

EDWARD K. NGUU, CURRICULUM VITAE – 2013

PERSONAL DETAILS:

NAME: Prof. EDWARD K. NGUU.
Present Position: Associate Professor, Biochemistry Department, University of Nairobi.
Nationality: Kenyan.
Marital Status: Married.
Languages: Fluent in English and Swahili.
Address: C/o University of Nairobi, Biochemistry Department,
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EMPLOYMENT:

Current position, March 2012 - present: **Associate Professor**, Biochemistry Department, University of Nairobi.

Other Appointments and Responsibilities

- August 2009 - present: **Strategic Management Unit (SMU) Manager**, Students Welfare Authority, Kenyatta Medical School Hostels
- April 2011: **Staff Commissioner, SONU 2011 Elections** – Representing College of Health Sciences.

OTHER DEPARTMENTAL DUTIES:

Course Coordinator: Level I Bachelor of Medicine and Bachelor of Surgery (MBChB), Bachelor of Pharmacy (BPharm) and Bachelor of Dental Sciences (BDS).

ACADEMIC BACKGROUND:

1997: Ph.D (Biochemistry, by research and Thesis) under the African Regional Postgraduate Programme in Insect Science (ARPPIS) Scholarship. Registered at University of Nairobi, Kenya.

1992: Master of Science (Biochemistry, by coursework and thesis), University of Nairobi, Kenya.

1986: Bachelor of Science (Biochemistry and Chemistry), University of Nairobi, Kenya. Obtained B.Sc., 2nd Class Honours (Upper Division).

RESEARCH TRAINING EXPERIENCE:

1998-2000: Postdoctoral Research Fellow, National Institute of Sericulture and Entomological Sciences, Tsukuba, Japan.

My research project was entitled "Construction of a cDNA linkage Map in the Silkworm, *Bombyx mori*, based on Restriction Fragment Length Polymorphism Analysis".

1992-1997: Ph.D Research Scholar in Biochemistry under the African Regional Postgraduate Programme in Insect Science (ARPPIS) Scholarship.

My research project is entitled "The Influence of Bloodmeal and its Digestive Products on Bloodstream Trypanosome Differentiation in the Tsetse Fly, *Glossina morsitans*, Westwood".

1987-1990: MSc. Scholar in Biochemistry (by coursework and thesis), University of Nairobi, Kenya.

My research project was on "Purification and Properties of the Low Molecular Weight Protein from Haemolymph of Tsetse Fly, *Glossina morsitans morsitans*".

SELECTED NON DEGREE TRAINING:

Oct 2010 –April 2011: Leadership Development Program under the Management Sciences for Health (MSH) program

Jan 3-7, 2011: Trainers Workshop on Medical Education, University of Nairobi, College of Health Sciences

Sept 5-6, 2005: Techniques in molecular Biology: Proteins and Proteomics workshop, University of Hertfordshire, U.K.

Sept 7-9, 2005: Techniques in molecular Biology: Nucleic Acids and Genomics workshop, University of Hertfordshire, U.K.

June-August 1996: Two-month training on **Biology of Parasitism: Modern Approaches** at the Marine Biological Laboratory, Woods Hole, Massachusetts, U.S.A.

SCHOLARSHIPS AWARDED:

September 5-9, 2005: British Council sponsorship to attend a 11/2 week course on “Techniques in Molecular Biology” University of Hertfordshire, U.K.

October 1998-September 2000: Science and Technology Agency (STA) Fellowship to undertake postdoctoral research in Japan for 2 years.

June-August 1996: Borrough Welcome Fund Fellowship to attend a two-month course on Modern Approaches in Biology of Parasitism at Woods Hole, Massachusetts, U.S.A.

March 1992-1995: German Academic Exchange Services (DAAD) fellowship through the African Regional Postgraduate Programme in Insect Science (ARPPIS) for Ph.D programme.

November 1987-December 1989: University of Nairobi Scholarship for M.Sc. program.

October 1983-June 1986: Government of Kenya Scholarship through University of Nairobi for undergraduate degree programme.

RECENT CONFERENCES AND WORKSHOPS ATTENDED

Jan & Feb 2013: Participated in a series of Consultative workshops by the National Biosafety Authority (NBA) on Biotechnology agenda in Kenya

Nov 18-21, 2012: **Presented a paper** “Investigating the effects of heavy metal pollution on omega-3 polyunsaturated fatty acids (Pufas) levels in tilapia fish (*Oreochromis niloticus*) from Winam Gulf of Lake Victoria” at Vires Workshop, Aquaculture Cluster, Kisumu Forum, Speke Commonwealth Resort, Munyonyo, Kampala, Uganda

October 9-13, 2011: Vires Biennial Forum, Speke Commonwealth Resort, Munyonyo, Kampala, Uganda

July25, 2011: Science and Risk Communication Training by ISAAA Africenter and PBS, Nairobi, Kenya.

March 14, 2011: Kenya National Workshop on RABESA/COMESA Regional Biosafety Policies and Guidelines

August 29 – September 1, 2010: Presented a paper entitled “Effects of Pollution on Omega-3 Polyunsaturated Fatty Acids (Pufas) In Commercial Fish Species in Lake Victoria” VicRes Pollution And Heavy Metals Cluster Workshop, Jinja, Uganda.

TEACHING EXPERIENCE

i. Undergraduate lectures to:

- MBChB, BPharm. & BDS students.
- Bachelor of Veterinary Medicine students.
- Bachelor of Biochemistry students.
- BSc Agriculture students.
- Final year BSc projects supervision.

ii. Postgraduate lectures to:

- Master of Science in Biochemistry students.
- Master of Science in Crop Production students.

RECENT TRAINING WORKSHOPS CONDUCTED

- (i) **August 2009 – to date:** Annual course on “**Molecular and Biochemical Laboratory Techniques**”, under Clinical and Industrial Biochemistry Consultancy Unit (CIBCU), Department of Biochemistry University of Nairobi. Also in collaboration with School of Biological Sciences organised many 2weeks courses on Molecular Biology and Biotechnology for those who want to upgrade their skills.
- (ii) **Dec 13-4, 2011 at Lukenya Getaway, Athi River, Nairobi:** Water Efficient Maize for Africa (WEMA) Training Workshop for Journalists
- (iii) **March 23-24, 2011, International Livestock Research Institute (ILRI), Nairobi:** Workshop on draft “Biosafety Regulations for Genetically Modified Organisms” for ILRI staff conducting Plant transformations.

SELECTED SOCIETY MEMBERSHIP:

- **Member**, Open Forum on Agricultural Biotechnology in Africa (OFAB), Kenya Chapter.
- **Founder Member**, Biochemical Society of Kenya
- **Member**, Physiological Society of Kenya.
- **Member**, African Association of Insect Scientists (AAIS)

RECENT PUBLICATIONS IN PEER REVIEWED JOURNALS

- Ogoyi, D. O., Mwita, C. J., Nguu, E. K. and Shiundu, P. M. (2011). Determination of heavy metal content in water, sediment and microalgae from Lake Victoria, East Africa. *The Open Environmental Engineering Journal*. 4, 156-161.
- Njagi, J. W., Ngure, R. M., Nguu, E.K., Essuman, S. and Ogoyi D. O. (2011). Induced protein profiles in haemolymph of desert locust *Scistocerca gregaria* following *Trypanosoma brucei* challenge. *Egyptian Journal of Biochemistry and Molecular Biology*. 29(1), 1-16.
- Opondo, S. O., Ngure, R. M., Nguu, E.K., and Ogoyi D. O. (2010) Molecular characterization of *Bacillus thuringiensis* strains with differential toxicity to the spotted stalk borer *Chilo partellus*. *Journal of Applied Biosciences*. 31, 1878-1886.
- Kinyua, J. K., Nguu, E.K., Mulaa, F. J. and Ndung’u, J. M. (2005). Immunization of rabbits with *Glossina pallidipes* tsetse fly midgut proteins: Effects on the fly and trypanosome transmission. *Vaccine*. 23. 3824-3828.
- Nguu, E. K., Kadono-Okuda, K., Mase, K., Kosegawa, E., and Hara, W. (2005). Molecular linkage map for the silkworm, *Bombyx mori*, based on restriction fragment length polymorphism of cDNA clones. *J. Insect Biotechnology & Sericology*. 74, 5-13.

- Ogoyi, D. O., Achieng, D., Nguu, E.K. and Ochanda, J. O. (2003).** Partial characterization of trypanolysin factor from the midgut of *Scistocerca gregaria*. *East African Medical Journal*, 80(11) 575-580.
- Ogoyi, D. O., Kadono-Okuda, K., Eguchi, R., Furuta, Y., Hara, W., Nguu, E. K. and Nagayasu, K. (2003).** Linkage mapping and analysis of a non-susceptibility gene to densovirus (nsd-2) in the silkworm, *Bombyx mori*. *Insect Mol. Biol.* 12, 117-124.
- Kinyua, J. K., Osir, E.O., Ogoyi, D. O. and Nguu, E. K. (2002).** Characterization of protective antigens from midguts of the tick, *Amblyomma variegatum*. *Experimental and Applied Acarology*. 26, 101-113.
- Nguu, E.K. and Osir, E.O. (2001).** Properties of a factor in eland plasma that inhibits transformation of bloodstream-form *Trypanosoma brucei*. *Insect Science and its Applications*. 21 (2), 169-177.
- Gunzl, A., Ullu, E., Dorner, M., Fragoso, S. P., Hoffmann, K. F., Milner, J. D., Morita, Y., Nguu, E. K., Vanacova, S., Wunsch, S., Dare, A. O., Kwon, H. and Tschudi, C. (1997).** Transcription of the *Trypanosoma brucei* spliced leader RNA gene is dependent only on the presence of upstream regulatory elements. *Mol. Biochem. Parasitol.* 85, 67-76.

POSTGRADUATE SUPERVISION:

(a) PhD

Kinyua, J. K. (2001 - 2007): Characterization of *Glossina pallidipes* midgut molecules as vaccine candidates for human African trypanosomiasis (HAT)". – **University of Nairobi (Completed-2008)**

Nyaboga, E. N. (2009 - 2013): Functional characterization of cassava (*Manihot esculenta*, Crantz) post harvest physiological deterioration (PPD)-inducible promoters and modulation of antioxidant expression in cassava storage roots – **University of Nairobi (Completed-2013)**

Muinamia, K. M. : Isolation of *Scistosoma mansoni* tegumental microtubule proteins and determination of their potential as vaccine candidates - **University of Nairobi. (Ongoing)**

(b) MSc.

Supervised seven (7) MSc. thesis, Biochemistry.

(c) Undergraduate

Supervised over twenty five (25) BSc. Biochemistry final year projects since year 2005.

EXTERNAL EXAMINER APPOINTMENTS AND OTHER ASSIGNMENTS

- (i) **2004-Present:** Appointed External Examiner, Biochemistry Department, Jommo Kenyatta University of Agriculture and Technology, Juja, Kenya
- (ii) **2007 - Present:** Appointed External Examiner in Biochemistry, Karen Campus, Jommo Kenyatta University of Agriculture and Technology, Juja, Kenya
- (iii) **2009 - Present:** Appointed External Examiner for Bachelor of Pharmacy, School of Pharmacy, MT Kenya University, Kenya.
- (iv) **2009 - Present: Associate Member,** International Services for Acquisition of Agri-Biotech Applications (**ISAAA**).
- (v) **Feb 2010:** Participated in the European Commission funded, FP7 proposal evaluations in Brussels.
- (vi) **Nov 2008:** Participated in the European Commission, FP7 proposal evaluations in Brussels.

THESES EXAMININED

I have external examined more than 25 Masters and PhD theses from all many of the public universities. I have also sat in many postgraduate Examination Boards in the School of Medicine, School of Biological Sciences and School of Physical Sciences, University of Nairobi.

CURRENT RESEARCH INTEREST:

1. **Vector-parasite interactions:** Molecular characterization of the factors responsible for parasite development of in their arthropod vectors with special emphasis to tsetse-trypanosome interaction. The goal is to identify targets for disrupting disease transmission cycle.
2. Effect of Pollution on Omega-3 Polyunsaturated Fatty Acids (PUFA) in Commercial Fish Species in Lake Victoria.
3. **On collaboration basis:** Use of *Bacillus thuringiensis* as a biopestice. Molecular interaction of delta-endotoxin with (Lepidopteran) insect gut.