Peter Edome Akwee



Lecturer, Science and Mathematics Education Department, Faculty of Education and Social Sciences. Coordinator for school attachment Bungoma-Teso Zone.

About Me

I am a molecular scientist in the area of molecular genetics. This entails studying of specific genomic DNA that carries specific hereditary information among organisms and how directly affects certain traits. My doctoral research studies were grounded in theories and application of molecular techniques in studying genetic diversity of organisms. My research study was on overall understanding the genetic variability of taro germplasm accessions (Colocasia esculenta L. (Schott) using molecular based simple sequence repeat (SSR) markers. Microsatellites loci analysis are the most informative and exhaustive primers that would be useful in marker-assisted selection, gene mapping and tagging for useful traits. This could serve as a genetic benchmark for comparative genetic diversity among taro genotypes hence broadens the genetic base information. Studying germplasm variability at molecular level is very fundamental in their description and molecular marker is a tag of a particular aspect of phenotype and genotype whose inheritance can be traced from one generation to another. My teaching philosophy is that teaching profession is a call and deserves an honor. My philosophy is based on respect for the expertise and diversity of learning styles and educational goals of the students with whom I have the privilege of engaging in a co-learning experience. I have a student-oriented approach to the extent that I strive for students to get the best possible product out of me. Over the last seven years at the university, I have published several peer-reviewed articles and participated in numerous conference presentations.

Qualifications

Doctor of Philosophy in Botany (Genetics) awaiting graduation 2015- Maseno University, Kenya. Thesis title "Comparative assessment of genetic diversity of the Kenyan and the Pacific Islands communities taro germplasm collections (*Colocasia Esculenta .L. (Schott)*.

Master of Science degree in Science Education -Biology (2010), Masinde Muliro University of Science and Technology, Kenya. Bachelor of Education Science Degree –Botany major and Chemistry (First Class Honors, 2006) Moi University, Kenya.

Professional Memberships and Activities

- Horticultural Association of Kenya
- Kenya DAAD Scholars Association
- Masinde Muliro University chapter-DAAD scholars Association
- Masinde Muliro University Alumni Association
- Turkana Professionals Association (TPA)

Expertise

Genetics, molecular genetics, genetics and evolution, cell and molecular biology, fundamentals of biology, cytology and cytogenetics, biodiversity, plant taxonomy, environmental education and Biology education

Research Interests

Studying genetics diversity of organisms of indigenous and underutilized crops, phenotypic and genotypic characteristics of crops towards food security, Biodiversity, Client Oriented breeding Approaches, Bioinformatics and molecular techniques approaches, simulation experiments on ICT integration towards understanding gene concept theories, environmental and social economics aspects of crops

Selected Publications

- Akwee, P.E., Netondo, G., Palapala, V.A. (2015). Comparative analysis of phenotypic characterization of Kenya and Pacific Islands tarogen germplasm collections Colocasia esculenta L. (Schott). *Scientia Agriculturae* 9 (2), 113-119 ISSN 2311-0228 www.pscipubcom (DOI:10.15192/PSC.SA.2015.9.2.113119).
- 2) Akwee, P.E., Netondo, G., Kataka, J.A., Palapala, V.A. (2015). A critical review of the role of taro *Colocasia esculenta L. (Schott)* to food security: A comparative analysis of Kenya and Pacific Island taro germplasm. *Scientia Agriculturae* 9 (2), 101-108 ISSN 2311-0228 <u>www.pscipubcom</u> (DOI:10.15192/PSC.SA.2015.9.2.101 108).
- 3) Akwee, P.E., Toili, W.W., Palapala, V.A. (2012). Effectiveness of Computer Based Technology integration in teaching and learning of Gene Concept among high school students, Kenya. European journal of Health and Biology Education Vol 1 issue 4(May 2012) ISSN 2277-5978.

- 4) Wanyonyi, M., Mulavu, W.G., Akwee, P.E. (2012). Exploring students' perceptions of chemical bonding concepts in secondary schools in Kenya. Global Journal of Management Science and Technology (<u>www.gjmst.com</u>) Vol 1 issue 4(May 2012) ISSN 2277-5978.
- 5) Mulavu, W.G., Amadalo, M.M., Wanyonyi, M., Akwee, P.E., Twoli, N. (2012). Evaluation of students' perceptions towards structure and chemical bonding upon using molecular models concepts in selected Kenya public secondary schools. *Global Journal of Management Science and Technology (www.gjmst.com)* Vol 1 issue 4(May 2012) ISSN 2277-5978.
- 6) Mwendwa, K.A., Toili W.W., Akwee, P.E., Michieka, R., and Agevi, H. (2011). An analysis of secondary school Biology and Chemistry curriculum and KCSE exams in relation to environmental education in Kenya. (*In press. East African Journal of Engineering, Science and Technology*).
- 7) Gweyi-Onyango, J. P, Akwee, P.E., Onyango, A. C., Agevi, H., and Pakia, M., (2011). Genotypic yield responses of cow pea (*Vigna unguiculata*) to sub-optimal phosphorus supply in acid Alfisols of Western Kenya: A comparative analysis of legumes. *Journal of Agricultural Sciences*, 2(1):1-8(2011) ISSN 0976_6898
- 8) Akwee, P. E., Palapala, V.A. and Gweyi-Onyango, J.P., (2010). A comparison of plant species compositions of grasslands in Saiwa Swamp National Park (SSNP) and Kakamega Forest, Kenya. *Journal of International Biodiversity Vol* 1(2):77(2010).
- 9) Akwee, P.E. (2010). Integration of Computer-Based Technology in teaching and learning of Gene Concept in Kakamega Central District Schools, Kenya. Unpblished Msc. Thesis, Masinde Muliro University of Science and Technology

Published Conferences proceedings

- Gweyi-Onyango, J. P, Akwee, P. E., Onyango, A. C., Agevi, H., and Pakia, M., (2009). Differential Genotypic yield responses of cow pea (*Vigna unguiculata*) to sub-optimal phosphorus supply in acid Alfisols of Western Kenya. *Paper Published on proceedings of 9th HAK workshop on sustainable crop production and presented at international Scientific HAK conference held at Arusha, Tanzania*, *December 2-5, 2009.*
- 2) Akwee, P. E., Ondieki, D., Daniel, S., Nandi, O. M. J., and Palapala, V. A., (2008). Growth and Characterization of four Bambara groundnut (*Vigna subterranea* (L) Verdc.) accessions in Kakamega, Kenya. *Published on proceedings of 8th HAK* workshop on sustainable crop production. Masinde Muliro of Science and Technology, Kakamega Kenya. December, 2008.
- 3) Akwee, P. E. and Gweyi-Onyango, J. P.,(2008). Environmental and socioeconomic aspects on Utilization of Wild Fruits in Arid and Semi-arid areas of Kenya. Published on proceedings of 8th HAK workshop on sustainable crop production. Masinde Muliro University of Science and Technology, Kakamega Kenya. December, 2008.

Current Teaching Masters courses Genetics Cell and Molecular Biology Ecology and Evolutionary Mechanisms

Molecular Genetics Plant Taxonomy Plant physiology and Biochemistry

Undergraduate and Diploma courses

Fundamentals of BiologySurvey of the Animal KingdomAnimal PhysiologyPlant PhysiologyBiology EducationEnvironmental EducationContemporary Issues in Science, Technology and SocietyPrinciples of EcologyResearch Methods in education and social sciencesScience and Mathematics EducationResearch project

Contact Details

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