

CURRICULUM VITAE - PROF. PHILIP NJERU NYAGA

1. Biodata

NAME : PHILIP NJERU NYAGA
NATIONALITY : KENYAN CITIZEN
DATE OF BIRTH : 1948
SEX : MALE
MARITAL STATUS : MARRIED WITH 4 CHILDREN

2a. PRESENT POSITION : PROFESSOR OF VIROLOGY

2b. ADDRESS: **Department of Vet. Pathology, Microbiology and Parasitology,
University of Nairobi
P.O. Box 29053 - 00625, Kangemi, Kenya, East Africa.
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Cell phone: +254 -733-944 899.**

2c. Associated skills: i. **Avian Influenza training for laboratory diagnosis and surveillance: Anglophone and Francophone Africa countries laboratory personnel.**
ii. **Trained as a company director by the commonwealth Association for Corporate Governance(CACG)**
iii. **Trained trainer of company directors.**
iv. **Carried out training of company chairmen and directors of major companies and public corporations in Kenya, Uganda and Tanzania.**
iv. **Computer literate (MS Office, SPSS)**

3. Academic Training and Experience

1973 : University of Nairobi - BVM
1975 : University of California - MPVM
1975 : University of California - Ph.D

4. Courses taught : 1975 -Onwards

(a) Undergraduates:

Davis, California(1975):

(i) Pathology and clinical diagnosis of viral diseases.

University of Nairobi:

(ii) Second Year Veterinary Students:

Immunology, virology

(iii) 3rd Year Veterinary Students:

Virology, Immunology; Bacteriology & Mycology.

(iv) 4th year Veterinary students. Special Pathology, Diagnostic Techniques, Avian Medicine

(iv) 5th Year Vet:

Differential diagnosis in Avian Medicine; Diagnostic pathology.

(b). Bachelor of laboratory and biosciences technology (BLT) . Immunology.

(c) Postgraduates(University of Nairobi):

(i) Advanced Virology (ii) Advanced Bacteriology and Mycology

(iii) Advanced Immunology (iv) Principles of Scientific Communication

(v) Biostatistics

5. Prizes and Awards

(a) Gandhi Smarak Prize (1970) - For the best First year student, Faculty of Veterinary Medicine, University of Nairobi

(b) Kenya Shell Prize (1973) - For the best final year student, Faculty of Veterinary Medicine, University of Nairobi.

(c) Rockefeller Foundation Scholarship (1973) **Postgraduate Studies**, University of California.

(d) Matsumae International Foundation Fellowship (1987)

Visiting Researcher Japan (**Monoclonal antibody production and Molecular biology**).

(e) ISID 2nd prize for best epidemiology paper in the Nairobi conference (1992) to J.R. Ndumu (diseased,1993), P.N. Nyaga, J.J.Bwayo and P.M.Tukei.

(f) Association of African Universities(AAU). Senior University Management Workshop Arusha, Tanzania,6-14 January, 1994.

(f) Research exchange visits to Kimron Veterinary Research Institute, Israel 1995& 1996 as part of collaborative project. with Prof. M A. Lipkind.

(Worked on Newcastle disease virus isolates, collaborating on the monoclonal antibody characterisation of HN, F and M proteins).

(g) German Academic Exchange Service (DAAD) Research Fellowship(1997) Marburg University, Institute of Virology, Germany.

(Worked on Newcastle disease virus: Virus receptors and the molecular mechanism of virus pathogenesis).

(h) Global Foundation for Research and Scholarship Professional Training Fellowship (Jan. 30th to Feb. 28th, 1999 at Columbia University, New York, USA).

(i) Fulbright Senior Scholar Fellowship(Feb,5th - Nov. 2001: Southeast Poultry Research Laboratory, Athens, Georgia, USA.

(Worked on Newcastle disease virus: Spent nine month at the laboratory of Dr. Bruce Seal ; Did full length sequencing of the six genes of Newcastle disease virus for the heat treated vaccine strains LaSota, VGGA, and Hitchner B1).

6. Administrative Experience

(a) Director, Board of Postgraduate Studies(1992- 2001); Helped University to develop all the module II graduate programmes, starting with MBA.

(b) Chairman, Department of Veterinary Pathology and Microbiology (1985 to 1991).

(c) Chairman, College Income Management Committee University of Nairobi - Kabete Campus. This was the only **Income Generating Committee** in the University for many years. Under my chairmanship College farms purchased tractors and lorries and developed plans which are still being used to date.

Increased farm production was recorded during the tenure of my chairmanship period (1987- 1990).

(d) Member of Appointment Committees for Technical Staff, Lecturer and

Professorial posts at the University of Nairobi.

- (e) Member, various technical and appointment Committees at Faculty, College and University - wide levels University of Nairobi.
- (f) KARI: Training & Recruitment panels (1990)
- (g) Community service:
 - ◆ Member and Chairman of Committees for Nairobi International Show (livestock- member: poultry – Chairman 1981-2001);
 - ◆ Member of Synod and Diocesan Committees - Diocese of Embu(1990-2000); Diocese of Nairobi, 2002- ; Chairman, Education Committee - Nairobi Diocese (1999-2001).
 - ◆ Chairman Kabete Vet. Primary School(1983-86);
 - ◆ Chairman Christian Union Advisory Committee Kabete Campus(1988-todate 2006;
 - ◆ Chairman Parents- Teachers association (PTA) of Moi Girls School Nairobi (1995-98; 2002-).
 - ◆ Member Board of Governors (BOG) Moi Girls School, Nairobi (1995-1998; 2002-2004).
 - ◆ Chairman, Board of Directors, Kenya Veterinary Vaccines Production Institute (KEVEVAPI; 2000-2003) a government parastatal.
- (h) ICIPE: (1991) External assessor senior staff recruitment
- (i) National Council for Science & Technology (NCST) subcommittees, on patents;
- (j) Kenya Veterinary Board (1991-1994)
- (k) Nairobi Cluster, Member Board of Directors(for Dean Vet. Medicine(4 years 1996-1990) and member Scientific Committee (2 years).
- (l) Co-organiser : ABN - UNESCO African Biotechnology Symposium February, 17th - 21st , 1992.
- (m) Member Organising Committee for the 7th International Symposium for The International Society for Veterinary Epidemiology and Economics. 15-19th August, 1994.
- (n) Organised postgraduate seminar on scholarly writing on behalf of the German Academic Exchange Service(DAAD) on Scholarly writing for all Kenyan universities 2000.
- (o) Organised international seminar on international and higher education linkages between African and American Universities, April 2001.
- (p) Session Chairman, Biennial Faculty of Vet. Medicine Scientific conference(2002, 2004).
- (q) Certified Trainer of Company directors, 2002.
- (r) Trainer and facilitator of private and public corporations in corporate governance (2002-2004) for the Center for Corporate Governance(CCG), specializing in finance. The participants in these training sessions are usually Chairmen, Directors and Chief executives drawn from Kenyan, Tanzanian, Ugandan, companies and public corporations. **Gained useful and wide exposure to working, strategies and operations in corporations.**

7. Consultancy

7.1 KENCHIC LTD.:

- (a) Commissioned to study viral, bacterial and other diseases affecting **breeding stock and broiler growing operations**. This was carried out; report

written (1979/80).

- (b) Commissioned to draw an effective **vaccination program for the breeding stock** and broiler operations. This was carried out and the program instituted (1981).
- (c) **Design of Microbiological Laboratory. Work done and report given** (1983). The laboratory has since been established by the company and upgraded.

7.2. MUGUKU POULTRY FARM

Bacteriological studies on causes of deaths and low hatchability; vaccination schedules:- report written and implemented (1986).

7.3. WELLCOME (K) LTD

Studies on the efficacy of the disinfectant Municipal fluid (1987). Work carried out and results given. Other Wellcome disinfectants were also evaluated and reported.

7.4. CIBA-GEIGY

Trials on efficacy of the disinfectant 'IOSAN' (1987). Work done and reported.

7.5 WORLD BANK/MINISTRY OF LIVESTOCK DEVELOPMENT

Technology policy programme participant : Drew initial document and questionnaire on educational institutions offering agricultural education in Kenya (1983).

7.6 KENYA/BRITISH GOVERNMENTS.

Review Mission on Kenya Veterinary Vaccines production and usage (1989).

At the time this review was commissioned, veterinary vaccines were being produced in Kenya as follows:

- i. Foot and mouth vaccine : **Joint venture** between Welcome (k) Ltd and the Government of Kenya at Emabakasi.
- ii. Rinderpest; contagious bovine and caprine pleuropneumonia vaccines: **The Department of Veterinary Services** at Muguga.
- iii. All the other mammalian and poultry vaccines(rabies, African horse sickness, Blue tongue, Nairobi Sheep disease, Newcastle disease, fowlpox, fowl typhoid and anthrax) by the Department of Veterinary Services at Kabete Vet. Labs.

The review team had experts from United Kingdom and myself. We visited all the vaccine production sites for Government and private sector; the Department of Veterinary Services; farmers and field Veterinary officers utilising the vaccines as well as potential investors to seek their opinions.

In our report we recommended four options open to the Government of Kenya to take, namely:

- i. Keep the status quo, i.e. produce some vaccines via the Government Department of Veterinary services and the Foot and mouth vaccine via a joint venture.
- ii. Produce all vaccines through a joint venture.
- iii. Produce vaccines under a parastatal.
- iv. Government to divest itself from vaccine production and let a private investor(s) produce all the vaccines as a commercial venture. Among the disadvantages listed for this option was the concerns on the production of strategic vaccines that may not be commercially viable due to small volumes

required annually.

The report was widely read by the relevant officers. The Government subsequently decided to take option iii and create the parastatal Kenya Veterinary Vaccines Production Institute (KEVEVAPI).

7.7. KARI/USAID

Review on committee structure (1989) in Kenya Agricultural Research Institute (KARI) Research organization. All KARI research stations were visited and their research committees and processes evaluated. A report was compiled and effective systems were recommended and implemented with good results for the institute and the country.

7.8 USAID/KARI Workshop on CRSP integration into KARI (1990). Evaluation report given .

7.9 NATIONAL MUSEUMS OF KENYA / ODA

Bio-diversity : Microbes in the Conservation of Bio-diversity (1991). **The report was submitted.**

7.10. KARI / ODA

Review on KARI Virology research project: Socio-Economics and Epidemiology (1992). This was a review of all research work on virology based projects carried out by KARI scientists with emphasis on the role and impact of Socio- economics and epidemiology. **The report was given** and it formed a basis for a new orientation in disease research and surveillance in the institute and the country.

7.11. KEMRI/JICA

The External Evaluation of the Technical Cooperation on JICA/KEMRI project “**Research and control of infectious disease project**”, (1994). Here I was a member of a team that studied all the research at the Kenya Medical Research Institute(KEMRI) supported by the Japanese Government through JICA. **The report was well received** by all parties and its recommendations formed the basis for the support of the new phase with emphasis on the control and production of HIV /AIDS diagnostic reagents.

7.12. WELCOME TRUST/KEMRI

The External Evaluation of the Malaria Project. Nairobi and Kilifi center Activities (!995). **The report was compiled and given** and made a big difference in malaria management in Kenya.

7.13 GOVERNMENT OF KENYA

Committee on Education in Kenya appointed by the President on : **The Future Development of University Education In Kenya(1995)**. The report was given to the Kenya Government and the implementation by the Public Universities has made a great difference on operations since then. **We wrote our report and submitted it as requested. It has formed the basis for the transition of tertiary institutions to offer University degrees.**

7.14. ODA/KARI

The Evaluation of the Foot and Mouth Disease Vaccine Production in Kenya by the Kenya Veterinary Vaccines Production Institute (**KEVEVAPI; 1996**).

This study was commissioned to review the production and usage of the Foot and Mouth Disease vaccine at the **KEVEVAPI** site in Embakasi. I was the lead scientist and together with a colleague from the Foot and Mouth Disease reference Laboratory in the United Kingdom Dr. R.P. Kitching, we visited the KEVEVAPI production units at Embakasi where we evaluated the entire manufacturing process, the personnel, the equipment, the laboratory space available, procedures of quality assurance, farmers using the vaccine in the field and field Veterinary officers. **We wrote our report and submitted it as requested.**

7.15. **KARI**

Appraisal of the results of the KARI/IAH “**Capripox-Rinderpest Vaccine Evaluation in Sheep and Goats**”(1997).

A recombinant vaccine for the disease "cattle plague" (**Rinderpest**) had been developed by scientists at the Institute of Animal Health (IAH) in the United Kingdom and the Kenya Agricultural Research Institute scientists were asked to carry out field tests in conjunction with the IAH scientists. Dr. Peter Tukei of KEMRI and I were asked to evaluate the results coming out of the work. **We wrote our report and submitted as requested.**

7.16. **CDC/KEMRI- Kenya**

Avian influenza consultancy on: Laboratory diagnosis, biosafety, surveillance; cell culture lab set up for avian influenza virus isolation **1st July 2006- 30th June, 2007.**

7.17. **ILRI**

Response to the Threat of Avian Flu in Developing Countries:
Preliminary Assessment of Lessons Learned on Control and Protecting Livelihoods
(**October, 2006**). **Report completed and submitted.**

7.18. **FAO**

Structure, marketing and importance of commercial and indigenous poultry production in Kenya for a better understanding of avian influenza. **July, 2007.** Report completed and submitted.

7.19. **MAKERERE UNIVERSITY, UGANDA**

Consultancy on the setting up of an enhanced BSL-2 laboratory for the diagnosis of influenza viruses. **August, 2007.** Report completed and submitted. The work has highly assisted Makerere University to develop their influenza diagnostic laboratory capabilities. **Report written and submitted.**

7.20. **FAO**

Bio-security review and improved poultry husbandry systems for sectors 3 and 4 to prevent Highly Pathogenic Avian Influenza (HPAI) infection: Poultry sector analysis in Kenya. **October, 2007. Report completed and submitted.**

8. Continuing Veterinary Education:

- Training seminars for farmers; field days
- Education seminars for practicing Veterinary graduates.
- KVA specialist course on "Avian Medicine", 1986.
- Design of Masters, Diploma and certificate programmes for Animal Health practitioners.

9. Research interest:

- (a) Veterinary Virology
- (b) Epidemiology and Immunology of infectious diseases
- (c) Pathogenesis and epidemiology of viral infections
- (d) International and Higher Education.

10. Membership of Professional Associations

- (i) Member, the International Society of Animal Hygiene.
- (ii) Member, World association of Veterinary Microbiologists.
- (iii) Member, Africa and Middle East Virology Association (AMEVA):
Regional Chairman of AMEVA for Eastern Africa (1980-84).
- (iv) Member, Scientific Subcommittee, Nairobi Cluster, 1985-86.
- (v) Member, Kenya Veterinary Association (KVA)
- (vi) Member, East & Southern Africa Pathology Association (1990)
- (vii) Member, Kenya National Academy of Sciences(1995-)

11. Editorial Experience

- (i) Deputy Editor, Kenya Veterinarian. (2 yrs)and member of the Editorial Board of the journal (7 years).
- (ii) Referee for journals :
 - Tropical Veterinarian.
 - Discovery and Innovation (**Journal of the African Academy of Sciences**)
 - Biochem physics Journal.
 - Kenya Science Journal (**Journal of the Kenya National Academy of Sciences**).
 - The Kenya Veterinarian
- (iii) University of Nairobi Senate and various Boards' Reports
- (iv) Consultancy reports.
- (v) Personal Journal articles published in refereed journals
- (vi) Teaching scientific communication course to postgraduate students (1975 -)

12. Supervision of Postgraduate Students

I have supervised students named below as well as assisting many more whose names are not listed:

- S1. M. G. Binta (M.Sc.) : Market fish hygiene (1978)
- S2. J.M. Nyaga (M.Sc): Studies on Newcastle disease and some associated local virus strains in Kenya (1982)
- S3. C.G. Ndiritu (Ph.D): Antigen Heterogeneity of the adult *Ancylostoma caninum* (1982).
- S4. C.F. D'Souza (M.Sc): occurrence of Bovine Leptospirosis in Kenya (1983).
- S5. Z. Goje (M.Sc) (1983). : The comparative pathogenesis and pathology of *Aspergillus fumigatus* infection in the domestic chicken and the wild bird Kori Bastard.
- S6. J.K.N. Kuria (M.Sc): Serodiagnosis of *Corynebacterium pseudotuberculosis* infections in sheep (1984).
- S7. P.W. Maina (M.Sc): A study of bovine subclinical mastitis control in Nyeri, Kenya (1984).

- S8. P.G. Mbuthia (M.Sc): The epidemiology of theileriosis (with emphasis on E.C.F.) and some aspects of economics of tick control in Narok District, Kenya (1984).
- S9. M.G. Binta (Ph.D): Humoral responses of cattle to infection by the Ixodid tick *Rhipicephalus appendiculatus* (Newman, 1901)[1984].
- S10. S.M. Mbiuki (Ph.D): Intestinal Anastomosis (1984).
- S11. E. S. Bizimenyera (M.Sc): A new approach to hatchery sanitation: Isolation and control of pathogenic bacteria associated with deaths in hatchery chicks (1987).
- S12. S.W. Mbogua (Ph.D): Evaluation of anti-inflammatory drugs by bilateral orthopaedic surgery in dogs (1987).
- S13. L.C. Bebora (Ph.D): Fowl typhoid: The disease, immunity and control (1988).
- S14. B.A. Kimeto (Ph.D): Pathology and pathogenesis of *Trypanosoma vivax* infection in cattle (1987).
- S15. J.N. Maina (M.Sc): Prevalence and causes of early chick mortality in the chicken in the Central Province of Kenya (1988).
- S16. E.M. Nderitu (M.Sc): Therapeutic value of tropical application of unboiled honey in wound repair (1987).
- S17. T.A. Ngatia (Ph.D): Epidemiology and Pathology of Sub-clinical Mastitis in Dairy cows (1988).
- S18. J.M. Kantengwa (M.Sc): Bacterial quality of drinking water for poultry in some farms in Kenya (1988).
- S19. M.K. Njenga (M.Sc): Studies on supportive therapy in canine parvovirus enteritis (1988).
- S20. A.G. Thaiya (M.Sc): *Cassia didymobotrya* and *Solanum incarnum* toxicosis in animals (1992).
- S21. W.W. Karaba (M.Sc): Epidemiology of *Salmonella gallinarum* (1992).
- S22. C. G. Gitao (Ph.D): Development of camelpox vaccine (1993).
- S23. J.R. Ndumu (Ph.D) : Mechanisms of interference in Yellow Fever virus co-infections with other flaviviruses (1994; Posthumous award).
- S24. J.N.K. Kuria (Ph.D): Pathogenesis of caseous lymphadenitis and control of the disease in goats by immunization (1996).
- S25. S.B. Kanyongo(PhD): Poultry waste as means of improving the utilization of fibrous agriculture by products (1996; Posthumous award).
- S26. A.G. Thaiyah (PhD): Comparative Studies on the toxicity of *Solanum incanum* L. in the goat with special reference to mechanisms of toxicity reduction (2007).
- S27. M.J. Macharia (M.Sc): Antigenic and functional properties of the haemagglutinin-neuraminidase glycoprotein of Kenyan avian paramyxoviruses (1999).
- S28. Jacqueline K. Lichoji (M.Sc): Occurrence of Avian paramyxoviruses in Kenya with special reference to Indigenous Chickens in Kenya (1999).
- S29. Julia Nyaundi MSc: Viral causes of Diarrhea in Children infected with Human Immunodeficiency Virus [HIV, (2001)].
- S30. O.N.Njagi (PhD.) Application of monoclonal antibodies to identify surface antigens of *Besnoitia* endozoites capable of neutralising *Besnoitia* infectivity (2006).
- S31. Lucy W. Njagi MSc. Investigation of the carrier status of the zoonotic *Listeria monocytogenes* and *Campylobacter jejuni* in indigenous chickens in Kenya (2003).
- S32. Lucy W. Mwangi MSc. (2003). External Supervisor for Kenyatta University. Thesis writing.
- S33. P.G. Mbuthia. PhD(2004). Use of Fluorescent rRNA in situ hybridization to determine the occurrence and pathogenesis of *Pasteurella multocida* in indigenous chickens and ducks in Kenya.
- S34. S.K. Njenga MSc. (2004): External supervisor for The Royal Agricultural University ,

Denmark.

- S35. Lucy W. Njagi. PhD. A study of factors involved in Newcastle disease virus carrier status in village chicken and non-chicken. Thesis writing (2008).

13A. Boards of Examiners

Ph.D (26 : 1978 - 2007)
M.Sc (45 : 1978 - 2007)

13B. Moderator for University of Nairobi Examinations

- i. Public Health - (5 years)
- ii. Animal Production - (4 years)
- iii. Medical Pathology - (5 years)
- iv. Medical Microbiology (4 years)

13C. External Examiner

- i. Egerton University 1989/90; 1990/91; 1991/92.
- ii. Sokoine University of Agriculture, Tanzania 1992-95 .
- iii. External Examiner, MVM . Thesis Sokoine University of Agriculture, Yongolo M.G.S.(1996).
- iv. External Examiner, PhD Thesis Sokoine University of Agriculture, Yongolo M.G.S.(2004).
- v. External Examiner, MSc Thesis, Kenyatta University, Mamo Umoro (2005).
- vi. External Examiner, MSc. Thesis, Kenyatta University, George Gachara (2007)

13D. External Professorial Reviews:

I have been external reviewer for publications used in the professorial appointments for Sokoine University (1996; 2001, 2007); University of Botswana (2005).

14. Grants Received

- i. Diseases of wildlife transmissible to livestock (1977-80): Co-investigator (2 papers published). Amount US\$ 14,000 (Dean/NORAD).
- ii. Role of Marabou Stock (*Leptotilos crumeniferus*) in the spread of disease pathogens (1976-79). Principal Investigator. Amount: US\$ 6,000.00 (Deans Committee), - 2 papers published.
- iii. Study of Antiviral and Antimicrobial Chemotherapy using traditional medicinal and toxic plants in domestic animals. Principal Investigator. Amount: Kshs.259,000 (awarded 1st year,1987: Kshs.50,000 by (Deans Committee); 1988 Kshs.141,426 awarded.
- iv. Antiviral chemotherapy in bovine herpes viruses. Amount: Kshs.320,000 (Drugs; Wellcome Foundation [1987]).
- v. Epidemiology and aetiology of Acute Respiratory infections among under fives in a rural community. (Consultant virologist). Sponsor: National Academy of Sciences U.S.A. Value: US\$150,000 (1985-87) ; co-investigator.
- vi. Mechanisms of interference in Yellow Fever virus infections with other flaviviruses: Ph.D student Ndumu (Kshs.405,000. Commonwealth Secretariat).
- vii. Antigenic and functional properties of Haemagglutinin neuramidase glycoprotein of avian paramyxoviruses, Co- investigstor; AWARDED US\$ 200,000(1991/92) for the

- period 1991-1996 , USAID – CDR with M.A Lipkind as PI.).
- viii. Improving the health and productivity of rural poultry in Africa CO-INVESTIGATOR; AWARDED 5,685 Million Danish Kroners for Tanzania, Kenya, Uganda and Malawi: 1999-2002.Sponsor DANIDA.
 - ix. Productivity and Health of Smallholder Livestock. CO-INVESTIGATOR; AWARDED 5,400 Million Danish Kroners for Tanzania, Kenya, Uganda and Malawi: 2003-2006.Sponsor DANIDA.
 - x. Collaborative American - African Graduate training Symposium.24-28th Feb, 2000. And 6 -10th April, 2001; US \$ 100,000 funded by USAID. P.N Nyaga as Co investigator and Kenyan participant with Orlando Taylor (Principal Investigator), Wayne Patterson.

15. Significant Development of Biologicals

- i. **Fowl typhoid Vaccine:** Dr. L.C. Bebora and I together have developed a potent attenuated vaccine against *Salmonella gallinarum* infection in poultry. It has been tested in the laboratory for protection and shown to be better than the currently used live vaccine. It is awaiting field trials.
- ii. **Camel Pox vaccine :** Studies have been done and a field trial has already been carried out on a camel herd.
- iii. **Corynebacterium pseudotuberculosis** (caseous lymphadenitis in goats) : Studies on the pathogenesis and epidemiology are ongoing; a vaccine based on local strains is under study.
- iv. **New Castle Disease Virus:** Properties of local strains were studied and candidate vaccine clones identified. These are being processed further. We expect a heatstable vaccine soon (Ongoing programme).
- v. **Anthrax vaccine:** Here we studied the immunosuppressive effect on Trypanosoma congolense on the vaccination with spore Anthrax vaccine in goats. The results have been reported in a thesis form (1987) and a paper published (1990) .
- vi. **Leptospirosis in Cattle:** We studied seroprevalence of leptospiral serovars in the whole country and later isolated local strains. Vaccine prepared using most commonly occurring serovars (1983-85).
- vi. **Canine parvovirus enteritis:** Here we recovered and studied the causal viral agent, and developed effective therapy biologics to treat exposed puppies.

16. Publications

- P1. J.S. Kaminjolo, **P.N. Nyaga**, and J.N. Gicho. Isolation, cultivation and characterization of a poxvirus from horses in Kenya. Zehl. Vet. Med. B21., 1974: 592-601.
- P2. J.S. Kaminjolo, **P.N. Nyaga**, J.K. Omuse, and E.R. Mutiga Infectious bovine rhinotracheitis infectious bovine pustulo - vulvo-vaginitis viral isolates from cattle with epididymitis and vaginitis. Amer. J. Vet Res. 36 (1975): 123-125.
- P3. **P.N. Nyaga**, Epidemiology of Equine influenza, risk by age sex and breed. Thesis submitted in partial fulfillment for the award of M.P.V.M. Degree, University of California, Davis, July, 1975.
- P4. **P.N. Nyaga**. In vitro cell-virus interactions associated with bovine herpesvirus - and peripheral bovine blood cellular components. Thesis submitted in partial fulfillment for

the award of the degree of Doctor of Philosophy, University of California, Davis, December, 1975.

- P5. J.S. Kaminjolo, J.P.O. Wamukoya and **P.N. Nyaga**. A preliminary report on the occurrence of a disease in broilers in Kenya. *Bull. Anim. Hlth. Prod. Afri.* Vol. 25, 1977: 431-434.
- P6. **P.N. Nyaga** and J.S. Kaminjolo. Histoplasmosis in Kenya: Isolation of *Histoplasma capsulatum* from soil. *Kenya Vet.* Vol. 2 (2), 1978: 39-40.
- P7. J. K. Omuse, **P.N. Nyaga**, J.M. Gathuma, J.S. Kaminjolo and F.M. Nderu. Verminous pneumonia in topi (*Damalissous Korriaum*) in Masai Mara area of Kenya. *Bull. Anim. Hlth. Prod. Afric.* Vol. 26 (2), 1978: 156-160.
- P8. **P.N. Nyaga** and J.M. Gathuma. Some observations on *Taenia sarginata* cysticercosis in Kenya slaughter cattle. *Bull. Anim. Hlth, Prod. Afric.* Vol.27 (1), 1979: 51-59.
- P9. **P.N. Nyaga**, J.S. Kaminjolo, E.R. Mutiga, and L.C. Bebor. Occurrence of atypical fowlpox in poultry farms in Kenya. *Avian Dis.* Vol. 23 (31), 1979: 745- 752.
- P10. **P.N. Nyaga**. The role of animal management in the control of Coccidiosis. *Proceedings, Animal Production Society of Kenya.* Vol. 12, 1979/80: 47-50.
- P11. J.M. Gathuma, M.M. Kagiko and **P.N.Nyaga**. Water quality in Kajiado District, Kenya. *E. Afric. Journ. Med. Res.* Vol. 3 (1) 1979.
- P12. **P.N.Nyaga** and D.G. McKercher. Pathogenesis of Bovine herpesvirus - (BHV-1) infections: interactions of the virus with peripheral bovine blood component. *Com. Immuno. Microbio, Inf. Dis.* Vol. 2. 1980: 587-702.
- P13. **P.N.Nyaga**, C.G. Ndiritu, S.M. Njiro and S.W. Mbugua. Canine pulmonary geotrichosis in Kenya. *Kenya Vet.* Vol. 4, 1980: 6-9.
- P14. **P.N. Nyaga**, J.S. Kaminjolo, J.M. Gathuma, J.K. Omuse, F.M.K. Nderu and J.N. Gicho. Prevalence of antibodies to parainfluenza virus-3 (PI-3) in various wildlife species and cattle sharing the same habitats in Kenya. *Journ.Wild. Dis.*17(4), 1981: 605-608.
- P15. **P.N.Nyaga**, J.M. Gathuma and J.S. Kaminjolo. Experimental infection in marabou stocks with *Salmonella typhimurium* and fowlpox virus. *Kenya Vet.* 5(21): 10-11 .
- P16. **P.N.Nyaga**, A.D. Wiggins and W.A. Priester. Epidemiology of equine influenza, risk by age breed and sex. *Comp. Immuno. Microbiol. Infec. Dis.*Vol.3. 1981:67-83.
- P17. Mary, G. Binta, **P.N. Nyaga**, M. Valland and J.G. Tjaberg. Observations on some characteristics and *Vibrio parahaemolyticus* isolated from shell fish in Kenya. *Bull. Anim. Hlth. Prod. Afric.* Vol. 29 (2), 1981:187-192.
- P18. **P.N. Nyaga**, M.M. Kagiko, and J.M. Gathuma. Milk hygiene in nomadic herds in Kenya evaluated by bacterial isolation, bacterial viability trials in traditionally fermenting

- milk and drug sensitivity. Bull. Anim. Prod. Hlth. Prod. Afric. Vol. 30(1), 1982: 19-22.
- P19. M.G. Binta and **P.N. Nyaga**. The distribution of *Vibrio parahaemolyticus* serotypes in Kenya. Trans-Roy. Soc. Trop. Med. & Hyp. Vol. 30 (1), 1983: 55-60.
- P20. M.G. Binta, **P.N. Nyaga**, T.B. Tjaberg and M. Valland. *Vibrio parahaemolyticus*: Occurrence in marine sea fish. Shellfish, water and sediment in Kenya. E. Afric. Med. Journ. Vol. 59 (7), 1982: 442-445.
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- P63. Mbuthia PG, Njagi LW, **Nyaga PN**, Bebora LC, Mugeru GM, Minga UM, Olsen JE (2007). Hatchability and fertility of indigenous chicken and duck eggs and some causes of chick and duck mortality in Kenya. *The Kenya Veterinarian*, 31: 6-13.
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- P67. Rift Valley Fever Outbreak --- Kenya, November 2006--January 2007. **Nyaga PN** (CDC-Kenya team member on the joint multi- team report). **MMWR. February 2, (2007) 56(04): 73-76**

17. Conferences, Seminars and Workshops participation (Recent)

- 17.1 Jane N. Maina, **P.N. Nyaga** (1988): Factors associated with early chick mortality in Broilers in Kenya. Proceedings, Animal Production Society of Kenya, Regional Conference, Panafric Hotel, Nairobi, Kenya. November 1988.
- 17.2 P.N. Nyaga** and L.C. Bebora (1988). Zoonotic human chlamydiosis of avian origin: Presented at the XVA Scientific meeting on Zoonoses, 3rd November, 1988, ILRAD, Kenya.
- 17.3 E.S. Bizimenyera and **P.N. Nyaga** (1988). Acquisition of disinfectant resistance in *E. coli* and other bacteria found in poultry operations: Hong Kong 1-5th August, 1988. 8th International Conference on Global Impacts of Applied Microbiology.
- 17.4. **P.N. Nyaga**(1988): KVA Continuing education seminar on Poultry Medicine: Disease diagnosis on constraints in poultry production in Kenya. Kabete Campus, University of Nairobi.

- 17.5 **P.N. Nyaga**, E.S. Bizimenyera and J.K. Karanja (1989): Recovery of microorganisms biodegrading methyl red from the environment and industrial effluents in Kenya. (Accepted). Oral presentation 4th Internal Symposium on Toxicity Assessment, 8-11 May, 1989, Las Vegas, Nevada.
- 17.6. **P.N. Nyaga** (1989): Poxvirus in skin lesions of five Nile crocodiles (*Crocodylus niloticus*) in Kenya. KVA Scientific meeting on epidemic diseases, 27-28 July 1989, Nyeri, Kenya.
- 17.7 **P.N. Nyaga** (1989): Diseases of Crocodiles in respect to meat inspection. Regional KVA meeting Mombasa, 4th September, 1989.
- 17.7. KARI: Workshop on East Coast Fever, evaluation of the infection/treatment vaccination protocol. Muguga, Kenya 17-18 July, 1989. **P.N. Nyaga** (Resource person).
- 17.8. KARI: Plant Biotechnology Workshop: Present and future biotechnology research and application for Kenya 24-26 May, 1989. (**P.N. Nyaga** : Resource person).
- 17.9. KARI: 1st Annual Scientific Conference: Agricultural Research in Kenya - achievements, challenges and priorities: 14-16 August 1989. Panafric Hotel, Nairobi (**P.N. Nyaga** : Resource person).
- 17.10. ICIPE: Scientific Annual Conferences 1986-1989. **P.N. Nyaga** Invited as resource person.
- 17.11. KARI: Workshop on Integration of CRSP in KARI system, Duduville, Nairobi, Kenya. 1990 (**P. N. Nyaga as resource person**).
- 17.12. KARI (1991): KARI/ISNAR Review workshop on Livestock viral diseases, June 24-28, 1991. Presented a paper entitled, "Unresolved problems and future research of Bovine Virus Diarrhea and Infectious Bovine Rhinotracheitis," **P.N. Nyaga (paper presented; acted as a resource person also)**.
- 17.13. ICIPE: **P.N. Nyaga** : Invited as External Assessor for the recruitment of the : Programme leader (1991).
- 17.14. ABN/UNESCO: Co-ORGANISER African Biotechnology Symposium, Held in Nairobi, February 17th - 21st, 1992.
- 17.15. KARI : 3rd Annual Scientific KARI Conference, Pan Afric Nairobi, 1992 **P.N. Nyaga** : Invited as Resource person.
- 17.16. International Congress for Infectious Diseases, Nairobi, Kenya ; June 7th -11th, 1992: Presented a paper: J.R.Ndumu, **P.N.Nyaga**, J.J.Bwayo and P.M.Tukei : Interaction of Yellow Fever(YF) with other flaviviruses - its immunological implications on the epidemiology of the disease in Kenya.
- 17.17. Association of African Universities (AAU) : Third Senior University Management Workshop (SUMA III) Arusha , Tanzania; 6-14 January, 1994: Paper: Resource development, allocation and planning - Case of the University of Nairobi.
- 17.18. The 7th International Symposium for The International Society for Veterinary Epidemiology

and Economics. 15-19th August, 1994. **P.N. Nyaga : Resource person and member of the international organizing committee.**

- 17.19. The Annual Scientific conference of the Tanzania Veterinary Association Tanzania 5th- 7th Dec, 1996 . Paper presented. Isolation and characterization of avian paramyxovirus serotype 4 from flamingos in Kenya.
- 17.20. *Ibid* 3rd -6th Dec. 1999 Paper presented: **P.N. Nyaga** Newcastle disease virus survival in the tropical environment.
- 17.21. Collaborative American - African Graduate training Symposium Cape Town South Africa, 24-28th Feb, 2000.
- 17.22. German Academic Exchange Service (DAAD) Scholars' symposium on "Scholarly writing' Nairobi, Kenya, 17th - 19th Jan, 2000.
- 17.23. American Association of International Educators (NAFSA) Annual Conference Vancouver, Canada, 1997.
- 17.24. *Ibid*, San Diego California, USA 26th May - 2nd June, 2000.
- 17.25. Collaborative American - African Graduate training Symposium Nairobi, Kenya, Africa, 6 - 10th April, 2001
- 17.26. Higher Education and USAID: Synergy in Development. 2001 - Annual Meeting of Partners in Higher Education for International Development. Monarch Hotel, Washington DC , August 6-8th, 2001 .
- 17.27. E.S. Bizimenyera, **P.N, Nyaga** and J.O. Oloya : Multiple bacterial resistance against commonly used disinfectants for bacteria isolated from poultry hatcheries in Kenya.: Presented at the Tanzania Veterinary Conference: Arusha, Tanzania 6th - 9th Dec. 2001.
- 17.28. Seminar papers presented at Garissa 2003 (1), Kisumu, 2004(2), and Kabete 2002(2); 2004(4) at the 3rd and 4th Biennial Scientific Conference of the Faculty of Veterinary Medicine.
- 17.29. P..N. Nyaga (2006). Avian influenza: The biology, risks and challenges. A paper presented to the Kenya Physiology Association at Chiromo Millenium Hall, University of Nairobi, Kenya.
- 17.30. P..N. Nyaga (2006). Bird Flu: The imminent pandemic and how we may prepare. A paper presented to the Annual meeting of Kenya Association of Paediatricians at Serena Hotel, Nairobi, Kenya on 7th April, 2006.
- 17.31. P.N. Nyaga (2006). Bird Flu: Can we stem the tide of the pandemic ? A public lecture presented at Taifa Hall of the University of Nairobi on the 12th May, 2006.
18. SEMINARS ON AVIAN INFLUENZA AS FACILITATOR(F); PARTICIPANT(P);OR RESOURCE PERSON (RP):
:
 - **23rd-25th May, 2006, Avian influenza Workshop, Entebbe, Uganda(P)**

- **14-16th June**, 2006: ILRI-IFPRI Research Communities Consultation on research on Avian Influenza and its impact on the developing countries (**RP/P**).
- **26-30th June**, 2006: WHO-CDC Inter-country training on surveillance and Laboratory diagnosis of Avian Influenza H5N1; KEMRI Kenya (**F/RP**).
- **17th -21st July**, 2006: FAO-ILRI Training on the diagnosis of Avian Influenza(**P**).
- **30th July -2nd August** ,2006: ECSA (East, Central and Southern Africa Health Consortium Workshop on H5N1 preparedness, Dar Es Salaam. Tanzania (**P/RP**).
- **11-14th September**, 2006: CDC-Kenya Inter-country Rapid Response Team Training for Africa Region (**RP/F**).
- **25th -29th September**, 2006: WHO-CDC Inter-country training on surveillance and Laboratory diagnosis of Avian Influenza H5N1; KEMRI, Nairobi, Kenya for on the bench H5N1 Laboratory workers (**RP/F**).
- **2nd -3rd October**, 2006: IATA Awareness Course on packaging, shipping and documentation for infectious and Diagnostic specimens(**RP/F**).
- **4th -15th December**, 2006: ILRI-GTZ course for Anglophone African Countries training on Avian influenza surveillance and serological diagnosis, Nairobi, Kenya (**RP/F**).
- **30th May – 11 June** 2007: ILRI-GTZ course for Anglophone African Countries training on Avian influenza molecular diagnosis, ARC-OVI, Pretoria, South Africa (**RP/F**).
- **25th June – 6th July**, 2007: Francophone African Countries training on Avian influenza molecular diagnosis, ARC-OVI, Pretoria, South Africa (**RP/F**).
- **24th - 27th July, 2007**: Workshop - Avian Flu School and Poultry Health. An International Train –The Trainer Program. Conducted jointly by the School of Veterinary Medicine, University of California and The Faculty of Veterinary Medicine, University of Nairobi
- **17th - 19th December, 2007**: Avian Flu and Poultry Health Training Workshop for field personnel and Stakeholders; Embu, Kenya.

Signature..... date