

UNIVERSITY OF NAIROBI

**COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES
FACULTY OF VETERINARY MEDICINE**



**DEPARTMENT OF PUBLIC HEALTH PHARMACOLOGY
AND TOXICOLOGY**



ANNUAL REPORT 2010-2011



Prof. Jackson N. Ombui
Chairman

Preamble

This annual report 2010-2011 details the academic programs offered in the department, available facilities, activities undertaken by staff, including research and consultancy activities, conferences and workshop attended and publication of scientific papers in refereed journals. In addition, the report gives details of the number of students who were registered in various academic programs in the year, staff movement , external examiners who were involved in moderation of various examinations, visitors to the department, collaborations and partnerships the department was involved in. I hope you will find the report informative.

A handwritten signature in blue ink, appearing to read 'J. Ombui', written in a cursive style.

Prof. Jackson N. Ombui, PhD
Chairman,
Department of Public Health, Pharmacology and Toxicology.

Introduction

The Department of Public Health, Pharmacology and Toxicology (PHPT) is one of the five academic units in the Faculty of Veterinary Medicine, University of Nairobi. It was established 39 years ago in the 1972/73 academic year by combining the closely related disciplines of Pharmacology, Toxicology and Veterinary Public Health. The two disciplines were originally in different departments. Veterinary Public Health was at the clinical studies while Pharmacology and Toxicology was in the Department of Veterinary Pathology and Microbiology.

The Department is located 15 Km from the city centre at the College of Agriculture and Veterinary Sciences, of the University of Nairobi. The establishment of the Department of PHPT's physical facilities was financed by a grant from the Norwegian government which also provided initially the academic staff to run the department and resources that were used for development of local academic staff and finance research activities. The first local academic members of staff to serve the department got their postgraduate training through the Norwegian government and USAID grants. Some staff trained in Norway and locally using the Norwegian government grant. Others trained in America under USAID grant.

The Department of Public Health, Pharmacology and Toxicology provides training, research in the following specialized areas: Veterinary Public Health (Food Microbiology, Food Hygiene, Food and Environmental Toxicology, Zoonoses, Meat hygiene), Pharmacology, Toxicology, Epidemiology, Livestock Economics and Business management, Biostatistics, Computer Application and Information Systems, Immunology and Microbial Biotechnology, Food and beverage production and sales, House keeping, Tourism economics, Public relations and tourism management, Management, Entrepreneurship, Information Technology, Biochemical, Pharmacology Biochemical toxicology. Consultancy services are provided in the following areas: Acute toxicity testing of pesticides, Drug efficacy trials, toxicological analysis of feed samples, microbiological analysis of food, water and feeds, mycotoxin analysis, slaughterhouse design and construction, field surveys,

Vision

To be committed to academic excellence and promotion of research and outreach activities.

Mission

To be a centre of excellence for learning and scholarship, research and consultancy, fostering an intellectual culture and contribute to socio-economic development.

Core values

1. Commitment to provision of quality teaching, research and consultancy services
2. Espouse virtues of truth, integrity, honesty, tolerance, professionalism and teamwork.
3. Uphold ethical practices in provision of services.
4. Promotion of creativity and innovativeness
5. Ensure openness and transparency in our operations
6. Respect the beliefs and values of others
7. Respect and protect the environment
8. Be responsive and adaptive to changing conditions

Strategic objectives

1. Provide quality teaching and research
2. Continuously revise training programs to reflect global changes and customer needs
3. Develop new programs that address emerging problems
4. Provide quality consultancy services
5. Disseminate research findings through publications, conferences and workshops
6. Participate in outreach activities through exhibitions, workshops, field and open days
7. Create working partnerships and linkages with local and international institutions and organizations.

PHYSICAL FACILITIES

Available facilities

| | |
|-------------------------|----|
| Lecture theatres | 1 |
| Teaching laboratories | 3 |
| Research laboratories | 3 |
| Teaching rooms | 2 |
| Staff offices | 21 |
| Laboratory animal house | 1 |
| Seminar room | 1 |
| Chemical stores | 2 |
| Lab preparation rooms | 2 |
| Washrooms | 3 |

New facilities purchased in the academic year

- Thirty six (36) bouquet chairs for the seminar room
- Ten (10) office chairs were bought and distributed to various staff offices
- One (1) chair for the chairman's office
- Two (2) LCD projectors, one which was mounted in the main lecture theatre.
- Drinking water dispenser; -to ensure staff are able to access drinking water as they go about their duties.
- New fire extinguishers
- Three (3) refrigerators for cold storage of samples and special reagents
- One (1) ELISA washer and Reader
- Three(3) deep freezers
- One(1) photocopier
- Three (3) desktop computers.



A: New chairs in the seminar room



B: Technologist carrying out an ELISA test

Maintenance of facilities

We continue to maintain the physical facilities to keep them in sound working condition. The following are activities undertaken in this academic year:

- Painting of the PHPT Building (externally and part internally. Internal painting to continue when funds are available)
- Replacement and maintenance of fire extinguishers
- Replacement of electric bulbs in lecture theatres, laboratories, staff offices and corridors
- Repair of the book shelf at chairman's office

- Replacement of door locks that were not functioning properly
- Regular cleaning activities
- Repair and maintenance of department vehicles

ACADEMIC PROGRAMS OFFERED IN THE DEPARTMENT

Undergraduate programs: The Department contributes to the teaching of the following undergraduate programs

1. Bachelor of Veterinary Medicine
2. Bachelor of Science in Bomedical Technology
3. Bachelor of Science in Wildlife and Tourism management
4. Bachelor of Science in Biochemistry
5. Bachelor of Science in nutrition and diatetics

Postgraduate programs: The Department offers the following four masters and four PhD programs

Masters Programs

1. Master of Science in Pharmacology and Toxicology
2. Masters in Epidemiology and Economics
3. Masters in Veterinary Public Health
4. Master of Science in Natural products and Bioprospecting(Developed and approved in 2009/2010 and launched in 2010/2011 academic year).

PhD Programs

1. PhD in Pharmacology and Toxicology
2. PhD in Epidemiology and Economics
3. PhD in Veterinary Public Health
4. PhD in Natural products and Bioprospecting (as from 2011/2012)

New academic programs

The Senate approved the following two programs in the 2010/2011 academic year

1. Certificate course in Meat Hygiene and Quality Assurance
2. Diploma in Veterinary Public Health and Meat Technology.

This academic year was the period to transit from the old BVM curriculum to the new BVM curriculum for Veterinary Public Health which was offered to the fifth years (old curriculum) and is now offered to the fourth years in the new curriculum.

POST GRADUATE STUDENTS

FIRST YEAR

The following students were admitted for masters programs in 2010/2011 academic year

Master of Veterinary Epidemiology and Economics

1. Miriam Chepkosgey Nakeel
2. Mabior Mabil Awar Yuot

Pharmacology and Toxicology

1. Isaac Mokaya Omwenga

Natural Products and Bioprospecting

1. Lanyasonya Pat Rupunye
2. Rukenya Zackary Muthii
3. Kuria James Menni
4. Okindo Ronald Onzago

All the students passed their coursework and were recommended to proceed to their second year of study.

CONTINUING POSTGRADUATE STUDENTS

The following masters students continued with their research projects:

Master of Veterinary Epidemiology and Economics

Elizabeth Omolo Ouko

Evaluation of human exposure levels to dietary aflatoxins and associated risk factors in Makueni District, Kenya. (Supervisors: Prof. E. K. Kang'ethe, Dr. P. M. Kitala and Dr. L. Kanja)

Stanley Chege Maina

Investigation of factors Associated with Morbidity and Mortality in selected ungulate species in Al Ain wildlife Park and Resort United Arab Emirates. (Supervisors: Dr. P. M. Kitala and Dr. G. M. Muchemi.)

Master of Veterinary Public Health

Carmeline Wanjiru Mwai

Risk analysis of Escherichia Coli 0157:H7 Contamination of Beef Carcasses in Slaughterhouses in Nairobi Kenya. (Supervisors: Prof. E. K. Kang'ethe, Prof. S. M. Arimi and Dr. Delia Grace.)

Sirma Anima Jematia Kigen

A study of level of human exposure to Aflatoxins in Nandi District
(Supervisors: Prof. E. K. Kang'ethe, Prof. J. n. Ombui & Dr. I. M. Mapenay)

PHD STUDENTS, REGISTRATION STATUS, PROJECT TITLE AND SUPERVISORS.

Lucy Gicuku Njue (Full Admission in July 2011)

Development of a meat preservative from Galic (Allium Sativa) extracts.
(Supervisors: E.K. Kang'ethe, Dr. LW. Kanja, PN. Nthakanio and JK. Gathumbi)

Irene thiguku Kamanja (Full Admission on 29/01/2010)

Pharmacological, toxicological and phytochemical study of clerodendrum myricoides medicinal plant used in Samburu District. (Supervisors: Dr. JM. Mbaria, Prof. PK Gathumbi, Dr. SG. Kiama and Dr. Mbaabu Mathiu)

Edward Okoth Abworo (Full Admission)

Epidemiology of African Swine fever virus in wild and domesticated pigs in Kenya.
(Supervisors: Dr. P.M. Kitala, D. W. Bulimo, Richard Bishop and Amos Omore.). Has submitted these for exam 23/3/2011

Dr. Peninah Mbaire Munyua (Full Admission on 25/6/2011)

Occurrence and risk factors of influenza infection in domestic animals in Kibera and Asembo in Kenya.

Supervisors: Dr P. M. Kitale, P. Nyaga and K. Njega)

Bernard Koros Kipsengeret (Full Registration)

A toxicological and Epidemiological study of Environmental and occupational pesticide Exposure on Floricultural workers in Kenya.(Supervisors: Dr. J. M. Mbaria and Dr. L. W. Kanja)

Mary Oguna Maina (Full admission on 17/11/2009)

Anthelmintic usage in food producing animals in Kenya and development of resistance in nematodes.
(Supervisors: Dr. JM. Mbaria, Prof. S. E. O. Mitema and Dr. W.O. Ogara)

Protas Odida Olwande (Full Admission on 13/10/2010)

Epidemiological assessment of productivity Constraints and Appropriate intervention measures on indigenous chicken Production in Nyanza Province, Kenya.(Supervisors: Dr. W. O. Ogara, Prof. L. Beborra and Dr. S. O. Okuthe).

Francis Muriuki Gakuya (Full Admission on 21/4/2008)

Epidemiology and Species Characterization of mange in Cheetahs, thompson's gazelles and domestic animals in the Maasai Mara ecosystems.(Supervisors: Prof. JN. Ombui, Dr. GM.. Muchemi, Prof. N. Maingi and Dr. WO. Ogara). Student submitted thesis of examination and is waiting to defend the thesis

Massimo Castiello (Full admission 26/10/2009)

Assessment of constraints and opportunities in setting up hygiene standards in Somalia Meat Industry.
(Supervisors : Prof. JM. Gathuma, Prof. J. N. Ombui Dr. W. O. Ogara and Dr. S. O. Okuthe.)

Fred David Wesonga (Full admission on 15/5/2007)

An epidemiological assessment of tickborne diseases, their control and other constraints to livestock production in Machakos District, Kenya.(Supervisors: Dr. PM. Kitale, Prof. JM. Gathuma, Prof. J. Munene and Dr. PN. Ngumi.

Joseph Olesarioyo Seneiya (Provisional registration)

Study of the Prevalence and Transmission risk factors of Bovine Tuberculosis in the livestock-wildlife interface areas of Laikipia County, Ewaso Nyiro Ecosystem, Northern Kenya.
(supervisors: Dr. WO. Ogara, and Prof. SM. Arimi.)

Mark Opiyo Nanyingi (Provisional Registration in July 2011)

Spatial and Temporal Epidemiology of Infectious Diseases in a Changing climate.
(Supervisors: Dr. GM Muchemi and SG. Kiama).

Emily Kamanthe Muema (Provisional Registration on 24/3/2011)

Molecular typing for epidemiological evaluation and genetic diversity of Brucella by multilocus sequencing.
(Supervisors: Prof. J N. Ombui, Dr. Kinyanjui and Dr. F. K. Mutua)

Joshua Orungo Onono (Provisional Registration on 9/5/2009)

Quantification of costs and risk factors of contagious Bovine Pleuropneumonia in Turkana District, Kenya.
(Supervisors: Prof. EK. Kang'ethe and Dr. W. O. Ogara)

Christopher Wangi (Provisional Registration on 28/10/2009)

A study of the cost effective management of African Trypanosomiasis through improved utilization of known Control Strategies and epidemiological models in the larger Busia District, Kenya.
(Supervisors: Dr. P. M. Kitale and Dr. William O. Ogara)

James Kithuka Mutira (Provisional Registration on 9/5/2008)

Primary Animal Healthcare: A case study of farm Africa's Approaches to Decentralized Animal Health System.
(Supervisors: Prof. J. M. Gathuma and Dr. G. M. Muchemi.)

Peter Obimbo Lamuka (Provisional Registration in March 2009)

Antimicrobial resistance among zoonotic organisms from camel milk and its ecosystem, and public health consequences on pastoral communities

The Students are in various stages of their PhD Studies.

EXTERNAL EXAMINERS APPOINTED IN 2010/2011 ACADEMIC YEAR

1. Prof. Peter. Gatongi (Moi University)- For Public Health and Immunology courses
2. Dr. Benard Bett (ILRI) – For Epidemiology and Economics courses
3. Dr. Gideon M. Kikuvi (JKUAT) : For Undergraduate Pharmacology and Toxicology courses
4. Mr. Godwin Njeru (USIU) – for Bsc. Wildlife and Tourism Courses)
5. Dr. David Rotich (Moi University)- For Biostatistics courses
6. Prof. Rasto Davd Masha (Sokoine University) – For Postgraduate Pharmacology and Toxicology courses

All the examiners were available for this year's examinations..

POSTGRADUATE STUDENTS WHO GRADUATED IN THE ACADEMIC YEAR 2010/211

Doctor of Philosophy (PhD)

1. Florence Kanini Mutua (Epidemiology and Economics)
2. George Awour Matete (Veterinary Public Health)

Master of Epidemiology and Economics

3. Moenga, Bernard Omwoyo
4. Mohamed Hassan Ali
5. Monda, Joseph Gwaro
6. Nanyende, David Wanyonyi

RESEARCH PROJECTS

Safe food safe Dairy project on Health risks associated with Mycotoxins (Aflatoxins and fumonins)

contamination of maize and animal feeds- This is a collaborative project between university of Nairobi and MTT AgriFood Research, Finland. The Project is funded by the Ministry of Foreign Affairs, Finland. Other partners are EVIRA-Finnish Food Safety Authority, Egerton University and KARI in Kenya. The project is supporting 10 Masters students 2 of whom are from the Department. Through this project, it is expected that an ISO 17025 certified mycotoxin laboratory will be established which will have an international recognition for mycotoxin analysis. The project leader is Prof. Hannu Korhonen (MTT Agrifood Research) assisted locally by Prof. E.K. Kangethe, Department of Public Health, Pharmacology and Toxicology..

Publications in refereed Journals

Kamau, J. G., **W. O. Ogara**, JJ McDermott, PM Kitala. (2010). Community- and –Road Kill Rabies Surveillance in Kibwezi, Kenya. *Journal of Commonwealth Veterinary Association* Vol. 26(2); 10-16

Kipronoh, A., **Gathuma, JM., Kitala, PM** and Kiara, HK (2011). Pastoralists perception of the impact of East Coast Feve on Cattle production under extensive management in Northern Rift Valley, Kenya. *Livestock Research for Rural Development*, 23(6):

Kipronoh, A., **Gathuma, JM., Kitala, PM** and Kiara, HK (2011). Prevalence of tick-borne infections in extensive cattle management system in West Pokot District, Kenya. *Bull. Anim. Hlth Prod. Africa*,59:43-52

Matete, G. O., **J.M. Gathuma, G. Muchemi, W. Ogara**, N Maingi, W Maritim and B Moenga. Institutional and organisational requirements for implementing the Livestock Identification and Traceability System in Kenya. *Livestock Research for Rural Development* 22 (10) 2010.

Maloba, F., J. M. Kagira, G. Gitau, **J. N. Ombui**, J. Hau and M. Ngotho. Astrocytosis as a biomarker for late stage human African Trypanosomiasis in Vervet monkey. *Sci. Paraitol.* 12(2): 53-59. (June 2011).

Matete, G. O, Maingi, N., **Muchemi, G. M., Ogara, W. O and. Gathuma, J. M** (2010). Design and development of an electronic identification and traceability system for cattle under pastoral production systems: A case for Kenya.

Matete,G.O., W. Maritim, **G. Muchemi**, N. Maingi, **J. M. Gathuma** and **W. Ogara**. Long-term performance of electronic identification devices and model traceability system for cattle under pastoral production systems of Kenya. *Livestock Research for Rural Development* 22 (10) 2010; 1-14

Mugavane, F. I, **W. O. Ogara**, T. K. Lumumba. Factors Influencing Adoption of Dairy Goats in Meru County, Kenya: Prospects and Constraints. *Journal of the Commonwealth Vet Ass* 2011 Vol. 27 (1), 5-14.

Muthee J K, **Mbaria J M**, Thaiyah A G, Karanja D N and Gakuya D W (2011). Clinical, haematological, biochemical and pathological manifestations of sub-acute toxicity of *Nicandra physaloides* (L) Gaertn in calves. *Bulletin of Animal Health and Production in Africa*, **59**:17-24

Muthee J. K., Gakuya D.W., **Mbaria, J. M.**, Kareru P. G., Mulei C. N., Njonge F.K., (2011). Ethnobotanical study of antihelminthic and other medicinal plants traditionally used in Loitokitok District of Kenya. *Journal of Ethnopharmacology*, **135(1)**:15-21

Mutua, F. K., **Arimi, S. M.**, Schelling, **E, Ogara, W.O.**, Dewey, C. E. A.(2011): Prediction of live body weight using length and girth measurements for pigs in rural Western Kenya. *J.Swine Health Prod.*2011; **19(1)**:26-33

Mutua, F. K., **Arimi, S. M.**, Schelling, **E, Ogara, W.O.**, Dewey, C. E. A.(2011): Farmer perceptions on rural pig rearing in Kakamega District, Western Kenya. *Nordic Journal of African Studies* **19(1)**: 43-57

Nalule A. S., **Mbaria, J. M.**, Olila, D. and Kimenju, J. W. (2011). Ethnopharmacological practices in management of helminths by pastoral communities in drylands of Uganda. *Livestock Research for Rural Development*, Volume #36 <http://www.lrrd.org/23/2/2nalu23036>.

Nguta, J.M., J.M. Mbaria, D.W. Gakuya, P.K. Gathumbi, S.G. Kiama (2010): Antimalarial remedies of Musambweni, Kenya. *Journal of Ethnopharmacology*, **128**: 424-432

Nguta, JM., J.M. Mbaria, D.W. Gakuya, P.K. Gathumbi, S.G. Kiama (2010): Traditional Antimalarial Phytotherapy Remedies Used by The South Coast Community, Kenya. *Journal of Ethnopharmacology*, **131(2)**: 424-32

Nguta, JM., Mbaria, J M PK. Gathumbi, D. Gakuya, JD Kabasa, and SG Kiama (2011). Ethnodiagnostic Skills of the Digo Community for Malaria: A Lead to Traditional Bioprospecting. *Frontiers in pharmacology* 10.3389/fpharm.2011.0003

Odindo M.O., Adhiambo, R.A., Odindo, M.A. and **Ogara, W.O.** Baseline Study on Medicinal Plants: Olooseos Community Centre, Kajiado District. *The Professional* Vol 3, 2011:25-31.

Olwande P. O., **Ogara, W. O.**, Okuthe., **Muchemi G. M.** Okoth E., Odindo, Adhiambo R. (2010) Assessing the productivity of indigenous chickens in an extensive management system in Southern Nyanza, Kenya.. *Trop. Anim. Health. Prod.* 42: 283-288.

Ogara, W. O. J.W. Jalango, O.J. Othieno. Knowledge Management & Institutional Framework: Kenyan Veterinary Services. *Journal of Knowledge Management and Practice.* Knowledge Garden: Vol 11. No 3, September 2010.

Ogara, W.O., Nduhiu J. Gitahi, Samuel A. Andanje , Nicholas Oguge, Dorcas W. Nduati and Alfred O. Mainga. Determination of carnivores prey base by scat analysis in Samburu community group ranches in Kenya. *African Journal of Environmental Science & Technology* Vol. 4(8), pp. 540-546, August 2010

Onono, J.O., Kangethe, EK and Ogara W. O (2010). Antimicrobial susceptibility of non-sorbitol fermenting *Escherichia coli* isolated from cattle faeces and milk samples. *African Journal of Microbiology Research* Vol. 4(16), pp 1703-1707.

Onono, J.O., **Ogara, S.O.** Okuthe, JN. Gitahi, A.O Mainga, D. Nduati. Challenges of camel production in Samburu District, Kenya. *Journal of Camelid Science; 3(2010) 01-05.* <http://www.isocard.org>.

Rao, K. P., **Maitho, T.** Kamania E. K and Sagre, P. 2011. Design and Preclinical studies of Miconazole soap strips for dermal infections. *International Journal of Institutional Pharmacy and Life Sciences*, 1(1): 68-76.

Wamalwa K., M. Castiello., **J. N. Ombui** and **J. M. Gathuma.** (2011). Capacity Building: Benchmark for production of meat with low levels of bacterial contamination in local slaughterhouses in Somaliland. *Tropical Animal Health and Production*, (July 2011)

Maichomo, M.W. G.K. Gitau, **J.M. Gathuma,** J.M. Ndung'u and W.O. Kosura. Prevalence of trypanosomosis, helminthosis, anaplasmosis, babesiosis and ECF infections in cattle in an agro-pastoral production system in Kenya. *Bulletin of Animal Health and Production in Africa* (2010) 58 (1): 11-21.

Maichomo, M.W., G.K. Gitau, **J.M. Gathuma,** J.M. Ndung'u and W.O. Kosura. Prevalence of trypanosomosis, helminthosis, anaplasmosis, babesiosis and ECF infections in cattle in an agro-pastoral production system in Kenya. *Bulletin of Animal Health and Production in Africa* (2010) 58 (1): 11-21.

Olwande P. O., **Ogara, W. O.**, Okuthe., Muchemi G. M. Okoth E., Odindo, Adhiambo R. (2010) Assessing the productivity of indigenous chickens in an extensive management system in Southern Nyanza, Kenya.. *Trop. Anim. Health. Prod.* 42: 283-288.

Wagate,G.C.,**Mbaria, JM,**Gakuya,D.W.,Nanyingi,M.O.,Kareru,P.G.,Njuguna,A.,NNduhiu,N.,Macharia,J.K. and Njonge,F.K. 2010.Screening of some Kenyan medicinal plants for antibacterial activity. *Phytotherapy research:* 24:151-153

Wagate,G.C.,**Mbaria, JM,**Gakuya,D.W.,Nanyingi,M.O.,Kareru,P.G.,Njuguna,A.,NNduhiu,N.,Macharia,J.K. and Njonge,F.K., 2010. Screening of some Kenyan medicinal plants for antibacterial activity. *Phytotherapy research:*

24:151-153

CONFERENCES ATTENDED BY MEMBERS OF STAFF

Kange'the E. K., Safe food safe dairy project training course in Finland from 26th August to 11th September 2011. The project is funded by the Ministry of Foreign affairs of Finland.

Kangethe E. K. Safe food fair food project final meeting held from 13-14th September 2011 in Addis Ababa Ethiopia.

Kangethe E. K. 1st International Congress on Pathogens at the Animal-Human-Interface (ICOPAH) Conference in Addis Ababa, Ethiopia from 15-17th September, 2011.

Kangethe E. K. Ecohealth Conference in London between 9/8-14/8/11

Kangethe E. K. ILRI project workshop in Pretoria, S. Africa between 6/8-14/8/11

Kangethe E. K., Inception workshop for projects supported by PAEPARD in Pretoria South Africa from 6-14 August 2011.

Kangethe E. K. Veterinary Public Health Continuous Professional Development workshop in Arusha, Tanzania from 21-25 June 2011.

Kangethe E. K. ILRI Research project function at the University of Pretoria from 17-23 April 2011.

Kangethe E. K., 2nd Project meeting at MTTI Agrifood Research at Jokionen, Finland from 26th September to 2nd October 2010.

Maithe T. E. PhD Supervision training workshop, 23rd-25th March 2011. College of Agriculture and Veterinary Sciences, University of Nairobi.

Muchemi, G. M. Third internaional toxicology symposium for E. Africa held in Lusaka, Zambia from 7th -9th September 2011. The symposium was sponsored by University of Zambia and Hokkaido University of Japan.

Nguta J. M: 1st International Congress on Pathogens at the Animal-Human-Interface (ICOPAH) Conference in Addis Ababa, Ethiopia from 15-17th September, 2011

Nguta J. M: 1st International Scientific Conference held at the College of Health Science University of Nairobi from 15th-17th June, 2011.

Nguta et al. (2010). Natural products from plant biodiversity and malaria: In: The 12TH International Symposium on Natural Product Chemistry and Related Biological Sciences, International Centre for Chemical and Biological Sciences (ICCBS), University of Karachi, Pakistan during November 22-25, 2010.

Nguta et al. (2010). Development of ethnomedicines for management of malaria in Msambweni district, Kenya: In: The Proceedings of a Workshop on Regional Networks in Africa, held on October 5-6th, 2010 at the Kopanong Hotel and Conference Centre in Benoni, South Africa, near Johannesburg.

Nguta et al. (2010). Ethnodiagnostic Skills of the Digo Community for malaria: A lead to traditional bioprospecting? In: The Proceedings of the 1st East and Central Africa Regional Symposium for the Carnegie-RISE Fellows held on September 15th, 2010 at Royale Imperial Hotel, Kampala-Uganda, East Africa..

Ogara W.O. (2010): One world one health for livestock development. Kenya Veterinary Association Annual

General Meeting at Almond Hotel Garissa, Kenya, 21st - 24th April 2010.

Ogara, W. (2010): Knowledge Management for Service Delivery to Meet Development Agenda. Ministry of Planning National Development and Vision 2030 Capacity Building Workshop at Great Rift Valley Lodge Naivasha.

Ombui, J. (2010). Information, Education and Communication (IEC) retreat. GTZ promotion of private sector development in agriculture (9-10th August, 2010, Machakos

Senerwa, D.M (2011).. Training workshop on access of information via intranet and CD-R. 24-25th February, 2011.

WORKSHOPS HELD IN THE DEPARTMENT

ODEL and e-Learning Orientation and Sensitization workshop for staff in the Department held on March 3, 2011. The workshop was sponsored by the Department of Public Health Pharmacology and Toxicology and facilitated by Director, Centre for Distance and Open Learning, University of Nairobi. The aim of the workshop was to sensitize staff on the need to develop ODEL version of the training programs offered in the Department and orientate them on the design and requirements necessary to offer such programs.

Mycotoxin analysis training workshop on analysis of aflatoxins and Fumonisin using competitive ELISA and HPLC techniques, isolation and characterization of *Aspergillus* and *Fusarium* fungi species known to produce aflatoxins and fumonisins was held from 16-27th May 2011. The training workshop was sponsored by safe food safe dairy and participants included 10 MSc students, researchers and 4 technologists working in the project. The training workshop was facilitated by Finnish and Kenyan research team members. It was opened by Prof. Joseph T. Kaimenyi, Deputy Vice Chancellor Academic affairs, University of Nairobi.

Expert consultation meeting on meat inspection,/hygiene guidance. The Department in collaboration with the Food and Agriculture Organization of the United Nations, Rome (AGAH and AGND) are held an expert consultation meeting on meat inspection,/hygiene guidance. The meeting drew participants from Uganda, Zambia, Mozambique, Cameroon, Kenya FAO Somalia, FAO Kenya and representatives of the Kenyan meat Industry. The meeting aimed to:-

- Identify the sources of guidance and evaluation of existing FAO guidance,
- Challenges faced in achieving compliance; and opportunities and needs to support improvements
- Development and implementation of risk based meat inspection and hygiene practices
- Guidance review and development of FAO guidance and recommendations

Continuous professional training workshop on "Advances in pest management and the role of veterinarians" held on 16th September 2011. Approximately 30 people drawn from the Department of Veterinary Services, private sector and University of Nairobi attended the workshop.

CONSULTANCIES WON IN THE ACADEMIC YEAR 2010/2011

Gamma Systems Ltd: Assessment of the effectiveness of urea sanitization of human faeces for used as manure (June –July 2011- Ksh. 1,320,000/=)

FAO Kenya: Needs assessment survey for continuous professional education in Veterinary Public Health and development of training modules (Nov 2010 - Dec. 2011- Ksh. 2,300,000/=)

FAO Somalia: Analysis of Somaliland livestock and meat value chains. (March-April 2011-Ksh.1,828,340/=)

Ministry of Livestock Development, Kenya: Analysis for pesticide residue and heavy metal levels in meat sold in Kenya. (April-June 2011- Ksh.735,000/=).

AHITI Ndomba: Practical training of Diploma in Animal Health and Production students in pharmacological techniques. (April 2011 -Ksh.40,000/=)

FAO Somalia: Certificate training of personnel working in the livestock sector in Somaliland and Puntland on meat hygiene and quality assurance (September 2011 to May 2012 @ USD 125,170)

Murphy Chemicals (EA) Ltd funded consultancy to carryout toxicological studies of Permethrin pesticide (Ksh. 275,000)

FAO FUNDED CONSULTANCY ON VALUE CHAIN ANALYSIS ON LIVE ANIMALS, MEAT AND LIVESTOCK PRODUCTS IN SOMALILAND (March-April 2011)

Lead Consultant: Prof. Jackson N. Ombui (Department of Public Health, Pharmacology and Toxicology.

Co-Consultant: Dr. Eddy G. M. Mogo (Department of Clinical Studies)

The University of Nairobi signed a consultancy agreement with FAO to undertake a livestock and meat value chain analysis on live animals, meat and livestock products in Somaliland in March/April 2011. The analysis aimed to understand factors that affect the development of a competitive Somaliland livestock and meat industry as well as identify areas of intervention to foster its development. The project was undertaken by staff from the Faculty of Veterinary Medicine. Data was collected from primary sources through focus group discussions using key informants, stakeholder workshops, observations of livestock marketing infrastructure and activities, slaughter and meat marketing activities, as well as trade in hides and skins. Secondary data was collected through literature search and available reports on various livestock issues. The study found out that Somaliland has organized livestock marketing and trading activities facilitated by organized livestock markets and elaborate quarantine stations that are based at the port of Berbera. However, livestock slaughter and marketing of meat faced a number of challenges that included inadequate infrastructure (Slaughterhouse and associated facilities and equipment), poor hygiene and lack of meat inspectors to carry out quality assurance of meat.



Sheep and goats for export at a quarantine station in Berbera



Livestock slaughter has a number of challenges including poor hygiene and lack of meat inspectors

MINISTRY OF LIVESTOCK DEVELOPMENT (K) FUNDED CONSULTANCY ON ANALYSIS OF PESTICIDE RESIDUES AND HEAVY METALS IN MEAT AND AFLATOXIN M₁ LEVELS IN MILK (March-June 2011)

Lead Consultants: *Dr. James M. Kahunyo (pesticides), Dr. Laetitia W. Kanja (Heavy metals) and Philip M. Kitala (Aflatoxin M₁)*

Technical Support: *Johnson N. Gitahi, Lucy Mwangi, Joseph Nderitu, Kenneth Maloba, Francis Gitau, Alfred Mainga and James Macharia.*

A total of thirty (30) meat samples were collected from carcasses of animals originating from various districts in Kenya, namely, Mwingi, Makueni, Eldoret, Voi, Kakuzi and Thika. The samples were obtained from three abattoirs including, Dagoretti slaughterhouse, Kenya Meat Commission (KMC) and Farmers' Choice. Laboratory analysis on the meat samples was carried out for Organochlorine pesticide residues (a-BHC, lindane, b-BHC, heptachlor, aldrin, heptachlor epoxide, 4'4'DDE, dieldrin, 2'4'DDD, endrin, 2'4'DDT, 4'4'DDD, 4'4'DDT), and pyrethroids using Gas chromatography technique and heavy metals (arsenic, cadmium, lead, mercury) using Atomic Absorption Spectrophotometry. The study found organochlorine pesticide residues in the meat samples from all the three abattoirs to be below the MRL values for the various pesticides and their metabolites. Hence, meat from the three facilities were found not to constitute a health hazard to consumers in as far as contamination with organochlorine pesticide residues is concerned.

Heavy metal analysis of the 30 meat samples was done for Lead, Cadmium, Mercury and Arsenic residues. The number of meat samples with levels above the MRL ($\geq 0.1\text{mg/kg}$) were as follows: Arsenic 13.3% (4/30),

Cadmium 16.7% (5/30), Lead 100% (30/30) and Mercury 0%. The high level of lead in meat was attributed to contamination of animal pasture, feeds and water consumed by animals due to environmental pollution.

Thirty (30) pasteurized milk samples were bought from various supermarkets in Nairobi. The samples were analysed for aflatoxin M₁ using Ridascreen Aflatoxin M130/15 method (an enzyme immunoassay). All the 30 pasteurized milk samples obtained from various supermarkets had aflatoxin M1 levels below the prescribed MRL of 500 ppt (FAO / WHO, food standards, 193-1995), and hence posed no threat to human health.

LAND'O'LAKES FUNDED CONSULTANCY ON CAPACITY ASSESSMENT OF FOOD AND DAIRY ORIENTED ANALYTICAL LABORATORIES IN KENYA

Lead Consultant: Prof. Joseph M. Gathuma

Other Consultants: Prof. Jackson N. Ombui and Dr. Daniel M. Senerwa

Technical Support: Mr. Johnson N. Gitahi, Hezron Wimbua and Humphrey Kaburia.

Land O Lakes signed a consultancy agreement with the Department of Public Health, Pharmacology to undertake a study on capacity assessment of food and dairy oriented analytical laboratories in Kenya. The study was carried out in sixty eight food and dairy oriented laboratories in Kenya to assess their potential capability to conduct bacteriological and chemical analysis of milk and milk products to international standards. The assessment exercise revealed that there is a large number of food and dairy orientated laboratories that conduct chemical and bacteriological analyses of milk and milk products. However, the capacity of the majority of these laboratories to generate internationally acceptable results is limited by inadequacies in terms of appropriate equipment, chemicals, reagents, and qualified personnel. The assessment revealed that only a limited number of laboratories had the capacity to potentially generate internationally acceptable chemical and bacteriological results. Many of the laboratories lacked appropriate equipments and accreditation status to allow them perform to the desired international standards. Few laboratories had been accredited to ISO 17025 and regularly calibrated the equipment. The study concluded that, there is need to strengthen one or two laboratories in each province with the required technical competence to produce internationally acceptable chemical and bacteriological data.



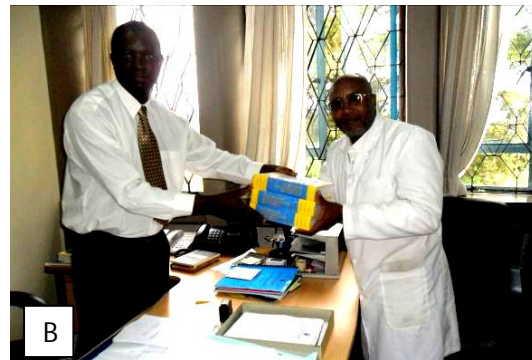
Technologist in the GC room where pesticide residue analysis takes place.

DONATIONS TO THE DEPARTMENT

Twiga Chemicals Ltd. Donated Ksh.10,000/= to support continuous professional training workshop on "Advances in pest management and the role of veterinarians" held on 16th September 2011.

Chemtura Ltd. Donated Ksh. 10,000/= to support continuous professional training workshop on "Advances in pest management and the role of veterinarians" held on 16th September 2011.

ILRI: Three (3) new Veterinary Epidemiology text books for use by postgraduates students. The books were donated through Dr. Lain. The books were presented to the chairman by Dr. Muchemi and Dr Florence Mutua



(A). Dr Muchemi and Dr F. Mutua with Veterinary Epidemiology text books. (B). Dr Muchemi presenting the books to the Chairman, Prof. Jackson N. Ombui.

LINKAGES AND COLLABORATIONS

1. Pesticide Control and Products Board(PCPB). In providing toxicity testing for new pesticide products for purposes of registration and sale in to the Kenyan market.
2. FAO Somalia – In provide training and consultancy services for Somalia's Meat sub-sector.
3. Addis Ababa University, University of Khartoum, Sudan University of Science and Technology (Sudan), Makerere University (Uganda) and Freie Universität, Berlin (Germany): On development and implementation of a joint masters course in Trans-boundary Animal Disease Management - an ACP-EU Collaborative Program in Higher Education (EDULINK).
4. Bee Keeping Station, Ministry of Livestock Development: On analysis of antibiotic and pesticide residues in honey
5. Department of Veterinary Services, Ministry of Livestock Developmet; On analysis of chemical residues in meat and training in meat inspection.
6. Carnige-Regional Initiative in Science and Education(RISE) through African Natural Research and training Network (AFNNET): Sponsored students for Masters and PhD programs in Natural products.
7. Meat Training Institute(MTI), Ministry of Livestock development: In training and evaluation of meat inspectors
8. Kenya Bureau of Standards: In development of food safety standards
9. International Livestock research Institute (ILRI): In multidisplinary joint research programs.
10. Kenya Veterinary Board: On development and implementation of Continuous Professional Training Workshops.
11. Kenya Veterinary Board: On development and implementation of Continuous Professional Training Workshops.

STAFF MOVEMENT

Promotions

Mr. James K. Macharia was promoted from Technologist Grade 1V to Technologist Grade ABC.

Retirements

Mr. Humfrey F. Kaburia: Principal technologist retired from university service in November 2010 following expiry of his post-retirement contract. Mr. Kaburia had worked in the Department since 1976.

Resignations

Dr. Joseph K. Gikunju: Resigned from university service to join Jomo Kenyatta University of Agriculture and Technology.

Study Leave

Dr. Joshua Onono: A tutorial fellow in the Department proceeded on study leave to undertake his PhD studies at the University of London.

Renewal of Contracts

Prof. Joseph Gathuma for two years until October 2013

Mr. Peter Njeru (Driver) for one year until October 2012

Mr. Silas Mwakio (Grade 11) for one year until April 2012

Ms Jackline Nyaribo (Grade 11) for one year until April 2012

ACADEMIC STAFF AND THEIR AREAS OF SPECIALIZATION

Chairman:

Prof. Ombui, J.N. B.V.M. M.Sc., Ph.D. (Nbi) - Public Health, Food safety and hygiene, microbial biotechnology, antibiotic resistance and residues in food.

Professors:

Gathuma, J.M., B.V.Sc., M. Sc., Ph.D. (Nbi) – Veterinary Public Health. epidemiology, Animal health economics.

Mitema, S.E.O., B.V.M. (Nbi), M.S. (Kansas), Ph.D. (Nbi) – Pharmacology and Toxicology. Chemotherapeutic agents against haemoprotozoa, antibiotic residues studies, calcium channel blockers.

Maitho, T. E., B.V.M. M.Sc. (Nbi) Ph.D. (London) – Pharmacology and Toxicology. Non-steroidal anti-inflammatory drugs, pesticide residue in food.

Kang'ethe, E.K., B.V.M. (Nbi), M.Sc., (Bristol), Ph.D. (Nbi) – Veterinary Public Health. Meat Science, meat hygiene, and Immunology.

Associate Professors:

Kagiko, M. M., B.V.M., M.Sc., Ph.D. (Nbi) – Veterinary Public Health. Parasitic zoonoses, immunology and food microbiology.

Arimi, S.M., B.V.M., M.Sc. (Nbi), Ph.D. (Reading) – Veterinary Public Health, Milk hygiene, food microbiology and Bacterial and emerging zoonosis.

Njeruh, F.M., B.V.M., M.Sc., Ph.D. (Nbi) – Veterinary Public Health., Immunology, parasitic Zoonoses, Milk hygiene.

Senior Lecturers:

Gathura, P.B., B.V.M., M.Sc., Ph.D. (Nbi) – Veterinary Public Health. Zoonoses, Immunology and Water hygiene.

Ogara, W. O., D.V.M., M.Sc., Ph.D. (Moscow) – Veterinary Public Health, Meat and Fish hygiene, Environmental Health and hygiene, Environmental Impact Assessment.

Kitala, P.M., B.V.M., M.Sc., Ph.D. (Nbi) – Veterinary Public Health. Viral zoonoses and Epidemiology

Kanja, L. W., B.Sc., M.Sc., Ph.D. (Nbi) – Pharmacology and Toxicology, Analytical chemistry, pesticide residues in food and mother's milk.

Mbaria, J.M., B.V.M., M.Sc., Ph.D. (Nbi) - Pharmacology and Toxicology, Natural Products and Ethnoveterinary medicine.

Lecturers:

Nderu, F.M.K., B.V.M., (Nbi), M.P.V.M. (California) – Veterinary Public Health. Epidemiology and Food hygiene.

Kahunyo, J.M., B.V.M., M.Sc., (Nbi) – Pharmacology and Toxicology. Pesticides and, mycotoxins.

Senerwa, D. M., B.V.M., M.Sc., (Nbi) – Veterinary Public Health; food microbiology, Molecular biology, bacterial plasmid transfer and resistance.

Macharia, S.M., B.V.M., M.Sc., (Nbi) – Veterinary Public Health. Epidemiology and animal health economics.

Oguna, M.J., B.V.M., MSc., (Nbi) ongoing Ph.D. (Nbi) – Pharmacology and Toxicology. Reproductive pharmacology.

Muchemi, G.M., B.V.M., M.Sc., Ph.D. (Nbi) – Veterinary Epidemiology. Parasitic zoonoses, Biostatistics.

Mapenay, I.M., B.V.M., M.Sc., Ph.D. (Nbi) – Pharmacology and Toxicology. Molecular pharmacology.

Tutorial Fellows:

Nguta, J. M., B.V.M., M.Sc., Ph.D, (Nairobi) – Pharmacology and Toxicology, Natural Products and Pharmacology and Toxicology of medicinal plants.

Onono, J. O., B.V.M., MSc., ongoing Ph.D.– Veterinary Epidemiology, Animal Health Economics and Biostatistics.

(b). Non -Academic staff list

| | |
|---------------------------------|-------------------------------|
| Mr. Gitahi Nduhiu (HND, MSc.) | Chief Technologist |
| Ronoh Koske (HND) | Senior Technologist |
| Lucy Mwangi (HND) | Senior Technologist |
| Kenneth Maloba(HND) | Senior Technologist |
| Dorcas Nduati(HND) | Senior Technologist |
| Francis Gitau(Diploma) | Technologist Grade ABC |
| Kiogora A. Marimba(Diploma) | Technologist Grade ABC |
| Alfred Mainga (Diploma) | Technologist Grade ABC |
| Joseph G. Nderitu (Diploma) | Technologist Grade ABC |
| James K. Macharia (Certificate) | Technologist Grade ABC |
| Leah Mwaniki (Certificate) | Junior Technologist Grade III |
| Grace Pacho (Certificate) | Junior Technologist Grade III |
| Mercy Gitungo (Certificate) | Junior Technologist Grade III |
| Martin Odongo (Certificate) | Subordinate Grade II |
| Caroline Maina (Certificate) | Secretary Grade A |
| Peter Njeru | Driver Grade II |
| Jackline M. Nyaribo | Subordinate staff Grade II |
| Johnson Silas Mwakio | Subordinate staff Grade II |
| Fanice Airo | Subordinate staff Grade II |

Prof. Jackson N. Ombui
Chairman.
3/10/2011.

