitfly *Ceratitis capitata*, I.A.E.A., USD 36,000.

8. 1983-1987 - Genetic and ecological studies of Anopheline vectors in the Mwea Rice Irrigation Scheme in Central Kenya, BOSTID/US National Academy of Sciences, 106,000.

RELEVANT CONSULTANCIES

2001

Baseline data collection for the National Museums of Kenya Botanical Project. An NMK/UNDP Consultancy

Proceedings of the NES/ITDG National Workshop on Agricultural biodiversity. An ITDG Consultancy.

2000

Summarized edition of the Kenya National Biodiversity Strategy and Action Plan for COP-5. GOK/WWF Consultancy

1997-1999

Lead National Consultant, Kenya National Biodiversity Strategy and Action Plan. GOK/World Bank Consultancy

National Consultant, Project Document preparation process, GEF/UNDP East African Cross-Border Biodiversity Project. GOK/UNDP Consultancy

Consultant, GTZ, *Melia* Sustainable Use and Biological Control project. GTZ Consultancy.

1996

Lead National Consultant, PDF process, GEF/UNDP East African Cross Border Biodiversity Project. GOK/UNDP Consultancy.

National Consultant, Terminal Evaluation, GEF/UNDP/FAO East African Capacity Building Biodiversity Project. GOK/UNDP Consultancy.

1995

National Consultant, National and Regional Biodiversity Issues, GEF/UNDP/FAO East African Capacity Building Biodiversity Project. GOK/UNDP Consultancy.

LEVEL OF COMPUTER COMMAND

Basic	Micro-computers, Ms Dos Windows 95 & 98
Intermediate software packs	Ms Word, Ms Excel
Advanced software packs	Ms PowerPoint Aldus Pagemaker
Accessories	Epsom Perfection Scanner Creative Video Blaster WebCam Adobe photodeluxe
Full internet	

WORKSHOPS, CONFERENCES AND SEMINARS ATTENDED

2003

GEF Project planning workshop, ILRI, 5-7 May.

Biodiversity experts meeting, DIVERSITAS, Paris, France, 19-21 March 2003.

2002

KWG-MAPS Training Workshop on the Logframe Analysis, Karen, Nairobi, Kenya.
BOZONET Kenya National Tasks Workshop, Thika.
Regional Meeting on the UNDP/GEF Botanical-Zoological Networks of Eastern Africa (BOZONET) Project, Nairobi.
VLIR-IUC-UoN 4th Annual Symposium for Postgraduate students and invited scholars, Diani, South Coast.

2001

University of Nairobi Biodiversity Workshop
First National Workshop on Medicinal, Aromatic, and other underutilized plant species in Kenya, Kenya Wildlife Service Training Institute, Naivasha

2000

Fifth Conference of Parties to the Convention on Biological Diversity, UNEP Head Office, Nairobi.
First CBD ad hoc Open-ended Inter-sessional Working Group Meeting on the Implementation of Article 8 (j) and Related Provisions, Seville, Spain.
ACTS/GEF/ELCI/UNEP/IUCN First Eastern and Southern Africa Regional Biodiversity Forum, Mombasa.

1999

Presenter of Kenya NBSAP draft document, Second national workshop, Nairobi.
Lead Facilitator, NBSAP Regional Workshops, Eldoret, Kisumu., Mombasa and Nanyuki..

1998

UNDP/GOK Capacity 21 Programme Workshop, Machakos
Trainer in Participatory Tools and Methodologies, Kenya National Biodiversity Strategy
and
Action Plan (NBSAP) Process
Lead Facilitator, NBSAP National Workshop, Nairobi.

1997

Second Environmental Economics Workshop, Machakos.
GEF/UNDP Project Appraisal Committee Meeting, Nairobi.
National BSAP (Biodiversity Strategy and Action Plan) Planning Team Meeting, Nairobi.
National BSAP Taskforce Meeting, Nairobi.
Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) workshop, Nairobi.
Second Regional Workshop, GEF/UNDP Project Document Preparation (PDP), Nairobi.
DNA Bank-Net III Africa Meeting, Nairobi
First Environmental Economics Workshop, Nairobi.
First Regional Workshop, GEF/UNDP PDP Process, Arusha.
National Workshop, PDP Process, Nairobi.
Second Regional Workshop, PDP Process, Arusha.

1996

Second National Workshop, PDP Process, Nairobi.
First Regional Workshop, PDP Process, Arusha.
First National Workshop, PDP Process, Nairobi.

NCST Workshop on Regulations and Guidelines for Biosafety and Biotechnology, Nairobi.

National Workshop, Terminal Evaluation, GEF/UNDP/FAO project.

Regional Workshop, GEF/UNDP/FAO project, Dar es Salaam.

Training course on molecular biology, Kenya Agricultural Biotechnology Platform, Nairobi.

First National Workshop, UNEP/GEF Biodiversity Data Management Project (BDM), Amboseli.

1995

Second Microbial Biodiversity (MSDN) training workshop, Nairobi.

Co-Chair, National Biodiversity Workshop, Machakos.

1994

Chair/Facilitator, National Seminar on the development of a digital BD database for Lake Naivasha.

1993

African Studies Association Meeting, Boston, USA.

1988

National Expedition on Habitats and Genetic Resources.

Ben-Gurion University of the Negev, Israel

I.A.E.A. Meeting, Crete, Greece.

1987

I.A.E.A. Advisory Group Meeting and Symposium, Vienna, Austria.

BOSTID Meeting, Bangkok/Pattaya City, Thailand.

1986

BOSTID Meetings, Washington DC and New Orleans, USA.

1984

Study leave, USDA, Gainesville, Florida, USA

BOSTID Meeting, Panama City, Panama.

PUBLICATIONS

Molecular & Biochemical genetics

1. Mukiyama T.K., Cockburn A.F., Kaiser P.E. and J.A. Seawright (1996) Cloned RNA-gene DNA probe for *Anopheles bradleyi*. *Internl.J.BioChemPhysics* 5,35-38.

2. Mukiyama T.K., Cockburn A.F., Kaiser P.E. and J.A. Seawright (1996) An RNA-gene DNA probe for *Anopheles bradleyi*. *Proc. First Pan-African Conference on Biochemistry and Molecular Biology*. Abstract.

3. Mudegu J.V. and Mukiyama T.K. (1996) Electrophoretic variation in wild *Anopheles pharoensis* Theobald from Mwea Irrigation Scheme, Kenya. *Insect Sci. Applic.* 16, 229-231.
4. Mukiyama T.K. and J.K. Muraya (1990) Genetic variation in wild Mediterranean fruitfly *Ceratitidis capitata* Wied. from Kenya. In "Genetic sexing of the Mediterranean fruitfly". I.A.E.A., Vienna, Austria.
5. Mukiyama T.K. (1987) Genetic variation in wild *Anopheles arabiensis* Patton of Mwea Irrigation Scheme, Kenya. *Insect Sci. Applic.* 8, 245-249.
6. Mukiyama T.K. (1985) East African strains of *Ceratitidis capitata*: Occurrence and enzyme variation. Report on development of genetic sexing. IAEA, Vienna, Austria.
7. Narang S., Seawright J.A., Mukiyama T.K. and N.L. Willis (1983) Assignment of 6-phosphogluconate dehydrogenase and glucose oxidase to chromosome 2 of *Anopheles albimanus*. *Can. J. Genet. Cytol.* 25, 567-
8. Mukiyama T.K. (1983) Genetic markers in insect sexing systems. Report on development of sexing
9. systems in *Ceratitidis capitata*. IAEA, Vienna, Austria.
10. Mukiyama T.K. (1980) Comparative dehydrogenase activity during the ontogenesis of the yellow fever mosquito *Aedes aegypti*. *J. Comp. Biochem. Physiol.* 67B, 659-665.
11. Mukiyama T.K. (1980) Gene polymorphism in sympatric populations of the yellow fever mosquito *Aedes aegypti* in Kenya. *Kenya J. Sci. Technol.* 1B, 35-39.

Cytogenetics

1. Mukiyama T.K. and R.W. Mwangi (1990) Population and cytogenetic observations on *Anopheles arabiensis* Patton in the Mwea Irrigation Scheme, Kenya. *Insect Sci. Applic.* 11, 119-131.
2. Mukiyama T.K. (1988) Genetics as a component of vector mosquito control in East Africa. In `Modern Insect Control: Nuclear Techniques and Biotechnology`. I.A.E.A., Vienna. 163-177
3. Mukiyama T.K. (1987) Possible use of a genetic mechanism in the control of *Anopheles arabiensis* in East Africa. Report to Advisory Group Meeting on Genetic Methods of Insect Control, Vienna, Austria.
4. Mukiyama T.K. (1985) Y-Autosome genetic sexing strain of *Anopheles albimanus* (Diptera-Culicidae). *Insect Sci. Applic.* 6, 649-652.
5. Mukiyama T.K., Narang S. and J.A. Seawright (1983) A genetic sexing strain of *Anopheles albimnus*. *Proc. XV Intl. Congr. Genet. Abstr Vol. 2*, 727.

Field studies

1. Mukiyama T.K., and Mwangi R.W. (1996) Temporal population fluctuations and the proportion of unfed, bloodfed and gravid females of *Culex quinquefasciatus* and the minor culicines in Mwea Rice Irrigation Scheme, Kenya. *Internl. J. BioChemiPhysics* 5, 1-5.
2. Mukiyama T.K. and J.K. Muraya (1994) Ceratitid fruitflies infesting agricultural crops in Kenya. *Insect Sci. Applic.* 15, 155-159.
3. Mwangi R.W. and T.K. Mukiyama (1992) Irrigation Scheme or mosquito hazard A case study in Mwea Irrigation Scheme. *Hydrobiologia* 232, 19-22.
4. Mukiyama T.K. and R.W. Mwangi (1989) Seasonal population changes and malaria transmission potential of *Anopheles pharoensis* and the minor anophelines in Mwea Irrigation Scheme, Kenya. *Acta Tropica*, 46, 181-189.

5. Mukiyama T.K. and J.H.P.Kahindi (1989) Potential of *Bacillus thuringiensis* var *israelensis* for mosquito malaria vector control in Kenya. *Israel J. Entomol.* 23, 69-76.
6. Mukiyama T.K. and R.W.Mwangi (1989) Field studies of larval *Anopheles arabiensis* Patton of Mwea Irrigation Scheme, Kenya. *Insect Sci. Applic.* 10, 55-62.

Natural plant products

1. Mukiyama T.K. & P.M.Mathiu (2002) Using Ethnobotanical leads to Identify Medicinal Plants in the Mt. Kenya region. In "Proceedings of the First National Workshop on Medicinal, Aromatic, and other underutilized plant species in Kenya". In Press.
2. Mukiyama T.K., Mwangi R.W & Rembold H. (1998) Sustainable use and conservation of Arid and Semi-arid (ASAL) tree species in Kenya : The case of *Melia volkensii*. In "Conservation and Utilization of African Plants", R.P.Adams & J.E. Adams, Editors. Missouri Botanical Garden Press, 51-58.
3. Mwangi R.W. and T.K.Mukiyama (1989) Studies of insecticidal and growth-regulating activity in extracts of *Melia volkensii* (Gurke), an indigenous tree in Kenya. *E.A. Agric. For. J.* 54, 165-173.
4. Mwangi R.W. and T.K.Mukiyama (1988) Evaluation of *Melia volkensii* extract fractions as mosquito larvicides. *J. Amer. Mosq. Control Assoc.* 4, 442-447.
5. Mukiyama T.K. and R.J.Wood (1987) Influence of DEF on the action of malathion on male and female *Ceratitis capitata* (Diptera: Tephritidae). In `Fruitflies`, Elsevier Science Publishers, Amsterdam and New York. 235-240.
6. Mukiyama T.K. and R.W.Mwangi (1987) *Melia volkensii* extracts: Larvicidal action and purification. Report to Research Coordinating Meeting, MVR, BOSTID, Bangkok, Thailand.
7. Mwangi R.W. and T.K.Mukiyama (1986) Effects of *Melia volkensii* extracts against *Anopheles arabiensis* larvae. Report to Research Coordinating Meeting, MVR, BOSTID, Washington DC, USA.
8. Mukiyama T.K. and R.W.Mwangi (1984) Ecology and possible control of malaria vectors with *Melia volkensii* extracts in Kenya. Report to Research Coordinating Meeting, MVR, BOSTID, Panama City, Panama.

Biodiversity

1. Mukiyama T.K. (2002) Review of some tools for enhancing the design and success of biodiversity conservation projects. VLIR-IUC-UoN Symposium, Diani, South Coast
2. Mukiyama T.K. (2000) Agricultural Biodiversity as it relates to CBD Article 8 (j) and Related Provisions. ITDG/ActionAid/NES Workshop in Agricultural Biodiversity, Nairobi
3. Mukiyama T.K. (2000) Report on the *ad hoc* open-ended Inter-sessional Working Group on Article 8 (j) and Related Provisions of the Convention on Biological Diversity. Second COP 5 Technical Sub-Committee Preparatory Workshop, KTTC, Mbagathi, Nairobi.
4. Mukiyama T.K. (2000) Introductory review of the GEF Draft Operational Program No. 12 : Integrated Ecosystem Management. IUCN, Nairobi.
5. Mukiyama T.K. (2000) National experiences and needs in developing the Kenya National Biodiversity Strategy and Action Plan. Eastern and Southern Africa Regional Biodiversity Forum, Mombasa.
6. Mukiyama T.K. (2000) Core features and future directions for the nascent Kenya National Biodiversity Strategy and Action Plan. Regional Consultative Meeting, Dar es Salaam, Tanzania.

7. Mukiama T.K. (2000) CBD Article 8 (j) and Related Provisions. First COP 5 Technical Sub-Committee Preparatory Workshop, Machakos.
8. Mukiama T.K. (1999) The Kenya National Biodiversity Strategy and Action Plan :The Concept, Status and Way Forward. Progress Review Meeting, NES, Nairobi.
9. Mukiama T.K. (1997) Assessment and indicators of biological diversity. SSSTTA
10. workshop, Nairobi.
11. Mukiama T.K.(1996) Safe use and disposal of GMO`s and other biohazards .NCST workshop on Regulations and Guidelines for Biosafety and Biotechnology,10-11 September 1996,Nairobi.
12. Mukiama T.K.(1995)Microbial biodiversity and biotechnology in Kenya. Second microbial bioinformation training workshop,NMK,14-15 December 1995,Nairobi.
13. Mukiama T.K.(1995)Biodiversity issues in Kenya and potentially common regional issues in East Africa. Kenya country report for the GEF/UNDP/FAO E.A.Biodiversity project.
14. Mukiama T.K.and Kahindi J.H.P.(1995)Biotechnology and biodiversity conservation. GEF/UNDP/FAO E.A. Biodiversity project. Biodiversity familiarization workshop,30-31 March 1995,Machakos.
15. Mukiama T.K.(1995)Biodiversity: a Kenyan overview. Report to the IMCE Biodiversity subcommittee, February 1995.
16. Mukiama T.K.(1994)Development, transfer and use of biotechnology products. Report to the IMCE Biodiversity subcommittee, October 1994.
17. Mukiama T.K.(1993)Biotechnology applications. Keynote presentation during the opening of the Biotechnology exhibition, French Cultural Centre,4 May 1993.
18. Mukiama T.K.(1989)Significance of wild crop cultivars for conservation of genetic diversity. In` National Expedition on Genetic Resources and Habitats` , KENGO, Nairobi.8-9.
19. Mukiama T.K.(1989) Wild grains and neglected crops. *Resources J. 1,22-23.*
20. Mukiama T.K.(1989)Plant genetic resource conservation in Kenya. In` National Expedition on Genetic Resources and Habitats` .KENGO, Nairobi.10-12.
21. Mukiama T.K.(1980) Genetics: The science of life. POST Magazine 5,11-13.