

International Conference on Animal Science and Veterinary Medicine

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Scientific Tracks & Abstracts



Animal Science | Canine and Equine Science | Animal Pathology | Animal Diseases | Veterinary Medicine | Entomology

Title: Comparative study of the impact of forage- and pellet-based diets on sperm parameters in captive grasscutters

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Title: Human depredation risk and flight initiation distance of birds in rural areas Zimbabwe

Emmanuel Ncube | Chinhoyi University of Technology | Zimbabwe

Title: Bacteriological finding in Valvular endocarditis amongst slaughter Pigs

Sunday Agada | Private Veterinary Surgeon | Nigeria

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Comparative study of the impact of forage- and pellet-based diets on sperm parameters in captive grasscutters

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This work aims to improve the reproductive performance of grasscutters in captivity. Thirty (30) grasscutters (*Thryonomys swinderianus*) aged six (6) months were selected. They were divided into (two) 2 batches (batch 1 and batch 2) of fifteen individuals in order to receive distinctly (two) 2 types of food. Batch 1 and batch 2 received forage and pellets respectively for one month. The feeding was carried out at the Ecological Research Center (CRE) in the Treichville district of Abidjan. The grasscutters were then transported to the Histology and Molecular Biology laboratory of the UFR Medical Science of the Université Félix Houphouët Boigny (UFHB) to collect their semen using the flotation method. Spermogram and spermocytogram tests were then carried out on the semen of each grasscutters in order to make a quantitative and qualitative assessment. Spermogram and spermocytogram examinations showed that grasscutters fed within the pellet had a higher average sperm concentration and a lower percentage of sperm abnormalities than those fed within the forage. The pH, vitality and mobility percentages were not significant in either batch. It should be noted that pellet-fed aulacods had better body weight gain, testicular weight gain and semen quality than forage-fed aulacods.

Key words: grasscutter, spermogram, flotation, pellet, forage.

Recent Publications:

1. Comparative analysis of sperm quality of the Greater cane rat (TS) collected by masturbation and epididymal puncture in Côte d'Ivoire, Asian Journal of Research in Animal and veterinary sciences, vol 11, issue 2, page 60-66, 2023
2. Stimulation folliculaire chez les rattes wistar à partir d'extraits aqueux Cissus araliodes issue de la pharmacopée Ivoirienne, Universal Journal of Life and Environmental Sciences, vol 5, 1, 2023
3. Impact of farming systems on the physical characteristics of Carcass of local breeds ducks in the south forest of Côte d'Ivoire, ISSN (2522-6584), 95-98, 2021
4. Effect of rearing on the zootechnical performances of quail raised in Côte d'Ivoire, 2019, vol 7, 3, 30-42.
5. Effect of rearing on the zootechnical performances of quail raised in Côte d'Ivoire, Journal of International Academic Research for Multidisciplinary, 2019, vol 7, 3, 30-42.

Biography

Abou Joel Landry OKON, holder of a Unique University Thesis and a Diploma in Tropical Human Biology, and a Certificate of Advanced Studies in Management and Development of Natural Resources option: Animal Production. He was registered on the list of aptitude research officers of the African Malagasy Council for Higher Education (CAMES) 2019. His research areas are Histology of organs, Cytology, and Biology of Reproduction.

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ANIMAL SCIENCE AND VETERINARY MEDICINE

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Growth performance, carcass characteristics and gut morphology of broiler chickens fed varying levels of nano selenium supplemented diets

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This study investigated the effects of supplementing different levels of dietary nano Selenium (Se) on the growth performance, carcass characteristics, and gut morphology of broiler chickens. A total of 200 Arbor Acre breed broiler chicks were randomly divided into five treatment groups. The first group served as the control with no added test ingredient (0 level), while the other four groups received varying levels of the test ingredient: 0.10, 0.15, 0.20, and 0.25 mg/kg, labelled as NSe0.10, NSe0.15, NSe0.20, and NSe0.25, respectively. Each treatment had four replicates with 10 birds per replicate. Growth performance, carcass characteristics, and gut morphology data were collected and analysed using one-way analysis of variance. Duncan multiple range test was used to compare means with significant differences ($P < 0.05$). The results demonstrated that supplementing dietary nano Se significantly influenced the final body weight (FBW), body weight gain (BWG), feed intake (F.I.), and feed conversion ratio (FCR) during both the starter phase (0–4 weeks) and the grower phase (5–7 weeks) of the experiment. Additionally, the dressing percentage, thigh weight, lung weight, gizzard weight, and crypt depth were significantly affected by dietary nano Se supplementation. Specifically, supplementing the diet with 0.25 mg/kg of nano Se improved BWG (990.32 g) and FCR (1.93) during the starter phase compared to the control group (684.73 g and 2.63, respectively). Similarly, birds fed diets supplemented with 0.25 mg/kg of nano Se exhibited higher BWG (1339.78 g) and better FCR (1.94) during the grower phase compared to the control group (958.01 g and 2.60, respectively). Furthermore, supplementation of 0.25 mg/kg of nano Se improved dressing percentage (74.87%) compared to the control (57.42%). In conclusion, this study revealed that supplementing Arbor Acre broiler diets with 0.25 mg/kg of nano Se enhanced growth performance, meat quality, and gut morphology. These findings highlight the potential benefits of nano Se supplementation in broiler chicken production.

Recent Publications:

1. Alabi, O. J., Ng'ambi, J. W., and Mbajiorgu, E. F. (2020). Aqueous extract of Moringa (*Moringa oleifera*) leaf (aemol) on the growth, sensory and histology. parameters of broiler chickens Applied Ecology and Environmental Research 18 (5):6753-6764.
2. Alabi, O. J., Ng'ambi, J. W., and Mbajiorgu, E. F. (2020). Aqueous extract of Moringa (*Moringa oleifera*) leaf (aemol) on the growth, sensory and histology. parameters of broiler chickens Applied Ecology and Environmental Research 18 (5):6753-6764.
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Biography

An innovative scientist with over 10 years teaching and research experience in the field of Animal nutrition, forage science and livestock environment interaction. Research experience includes: alternative to conventional feed stuff for animal, improvement of non-conventional feedstuff, nutrient requirements for African chicken, participatory rural appraisal, village extension outreaches, research exhibitions, monitoring and evaluation of funded research as well as development of livestock marketing and extension strategies.

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Bacterial Based Cancer Therapy (BBCT): Scope Requirement and Application in Veterinary Medicine

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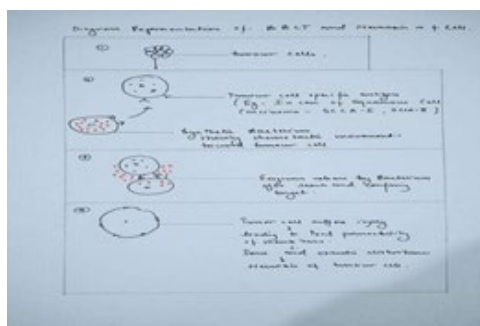
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Approximately one out of 4 dog will develop cancer at some stage of their life according to American veterinary medical association. Squamous cell carcinoma is well known problem in Zebu cattle. Often veterinary patients suffering from cancer meets fatal end due to metastasis. We are already using Radio-therapy, Chemotherapy and Immuno therapy in treating cancer but these therapies have not been able to provide security of successful treatment of tumour. Bacterial cell therapy as targeted therapy is already being experimentally used in treating tumours in Homo sapiens. But as it is well evident that different species respond differently to different pathologies and different treatments. It is unknown what and how species other than Homo sapiens will respond to bacterial therapy of cancer.

Though first bacterial therapy of tumour has already been performed on lab animals and with found success now further possibilities are seen in human medical science. About 6 million dogs and 6 million cats are suspected to be diagnosed with tumour this year in America alone and current statics shows that 50% of them will meet fatal end.

So it's get very important to establish new therapeutical technique and solution for the problem veterinary medicine is facing. Bacterial based cancer therapy (BBCT) has already been established as promising solution for tumour due to its properties of bacteria being accumulated in tumour micro environment and producing /creating anti tumour environment. BBCT can also be used along with other therapies for better response.

The greatest benefit of BBCT and immunotherapy is against the metastatic phenomena of tumour due to their chemo tactical capability. Though immunological approaches has its own limitation but due to synthetic or gene editing technique for bacterial modification BBCT provides immense possibilities which can be achieved easily with modern knowledge..



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Biography

Shukla was born in a small town named Sawai Madhopur Rajasthan, India on January 23, 1997. His brother, Kartikeya, is a medical student, and his sister Sakshi is also following in our footsteps, was brought up by his parents, Dr. Santosh Kr. Shukla (Veterinarian) and Dr. Kanchan Mala Shukla (Homeopathic Doctor). His interest in scientific research began from the very beginning, like his father. He joined the veterinary field because he knew the most promising way to enter the research gate was veterinary. He completed his academics from Meerut in January 2023 in Veterinary. Currently, he is working as an assistant field veterinarian and working on the current involvement of homeopathy in veterinary practice and research.

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Human depredation risk and flight initiation distance of birds in rural areas Zimbabwe

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Bird species are in danger of extinction due to human activity, particularly in rural areas where birds are targeted for their meat. Between July and September 2020, researchers examined the species they found in Thekwane hamlet of Bulilima area in Plumtree, Zimbabwe. To determine the flight initiation distance (FID) of birds in diverse environments and at different times of the day, a survey was carried out. Which bird species were targeted by local hunters was revealed by fifty key informants. The average body mass and IUCN conservation status of each species were calculated using a desktop survey. Generalized linear models were used to examine the relationship between body mass, day of the week, perch type and height, beginning distance, flock size, hunting pressure, habitat type, and FID. Chi-square tests were conducted to investigate any relationships between the frequency of a bird's citation and its level of hunting. The main informants as regularly used sources of protein mentioned four species, however, 58 species were discovered during FID measurements. FID lengthened with body mass and was longer in birds that were perched on the ground. Large flocks had longer FIDs, and there was a positive linear relationship between FID and starting distance. Hunting pressure and habitat type, however, had no discernible connection to FID. According to our findings, birds that are more likely to be hunted by humans have higher degrees of wariness than larger bird species, which are less tolerant of approaching humans.

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Biography

Holder of a Bachelors's (Hons) degree in Wildlife ecology and conservation at Chinhoyi University of Technology, currently working as a Senior Research Monitor at Great Plains Foundation in Zimbabwe. My Hometown is Plumtree, Matabeleland South Province.

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Bacteriological fundings in valvular endocarditis amongst slaughter pigs in Benue state Nigeria

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Statement of the Problem: Benue state is major producer of pigs and houses over 20% of the Nigerian pig population (Umeh et al., 2015; Asambe et al., 2019). Disease conditions such as valvular endocarditis affects the production of these animals. In developed countries of the world, valvular endocarditis has been the focal point of study because of the protocol of compulsory opening of the hearts of pigs at slaughter. In Nigeria there is no such protocol of slaughter, in fact the condition is either not recognised at slaughter or even mis-diagnosed at clinical stage. There is no information regarding endocarditis among swine

Methodology & Theoretical Orientation: A total of 1000 pigs was randomly selected for a period of 4months, 20 hearts were examined daily, out of which those with suspected lesion (swollen) were collected for bacteria culture and identification. From multistage samples collected valvular endocarditis had a prevalence of 2.1%.

Conclusion & Significance: From samples collected Causes of the endocarditis were; larva migrants with prevalence of 14.2% Heart worms (metastrongylus apri.) had prevalence of 9.25%, Bacteria (Streptococcus Spp, Staphylococcus Spp, E. coli) Had a prevalence of 52.38% Trauma (slaughter method) with prevalence of 23.8%. The causes of endocarditis are heart worms, larva migrants, bacteria and trauma, with bacteria having the highest prevalence rate of 52.38%. This agrees with other researchers such as (Henrick et al, 2010) who opined that bacteria are the most common cause of endocarditis in pigs. There are no significances to age, sex, as the condition affects all ages (Henrick et al., 2010) all sex, both male and female.

Recommendations for protocol for slaughter of pigs in Makurdi slaughter slab should be highly considered.

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3. Auclair F: 1995, Update on pathogenesis of infective endocarditis. *Cardiovasc Pathol* 4:265– 268.

Biography

Sunday Agada is a dedicated veterinarian with interest in general veterinary practice and emergency response. He is currently the MD/CEO of All Round Veterinary Clinic and Pharmacy located in Nigeria. His interest in research has drawn to some researchers in ERC-NETWORK, which includes a group of private researchers from all walks of life in Nigeria. As a competent veterinary Surgeon he has been open to developing himself through webinars, partaking in researches and conferences both within and outside the country. He is also a member of the Veterinary Council of Nigeria and the assistant secretary of the Nigerian veterinary medical association Lagos State, Nigeria.

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Animal Cancer | Veterinary Dentistry | Animal Food Science and Technology | Equine Science | Companion Animals

Title: Prevalence and Risk Factors of Toxoplasmosis in traditional pig farms in South-Eastern of Cote d'Ivoire
Gbohounou Fabrice GNALI | Institute Pasteur of Cote d'Ivoire | Cote d'Ivoire

Title: Owner status and some Common Welfare Practices among dog owners and their social implications
Chinedu Athanasius Eze | University of Nigeria | Nigeria

Title: Isochoric freezing prospects for food and biomaterial preservation
Tsekwi Gracious Rinwi | South China University of Technology | China

Title: The effects of different processes of African Yam bean (*Sphenostylis stenocarpa*) of the chemical composition on blood profile of broiler chickens
Eromosele Theophilus Ehebha | Ambrose Alli University | Nigeria

Title: Investigation of the invasiveness of salmonellae isolated from layer hens and murine fecal pellets infesting poultry farms in Tripoli- Libya
Abdulatif A Asheg | University of Tripoli | Libya

Title: Exploring novel biochemical pathways for the management of Arthropod Vectors to reduce the incidence of zoonotic disease transmission
Georgina Bingham | University of Nebraska | USA

Title: Compelling factors limiting Veterinary health and animal management services in rural Kenya
Mbaruk Abdalla Suleiman | Triple Unique Academic Consultancy | Kenya

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Prevalence and Risk Factors of Toxoplasmosis in traditional pig farms in South-Eastern of Côte d'Ivoire

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Toxoplasmosis is a cosmopolitan anthrozoosis caused by *Toxoplasma gondii*, which has long been the subject of numerous studies. In order to gain a better understanding of the epidemiology of human infection in Côte d'Ivoire, it is essential to estimate the prevalence of the parasite in meat intended for human consumption.

As pork is the second most commonly consumed meat in Côte d'Ivoire, a cross-sectional study was undertaken in 2019 among pigs reared in the south of the country to determine seroprevalence and associated risk factors. In the course of these surveys, 331 serum samples were collected from a population of 2,485 pigs in the departments of Agboville, Aboisso and Dabou and proportionally distributed. Specific antibodies were titrated using the modified agglutination test (MAT), the reference test for domestic animals and the OIE-validated test for pigs, and risk factors were assessed in relation to factors such as age, sex, breed and geographical origin (1,2). An overall seroprevalence of 44.1% (95% CI= [38.73%; 49.48%]) at dilution titre $\geq 1/20$, which is the highest in West Africa in pigs (3,4,5,6). Females (47.56%) and adults over one year old (56.25%) were found to be more infected. This could be explained by the fact that sows are used for breeding for a long time (4,6). In addition, there is no possibility of eliminating the parasite once the sow is infected (7,8). However, there was a wide variation in seroprevalence between the departments of Agboville (49.69%), Aboisso (46.99%) and Dabou (31.03%). A causal link was established in the univariate analysis ($p < 5\%$) between *Toxoplasma gondii* seropositivity and factors such as sex, age and sampling area (department).

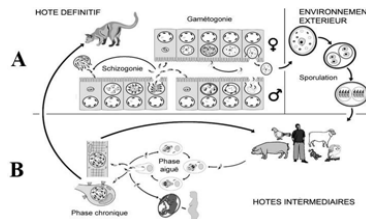


Figure 1: Cycle évolutif de *Toxoplasma gondii*

Recent Publications:

1. Divers of ectoparasite diversity and abundance in paleotropical bats in Kenya
2. Prevalence and characteristics of salmonella isolated to smals mammals in Côte d'Ivoire
3. Profile de résistance et stéréotypage des *Pseudomonas aeruginosa* isolé des escargot géant d'Afrique
4. Impact of Consumption of Two Street Foods (Tuna Garba and Rice with Eggplant Sauce) on Vital Organs in the Wistar Rat (*Rattus norvegicus*).

Biography

Gbohounou Fabrice GNALI, is a young veterinary surgeon who is slowly embarking on a research career in the animal resource management unit at the Institut Pasteur de Côte d'Ivoire, where he assists the head of the unit. Courageous and eager to learn with an open mind to science, he is also a member of GLOBAL SOUTH BAT, an organisation that campaigns for the preservation of wildlife biodiversity, in this case bats. He is a volunteer at Abidjan National Zoo, where he helps to diagnose and care for the institution's animals.

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Owner status and some common welfare practices among dog owners and their social implications

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Structured interviews were used to obtain information from 258 respondents from among 625 people who were selected by stratified random sampling from villages in five of seven local governments of Nsukka cultural Zone. Information included gender and literacy status of the respondents, type of welfare practices-bathing, confinements, use of veterinary services and castration and owner sex preference of dog for keeping, cultural and religious uses of dogs were also sought. Of the respondents, 37% were literate, 40% semi-literate and 23% illiterate. Of the 367 non-respondents, 63% were not available during the time of contact and 37% resented dog keeping and therefore refused to talk. About 958 dogs were owned by respondents. 56%, 27% and 17% were females, intact males and castrates respectively. Of the common welfare management practices, 17%, 9% and 5% of the literate, semi-literate and illiterate respondents respectively give regular bath to their dogs. Similarly, 12%, 11%, and 6% of the literates, semi-literates and illiterates confine their dogs either by leashing or providing kernel. 49%, 10% and 20% of the literate, semi-literate and illiterates owners use veterinary services respectively. Castration was also popular among 58%, 84% and 65% of literates, semi-literates and illiterates owners respectively. In conclusion, there was a highly significant association between literacy status and the dog management practices.

Recent Publications:

1. Ogbanya KC, Eze, C A Obiakor KO (2023) Study on post-treatment of Vitamin E against X-ray induced oxidative stress in Wistar albino rats. *Tropical Vet* 41(1):74-84
2. Duhu DC., Eze, C A, and Ugwu, N.E (2022) Dystocia Induced by Ventral Abdominal Hernia Periparturient Goat: A case Report. *Nigerian Veterinary Journal* Vol 43(1) 1-5
3. Jeremiah KT, Eze, C A, Udegbumam, R.I. and Ugwu, N.E. (2022) Early oral feeding following duodenal resection and anastomosis stressor or succor. *Journal of Veterinary and Allied Sciences*. Vol2(2) 114-118
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Biography

Chinedu Athanasius is a Professor of Veterinary Surgery & Radiology, in the Faculty of Veterinary Medicine, University of Nigeria, Nsukka. He holds a Ph.D from same University (2008). He is the current Dean (2022-2024), Faculty of Veterinary Medicine and a former Director, Veterinary Teaching Hospital, University of Nigeria. He was appointed Animal Welfare Link Nigeria by UFAW, UK in 2020. His current research is on food animal surgery. He has successfully supervised many graduates. He was appointed full Professor in 2013. He has taught full time for 31 years. He has published over 70 research articles in SCI(E) journals.

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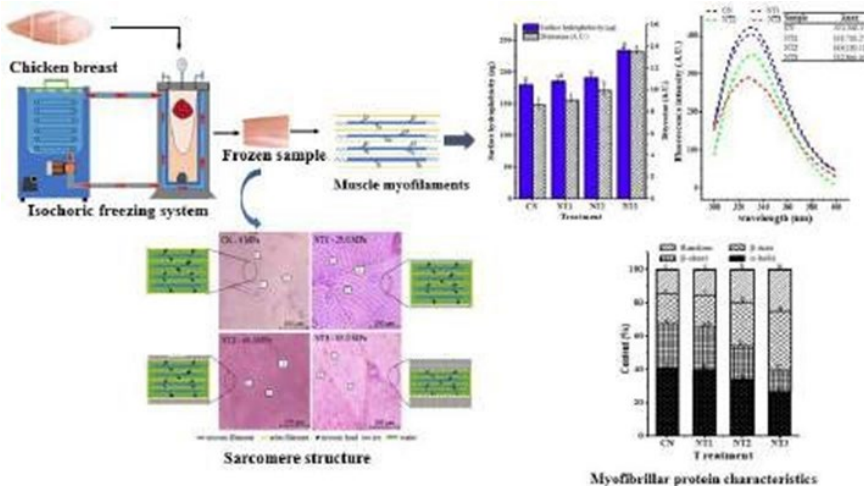
Isochoric Freezing Prospects for Food and Biomaterial Preservation

Tsekwi Gracious Rinwi

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Statement of the Problem: Freezing is a widely used method for preserving food and biomaterials and can extend the shelf life of perishable items and maintain their quality. It involves lowering the temperature of the material to a level where microbial and enzymatic activities are significantly reduced, thereby slowing down deterioration processes. However, the quality of frozen food or any biomaterial is highly associated with freezing conditions, particularly the freezing rate. This is due to the significant effect of ice crystallization that occurs during freezing can have both positive and negative. Such effects have led to the development of novel freezing techniques, such as high-pressure freezing, ultrasonic freezing, electric magnetic field, and isochoric freezing, to enhance food and biomaterials preservation. Among them, isochoric freezing has demonstrated potential applications in preserving the quality and functionality of food products, improving the stability and properties of materials, and enhancing the viability and structure of biological samples. The technique involves freezing a substance under constant volume or high-pressure conditions, which can have unique effects on the freezing process and the resulting properties of the frozen material. This study aims to explore the potential of the isochoric freezing process and its prospects for preserving chicken breast meat.

Materials & Methods: Fresh chicken breast samples were immersed in 2.5% NaCl solution and frozen at -4, -8, and -12 oC. Findings: The results revealed that samples treated at -4 oC (25 MPa) showed no significant changes in the myofibrillar protein structure. In comparison, those treated at -8 oC (60 MPa) showed significant differences in protein properties, including dityrosine, solubility, and sulfhydryl, suggesting the partial recovery of the samples, whereas samples treated at -12 oC (85 MPa) indicated the destruction of the myofibrillar protein structure. Insights on the possibilities of preserving meat using isochoric freezing are envisaged to be gained from the current study.



Recent Publications:

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Biography

Tsekwi Gracious Rinwi is a final year Ph.D. student at the School of Food Science and Engineering at the South China University of Technology. He is passionate about researching processing, quality, and preservation technologies for food and biomaterials. Over the past few years, his primary focus has been on the isochoric preservation of chicken breast meat. Isochoric freezing is a novel freezing and preservation technique that offers a superior alternative to traditional freezing methods. This innovation is considered a revolutionary approach to food preservation, offering a 'panacea' for various food freezing and storage challenges and providing a groundbreaking solution to energy and quality-related issues faced by the global frozen food industry.

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Exploring Novel Biochemical pathways for the Management of Arthropod Vectors to Reduce Incidence of Zoonotic Disease Transmission

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Emerging zoonotic disease is a significant threat to human and animal health today, as per the American Relief Action Plan, 2021. Arthropod vectors transmit a wide range of zoonotic diseases of significance to human health and food, animal welfare and productivity globally. In situations where people and food animals are in proximity, food animals can sustain high populations of vector species that increase zoonotic disease incidence in people and animals. Reliance on a few conventional insecticides for vector management can lead to human exposure, and negative impact on environmental health. The novel mode of action of nitisinone, (2-(2-nitro-4-trifluoromethylbenzoyl)-1,3-cyclohexanedione, (Cycle Ltd., Cambs. UK) in blood feeding arthropods has been demonstrated by Serkel et al. 2016 as a (FDA-approved) tyrosine catabolism inhibitor. Interruption of the enzymes responsible for the phenylalanine-tyrosine degradation pathway has been demonstrated with the use of a human drug, Nitisinone. Application by feeding with blood from Nitisinone-treated cattle was used to treat feeding arthropods. This study aims to demonstrate that Nitisinone, or structurally similar compounds, could provide alternative antiparasitic that disrupt a critical metabolic pathway for hematophagous insects to digest bloodmeals. The study includes the use of stable fly survival when fed with blood dosed with the drug and rumen fluid degradation to observe drug digestion in cattle. Further, calves administered intravenously or intramuscularly with Nitisinone at scaled doses and blood collection provided drug levels in the blood of a ruminant species for the first time. With current tools available being limited, this research demonstrates that this could be an alternative method to combat the threat of known and emerging pests of importance to Public Health and Agriculture, and in this novel application route, for livestock producers battling with the economic and welfare issues caused by pests such as ticks, stable flies (*Stomoxys calcitrans*), horn flies (*Haematobia irritans irritans*).

Recent Publications:

1. Bismark, Opoku, Enoch Adjei Osekre, George Opit, Augustine Bosomtwe, and Georgina V. Bingham. 2023. "Evaluation of Hermetic Storage Bags for the Preservation of Yellow Maize in Poultry Farms in Dormaa Ahenkro, Ghana" *Insects* 14, no. 2: 141. <https://doi.org/10.3390/insects14020141>
2. Joseph Mathu Ndung'u, Georgina V. Bingham, et al.; (2020). Trypa-NO! contributes to elimination of gambiense human African trypanosomiasis by combining tsetse control with "screen, diagnose and treat" using innovative tools and strategies. *PLoS NTDS* : November 12, 2020 <https://doi.org/10.1371/journal.pntd.0008738>
3. Solórzano, J.A., Gilles, J., Bravo, O., Vargas, C., Gomez-Bonilla, Y., Bingham, G.V., Taylor, D. B. (2015) Biology and trapping of stable flies (Diptera: Muscidae) developing in pineapple residues (*Ananas comosus*) in Costa Rica. *J Insect Sci.* 2015 Oct 9; 15: pii: 145. doi: 10.1093/jisesa/iev127
4. Bingham, G., Alptekin, S., Delogu, G., Gurkan, O., Moores, G. (2014) Synergistic manipulations of insect metabolism in combination with plant activators. *Pest Manag Sci.* 2014 Apr; 70(4):566-71.
5. Chouaibou, M., Chabi, M., Bingham, G. V., Knox, T., N'dri, L., Kesse, N. B., Bonfoh, B., Pates Jamet H.V. (2012) Increase in susceptibility to insecticides with aging of wild *Anopheles gambiae* mosquitoes from Côte d'Ivoire. *BMC Infect Dis.*, Sep 13; 12: 214. Epub 2012.

Biography

Georgina V Bingham has more than 20 years' experience working in developing regions including sub-Saharan Africa and Southeast Asia and holds qualifications for project management and good clinical practice. Her research focuses on entomological impacts on food security and nutrition, and insects of medical and veterinary importance. She had 12 years within private industry at Vestergaard (a global company dedicated to improving the health of vulnerable people, especially in developing countries) directing research and development of textile-based products, specially modified for controlled release of active ingredients/ or molecules that provide protection for humans and animals from disease vectors and pathogens. Bingham leads, and acted as industry liaison, for research in designing appropriate and affordable tools and techniques to prevent the spread of zoonotic disease, provide safe drinking water and store food safely within community-based international research programs.

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Compelling factors limiting veterinary health and animal management services in rural Kenya

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Statement of Problem: Subsistence livestock farming is a common economic endeavour in a number of countries in Africa. Such farmers maintain one or two cows for milk production and use in the homestead, few goats for occasional slaughter specifically during celebrations or weddings and some poultry particularly when guests visit the home depending on family labour force. The farmers are knowledgeable about the day-to-day care of such animals. However, they are severely limited in animal health knowledge. Additionally, Eeswaran et al 2022 working in Senegal describe challenges that are similar to Kenya in terms of availability of sustainable good quality feed, low supply of potable water, weak breeding and management programmes and climate change besides lack or poor livestock marketing strategies. Pasture is rain fed and therefore largely seasonal. Above all subsistence livestock farmers in Kenya as elsewhere in Africa experience enormous socioeconomic handicaps. Veterinary and animal management services are dependent on private providers who have no option but to include cost of transport, consumable supplies time and professional expertise. Extensive field experience suggests that whereas smallholder livestock farmers play substantial role in the overall national food security and the economy they are underdeveloped and underserved with essential veterinary clinical and animal management services. In this context, although these farmers are in the majority distributed all over the country, the small holders deserve recognition and provision of veterinary health and animal management services. One among many suggestions is to seek ways and means to support locally available private professionals some of whom tread long distances on foot to ensure the farmers access technical advice and services on regular basis which they least afford.

Purpose of the study: The purpose of this study is to create awareness of the plight of smallholder livestock farmers who form the bulk of producers of milk, meat and eggs and by-products from grass and local grain fed animals in rural Kenya. The farmers contribute immensely to nutrition of young children and old people and ensure livelihoods and food security and above all to families' incomes and the national economy. Food and Agricultural Organization (FAO, 2019) argued that there is insufficient data to quantify livestock outputs and their values in Kenya. This suggests that opportunities for robust research exist to determine populations of various species of domestic animals and their production and economic impacts; for example, Wekesa et al 2017 reported that there has been a decline in livestock production for market over a period of time among some communities in Kilifi County. Emphasis within these communities is livestock farming for household consumption. Although they argue that climate change has contributed to the decline reduction in veterinary health and animal management extension services ought to be considered. The Kenya Agriculture and Livestock Research Organization (KALRO) states that among the constraints of livestock production are inadequate extension and advisory services, disease complications and high cost of inputs.

Methodology and Theoretical Orientation: Study sites: Counties of Kiambu in Central Kenya, Kilifi in Coastal Region, Machakos in Eastern Region and Vihiga in West Kenya. See map of Kenya below.

Observational study was conducted in the four study sites. Quantitative and qualitative data were collected at each site.

Findings: Over 80% of smallholder livestock farmers are women 60 years and older ($n = 24$). Majority maintain free ranging local breeds of chicken, sheep and goats ranging between 2 and 6 in number and varied low numbers of cows but generally a single exotic dairy cow for milk production for domestic consumption and for sale to generate income. Almost all the women are illiterate or semi-literate. They heavily rely on hands-on experience in managing the livestock; exhibiting an amazing recall memory on animal disease outbreaks and solutions that led to resolution of the problem. Besides, lack of or low level of education unpredictable rain seasons impact heavily on livestock production. Climate change has compelled some of the farmers to abandon maintaining livestock and move to planting crops



Map of Kenya showing international boundaries and the Counties including study sites.

Recent Publications:

1. Eeswan, R., Nejadhahemi, A. P., Faye, A., Min, D., Prasad, P. V. V and Ciampiti, I. A. 2022. Current and future challenges and opportunities for livestock farming in West Africa: Perspectives from the case of Senegal. *Agronomy*, 12(8), 1818; <https://doi.org/10.3390/agronomy12018188>
2. Kenya Agricultural and Livestock Organization (KALRO) 2023
3. Livestock and Livelihoods Spotlight Cattle and Poultry in Kenya: In Africa Sustainable Livestock 2050 Food and Agricultural Organization (FAO), 2019
4. Malenje, E. M., Missohou, A., Tebug, S. F., Konig, E. Z., Jung'a, J. O., Bett, R. C., and Marshall, K. 2022. Economic analysis of smallholder dairy cattle enterprises in Senegal, *Trop Anim Health Prod* 54(4); 221; doi: 10.1007/s11250-022-03201-y
5. Wekesa, C., Ongugo, P., Ndalilo, L., Amur, A., Mwalewa, A., and Swiderska, K. 2017. Smallholder farming systems in coastal Kenya: Key trends and innovations for resilience. IIED Country Report, IIED, London, ISBN 978-1-78431-529-0.

Biography

Mbaruk Suleiman attained PhD in Comparative Medicine at Uppsala University, Sweden in 1998. He has extensive and intensive research and field work exposure to wildlife and domestic animal subsector. He began his career in preventive animal health activities a number of decades ago, changed focus into laboratory based research with specific attention to zoonoses and later opted to impart knowledge to undergraduate and postgraduate students at Mount Kenya University, Main Campus, Thika, Kenya. Currently he is mentoring five PhD and six Masters Candidates (national (Kenyans) and foreign) from varied Universities. Earlier he successfully guided fifteen postgraduate students.

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Investigation of the invasiveness of salmonellae isolated from layer hens and murine fecal pellets infesting poultry farms in Tripoli- Libya

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This study was to determine if there is a difference in virulence between the two Salmonella enteritidis isolates from both laying hens and murine fecal pellets infesting the same layer farm by quantitative measurement of invasiveness using in vivo chicken intestinal loop model. Samples were collected from both live birds and patches of murine fecal pellets that infest the same henhouse. The presence of Salmonella spp. in collected samples was assessed by performing the pre-enrichment and enrichment cultures followed by staining, biochemical tests, and serological identification.

The tested serotype demonstrated intracellular log₁₀ counts was not significantly different from each other and from that of the reference strain only because of the allocation of intestinal loop position. This could explain the persistence of salmonella in poultry houses with the same capability of invasion restored from contaminated murine fecal pullets.

Recent Publications:

1. Abdulatif A. Asheg, Mohamed F. Otman, Imad A. Benlashehr, El-Forjani Kraim, Rabia A. Almashri, Abdulwahab M. Kammon: Prevalence of Salmonella in poultry slaughterhouses located in Tripoli, Libya. Open Vet J. 2023 May; 13(5): 638–644.
2. Effect of adding clove buds powder in feed on performance and jejunum morphology in broiler chickens: Siham M. Othman, Khaled M. Ben Naser, Ali H. Kanoun, Ali A. Salim, Bashir M. Sherif, Abdulatif A. Asheg. Open Veterinary Journal / Vol. 12 No. 6 (2022)
3. Abdulwahab Kammon¹, Ali Almaeyoufi¹ and Abdulatif Asheg: In Vitro Antimicrobial Activity of Clove Oil against Gram Negative Bacteria Isolated from Chickens. Appro Poult Dairy & Vet Sci 6(2):2019.
4. Abdulwahab Kammon, Samia Alzentani, Omar Tarhuni and Abdulatif Asheg: Effect of Some Organic Acids on Body Weight, Immunity and Cecal Bacterial Count of Chicken during Heat Stress. Int. J. Poult. Sci., 18 (6): 293-300, 2019.
5. A.A. Asheg, S.M. ELNyhom, K.M. BeNaser, A.H. Kanoun, Y.M. abouzeed Effect of Arbutus pavarrii, Salvia officinalis and Zizyphus Vulgaris on growth performance and intestinal bacterial count of broiler chickens. International Journal of Veterinary Science and Medicine., 2 (2):151-155, 2014.

Biography

Abdulatif Asheg is currently a professor of Poultry Diseases at the College of Veterinary Medicine. Abdulatif has been teaching poultry diseases for more than 20 years. During that period, he was also assigned postgraduate studies in the department and supervising postgraduate students. He also had a role in several committees for developing special scientific programs. Postgraduate studies and accreditation of the quality of education.

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The Effects of different processes of African Yam Bean (*Sphenostylis stenocarpa*) the chemical composition on blood profile of Broiler Chickens

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A ten-week feeding trial was conducted at the Poultry Unit of the Teaching and Research Farm, Ambrose AI University 10 evaluates the chemical composition of processed African Yam Bean (*Sphenostylis stenocarpa*) seeds meal and its effect on the serum and haematological properties of one hundred and twenty (120) day old CHI broiler chickens. Thirty chicks were selected randomly based on their average initial weight to each of the four treatment diets. Each group contained three replicates with ten birds per replicate and they were assigned to the four dietary treatment (Ly, To, Ts and T4) with T; serving as the control, while Tz to Ty had an inclusion level of the i African Yam Bean (*Sphenostylis stenocarpa*) seeds meal (PAYBSM) at 50, 75 and 100% respectively in a complete randomized design (CRD). The chicks were brooded and fed for two an acclimatization period with commercial starter dict before the commencement of lb treatment diets for eight week [ceding periods. The result on the proximate composition showed an increase (21.53%) in the crude protein content of the parboiled sundried African yam bean seed meal (PAYBSM) compared to the raw sample (19.37%) and also comparable energy + value was observed between the parboiled and the raw sample. The rognlt of the phytochemical analysis showed a reduction in the Oxalate, trypsin inhibitors and Hydrogen cyanide of the parboiled sample compared to the raw sample. The result of the hematological parameters of broiler chickens at the finishing phase showed significant ($P < 0.05$) variation in hemoglobin (11.90g/dl), Red blood cell (3.11 X10%/L), and white blood cell (57.30 x10³mm³) with highest values from birds fed 100% comparable to those on 75% (PAYBSM). RDW, Platelet, MPV, PDW, Neutrophils, and monocyte values also showed significant variation among birds fed the treatment diets. Serum biochemical indices of broiler chickens fed the dietary treatment revealed a significant variations ($P < 0.05$) in the Albumin value (2.53 g/dL) among broiler chickens placed on 100% (PAYBSM). Glucose and cholesterol values were least among those on 100% (PAYBSM). Urca value also showed a significant ($P < 0.05$) variation among birds fed the treatment diets. The overall result in this study showed that parboiled sundried African yam bean seed meal can successfully be included in broiler ration up to 100% level without any adverse effect on the blood quality of broiler chickens.

Recent Publications:

1. Ehebha, E. T. E and Eguaaje, A. S. (2019). Hematological indices of broiler chickens fed graded levels of parboiled sun-dried African breadfruit (*Treculia Africana*) seed meal based diets.
2. Ehebha, E. T. E and Eguaaje, A. S. (2019). Serological parameters of broiler finishers fed processed African breadfruit (*Treculia africana*) seed meal-based diet.
3. Ehebha, E. T. E., Adomeh, E. E. and Eguaaje, A. S. (2018). Growth performance of weaner pigs fed graded levels of sun-dried cassava peel meal.
4. Ehebha, E. T. E. and Okosun, S. E. (2017). Hematology and serum biochemical induces of broiler chickens raised with different sources of drinking water.
5. Okosun, S. E, Ehebha, E. T. E. and Okoh, P. I. (2017). Growth response of broiler finishers fed graded levels of bitter melon (*Momordica charantia*) leaf meal-based diets.

Biography

Ehebha Eromosele Theophilus is from Ambrose Alli University, Nigeria and he attended many international conferences and has published many articles in journals.

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