+94812395871

Veterinary Medical Education Unit
Faculty of Veterinary Medicine and Animal Science
University of Peradeniya
Peradeniya, 20400.

vet.pdn.ac.lk/vmeu
vmeu@vet.pdn.ac.lk

Faculty of Veterinary Medicine and Animal Science
University of Peradeniya

Proceedings of the FVMAS Undergraduate Research Symposium
ISSN : ISSN 2719-2237
9 772719 223001

2025 Undergraduate Research Symposium Volume V

PROCEEDINGS

Undergraduate Research Symposium

2025

Volume V

Faculty of Veterinary Medicine and Animal Science
University of Peradeniya

Proceedings

Undergraduate Research Symposium
(Batch 2018/19)

Volume V

Faculty of Veterinary Medicine and Animal Science
University of Peradeniya
Sri Lanka

4th September 2025

Proceedings of the Undergraduate Research Symposium of the Faculty of Veterinary Medicine and Animal Science – Volume V

TITLE: Proceedings of the FVMAS Undergraduate Research Symposium
ISSN: ISSN 2719-2237

Suggested Citation

Author(s) name, 2025. Article title, Proceedings of the Undergraduate Research Symposium of the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka, pp.

Published by,

Faculty of Veterinary Medicine and Animal Science
University of Peradeniya
Sri Lanka

Cover Page by,

B. A. Ganganatha Harischandra
Faculty of Veterinary Medicine and Animal Science
University of Peradeniya
Sri Lanka

Message from the Vice Chancellor, University of Peradeniya

I am delighted to send this message to the fifth undergraduate research symposium organized by the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. As an institution of higher education in Sri Lanka, the University of Peradeniya continues to uphold a commitment to fostering a research culture among our undergraduate students.

In today's rapidly evolving world, the ability to conduct rigorous research and think critically has become more essential than ever. Our students must be equipped with research skills that enable them to tackle complex problems, generate innovative solutions, and contribute meaningfully to evidence-based decision making. This conference provides an invaluable platform for our undergraduate researchers to present their work before a distinguished academic community, receive constructive feedback, and engage in scholarly discourse that will shape their future careers.

The research presented today spans multiple veterinary disciplines, reflecting the interdisciplinary nature of modern animal health challenges. Whether addressing livestock production systems and animal welfare, companion animal medicine and surgery, aquaculture health management, wildlife conservation medicine, zoonotic disease surveillance, food safety and public health initiatives, or antimicrobial resistance strategies, each project represents the curiosity and dedication of veterinary students.

I extend my heartfelt congratulations to all faculty members, supervisors, and the organizing committee, whose unwavering support and guidance have made this conference possible. Your mentorship has been instrumental in nurturing these young researchers and fostering a culture of inquiry that defines academic excellence.

To our undergraduate researchers, I commend you for your dedication to advancing knowledge in your respective fields. The work you present today not only represents your individual achievements but also contributes to the collective intellectual wealth of our university and nation.

Prof. W.M.T. Madhujith
Vice Chancellor
University of Peradeniya

Message from the Dean, Faculty of Veterinary Medicine and Animal Science

I am pleased to send this message to this compendium of research abstracts from the fifth Veterinary Undergraduate Research Symposium. This volume represents the culmination of intensive research endeavors undertaken by our students as part of the mandatory research component which was strenghtened in our curriculum from the year 2018 onwards ensuring that graduates possess both clinical competency and research acumen essential for addressing complex veterinary challenges. Likewise, this volume also reflects sophisticated engagement with contemporary challenges in veterinary medicine and demonstrate our students' capacity for independent scientific inquiry and critical analysis.

The diversity of research topics and methodological approaches underscores the interdisciplinary nature of contemporary veterinary science. Students have employed diverse methodologies spanning epidemiological investigations, laboratory-based studies, field research, and translational approaches encompassing infectious disease surveillance, antimicrobial resistance, reproductive biotechnology, wildlife health assessment, and zoonotic disease prevention strategies.

As the sole institution authorized to confer the Bachelor of Veterinary Medicine and Animal Science degree in Sri Lanka, our faculty bears the responsibility of producing graduates capable of advancing veterinary science through both practice and research. The scholarly work documented in this volume demonstrates that our students are well-positioned to contribute meaningfully to the global body of veterinary knowledge while addressing local and regional priorities.

I commend our students for their dedication to scientific excellence and their commitment to advancing veterinary knowledge. Their research endeavors reflect the highest standards of academic achievement and position them as future leaders in veterinary medicine, research, and public service.

Doctor A.W. Kalupahana, BVSc, PhD
Dean, Faculty of Veterinary Medicine and Animal Science
University of Peradeniya
September 2025

Message from the Keynote Speaker

Research Ethics and Professionalism: Building Trustworthy and Humane Veterinary Science

Senior Professor M.D. Lamawansa

Good afternoon, distinguished guests, colleagues, and students, I appreciate your invitation.

It is a privilege to be here with you, because I know that you represent the next generation of guardians of animal health, public health, and scientific discovery. And that is why the subject we are reflecting on together this evening is so important. I am given the task of speaking about Veterinary Research and Professionalism. I realized the importance of this subject in the animal laboratory of the University of Western Australia at the beginning of my research project of PhD.

When people hear the word research, they often think of laboratories, microscopes, and data. But research is not only about discovery. At its heart, research is about responsibility to society, to the scientific community, and most importantly, to the animals who cannot speak for themselves. The way we conduct research, the respect we show to living creatures, the honesty with which we report our findings, and the professionalism with which we work determines not only the quality of our science, but also the level of trust society places in us as veterinarians.

Let us begin with the question: why do we need ethics in research at all? History has given us painful lessons when ethics has been ignored. In human medicine, the Tuskegee Syphilis Study in the United States stands as a stark reminder of what happens when respect and transparency are lost.

In 1932, the U.S. Public Health Service began a study in Tuskegee, Alabama, to observe the natural progression of untreated syphilis in African American men. Around 600 men were enrolled about 400 who already had syphilis and 200 without the disease, to serve as controls. The men were mostly poor sharecroppers. The researchers told them they were being treated for “bad blood,” a local term that people used for a variety of illnesses. But in reality, the men were never told they had syphilis, nor were they properly treated for it. Even when penicillin became the standard, effective treatment for syphilis in the 1940s, the men were deliberately denied access to it. Instead, the researchers continued to observe them for decades watching the disease cause blindness, mental illness, heart problems, and death. Families were destroyed, wives contracted the infection, and children were born with congenital syphilis. The study went on for 40 years. It only ended in 1972 when a whistleblower leaked the story to the press, causing public outrage. By then, dozens of men had died directly from syphilis, many others suffered lifelong complications, and family members were left to bear the consequences. The Tuskegee Study became

famous worldwide because it violated the most basic principles of respect, informed consent, and beneficence. It treated vulnerable people as objects of study rather than as human beings. The scandal led to sweeping changes in research ethics, including the Belmont Report in 1979, which established the principles of respect for persons, beneficence, and justice. It also led to the requirement that all research involving humans in the U.S. be reviewed by Institutional Review Boards.

So, when we talk about Tuskegee in the context of research ethics, it's not just history. It is a warning. It shows us what happens when researchers forget that the pursuit of knowledge must never come at the expense of dignity, honesty, and humanity.
In veterinary and animal research, there are also stories, perhaps less publicized but no less serious, of animals subjected to painful experiments without anesthesia, housed in poor conditions, or used repeatedly without justification. The science in some of these studies may have been valid, but the process was neither humane nor defensible.

What we learn from this is simple but profound. Animals deserve dignity. They may not be able to give informed consent as humans do, but that only increases our duty to protect them. We also learn that trust is fragile. When society believes researchers treat animals as disposable, confidence in veterinary science weakens. And finally, we recognize that progress cannot stand on unethical foundations. Discoveries gained through cruelty or dishonesty are discoveries tainted. They may give us knowledge, but they cannot give us wisdom.
So, ethics is not a roadblock standing in the way of science. It is the compass that keeps science on the right path, ensuring that our discoveries truly serve both people and animals.

Now, when we speak of ethics, we are speaking of principles, respect for life and welfare. A commitment to maximize benefits while minimizing harm. A sense of justice, so that no group, whether human or animal, is unfairly exploited. Integrity, so that our data are collected honestly, analyzed transparently, and reported truthfully. And accountability, so that when someone asks why we did what we did, we are prepared to answer with clarity and courage.
In veterinary research, these broad principles are given a practical shape in what we call the Three Rs: Replacement, Reduction, and Refinement. Replacement asks us whether there is another way to gain knowledge without using animals at all. Today, with technologies like computer simulations, organ-on-a-chip systems, and advanced imaging, we can often model biological processes in ways that avoid or limit animal use. Reduction challenges us to use the smallest number of animals necessary to answer the question, designing experiments carefully so that no life is wasted. And Refinement calls us to improve our techniques, our housing, and our handling, so that whenever animals are involved, their pain, distress, and suffering are kept to the absolute minimum.

The Three Rs are not obstacles. They are opportunities for creativity. They push us to be better scientists, more thoughtful researchers, and more compassionate veterinarians.
But if ethics gives us the "why" and the "what," professionalism gives us the "how." Professionalism is about the way we carry ourselves as members of the veterinary community. It is about compassion, remembering that every animal you handle in a laboratory is a living, feeling being. It is about competence, ensuring that you know the most humane methods and keep learning as better techniques are developed. It is about responsibility, using resources wisely, honoring commitments to funders, and respecting the trust of the public. Professionalism is also about honesty in communication. It is easy to exaggerate results, to hide negative findings, or to publish more for quantity than for quality. But professionalism calls for restraint, humility, and truthfulness.

And perhaps most importantly for you as veterinary students, professionalism means advocacy. You are not neutral bystanders in animal research. By virtue of your training, you are expected to be advocates for animals' welfare. If you see procedures that can be improved, you are called to speak up. If you see unnecessary repetition, you are called to question it. That voice, your voice matters.
Of course, the landscape of veterinary research is changing, and with it, the challenges are evolving. Biomedical research still relies on animal models for understanding diseases and developing treatments. Food animal research grapples with the tension between productivity and welfare. Wildlife studies raise questions about disturbing delicate ecosystems. The field of One Health, where human, animal, and environmental health intersect, brings its own dilemmas. How do we ethically balance risks and benefits when studying diseases that move between animals and people? Add to this the rapid rise of artificial intelligence, genetic engineering, and biobanking, and we see that our ethical compass is needed more urgently than ever.
And then there is the constant pressure to publish. "Publish or perish," as the phrase goes. This culture can tempt researchers to cut corners, to push animals through unnecessary studies, or to prioritize speed over welfare. But here, again, professionalism must guide us. A veterinarian's duty is not only to generate data, but to uphold compassion and integrity at every step.

So how do we build a culture of ethical and professional veterinary research? It begins with education. That is why you are here today, not just to memorize facts, but to internalize values. It continues with mentorship, because the way your professors and senior colleagues treat animals will shape how you will treat them. It depends on institutions, through ethics committees and animal care policies that set clear standards. But most importantly, it depends on personal responsibility. No committee, no regulation, no policy can replace your own conscience. There will be moments when you must decide whether to stay silent or to speak, whether to do things the easy way or the right way. In those moments, professionalism will be tested, and your ethical compass will matter most.

As I close, I want to remind you that veterinary research is not only about advancing knowledge. It is about honoring trust. Society entrusts us with resources, with their animals, and with their health. And animals entrust us, silently but profoundly, with their welfare. They cannot protest, they cannot ask questions, and they cannot give permission. That is why responsibility rests on us. If ethics is the backbone of veterinary science, and professionalism the muscle, then compassion is its heart. Together, these three form the living body of trustworthy and humane research. My invitation to you, as the future of this profession, is to make a promise. Promise that your research will be ethical. Promise that your conduct will be professional. And promise that your science will be guided not only by intellect, but by compassion. For only then will veterinary research truly serve life with dignity.
Thank you.

Prof. M.D. Lamawansa
MBBS (Ruhuna), MS (University of Colombo), PhD (University of Western Australia), FRCS (Edin)
Former Vice-Chancellor, Chair Professor of Surgery, Consultant General and Pediatric Transplant Surgeon, University Administrator
[Department of Surgery, Faculty of Medicine University of Peradeniya, Sri Lanka, 20400]

Table of Contents

Peripheral Blood Large Granular Lymphocytosis in Dogs: Associations with Signalment, Clinical Signs, and Complete Blood Count Parameters

Abeysinghe A.M.U.P.P.[1], Ariyarathna H.M.H.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**hsariyarathna@vet.pdn.ac.lk*

Large granular lymphocytes (LGLs) are a morphologically distinct subtype of lymphoid cells found in many animal species. In healthy dogs, LGLs comprise ≤10% of the peripheral lymphocyte population. Only limited studies have investigated the clinical relevance of increased LGLs in dogs. The aim of this study was to provide a comprehensive quantitative and qualitative analysis of LGL variations in both apparently healthy and diseased dogs, with particular focus on the magnitude, morphological diversity, and potential clinical relevance of these cells in dogs. The study was conducted at the Veterinary Teaching Hospital, University of Peradeniya, for six months using samples collected from 165 sick dogs identified to have an increased number of LGL in peripheral blood smears. Additionally, samples were collected from 16 apparently healthy dogs. The LGL percentages, absolute counts, and morphological features were determined through blood smears and complete blood counts (CBC). Medical records were reviewed to identify the affected body systems in diseased dogs. Dogs were categorized based on their LGL counts. Associations between LGL counts and signalment (age, sex, breed) and CBC parameters were analyzed using the Kruskal–Wallis H test and Spearman correlation test. The relationship between affected body systems and LGL counts was assessed using correspondence analysis. In apparently healthy dogs, LGL counts ranged from 1% -27% of the total lymphocyte count, while in diseased dogs, it was 2%-50%. No significant associations were found between LGL percentage and age, sex, or breed. Three morphologically distinct LGL types were identified, each differing in nuclear shape, granule shape and granule distribution within the cytoplasm. These variants showed preferential associations with specific organ systems, suggesting a potential link between LGL morphology and the nature of the disease. Strong positive correlations were observed between absolute LGL counts and both total WBC and absolute lymphocyte counts. Moderate to fair correlations were reported with neutrophil and monocyte counts. The key findings of the study suggest that both the morphological features and the magnitude of LGLs in diseased dogs reflect underlying immune responses across different organ systems, highlighting their potential utility as diagnostic or prognostic indicators in clinical practice.

Keywords: Large Granular Lymphocytes, Peripheral blood smears, Morphological classification, Clinicopathological association, Canine Hematology

Identifying the Species and Predisposing Factors Associated with *Malassezia* Infection in Dogs and Evaluating the Effectiveness of a Selected Topical Therapy to Control the Infection and Malodour

Alahakoon P.U.[1], Dissanayake D.R.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**anuruddhika@vet.pdn.ac.lk*

Malassezia are lipophilic yeasts that inhabit the skin of dogs and can cause opportunistic infections when skin homeostasis is disrupted. The clinical presentation may vary with the underlying cause, severity, and the breed of the dog. Identifying the species associated with infection is crucial for effective management. This study aimed to identify *Malassezia* species associated with skin lesions in dogs presented to the Veterinary Teaching Hospital, Peradeniya, document common clinical signs and predisposing factors through a questionnaire-based survey and evaluate the efficacy of an oatmeal-based topical preparation in controlling infection and malodour. Of the skin scrapings collected, 32 contained Malassezia when examined with Leishman-stained smears. Clinical signs observed included pruritus (100%), alopecia (100%), scaling (65.6%), malodour (59.3%), and seborrhoea (40.6%). Lesions appeared mainly on the loins, ventral abdomen, and upper thighs. Upon culturing samples on Sabouraud dextrose agar (with and without oil), 13 samples yielded Malassezia spp. Species identification was based on biochemical tests (lipid dependence, catalase activity, tween 20/80 assimilation, esculin hydrolysis), and all were tentatively identified as *Malassezia pachydermatis*. PCR amplification of the ITS region of the isolates using ITS3/ITS4 primers yielded a 483 bp PCR amplicon specific for *Malassezia pachydermatis* in eight samples. The eight dogs that were confirmed to have *Malassezia pachydermatis* by PCR were selected to receive the topical therapy. The protocol consisted of initial cleansing with 2% chlorhexidine solution, followed by the application of 750 mL of a suspension containing 100 g of oatmeal and 10 g of sodium bicarbonate for 15 minutes. After rinsing, 5–10 mL of apple cider vinegar was sprayed onto the affected areas. The treatment was repeated at three-day intervals for two weeks. The effectiveness of the treatment was assessed through owner feedback. Of the eight owners, seven indicated that the preparation can control malodour, and five reported a reduction in pruritus and infection, with an overall satisfaction rating of 8/10. This preliminary study indicates oatmeal-based preparation may be a useful adjunctive therapy for dogs with *Malassezia* infection. Further research with a well-designed clinical trial is needed to confirm its benefits.

Keywords: Canine dermatitis, *Malassezia pachydermatis,* Oatmeal, Pruritus, Malodour

Evaluating the Efficacy of Oligodeoxynucleotides Containing Cytosine-Phosphate-Guanosine Motifs (CpG-ODN) as a Performance Enhancer in Broiler Chickens

Amarasooriya H.D.A.D.[1], Dayarathne H.K.N.U.D.[1] Gunawardana T.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thusharigunawardana@vet.pdn.ac.lk*

With the increasing demand for poultry meat globally, there is a need to optimize broiler production, ensuring both efficacy and animal welfare in the broiler industry. There is a constant effort to seek alternatives that can promote the health of broiler chickens. This study aimed to evaluate the efficacy of Oligodeoxynucleotides containing cytosine-phosphate-guanosine motifs (CpG-ODN) as a growth enhancer in broiler chickens. CpG-ODN motifs are short sequences of DNA composed of unmethylated cytosine and guanine motifs that stimulate bacterial DNA. Vertebrates also have methylated CpG motifs in their DNA, but the frequency and distribution of these motifs may differ from bacteria and are relatively less common. Hence, CpG-ODN is identified as a pathogen-associated molecular pattern that can stimulate the vertebral immune system and promote innate immunity. CpG-ODN have shown immunomodulatory effects and growth performance in various species, but its impact on broiler chickens' performance remains largely unexplored. In this study, it is expected to investigate how CpG-ODN affects the growth, mortality rate and overall health of broiler chickens. This study was conducted using two groups of day-old Ross 308 broiler chickens. The first group (n=250) was given 50µg/bird of CpG-ODN by intramuscular route to the thigh muscle at 1 and 4 days of age and the remaining (n=250) were reared with no intervention. All chicks were allowed to grow under the same environmental conditions and body weights of all birds (n=500) were measured weekly until they were sent for processing. Mortality and disease conditions in the flock were recorded daily. The results showed that birds in the CpG-ODN treatment group exhibited lower average body weight compared to the control group. However, a higher growth rate was observed during the final phase in the CpG-ODN treatment group. In addition, the CpG-ODN group had low mortality rates. These findings suggest that while CpG-ODN may not significantly enhance early growth, it could improve health and increase late-phase growth rate in broiler chickens.

Keywords: CpG-ODN, Broiler Chickens, Growth Performance, Mortality, Innate Immunity

Acknowledgements: NSERC Alliance Catalyst

Evaluation of the Effect of Dietary Administration of Moringa Leaves (*Moringa oleifera*) on the Growth, Survival and Colour Development in Guppy (*Poecilia reticulata*)

Ariyawansha D.A.[1], Jagoda S.S.S. de S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**samanthika@vet.pdn.ac.lk*

Moringa (*Moringa oleifera*) leaves are well known for its high crude protein levels. Therefore, with the rapid expansion of aquaculture industry, moringa leaves are becoming popular as a cheap alternative protein source for fish meal. Pigmentation of ornamental fish is very important and determines their market value. Carotene levels in diet is responsible for the pigmentation of fish. Therefore, Moringa leaves can also serve as a source of carotenoid due to their high beta carotene content. Sri Lanka is the largest guppy exporter in the world. The present study was conducted to evaluate the effect of dietary administration of moringa leaves on growth, survival and colour development of guppy (*Poecilia reticulata*). In this experiment, a total of 144 male guppy fries (3 weeks old) were used. Fish were acclimatized for 3 days in the laboratory and assigned to 3 treatments (MT1, MT2, MT3) with a control. Each treatment and control had 3 replicates. Each replicate had 12 fish. For three treatments three different diets containing 5%,8%,10%inclusion levels of moringa leaf powder were provided for first one-month period as follows, MT1-5%, MT2-8%, MT3-10%. Moringa leaf powder was weighed and mixed with commercially available fish feed powder to produce three different diets. Individual lengths were measured at the beginning of the experiment and at the end of each week. Length and survival of fish were measured during the whole experimental period. During the second month, normal fish feed was provided for all guppies. At the end of the two-month period, color intensity was measured using a software called ImageJ. The findings of the study indicate that inclusion of moringa leaf powder up to 10% inclusion level in fish feed does not cause a negative effect on growth performance, survival rate. Fish fed with 10% moringa powder containing diet showed the highest average color intensity. Fish meal is the main protein source that is used in the fish feed which is very expensive. If it is possible to use a cheap, highly available plant protein source like moringa that would be more cost effective. Results suggest that using moringa leaf powder up to 10% in fish feed will be very profitable and beneficial in large scale guppy farming.

Keywords: *Poiecilia reticulata, Moringa oleifera,* Growth, Survival, Colour development

Acknowledgements: University Research Grant (URG/V/2019-60)

Study of the Microscopic Anatomy of the Skin of Koi Carp *(Cyprinus rubrofuscus)*

Athukorala A. T. D.[1], Jagoda S.S.S.de S.[2], Munasinghe D.M.S.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Basic Veterinary Science, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**maduravet87@gmail.com*

The skin of Koi carp (*Cyprinus rubrofuscus*) plays key roles in sensory perception, immunity, hydrodynamics, and pigmentation, yet detailed histological studies are limited. This study aimed to characterize the microscopic anatomy of the skin of Koi carp, focusing on the epidermis, dermis, hypodermis, and specific cell types. Skin samples from four healthy adult Koi carps were obtained from dorsal, lateral, and ventral regions in the cranial, middle and caudal parts of the body on both (right and left) sides. After fixation in 10% neutral buffered formal saline, samples were decalcified, paraffin-embedded, sectioned (5 μm), and stained with H&E and/or special stains where appropriate. Slides were examined under a light microscope to assess tissue structure and cellular organization. The epidermis is composed of stratified squamous epithelium with abundant goblet and club cells, which contribute to mucosal secretion and innate immunity respectively. Taste buds are located towards the superficial layers of the epidermis. In addition to taste buds, there are similar organized cell clusters present within the epidermis called tuberous organs (superficial neuromasts). The nuclei of sensory cells in the taste buds are positioned basally, whereas in the tuberous organ, the nuclei of the sensory cells are located apically. The dermis is composed of two layers: the stratum lucidum (a loose, connective tissue) and the stratum compactum (a dense collagen layer). The hypodermis is located beneath the dermis, contains loose connective tissue and adipocytes, supporting skin flexibility and energy storage. Scales are embedded in dermal pockets and anchored by collagen fibers. The upper surface of the scales shows collagen-based spines. The lateral line system includes two types of neuromasts: canal neuromasts and superficial neuromasts. Canal neuromasts are enclosed within bony canals present in lateral line scales that open to the external surface through pores. Nerve bundles and blood vessels are located beneath the sensory organs within the dermis. This study provides baseline data for early detection of diseases, assessment of immune and environmental health, and supporting effective management in ornamental aquaculture.

Keywords: Koi carp, Skin, Neuromasts, Club cells, Taste buds

Evaluating the Efficacy of a Single Dose of Equine Chorionic Gonadotropin in Superovulating Crossbred Buffaloes

Bandara H.M.D.P. [1], Pushpakumara P.G.A.[2*], Perera G.D.R.K.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**anilp@vet.pdn.ac.lk*

Superovulation plays a pivotal role in reproductive biotechnology to enhance embryo production. Yet buffaloes are known to respond inconsistently compared to cattle. Conventional superovulation protocols rely on multiple doses of follicle-stimulating hormone (FSH), which are labor-intensive and costly. This study aimed to evaluate the efficacy of a simplified, single-dose equine chorionic gonadotropin (eCG) protocol for superovulating crossbred buffaloes in Sri Lanka, where such research is limited. Two cyclic crossbred buffaloes were synchronized using intravaginal progesterone implants (CUMATE®) and oestradiol benzoate (Day 0), followed by intramuscular administration of 2000 IU eCG on Day 4. Follicular dynamics were monitored through transrectal ultrasonography at multiple intervals, and ovulation was confirmed by assessing corpora lutea (CL) formation. On Day 18, buffalo 6105 exhibited two CL in the left ovary, while buffalo BF09 developed one CL in each ovary, confirming a superovulatory response. Despite this positive outcome, variation between individuals was evident, with follicular development remaining limited in earlier stages. These findings suggest that a single eCG administration can induce multiple ovulations in crossbred buffaloes, offering a less invasive, more cost-effective alternative to conventional FSH-based regimens. However, the variability observed highlights the importance of donor selection, body condition, and management factors. This study provides preliminary evidence supporting the use of single-dose eCG in buffalo superovulation, but further research with larger animal populations is necessary to optimize protocols, assess embryo yield and quality, and determine pregnancy outcomes. Such refinements could significantly contribute to improving reproductive efficiency and the multiplication of superior buffalo genetics in Sri Lanka.

Keywords: Crossbred Buffaloes, Superovulation, Equine chorionic gonadotropin, Reproductive biotechnology, Transrectal ultrasonography

Ultrasound-Guided Fixed-Time Artificial Insemination Protocols Suggest Potential to Enhance Breeding Efficiency in Cows Failing to Exhibit Estrus on Up-Country Intensive Dairy Farms in Sri Lanka

Bandara H.P.R.M.[1], Sanath M.G.[2], Wesley J.P.[2],De Seram H.E.L.[1], Pushpakumara P.G.A.[1*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Ambewela Livestock Company Limited.

**anilp@vet.pdn.ac.lk*

Cows that fail to exhibit estrus after the voluntary waiting period reduce reproductive efficiency by delaying conception, prolonging calving intervals, and increasing culling risk. Fixed-time artificial insemination (FTAI) offers a strategic solution by eliminating the need for estrus detection; however, documented evidence from Sri Lankan dairy systems remains scarce. This study aimed to evaluate the effectiveness of three FTAI protocols in Holstein Friesian (n = 242) and Ayrshire (n = 12) cows that had completed a voluntary waiting period of over 60 days without showing signs of estrus, on an up-country large-scale intensive dairy farm. Eligibility for FTAI was determined based on transrectal ultrasonographic assessment of ovarian structures. The treatment groups included: (a) double-dose $PGF_2\alpha$ (PGF2X, n = 158) administered 13 days apart in cows with corpora lutea; (b) Ovsynch protocol in cows with follicles ≥1.5 cm (OVS, n = 44); and (c) Ovsynch combined with a progesterone-releasing intravaginal device (OVS+Cu-Mate, n = 52) in cows exhibiting moderate anoestrus. Additionally, pregnancy outcomes were monitored in a control group of cows (n = 43) inseminated based on observed estrus using conventional AI. Pregnancy rates for the FTAI protocols were: PGF2X = 34.8%, OVS = 30.8%, and OVS+Cu-Mate = 38.6%, with no significant differences among protocols ($\chi^2 = 0.656$, P = 0.720). Similarly, no significant associations were found between pregnancy outcomes and other variables that included parity, breed, uterine grading, body condition score ($\chi^2 \geq 0.448$, $P \geq 0.313$), age, or recent milk yield (coefficient = -0.013, $P \geq 0.130$). The pregnancy rate in the observed-heat group was 34.9%, consistent with the herd average, and did not differ significantly from the overall pregnancy rates of the tested FTAI protocols (parity: $\chi^2 = 0.657$, P = 0.883). The results indicate that the FTAI protocols evaluated in this study are effective in achieving pregnancy rates comparable to herd targets and represent a practical reproductive management strategy for cows that fail to exhibit estrus after the voluntary waiting period. To support evidence-based recommendations for broader adoption, further evaluation of their economic benefits and performance across diverse farm settings in the region is warranted.

Keywords: Cows, dairy, Estrus, Hormonal protocols, Pregnancy, Sri Lanka

Morphological and Molecular Identification of Metacercaria of Trematode Species in Tilapia in Kurunegala District in Sri Lanka

Bhagya M.S.[1], Anupama N.M.T.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thilinianupama@vet.pdn.ac.lk*

Tilapia (Oreochromis spp.) is an economically and nutritionally important freshwater fish in Sri Lanka, serving as a potential intermediate host for trematode metacercariae, which can affect fish health and pose zoonotic risks. This study aimed to investigate the presence, morphological characteristics, and molecular identity of trematode metacercariae in tilapia from the Kurunegala District. Thirty gill samples from tilapia caught in natural water bodies were examined through dissection and light microscopy, but no metacercariae cysts were detected. Subsequently, two additional Tilapia were sourced from a private pond, yielding three metacercariae cysts. Morphological assessment under microscopy revealed small, spherical, translucent cysts embedded within gill tissues. For molecular analysis, DNA was extracted from individual cysts and subjected to PCR amplification targeting the internal transcribed spacer 2 (ITS2) region and cytochrome c oxidase subunit I (COX1) gene. Gel electrophoresis confirmed a distinct band between 500–600 base pairs for ITS2, while COX1 showed no amplification. The ITS2 amplicons were sequenced and analyzed using NCBI BLAST; however, results indicated high similarity to Oreochromis aureus DNA, with no definitive match to known metacercariae species. These findings suggest potential technical limitations, such as low parasite DNA yield, non-specific amplification, or contamination. The absence of metacercariae in natural water body samples, contrasted with detection in a pond environment, highlights possible differences in parasite transmission dynamics between wild and confined aquatic systems. Although the species identity of the recovered cysts remains inconclusive, this study provides baseline data on trematode metacercaria occurrence in Sri Lankan tilapia and emphasizes the need for expanded sampling, inclusion of additional fish tissues, snail host surveys, and application of more sensitive molecular markers to improve detection and characterization of trematode species.

Keywords: Tilapia, Metacercariae of trematodes, Morphological identification, Molecular identification, Kurunegala district

Antimicrobial Resistance Profiles of *Pseudomonas* Species Isolated from Aquarium Water of Freshwater Ornamental Fish

Chamilka G.P.S.[1], Jagoda S.S. S. de S. [2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** samanthika@vet.pdn.ac.lk*

The emergence of antimicrobial resistance (AMR) in bacteria inhabiting aquaculture environments poses a serious threat to both the freshwater ornamental fish industry and human health. *Pseudomonas* spp. and Gram-negative opportunistic pathogens, are commonly associated with septicaemic infections in fish, causing significant morbidity and mortality. Factors such as the misuse of antibiotics without veterinary oversight, poor water quality, and weak biosecurity practices contribute to the development and spread of AMR in *Pseudomonas* within aquatic systems. Of growing concern is the potential for drug-resistant *Pseudomonas* to spread from aquarium effluents into natural water bodies and ultimately enter the food chain or reach humans. Despite these risks, there is limited research focused on AMR in *Pseudomonas* species isolated specifically from aquarium water in Sri Lanka. Thirty-one pooled water samples were collected from thirty-one randomly selected freshwater ornamental fish aquaria located in the Kandy (14), Kegalle (06), and Polonnaruwa (11) districts of Sri Lanka. Aquarium water samples were centrifuged, and sediment was cultured on Glutamate Starch Phenol Red agar (GSP). Colonies suggestive of pseudomonas were subjected to Gram staining and further biochemical tests. *Pseudomonas* were genetically identified by PCR using *Pseudomonas* genus specific 16S rRNA primers. Genetically confirmed *Pseudomonas* isolates were subjected to antimicrobial susceptibility tests using the disc diffusion method. Out of 33 phenotypically identified *Pseudomonas* isolates, only 14 (42.4%) were genetically confirmed, highlighting the limitations of phenotypic identification alone. Among these confirmed isolates, one (7.14%) exhibited resistance to all tested antibiotics, while three (21.42%) were classified as multidrug-resistant (MDR) with 50% of the isolates showing a MDR index value higher than 0.2 suggesting they originate from a high-risk source of contamination where antimicrobials are often used. Notably, widespread resistance was observed against amoxicillin (57.14%), erythromycin (35.71%), and tetracycline (35.71%). These findings highlight the presence of clinically significant antimicrobial resistance in *Pseudomonas* spp. from aquarium water and emphasize the need for responsible antibiotic use and improved monitoring in ornamental aquaculture systems.

Keywords: Antimicrobial Resistance (AMR), Aquarium water, Freshwater ornamental fish, *Pseudomonas* species

Molecular Investigation of Hemoparasites Including *Bartonella* in Apparently Healthy Cats in Sri Lanka

Dahanayaka I.U.[1], Thilakaratne D.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**dsamanthikat@gmail.com*

Vector-borne hemoparasitic infections in domestic cats pose an emerging concern for both veterinary and public health sectors due to their zoonotic potential. However, no comprehensive molecular-based study has been conducted in Sri Lanka. This molecular study aimed to determine the molecular presence and occurrence of selected hemoparasites in apparently healthy domestic cats from three climatically distinct districts: Colombo (wet zone), Kurunegala (intermediate zone) and Anuradhapura (dry zone). Blood samples (n = 30; 10 from each district) were collected from cats presented to private veterinary clinics and epidemiological data on potential risk factors were obtained using a structured questionnaire. PCR assays targeting Anaplasmataceae, Piroplasmida and *Bartonella* spp. were performed to detect hemoparasitic DNA. The overall occurrence of Anaplasmataceae, Piroplasmida and *Bartonella* DNA was 16.67%, 10% and 3.33%, respectively, with two cases of co-infection. Positive PCR products were subjected to Sanger sequencing and analyzed using BLASTn, confirming the Anaplasmataceae sequences as *Anaplasma* spp. and the Piroplasmida sequences as *Babesia* spp., each with 100% identity. The detection of these pathogens in clinically healthy cats underscores the potential role of subclinical carriers in pathogen maintenance and transmission. Risk factor analysis indicated that male sex and older age were associated with significantly higher likelihood of infection, particularly among cats from the wet zone, suggesting possible behavioural and ecological influences on pathogen exposure. These findings highlight the silent circulation of zoonotic hemoparasites within domestic cat populations in Sri Lanka and reinforce the importance of routine ectoparasite control, targeted screening and veterinary awareness even in the absence of clinical signs. This study provides baseline molecular data to support future surveillance initiatives and emphasizes the need for a One Health approach integrating animal, human and environmental health strategies to manage vector-borne diseases effectively in the country.

Keywords: Hemoparasites, Cats, PCR, *Bartonella*, Sri Lanka

Gross and Histopathological Changes in Broiler Chickens that Die due to Heat Stress

Dayarathne H.K.N.U.D.[1], Amarasooriya H.D.A.D.[1], Jayaweera W.R. [2], Gunawardana T.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thusharigunawardana@vet.pdn.ac.lk*

The broiler industry is a significant part of the poultry sector in Sri Lanka. Poultry meat provides high quality protein, minerals, and vitamins to the human diet. As Sri Lanka is a tropical country, heat stress (HS) is a significant issue for broiler chickens. Broilers in Sri Lanka are often exposed to high temperatures with high humidity for extended periods, putting them under stress. This stress negatively affects broiler chickens, leading to decreased growth, reduced production, decreased immunity, increased mortality rate, and impaired intestinal function. Broilers exposed to chronic HS can develop various gross and microscopic lesions in the liver, heart, lungs, kidneys, breast muscles, bursa of Fabricius, thymus, pancreas and intestines. However, there is little or no studies carried out to identify specific lesions that occur in broilers due to HS in Sri Lanka. This study aimed to identify the gross and histopathological changes in broilers that die due to HS under Sri Lankan conditions. Samples were obtained from a broiler chicken farm, located in Kurunegala district. Totally, 38 carcasses were collected. Postmortem was performed for each bird. Gross lesions were examined in all organs. Tissue samples were collected as soon as possible from main organs and histopathology was performed. All the findings were recorded and analyzed. During gross examination, enlarged hearts with right atrial and ventricular hypertrophy, hemorrhages, oedema and congestion in lungs, hemorrhages and congestion in liver and kidneys were observed as major pathological lesions. Major histopathological lesions include hemorrhages in lungs in all the samples, congestion in lungs (84.6%), hemorrhages (66.67%) and myocyte degeneration (93.33%) in heart, hemorrhages in all the kidney samples, tubular epithelial cell degeneration in kidneys (57.14%), degeneration and necrosis of muscle fibers in breast muscles (72.73%) and lymphocyte depletion in lymphoid organs. Inflammatory cells infiltration was observed in the liver, intestine and pancreas. Identifying the key pathological changes can help to develop target mitigation strategies to improve broiler welfare and productivity under heat stress.

Keywords: Broiler chickens, Gross lesions, Heat stress, Histopathology, Sri Lanka

Optimization of Polymerase Chain Reaction to Detect *Escherichia coli* in Suspected Poultry Colibacillosis Cases

De Silva K.H.C.D.[1], Premarathne J.M.K.J.K.[2], Satharasinghe D.A.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Livestock and Avian Sciences, Faculty of Livestock Fisheries and Nutrition, University of Wayamba,
[3]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**dilansatharasinghe@yahoo.com*

Colibacillosis caused by Avian pathogenic *Escherichia coli* (APEC) is a significant bacterial poultry disease that carries serious economic and animal health consequences in the poultry industry. During 2023, it was identified as a significantly reported poultry disease in Sri Lanka. Though highly frequent in occurrence, molecular work on APEC in Sri Lankan poultry is not widespread. Traditional methods of diagnosis such as bacterial culture, biochemical testing, and post-mortem examination of lesions are done regularly, but these are often cumbersome, labour-intensive, and potentially inaccurate in their ability to differentiate between pathogenic and non-pathogenic strains. Inappropriate use of antibiotics in the poultry industry is due to empirical therapy without a definitive diagnosis, which has contributed to the global phenomenon of antimicrobial resistance (AMR). Through enabling proper detection of pathogens, PCR helps in evidence-based decision making in treatment. *E. coli* was detected by culture in a preliminary study as an occurrence of 37.5% in Northwestern Province out of the colibacillosis suspected cases that were submitted to HeyVet Laboratory in Kuliyapitiya. A multiplex PCR protocol has been established using lacZ3 & yaiO primers which are highly specific for coliforms and *E. coli*. This makes specific and rapid detection of *E. coli* in suspected cases of poultry colibacillosis. The findings of this research highlight the importance of integrating PCR-based diagnosis into routine surveillance, especially for huge commercial poultry farms where detecting the disease early is essential in order to attain appropriate disease control and prevent economic loss. Moreover, the use of molecular diagnostics also assists in maintaining increased farm biosecurity and environmentally friendly poultry management. In conclusion, PCR can enhance disease surveillance, inform the appropriate therapeutic modalities, reduce antimicrobial misuse, and avert public health risk of zoonotic *E. coli* strains. Therefore, it is a valuable tool for the poultry industry.

Keywords: Colibacillosis, Avian pathogenic *Escherichia coli,* Multiplex PCR, lacZ3, yaiO

Survey on Sri Lankan Sporting Horse Owners' and Trainers' Willingness to Choose Distal Limb Prosthetics Over Humane Euthanasia

De Silva S.C.S.[1], Nizanantha K. [2*]

[1].*Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,*
[2.] *Department of Farm animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.*

[*]*knizanantha@vet.pdn.ac.lk*

Most of the distal limb injuries in equine are often considered incurable in much of the world, especially where amputation is necessary. In Sri Lanka, humane euthanasia is a common outcome owing to the perceived limitations of prosthetic interventions. Recent advances in veterinary prosthetics like 3D printing have, however, created new opportunities for rehabilitation. The purpose of this research was to evaluate the preference of Sri Lankan sporting horse owners and trainers for distal limb prosthetics as an alternative to humane euthanasia, and to determine the most important factors affecting the decision. A structured questionnaire was distributed online via Google Forms, targeting individuals involved in the equine industry. A total of 20 complete responses were collected and analysed using descriptive statistics. Respondents provided information on their demographic profiles, experience with equine limb injuries, awareness of prosthetic options, and preferences when faced with the decision between prosthetic intervention and euthanasia. The most significant outcome of this study was that 55% of the respondents to the survey would opt for prosthetic treatment as an alternative to euthanasia if while only 45% would still opt for euthanasia option. This outcome clearly supports the hypothesis that openness to prosthetic solutions is improved with greater awareness, perceived effectiveness, and emotional connection with the horse. It reveals a considerable opportunity to consider alternatives to euthanasia as the default outcome. The study concludes that horse owners and trainers in Sri Lanka are ready to accept prosthetic alternatives, provided they are made available and are supported by veterinary surgeons. The study identifies the need for greater outreach education, local manufacture of prosthetic devices, and greater involvement of veterinarians in advising clients on new treatments. This research contributes to ongoing discussion in equine rehabilitation for a shift from the normal practice of euthanasia to humanely, science based prosthetic treatment wherever possible.

Keywords: Equine prosthetics, Distal limb injuries, 3D printing, Euthanasia, Veterinary rehabilitation

Effects of Sugarcane-derived Polyphenols on the *in-vitro* Ruminal Digestibility of Coconut Poonac and Rice Polish

De Silva Thanapathy C.P.[1], Weerasinghe W.M.P.B.[2], De Seram H.E.L.[1*]

[1]*Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.*
[2]*Veterinary Research Institute, Gannoruwa, Peradeniya.*

**eranga.seram@vet.pdn.ac.lk*

Plant-derived polyphenols have been reported to modulate ruminal fermentation and improve nutrient utilization in ruminants. This study evaluated the effects of supplementing sugarcane-derived polyphenols (SCDP) on the in-vitro ruminal digestion of coconut poonac and rice polish, two commonly used concentrate ingredients in dairy cow and small ruminant diets in Sri Lanka. A commercial product Polygain™, served as the SCDP source. A 2×2 factorial design was implemented with two SCDP levels (0% and 1%; dry feed weight basis) and two types of concentrate feed. The in-vitro gas production technique used ruminal fluid from a sheep mixed with fermentation buffer. Samples were analysed in triplicate, and gas volumes were measured at 2, 4, 6, 8, and 24 hours during incubation. Dry matter, crude protein, and ash values from proximate feed analysis were used alongside gas measurements to calculate in-vitro net gas production (GP), metabolizable energy (ME), and organic matter digestibility (OMD). Data on in-vitro digestibility parameters were analysed using 2×2 factorial ANOVA. There was a significant interaction effect between the type of concentrate feed and the levels of SCDP on the in-vitro concentrate feed digestibility. Supplementation with 1% SCDP resulted in higher GP, OMD, and ME in coconut poonac ($P = 0.025$), but lower values in rice polish ($P = 0.015$) compared to 0% SCDP. Precisely, the highest GP (50.7 mL), OMD (69.1 g/100 g), and ME (10.2 MJ/kg) were observed in 1% SCDP-supplemented coconut poonac, while the lowest GP (43.3 mL), OMD (59.8 g/100 g), and ME (8.9 MJ/kg) were detected in 1% SCDP-supplemented rice polish. The results indicate that SCDP supplementation exerts a feed-specific effect on the in-vitro nutrient digestibility of concentrate feeds, enhancing digestibility in coconut poonac while compromising it in rice polish. Further in-vivo studies are warranted to evaluate the impact of SCDP supplementation on nutrient utilization, growth, and production performance when these concentrates are fed to farm ruminants, to inform practical dietary recommendations.

Keywords: Coconut poonac, Feed, Polyphenols, Rice polish, Ruminants

Molecular Diagnostics of Canine Parvoviral Infections in the Kandy District, Sri Lanka

, De Silva W.T.S.[1], Kalupahana A.W.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**anilwkalupahana@yahoo.com*

Canine parvoviral enteritis which is caused commonly by the Canine Parvovirus Type -2 (CPV-2) remains as one of the most important and critical health challenge among the dog population especially within the unvaccinated and young animals within both Sri Lanka and margins of the Kandy District. This particular study employed Polymerase Chain Reaction (PCR) testing to establish the accuracy of diagnosing the infections based upon the expressed clinical signs and clinical examination findings. Fecal samples were collected non-invasively from the suspected animals parallel to the collection of clinical data from the animal owners. Fecal swabs were collected from clinically suspected dogs based on symptoms such as vomiting, diarrhea and distinct foul odor and were processed using specific primers targeting a 681 bp segment of the viral VP1/VP2 gene region. Although a total of 9 samples were collected 2 samples were excluded from testing due degradation. Out of the 7 tested samples, 6 were positive for Canine Parvoviral enteritis despite animals lacking a critical clinical sign: fever. These findings assure the robustness of employing PCR testing for the confirmatory diagnosis of the disease during setups where supportive clinical signs like hyperthermia are not always present. This study clearly demonstrates the importance of incorporation of molecular diagnostics to the clinical assessment of the patients in order to enhance the accuracy of CPV-2 diagnosis. Further studies are also needed to investigate the other non-specific clinical signs with a larger sample in order to support the confident diagnosis of the disease only through clinical assessment due to economic constraints in the country where the use of advanced diagnostics in veterinary medical field is considered.

Keywords: Canine Parvovirus Type-2 (CPV-2), Polymerase Chain Reaction (PCR), Molecular diagnostics, Clinical signs, Fecal sample testing

Morphological and Molecular Study on Haemoparasites in Backyard Chickens Across Agro-Ecological Zones in Sri Lanka

Dissanayake D.M.A.R.[1], Nambuge I.P.[2] and Thilakarathne D.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**dsamanthikat@gmail.com*

Poultry production is the leading contributor to the Sri Lankan livestock sector, with chicken farming being the most predominant. The growing commercial poultry industry views backyard poultry as a potential infection reservoir. Hemoparasites, being vector-borne, are ideal indicators of this risk. This study aimed to diagnose and assess the prevalence of hemoparasites in backyard poultry in high-commercial poultry-producing districts and agro-ecological zones in Sri Lanka. A cross-sectional study was conducted in four districts (Kurunegala, Gampaha, Kandy, and Polonnaruwa) across seven veterinary divisions, collecting 100 blood samples from 33 farms (three birds per farm). Leishman-stained blood smears were examined for hemoparasite identification. Selected positive samples from each genus underwent molecular characterization using conventional PCR to amplify the LSU gene of Filaria and the SSU gene of Trypanosoma, and multiplex PCR to target a non-coding region of the mtDNA gene of Plasmodium. The study found a 79% hemoparasite prevalence in backyard chickens, with 19% co-infections. Plasmodium was the most prevalent genus (56%), while Filaria, Leucocytozoon, and Trypanosoma had prevalences of 26%, 15%, and 3%, respectively. Hemoparasitism was significantly higher in the dry (80%) and wet (79.49%) zones of Sri Lanka compared to the intermediate zone (77.42%). The most common co-infection involved Plasmodium and Filarioidea, accounting for 11% of cases. Additionally, there was no association between anemic hematocrit and hemoparasitism. Molecular methods confirmed the genera of Plasmodium, Filarioidea, and Trypanosoma, and the amplicons were sequenced to explore phylogenetic relationships with regional pathogens. This study reveals that a high number of clinically healthy backyard chickens carry various hemoparasites, acting as infection reservoirs for commercial flocks. Given the challenges of vector control and the potential for hemoparasites to exacerbate disease in immunocompromised birds, controlling them is crucial for maintaining bird welfare, preventing economic losses, improving productivity, and ensuring the sustainability of both commercial and backyard poultry industries.

Keywords: Chicken, Co-infection, Hemoparasites, Morphology, Prevalence

Acknowledgements: University Research Grant (URG/V/2019-60)

Isolation and Identification of *Leptospira* species in Client-owned, Vaccinated Dogs and Assessment of the Knowledge, Attitudes and Practices of Dog Owners on Leptospirosis

Dissanayake D.M.K.V.[1], Rathnayake N.[2], Vijeyakumaran R.[2], Herath T.[2], Salgadu A.[3], Jayasinghe P.P.[2], Dissanayake B.N.[2], Gamage C.D.[4], Jinadasa H.R.N.[1*]

[1] Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Microbiology, Faculty of Medicine, University of Peradeniya,
[3]Melbourne Veterinary School, University of Melbourne, Australia,
[4]Department of Pathobiological Sciences, School of Veterinary Medicine, Louisiana State University, USA, [5]Municipal Council, Kandy.
**rnjinadasa@vet.pdn.ac.lk*

Leptospirosis is a globally significant zoonotic disease, highly prevalent in tropical regions including Sri Lanka due to environmental, socioeconomic, and occupational factors, facilitating its transmission. Rodents are considered as primary reservoir, but dogs are also important carriers of leptospirosis and even vaccinated dogs can shed leptospires in their urine, posing a potential zoonotic risk to humans. Although dogs are vaccinated, there are gaps in awareness, diagnosis, and disease surveillance in Sri Lanka. Therefore, this study aims to identify the level of exposure of completely vaccinated, client owned dogs, by performing microscopic agglutination test on serum samples, isolation of Leptospira spp. from urine, and asses the knowledge, attitudes and practices of dog owners regarding leptospirosis, by conducting a questionnaire survey. A total of 42 questionnaire surveys were collected from dog owners who visited the Veterinary Teaching Hospital. In addition, biological samples were obtained, including 15 paired blood and urine samples, 18 urine-only samples, and 10 cases in which urine, blood and questionnaire responses were collected from the same individual. Serological analysis revealed that the most frequently identified serogroups were Grippotyphosa, Icterohaemorrhagiae, and Sejroe (each detected in 3/15 samples), followed by Autumnalis (2/15), and single detections of Canicola, Hardjo, Shermani, and Javanica. Culture and isolation of Leptosipra spp from urine samples were not successful. KAP analysis was based on 42 questionnaire responses. The overall mean knowledge score was 71.27% (SD =12.49), indicating a moderately high awareness level. Notably, while 98% of participants recognized rats as vectors, only 50% identified dogs as possible reservoir hosts for leptospirosis; 32% denied this possibility, and 18% were uncertain. Mean attitude scores were also moderately high at 72.01% (SD = 17.15). Statistical analysis showed no significant differences in knowledge or attitude scores based on gender, educational level, religion, ethnicity or income. No statistically significant differences were observed in knowledge (68.67% vs. 61.00%) or attitude (22.33 vs. 20.25) scores between dog owners exposed to canine leptospirosis and those unexposed. The findings suggest that although general awareness of leptospirosis is satisfactory, there is a critical knowledge gap regarding the role of dogs in disease transmission.

Keywords: Leptospirosis, Canine, Knowledge, Attitudes, Practices
Acknowledgements: World Health Organization

Comparative Assessment of Bull Semen Preservation: Village Egg vs. Commercial Egg-Based Extender

Edirisinghe E.A.S.H.[1], Perera G.D.R.K.[2*], Aluthwaththa A.H.L.M.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Artificial Insemination Centre, Kundasale.

**gdrkperera@vet.pdn.ac.lk*

The hen-rearing system may affect the quality of eggs. Village eggs are known to be more nutritious than commercial eggs. However, the impact of the different nutritional levels of these two egg types on bull semen preservation remains unknown. The objective of this study was to compare the viability of preserving bull semen using the free-range village (VE) and commercial (CE) egg-based extenders. For this experiment, we selected three fertile Jersey bulls from the Central Artificial Insemination Station in Kundasale. The animals were allowed to mount several times, and semen was collected using an artificial vagina. The collected samples were assessed grossly and microscopically. Samples with more than 70% motility, volumes greater than 2 mL, and a milky to creamy colour were chosen for the experiment. These samples were divided into two portions, each diluted with either a VE or CE base extender. Each extended sample was loaded into 0.25 mL straws, gradually cooled, and then stored in liquid nitrogen. Finally, post-thawing motility (PTM), live ratio (LR), dead ratio (DR), and membrane integrity (hypo-osmotic test) of the deep-frozen semen were evaluated after 24 hours, 1 week, 1 month, and 3 months of preservation. A total of 240 straws were assessed for each parameter, with 10 replicates at each time point. The collected data were statistically analysed. The results demonstrated that the VE-based extender significantly improved MI (78.3%) and PTM (48.4%) compared to the CE-based extender (75.3% and 47.3%, respectively). No statistically significant differences were observed between the two extenders in terms of LR or DR. In conclusion, the village egg yolk base extender beneficial for bull semen preservation than the commercial egg yolk base extender in terms of high post-thawing motility and membrane integrity, with equally effective live-dead ratios

Keywords: Village egg, Commercial egg, Extender, Bull semen preservation, Post-thawed characteristics

Awareness and Perception of Poultry Industry-related Employment Opportunities Among Veterinary Undergraduate Students in Sri Lanka

Fernando P.R.T.[1], Karunaratne N.D.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**nkarunaratne@vet.pdn.ac.lk*

The poultry sector is the leading livestock industry in Sri Lanka supplying animal proteins to the nation. It contributes 79% of the total livestock gross domestic production. Despite its significance and the growing demand for veterinary professionals, interest among veterinary undergraduates in poultry-related careers appears limited. A cross-sectional questionnaire-based survey was conducted among veterinary undergraduate students enrolled at the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. The questionnaire was distributed to four academic batches. A total of 339 completed responses were obtained from 379 students, yielding a high response rate of 89.45%. The questionnaire collected demographic data, assessed knowledge and awareness of the poultry industry, evaluated career interests, and explored the factors influencing students' preferences. Results indicated that a majority of students (51.62%) had average knowledge of the poultry industry, while 28.02% reported good knowledge, and 20.35% admitted poor knowledge. Regarding career interest, only 45.43% of respondents expressed willingness to consider employment in the poultry sector, whereas 54.57% were disinterested. Interest in poultry careers showed a marked increase across academic years, rising from 14.28% among first-year students to 46.57% among fourth-year students, highlighting the positive impact of practical and clinical exposure and industry-related training embedded in the later stages of the curriculum. Statistical analysis using Chi-squared tests and binary logistic regression identified several key factors associated with students' interest in poultry-related careers. Gender, job availability, career growth opportunities, influence of mentors, family background in poultry farming were positively affect the interest in pursuing career in poultry industry. On the other hand, negative social perceptions, health risk concerns, and limited early exposure to poultry practices were negatively affect the students' interest. Targeted interventions such as enhanced poultry-focused curriculum content, early practical training, mentorship, and industry engagement are essential to bridge this gap and strengthen veterinary support for the poultry sector in Sri Lanka. Therefore, the study emphasizes the urgent need for educational reform and industry collaboration to cultivate a veterinary workforce equipped and motivated to support the sustainable development of Sri Lanka's poultry industry.

Keywords: Poultry industry, Veterinary undergraduate students, Awareness and perception, Career interest, Employment opportunities

Molecular Insights into The Genetic Diversity and Evolutionary History of Indian Flying Foxes in Peradeniya, Sri Lanka

Fonseka H.S.Y.[1], Lokugalappatti L.G.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**slokug@vet.pdn.ac.lk*

The Indian flying fox (*Pteropus medius*, formerly *Pteropus giganteus*) is one of the largest bat species belonging to the suborder Yinpterochiroptera, family Pteropodidae, within the order Chiroptera. As a reservoir for many viral diseases, including the SARS-CoV virus that emerged in 2019, the significance of studying bats has increased. Identification of bats based on external morphology is challenging due to slight differences among closely related species. Sri Lanka, a tropical country rich in biodiversity, is home to over 30 bat species and the Peradeniya Botanical Garden in Kandy is one of the habitats of *Pteropus medius*. Since the evolutionary lineage and population diversity of Indian flying fox in Sri Lanka is yet to be understood, this study aimed to investigate genetic relationships using the mitochondrial cytochrome b (MT-CYB) gene. We analyzed samples of *Pteropus medius* collected from the Peradeniya Botanical Garden and compared them with 65 reference gene sequences representing global populations obtained from the National Centre for Biotechnology Information (NCBI). Phylogenetic trees were constructed using Maximum Likelihood (ML) and Bayesian Inference (BI) methods with software such as RAxML and MrBayes. The trees reflected the Sri Lankan *P. medius* as a recently evolved monophyletic clade, which clusters together with the Bangladesh *P. medius* population, indicating close genetic relatedness and recent common ancestry. Population genetic analyses using Arlequin software revealed low to moderate genetic diversity in the Sri Lankan population, evidenced by variation at a single locus with distinct haplotypes and higher nucleotide diversity, suggesting either a stable historical population size or greater gene flow. Despite this, both populations showed relatively low overall genetic diversity and limited allelic richness. Demographic analysis indicated recent population expansion without significant disturbance, reflecting evolution largely under neutral processes. These findings highlight how minor population dynamics and historical events have influenced the genetic structure of *P. medius* in Peradeniya, Sri Lanka and we expect that our study will provide valuable insights into the evolutionary history and genetic variation of the second largest order of mammals in the world.

Keywords: Indian flying fox, Mitochondrial cytochrome b, Phylogenetic analysis, Genetic diversity, Peradeniya Botanical Garden

Acknowledgements: IDRC funded Sri Lanka Wildlife Human Health Net Project

Measuring The Phenotypic Characteristics of Donkeys in Mannar, Sri Lanka

Ganeshan.T.[1], Nizanantha, K.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**knizanantha@vet.pdn.ac.lk*

Donkeys (*Equus asinus*) are hardy animals widely used in many parts of the world for transport and labour, especially in dry and semi-arid regions. In Sri Lanka, donkeys are primarily found in the Mannar District, where they have traditionally supported local livelihoods, particularly in tourism. Despite their historical and functional importance, little scientific attention has been given to the study of their physical characteristics or their adaptation to local environments. This research aimed to document and analyse the phenotypic characteristics of donkeys in Mannar to support conservation and management strategies. A total of 39 cross-breed donkeys were randomly selected for morphometric measurement. Key physical traits recorded included wither's height, body length, chest circumference, neck length, face length, tail length, and ear length by using a measuring tape and coat colour and patterns were taken by high resolution camera. In addition to these measurements, behavioural observations were made to assess social patterns, movement, and human interaction. All data were recorded in Excel software and statistically analysed by using Stata software, focusing on identifying variation between individuals and any significant differences between males and females. Results showed moderate variation among individual donkeys, but there were no statistically significant differences between males and females ($p > 0.05$) for any of the measured traits. This lack of sexual dimorphism may be due to natural breeding and adaptation to the harsh environment, with limited influence from selective breeding. The donkeys exhibited traits well suited to the local climate, such as smaller body size, long ears and group movement. Animals were in different types of colour patterns and there were no changes between sexes. Regular deworming, vaccination or grooming was not done in free-roaming donkeys. These findings provide a foundation for future research, particularly in the fields of animal genetics, welfare and conservation. As the donkey population in Mannar faces decline due to decreased use and neglect, these data highlight the importance of preserving this unique animal resource. Phenotypic characterization is a vital step toward their sustainable management.

Keywords: Donkeys, Mannar District, Phenotypic characterization, Morphometric measurements, Sexual dimorphism

Detection of Pathogenic Leptospira Serovars in Free-Roaming Donkeys (*Equus africanus*) in Mannar, Sri Lanka

Gayashan W.D. [1], Nizanantha K.[2], Dewasmika W.A.P.M.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** pamudimaldam@vet.pdn.ac.lk*

Leptospirosis is an emerging zoonosis globally induced by pathogenic spirochetes of the genus Leptospira. It is a health concern, especially in tropical regions where environmental conditions support transmission. Mannar district in Sri Lanka has a unique free-range donkey (Equus africanus) population that is frequently exposed to standing water and unsanitary environments. These animals are most likely to remain unexposed for veterinary care and are susceptible to being impacted by infectious diseases like leptospirosis. Due to the possibility of being asymptomatic reservoirs, animal health surveillance of this population needs to be conducted. The aim of the present study was to establish the seroprevalence of anti-leptospiral antibodies among free-ranging donkeys in Mannar district, Sri Lanka using Microscopic Agglutination Test (MAT), a gold standard diagnostic test for leptospirosis. 27 blood samples were collected from apparently healthy adult donkeys with the assistance of local handlers. Sera were cross-reacted against a panel of reference pathogenic Leptospira serovars. Of the 27 samples, 6 (22.2%) had a seropositive result for at least one Leptospira serovar. In particular samples numbered 17, 20, and 25 tested positive for Leptospira interrogans serovar Canicola, with antibody titres ranging from 1:400 to 1:1600. The high titre of 1:1600 in sample 20 may indicate a recent infection, especially since the animal was not vaccinated. Samples 19 and 22 showed reactivity to Leptospira interrogans serovar Hardjo at titres of 1:800 and 1:200, respectively. Sample 11 tested positive for Leptospira interrogans serovar Bataviae with a titre of 1:400. The remaining twenty-one samples proved negative for the serovars. The evidence supports the natural exposure of Mannar donkeys to Leptospira spp and the potential of the donkeys as silent carriers of infection. Leptospira in the urine can be shed by infected donkeys, even without clinical signs, and thus contaminate the environment, increasing the zoonotic risk, particularly among rural communities. This study confirms the imperative for targeted disease monitoring of free-roaming equids and increased animal health management, public awareness, and biosecurity to minimize the risk of transmission. More studies are required to detail shedding dynamics and the long-term health impacts of leptospirosis in donkeys in field settings.

Keywords: Leptospirosis, Leptospira Serovars, Free-Roaming Donkeys, Equus africanus, Zoonotic

Prevalence and genetic diversity of *Toxoplasma gondii* in domestic cats from Colombo, Kurunegala, and Anuradhapura districts, Sri Lanka: A Morphological and Molecular study

Gayesha, K.D.P.[1], Nambuge, I.P.[2]., Thilakarathne, D.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**dulari@vet.pdn.ac.lk*

Toxoplasmosis is a globally prevalent parasitic disease caused by the protozoan *Toxoplasma gondii*, which can infect all warm-blooded animals, including humans, mammals, and birds. However, only domestic and wild felids serve as the definitive hosts, excreting environmentally resistant *T. gondii* oocysts in their feces. Therefore, cats play a major role in the epidemiology of toxoplasmosis. In Sri Lanka, limited research has been conducted on *T. gondii* in cats, and existing studies have primarily focused on serology. Identification of oocyst shedders and associated risk factors is crucial from a public health perspective and for minimizing occupational hazards. Detecting *T. gondii* oocysts in cat feces using microscopy remains challenging due to their morphological similarity to other coccidian parasites. This study aimed to detect *T. gondii* oocysts in feces of domestic cats using conventional morphological techniques and molecular characterization of selected samples from various regions in Sri Lanka. Fecal samples were collected from 30 domestic cats: 10 samples each from Colombo, Kurunegala, and Anuradhapura districts. The samples were processed using saturated sucrose flotation, and the supernatant was examined microscopically for *T. gondii*-like oocysts. Structures resembling *T. gondii* were observed in 10 samples: 4 from Colombo and 3 each from Kurunegala and Anuradhapura. Accordingly, the *Toxoplasma* oocyst detection rate in Colombo was 40% and 30% in both Kurunegala and Anuradhapura. PCR assays were performed on three samples with high oocyst counts, using Tox4 and Tox5 primers targeting the 529 bp fragment of the *T. gondii* genome. Only one sample, from Anuradhapura, yielded a sufficiently good quality sequence for further analysis. nBLAST analysis confirmed that the sequence shared 100% identity with multiple known *T. gondii* strains available in GenBank. Phylogenetic analysis revealed that the local strain is closely related to *T. gondii* strain MH884740.1, a *T. gondii* isolate obtained from the brain tissue of a sheep (*Ovis aries*) in Iran. The findings of this study highlight the presence of *T. gondii* oocyst shedders among domestic cats in multiple regions of Sri Lanka, emphasizing the potential risk of environmental contamination and zoonotic transmission. The combination of morphological and molecular methods proved useful in detecting and confirming *T. gondii* infections. These results underscore the need for expanded surveillance and public health interventions to mitigate the risk of toxoplasmosis, particularly in high-risk communities and occupational settings.

Keywords: *Toxoplasma gondii*, Domestic cats, Oocyst shedding

Assessment of *in-vitro* Efficacy of Cinnamon Bark Oil (*Cinnamomum zeylanicum*) Against Six Prototheca Isolates from Canine and Bovine Clinical Cases Reported in Sri Lanka

Geethadeva W.M.H.[1], Bandaranayaka N.[1], Vidura G.M.[2], Kumari K. W.L.R.T.[3], Bandara T.P.M.S.D.[3], Jinadasa H.R.N.[3], Ariyarathna H.M.H.S.[1*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm animal Production and Health, Faculty of Veterinary
[3]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**hsariyarathna@vet.pdn.ac.lk*

Prototheca is the only algae causing diseases in humans and animals. Among them, prototheca mastitis in cattle causes severe economic losses and canine disseminated Protothecosis mostly has a fatal outcome. Currently there are no effective treatments against Protothecosis. The aim of this study was to assess *in-vitro* efficacy of cinnamon bark oil (*Cinnamomum zeylanicum*) against one isolate from a cow with mastitis and five isolates from dogs with disseminated Protothecosis available in Microbiology Laboratory, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. The isolates were characterized by PCR. The inhibition experiments were conducted in 1.5 mL microcentrifuge tubes containing 500 µL of Yeast Peptone Dextrose broth (pH 7.4), 500 µL of each prototheca isolate with constant absorbance value measured using spectrophotometer and varying concentrations of cinnamon bark oil (range10 - 0.156 µL/mL). Additionally, each experiment included two culture tubes with negative and positive controls. The cultures were incubated at 37°C for 24 hrs with shaking (100 rpm). All experiments were triplicated. Viability of the prototheca was assessed by inoculating 10 µL from each tube on Yeast peptone dextrose agar plates (37°C for 72 hrs). In addition, the cytomorphological changes of prototheca were assessed using smears prepared from culture tubes, stained with Diff-Quik. Results revealed that cinnamon bark oil has an inhibitory effect on growth of prototheca and the minimum inhibitory concentration (MIC) ranged from 10 – 2.5 µl/ml. Cytopathology included reduction of cell wall thickness and cell wall lysis, reduction of dividing cells, reduction of cell number and size and distortion of nuclear details at MIC and above that concentration. All specie except one canine isolate were confirmed as *P.zopfii.* These results confirm that cinnamon bark oil has an excellent *in vitro* inhibitory activity against *P.zopfii*.

Keywords: Prototheca, Cinnamon bark oil, Canine, Bovine mastitis, Cytology

Acknowledgements: University Research Council, University of Peradeniya

Exploring iron-rich Herbal Sources Readily Available in Sri Lanka to be Added into Human as well as Animal Diets

Gunathilaka H.M.V.K.S[1], Jayasooriya L.J.P.A.P. [2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2] Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**apjayasooriya@vet.pdn.ac.lk*

The research was conducted to explore herbal sources which contain high amounts of iron (Fe) to be included in human and animal feeds. Thus, we considered *Moringa oleifera*, seaweeds (*Kappaphycus alvarezii* and *Eucheuma spinosum*) and spinach (*Basella alba*) as the potential sources. Representative samples were taken from different regions in Sri Lanka and dried to be less than 10% moisture content and then iron concentration was measured. The moisture and ash contents were measured according to the AOAC procedures, whereas the iron content was analyzed using the Atomic Absorption Spectrophotometry (AAS). The results revealed that the *Basella alba* exhibited the greatest concentration of iron (19.14-23.65 mg/100g dry weight) as well as high ash content (15.9%- 19.8%) supporting the high mineral content of the plant. The value of *Moringa oleifera* as a nutritious traditional dietary supplement was confirmed by the fact that it has 11.92-14.7 mg/100g dry weight iron and moderate ash content (9.4% -10.2%). The *Kappaphycus alvarezii* contained 3.42-6.03 mg/100g dry weight iron with (33.01%- 38.56%) ash content and those of *Eucheuma spinosum* were 2.20- 5.28 mg/100g dry weight iron and its ash content was 29.02% - 31.02%. The lower moisture levels of *Kappaphycus alvarezii* compared to *Eucheuma spinosum* indicate greater shelf stability and better suitability for dry formulations. Thus, based on these findings, it can be elucidated that incorporating these resources into national dietary policies and animal rations may offer an affordable, cost-effective solution to the problem of iron deficiency. This paper presents baseline information which advocates the application of indigenous plant resources in sustainable nutrition program. However, it is important to concentrate on the iron bioavailability, effects of anti-nutritional factor and processing techniques to increase nutrient retention. Furthermore, intervention studies are also suggested be performed to confirm the practical use of these herbal sources to enhance iron status in human beings and animals.

Keywords: Iron-rich plants, *Basella alba*, *Moringa oleifera*, Seaweeds, Atomic Absorption Spectrophotometry (AAS)

Macro Platelets in Blood Smears of Dogs Presented to the Veterinary Teaching Hospital

Gunawardhana K.G.N.H.[1], Ariyarathna H.M.H.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**hsariyarathna@vet.pdn.ac.lk*

Platelets play a crucial role in primary vascular hemostasis, with their number and function being essential for maintaining vascular integrity. Macro platelets are larger than normal platelets, often exceeding the size of canine red blood cells. Previous research indicates that macro platelets are hemostatically more active than normal or small platelets. Platelet indices such as platelet count, mean platelet volume (MPV), platelet distribution width (PDW), and platelet large cell ratio (P-LCR) are considered useful indicators of macro platelet presence. Although limited, existing literature suggests that macro platelets in peripheral blood may be associated with physiological responses, pathological conditions, and occasionally, artifacts from blood collection or smear preparation. This study aimed to determine associations between the degree of macro thrombocytosis and complete blood count (CBC) indices, and to identify possible causes for macro platelets in canine blood smears. Blood smears from 116 sick dogs and 17 apparently healthy dogs presented to the Veterinary Teaching Hospital, University of Peradeniya, were examined. Signalment, clinical history, and CBC data were collected. Smears were evaluated for average macro platelet count, total platelet count, platelet pleomorphism, granularity, and activation. P-LCR was calculated using macro platelet and total platelet counts. Spearman correlation coefficient was used to assess relationships, and group comparisons were performed using the Kruskal–Wallis H test. The most notable finding was the association between platelet pleomorphism and the affected organ systems. Higher pleomorphism was observed in conditions involving systems with extensive microvascular networks, such as the urinary system. An inverse relationship between macro platelet counts and total platelet count/P-LCR suggested a compensatory response to thrombocytopenia. P-LCR also correlated with other CBC parameters, including white blood cell (WBC) count and hematocrit. Inverse correlations between P-LCR and MPV/PDW indicated their potential value as indicators of macro platelet presence. Overall, these results emphasize the importance of peripheral blood smear evaluation when platelet abnormalities are suspected, as smear analysis offers valuable morphological insights that complement automated hematology results.

Keywords: Macro Platelets, Microvascular networks, Platelet indices, Platelet large cell ratio, Blood smear evaluation

Seroprevalence of Chicken Anaemia Virus in Village Chickens from Selected Veterinary Ranges in Kandy District, Sri Lanka

Hassim F.N.[1], Fouzi M.N.M.[1], Gunawardana T.A.[2], Karunaratne N.D.[1*]

[1]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** nkarunaratne@vet.pdn.ac.lk*

Chicken Anemia Virus (CAV) poses a significant threat to the poultry industry in Sri Lanka, impacting both productivity and the overall health of chickens. Despite its potential impact, the prevalence, management practices, and socio-economic factors related to CAV in village chicken populations remain inadequately studied. This study aimed to assess the seroprevalence of CAV antibodies among village chickens in the Gampola, Gangawatakorale, Udunuwara, and Thalathuoya veterinary ranges in Kandy district, Sri Lanka. Additionally, it aimed to evaluate key management and socio-economic factors contributing to CAV infection. A total of 48 blood samples were obtained from village chickens, with three birds sampled from each of the four selected farms within every chosen veterinary range. The flock sizes of these farms varied from 3 to 170 birds. The blood samples underwent ELISA testing to detect antibodies against CAV. Data on management and socio-economic factors were also gathered. Chi-square tests were performed to identify associations between the disease prevalence and the management and socio-economic factors. The findings indicated an overall CAV seroprevalence of 87.50%, with values ranging from 75% to 91.67% across the selected veterinary ranges in the Kandy district. The seroprevalence of CAV was significantly associated with flock size (P=0.043) and veterinary consultation (P=0.045). Regarding management factors, the semi-intensive rearing system was predominant (75%), with only 18.75% of birds receiving vaccination (for Newcastle disease only) and 37.50% receiving deworming drugs. Nutritional supplementation practices showed variation, with 50% of the flocks receiving calcium and 62.50% receiving vitamin supplements. Veterinary services were accessed by 68.75% of the farms. The gender distribution among farmers was equal, while 56.25% had attained only primary-level education. This research aimed to provide critical insights into the prevalence of CAV and management and socio-economic factors associated with CAV in village chickens, facilitating the development of precise disease prevention and control strategies that emphasize enhanced biosecurity and vaccination initiatives. This study contributes to improving poultry health and enhancing productivity across the Kandy District, Sri Lanka, while establishing a foundational database for future research and epidemiological surveys on poultry diseases.

Keywords: Backyard poultry, Poultry diseases, Poultry production, Disease prevention, Biosecurity

Acknowledgements: The University Research Grant (NRPL/2022/01/V)

Are Captive Elephants Stressed During Perehera?

Herath H.M.I.R.[1], Dangolla A.[2*], De Serum H.E.L.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Farm Animal Production & Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.
**adangolla@gmail.com*

Captive elephants are used worldwide for various purposes, including in zoos, transportation, tourism, and cultural events. Changes in their environment can cause stress, affecting all living organisms, including elephants, the largest land mammals with an evolutionary history of over 60 million years. This study focuses on stress-related behaviour in Sri Lankan captive elephants during cultural processions. Advocates for animal welfare aim to reduce the use of captive elephants in these events due to potential stress impacts. While some research exists on elephant stress, there is limited insight into the correlation between captive elephants' stress and cultural events. Captive elephants possibly face numerous stressors, including artificial lighting, loud noises, restricted movement, and limited space during perehera. This study seeks to understand the relationship between cultural events and elephant stress levels, aiming to improve animal welfare while preserving these traditions. This study focuses on a purposively selected cultural event involving elephant processions and assesses the stress levels of the elephants by observing and counting stereotypic behaviours. There are four main stereotypic behaviours associated with elephants: ear flapping (EF), weaving (W), head bobbing (HB), and trunk swirling (SW). Frequencies of selected stereotypical behaviours were counted in four different time points in purposively selected four Perahera events. It was then determined whether there was a significant change in the frequencies of behaviour across the different time points. Ear flapping (EF) frequencies decreased when elephants were dressed immediately afterwards. The mean value of the ear flapping frequencies before dressing (50.94) is higher than that value of just after dressing (23.2) (P=0.0047). There was a slight increase during the Perahera, but at the end of the Perahera, it further increased immediately after removing the ear flap, though these were statistically not significant. Theoretically, we anticipate that after dressing, due to potential thermal stress, the stereotypical behaviours would increase. However, the study showed the contrary, and it significantly reduced. Body weaving (W) was assumed to be normal before dressing (mean is 1.73) and after dressing and during the middle when Perahera stops, a significant increase was observed (mean 11.09). After undressing, body weaving frequency decreased, but it was higher than before dressing. (mean value is 5.73). Head bobbing (HB) was the same as body waving; the frequency of the head bobbing increased during the middle of the Perahera with a slight nonsignificant increase. Head bobbing and trunk swirling (SW) were both rarely observed.

Keywords: Captive, Elephants, Stress, Perahera, Stereotypes

Acknowledgements: University Research Grant (URG/V/2019-60), Elephant veterinarians of Sri Lanka

Screening and Extraction of Taurine from Sri Lankan Seaweeds *Kappaphycus Alvarezii* and *Eucheuma Spinosum*

Herath S.A.[1], Jayasooriya L.J.P.A.P. [2], Wanigasekera W.M.A.P.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**anojapw@vet.pdn.ac.lk*

Taurine, a sulfur-containing amino acid, plays essential roles in physiological processes such as cardiovascular regulation, bile acid conjugation, osmoregulation, and antioxidant defense. Although taurine is widely recognized for its biological importance, it is not synthesized in sufficient amounts by humans, making dietary intake the primary source. Since taurine is predominantly obtained from animal-based foods, the identification of alternative plant- or marine-derived sources has become increasingly important for supporting human health, vegetarian diets, and the feed industry. In particular, marine algae are emerging as promising candidates due to their rich bioactive composition and sustainable availability. The present study investigated the presence of taurine in two widely cultivated Sri Lankan red seaweeds, *Kappaphycus alvarezii* and *Eucheuma spinosum*, and evaluated the efficiency of different solvent systems for ultrasonic-assisted extraction. Fresh seaweed samples were collected from Point Pedro, Jaffna, and subsequently dried, powdered, and extracted with methanol, distilled water, and 0.1M hydrochloric acid at 40°C using ultrasonic-assisted extraction. The extracts were centrifuged, and the supernatants were analyzed by thin layer chromatography using butanol: acetic acid: water (3:1:1) as the mobile phase and ninhydrin as the chromogenic reagent. Taurine produced a characteristic purple spot, and all extract samples displayed purple spots at an Rf value of 0.60, corresponding to the taurine standard. Among the solvents tested, hydrochloric acid extracts produced the most intense and well-defined spots, particularly in *Kappaphycus alvarezii*, indicating a higher concentration of acid-soluble taurine. The findings confirmed that both seaweed species contain detectable levels of taurine or taurine-like compounds. Ultrasonic-assisted extraction with hydrochloric acid was identified as the most efficient extraction method. These results suggest that Sri Lankan seaweeds represent a promising, sustainable taurine source with potential applications in functional food development, pharmaceutical formulations, and animal nutrition. Moreover, the study demonstrates that fundamental analytical approaches such as thin layer chromatography remain valuable tools for undergraduate training and marine biochemistry research.

Keywords: Taurine, *Kappaphycus alvarezii*, *Eucheuma spinosum*, Ultrasonic-assisted extraction, Thin layer chromatography

Prevalence of Ear Mite Infestation among Cats and Dogs in the Kandy District

Hettiarachchi H.A.P.U.[1], Anupama N.M.T.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thilinianupama@vet.pdn.ac.lk*

Otitis externa is a common condition in veterinary medicine, requiring accurate diagnosis for effective treatment. One notable cause is parasitic otitis, often due to infestation by the ear mite *Otodectus cynotis*, which inhabits the external ear canals of dogs and cats. These mites feed on earwax and debris and are easily transmitted through direct contact or contaminated environments. Affected animals frequently exhibit symptoms such as pruritus, head shaking, and dark, waxy ear discharge. If left untreated, the condition may progress to secondary bacterial infections. However, limited data are available on the prevalence and associated risk factors of ear mite infestation, particularly in the Kandy district of Sri Lanka. This study aimed to determine the prevalence of *Otodectus cynotis* in dogs and cats in the Kandy district and identify possible contributing factors. A total of 100 ear wax samples, comprising 50 dogs and 50 cats, were collected from the Government Veterinary Hospital, Gatambe. Samples were examined microscopically to detect the presence of mites. In addition, questionnaire-based data were obtained from pet owners on variables such as age, sex, hair coat length, bathing frequency, environment, contact with other animals, and prior antiparasitic treatment. The overall prevalence of ear mite infestation was found to be 8% in cats and 4% in dogs, indicating a higher rate of infestation among cats. Statistical analysis showed significant associations between infestation and two factors in cats: cleaning frequency and hair coat length. Cats with longer hair and those cleaned less frequently were more prone to infestation. These findings underscore the importance of regular grooming and hygiene in preventing ear mite infestations. The study provides useful insights for veterinary practitioners and highlights the need for further research with a larger population to better understand the epidemiology of *Otodectus cynotis*.

Keywords: *Otodectes cynotis*, Infestation, Prevalence, Risk factors, Kandy District

Occurrence, Predisposing Factors, Aetiology and Prognosis of Dogs with Peripheral Blood Eosinophilia: A Prospective Study

Hewawasam A.H.[1], Dissanayake D.R.A.[2], Ariyarathna H.M.H.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**hsariyarathna@vet.pdn.ac.lk*

Eosinophilia, defined as an increased number of eosinophils in blood or tissue, can occur secondary to various pathological conditions in dogs. The factors influencing its severity and the relationship between eosinophil counts and clinical presentation remain poorly characterized. This study determined the correlations between clinical signs, predisposing causes (breed, age, sex), prognosis and degree of peripheral blood eosinophilia in dogs. Only German shepherds, Rottweilers, Labrador retrievers and crossbred dogs presented to the Veterinary Teaching Hospital, Peradeniya from September 2024 to March 2025, with 5% or more eosinophil counts on Leishman-stained blood smears were included in the study. Complete blood count, and information about breed, age, sex and history of deworming and vaccination of the dogs was extracted from hospital records. Data on diets and clinical signs were collected from owners using a questionnaire. Altogether, 92 dogs were recruited for the study and were grouped based on the degree of eosinophilia, age, breed, and organ system affected. Over 70% exhibited moderate (10–20%) to severe (>20%) eosinophilia, with dermatological (26%) and gastrointestinal (23%) signs predominating. Hypersensitivity related conditions, including atopic dermatitis, flea allergy dermatitis, and filariasis, were associated with higher eosinophil counts (>20%). German shepherds and Rottweilers tend to have higher eosinophil counts but statistically significant difference in severity was observed only between Rottweilers and crossbred dogs. Adult dogs (1–7 years) were more frequently affected, although no significant age-related differences in eosinophil severity were found. Multiple correspondence analysis indicated that the clinical signs, such as dyspnoea, anorexia, vomiting, skin rash, diarrhoea may associate with higher eosinophil counts. All dogs had been fed with home cooked rice-based diets. Considerable proportion of dogs with moderate to severe eosinophilia were fed with rice and chicken head or rice and "Salaya fish". It is necessary to conduct a case control study to identify the association between food and severity of eosinophilia.

Keywords: Eosinophilia, Dogs, Peripheral Blood, Clinical Signs, Breed Predisposition

mtDNA-based Phylogeny of Subspecies *Nisaetus cirrhatus* (Changeable Hawk-Eagle) found in Sri Lanka

Ihalagedara I.T.I.K.[1], Lokugalappatti L.G.S.[2*], Akalanka P.M.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Wildlife Conservation.

**lokugs@vet.pdn.ac.lk*

This study investigates the mitochondrial DNA (mtDNA)-based molecular phylogenetics of the *Nisaetus cirrhatus* complex in Sri Lanka to clarify taxonomic uncertainties and assess species identities. Five samples initially identified in the field as *N. cirrhatus*, were subjected to mtDNA cytb gene sequencing and phylogenetic reconstruction to validate their taxonomic status. Additionally, field-level misidentifications were detected, highlighting the need for improved identification protocols. This underscores the importance of integrating molecular tools in avian taxonomy, particularly in groups where morphological similarities often lead to misclassification. Phylogenetic analyses using maximum likelihood and Bayesian inference approaches placed the two confirmed *N. cirrhatus* samples within the Indian (*N. c. cirrhatus*) and Sri Lankan (*N. c. ceylanensis*) clades. However, these lineages did not form monophyletic groups, suggesting ongoing gene flow, historical connectivity, or incomplete & recently divergence lineage sorting within the *N. cirrhatus* complex. In contrast, the *Nisaetus floris* and *N. c. vanheurni* lineages emerged as well-supported, distinct monophyletic groups, consistent with their recognition as separate evolutionary units. Particularly notable was the finding that *N. c. limnaeetus* haplotypes failed to form a clear monophyletic cluster and were instead interspersed across different clades. This genetic pattern points toward admixture or unresolved lineage boundaries. Additionally, the analysis incorporated outgroup taxa, including *Nisaetus philippensis, Nisaetus pinskeri,* and *Nisaetus lanceolatus*, which formed distinct lineages, genetically divergent from the *N. cirrhatus* complex. Overall, this study demonstrates the critical role of molecular phylogenetics in resolving taxonomic ambiguities within the *N. cirrhatus* complex and emphasizes the need to integrate multiple data sources, morphological, behavioral, ecological, and genetic, to achieve robust taxonomic resolutions. The findings highlight the genetic complexity of *N. cirrhatus*, with some subspecies showing clear evolutionary divergence while others reveal incomplete separation.

Keywords: mtDNA, Maximum Likelihood, Bayesian Inference, Monophyletic, Divergence

Epidemiological Study on Gastrointestinal Parasitic Infections in Goats: Prevalence, Risk Factors, and Control Strategies in the Kilinochchi District

P. Inthusa[1], M.N.M. Fouzi[2*], R Gowrithilagan[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Animal Quarantine Office, Department of Animal Production and Health, Jaffna.

**mnmf@vet.pdn.ac.lk*

Gastrointestinal parasites remain one of the most persistent challenges to goat health and productivity in tropical farming systems. This study explored how widespread these infections are in Kilinochchi District, Sri Lanka, what factors make goats more vulnerable, and whether a natural remedy made from pineapple peels and papaya leaves could help. We surveyed four regions: Karachchi, Kandawalai, Poonakary, and Palai, to examine 102 goats from 21 farms. Using both flotation/sedimentation and McMaster faecal egg count techniques, we found that 88.2% of goats were infected, with prevalence ranging from 72% in Palai to 100% in Kandawalai. Strongyles and coccidia were the most common parasites, while Strongyloides appeared mainly in Karachchi and Poonakary. Two-thirds of affected goats carried more than one parasite type, and infections were more common in older animals, those in poor body condition, and those showing signs such as diarrhoea, rough hair, or a pot-bellied appearance. Farm management practices, grazing routines, seasonal changes, and water sources played a significant role in infection levels. In a follow-up trial with 30 goats, our natural remedy significantly reduced faecal egg counts by more than 90% within 14 days, matching the performance of a commercial dewormer, while untreated goats showed increasing parasite burdens. These results not only reveal the heavy toll parasites take on local goat herds but also suggest that simple, locally available plant-based treatments could offer a practical, sustainable alternative to synthetic drugs, helping farmers manage parasites while reducing the risk of drug resistance.

Keywords: Gastrointestinal Parasites, Goats, Kilinochchi District, Pineapple Peel, Papaya Leaf

Molecular Detection and Characterization of *Salmonella* Species in Selected Live Bird Markets and Poultry Farms in Western and Central Provinces of Sri Lanka

Jathusan A.[1], Satharasinghe D.A.[2*], Premarathne J.M.K.J.K.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Livestock and Avian Sciences, Faculty of Livestock Fisheries and Nutrition, Wayamba University of Sri Lanka.

[*]dilansatharasinghe@yahoo.com

Salmonella remains a major public health concern globally, with poultry identified as a significant reservoir contributing to foodborne infections. This study aimed to detect and differentiate major *Salmonella* serovars, *Salmonella enterica* serovar Enteritidis and *S.* Typhimurium, from cloacal swabs collected from clinically healthy poultry in Sri Lanka, using molecular diagnostic approaches. A total of 40 pooled cloacal swab samples were obtained from live bird markets, poultry processing plants, and selected farms across the Central and Western Provinces. Each swab represented a pooled sample from five birds of the same facility. Samples were transported under chilled conditions and processed at the Molecular and Nutritional Biochemistry Laboratory (MNBL), Faculty of Veterinary Medicine and Animal Science, University of Peradeniya. DNA extraction was conducted under sterile conditions using a commercially available Bioflux™ nucleic acid extraction kit, followed by PCR analysis. Conventional PCR targeting the invA gene and multiplex PCR assays targeting invA, Prot6E, and fliC genes were employed to detect *Salmonella* spp., S. Enteritidis, and S. Typhimurium, respectively. Reference strains of S. Enteritidis and S. Typhimurium obtained from the Crysbro Laboratory, along with a previously confirmed positive control from MNBL, were used to validate the PCR conditions. Gel electrophoresis was conducted to visualize amplified DNA fragments. All field samples tested negative for *Salmonella* spp., including S. Enteritidis and S. Typhimurium, under the optimized PCR conditions. The positive controls yielded expected amplification patterns, confirming assay sensitivity and specificity. These findings suggest a low prevalence or absence of detectable *Salmonella* contamination in clinically healthy poultry at the sampled locations during the study period. Although these results are promising from a public health perspective, continuous surveillance using both molecular and culture-based techniques is essential, especially considering the dynamic nature of bacterial shedding and the potential for asymptomatic carriage in poultry populations. This study underscores the utility of molecular diagnostics such as multiplex PCR in routine *Salmonella* surveillance and offers valuable baseline data for future monitoring and biosecurity enhancement in Sri Lanka's poultry industry.

Keywords: *Salmonella*, Multiplex PCR, Poultry, Sri Lanka, Surveillance

Impact of Heat Stress on Artificial Insemination Success Rate in Dairy Cattle in Mahawa Veterinary Range

Jayasena N.R.[1], Ranasinghe R.M.S.B.K.[2*], Ramanayake U.D.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Animal Production and Health, Gatambe, Peradeniya.

**bimalkarana@vet.pdn.ac.lk*

Heat stress is a major constraint to dairy cattle reproduction in tropical climates, particularly in the Mahawa Veterinary Range of the Kurunegala District, Sri Lanka, where elevated temperatures and humidity prevail for much of the year. This study aimed to evaluate the impact of heat stress on artificial insemination (AI) success rates by assessing physiological and environmental factors at the time of insemination. A total of 67 dairy cattle, primarily crossbreds of Jersey, Friesian, and indigenous breeds from small-scale farms, were randomly selected. During each AI procedure, body temperature, respiratory rate, visible heat stress signs, ambient temperature, relative humidity, breed, and management system were recorded immediately before insemination, and the temperature–humidity index (THI) was calculated. AI outcomes were determined based on the non-return rate, with confirmation 21 days post-insemination through farmer interviews and veterinary records. The mean body temperature was 38.49°C, and the average THI was 80.27, indicating that inseminations were performed under moderate to severe heat stress conditions. Logistic regression analysis identified body temperature as the only statistically significant predictor of AI success (P=0.0164), with higher body temperatures associated with a 75% reduction in conception probability. Other parameters, including THI, ambient temperature, respiratory rate, and humidity, were not significantly related to outcomes. Breed and management systems influenced AI results, with Zebu breeds and semi-intensive systems showing comparatively better performance. These findings emphasize the critical role of body temperature at insemination in determining AI success under heat stress conditions and suggest that adoption of heat abatement measures including the provision of shade, fans, and water sprinklers, adequate hydration, and nutritional support, along with avoiding insemination in animals showing fever or overt heat stress signs, can improve reproductive efficiency in hot and humid environments.

Keywords: Heat Stress, Dairy Cattle, Artificial Insemination, Conception Rate, Body Temperature

Impact of *Carica papaya* Leaf Extract in Modulating Hematological Parameters in Healthy Dogs

Jayawardana K.C.[1], Dewasmika P.M.[2], Perera G.D.R.K.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**dammikaperera183@gmail.com*

Carica papaya (C. papaya) is abundant in tropical and subtropical regions, valued for both culinary and medicinal properties. Various parts of the papaya tree have been utilized in traditional medicine, with recent studies demonstrating the efficacy of *C. papaya* leaf extract in treating human thrombocytopenic conditions. While therapeutic potential has been validated through clinical and laboratory animal studies, limited research exists regarding effects in domestic animals, particularly dogs. This pilot study investigated changes in hematological and biochemical parameters, as well as behavioral responses, in healthy dogs following oral administration of *C. papaya* leaf extract at different dosage levels. Five healthy dogs received oral *C. papaya* leaf extract at 5 ml/10 kg body weight daily for five consecutive days. Blood samples were collected on days 1, 3, 5, and 8 for complete blood count analysis, with biochemical parameters and clotting times assessed on days 1 and 8. Following a two-week washout period to eliminate residual effects, the protocol was repeated with a 1.5-fold increased dose (7.5 ml/10 kg body weight). Behavioral observations were conducted continuously throughout both treatment periods. Within-subject changes over time were evaluated using the Friedman test, with pairwise comparisons conducted using the Wilcoxon signed-rank test. Administration of *Carica papaya* leaf extract at 5 ml/10 kg and 7.5 ml/10 kg for five days resulted in a dose-dependent increase in thrombocyte counts in healthy dogs. Notable changes were also observed in differential leukocyte counts, including transient neutropenia and eosinophilia, particularly at the higher dose, indicating potential immunomodulatory effects. Red and white blood cell counts showed variable but non-significant fluctuations during treatment, returning to baseline after cessation. Liver and kidney function indicators (AST, ALT, and creatinine) remained within physiological limits across both dosing regimens, suggesting no systemic toxicity. The hematological changes were transient and reversible, supporting the extract's safety and potential therapeutic use in modulating platelet and immune parameters. Along with further elaborate studies on this topic and investigations of toxic effects, this research may contribute to establishing a more effective and safe natural remedy as an alternative treatment for various diseases in domestic animals.
Keywords: Biochemical parameters, Thrombocyte counts, Liver function, Kidney function, Dog behavior

Isolation of Methicillin-Resistant *Staphylococcus aureus* in Cats and Dogs in Colombo, Sri Lanka

Jayawardana P.G.T.S.[1], Wickramasinghe R.M.R.P.[1], Sulochana H.L.G.S.[1], Wijesekara D.P.H.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** himali@vet.pdn.ac.lk*

Methicillin-resistant *Staphylococcus aureus* (MRSA) has become a major global health concern, extending beyond human healthcare into veterinary medicine. In Sri Lanka, limited data exist regarding the prevalence of MRSA in companion animals, particularly in urban areas like Colombo. This study aimed to isolate and characterize MRSA in cats and dogs in Colombo, Sri Lanka, and to evaluate the expression of the mecA gene phenotypically using the cefoxitin disc diffusion method. A cross-sectional study design was employed, with samples collected from 30 companion animals (17 cats and 13 dogs) across veterinary clinics. Swabs were taken from the nasal cavity, throat, ears, and wounds, and cultured using standard microbiological techniques. Presumptive *Staphylococcus* spp. was identified through Gram staining, followed by biochemical tests, including catalase, coagulase, oxidase, and the Voges-Proskauer test. Mannitol Salt Agar was used to assess pathogenicity, and isolates were stored in 20% Brain Heart Infusion broth at –20°C for further analysis. Methicillin resistance was assessed using the cefoxitin disc diffusion method following CLSI guidelines. The findings contribute to understanding the epidemiology of MRSA in Sri Lanka's companion animals and highlight the potential risk of zoonotic transmission. These results underscore the importance of antimicrobial stewardship and One Health surveillance strategies in managing MRSA at the human-animal interface. To gain a clearer understanding of the situation, characterization of the mecA gene within the SCCmec element of *Staphylococcus aureus* plasmids would be more informative. In this study, the prevalence of MRSA was tentatively determined. Using the cefoxitin disc diffusion method with a 30 µg cefoxitin disc, the occurrence of MRSA among the collected samples was assessed. According to that, 3.3% of the samples tested positive for MRSA. Among 30, *Staphylococcus aureus* is 33.33% and *Staphylococcus* spp. records 66.67% prevalence. This indicates the importance of preventing MRSA in pets and transmitting it to their owners and veterinary professionals, and responsible use of antibiotics in pets emerges as a concern.

Keywords: MRSA, Companion animals, Prevalence, Zoonotic transmission, Antimicrobial stewardship

Seroprevalence of Infectious Laryngotracheitis Virus in Backyard and Commercial Layer Farms in Central and North-Western Provinces of Sri Lanka

Jayawardhana E.G.N.H.[1], Fouzi M. N. M.[2], Karunaratne N. D.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** nkarunaratne@vet.pdn.ac.lk*

Infectious laryngotracheitis (ILT), caused by Gallid alphaherpesvirus 1, is a highly contagious viral respiratory disease of poultry that poses a significant threat to poultry production systems. This study aimed to determine the seroprevalence of ILT and identify associated management and socio-economic risk factors in backyard and commercial layer farms in the Central and North-Western provinces of Sri Lanka. A total of 403 serum samples were collected from commercial layer farms in Dambulla and Wariyapola and backyard poultry farms in Gampola, Gangawatakoralaya, Thalathuoya, Udunuwara, and Dambulla. Samples were tested using a commercial indirect ELISA for ILT antibodies. Overall, backyard farms in the Kandy district recorded the highest seroprevalence (66.67%), while commercial farms showed lower rates, with 13.26% in Dambulla and 5.63% in Wariyapola. Among the Kandy locations, the highest seropositivity was observed in Thalathuoya (91.67%) and the lowest in Udunuwara (41.67%). The majority of backyard farms operated under semi-intensive systems (75%), did not vaccinate against any disease (81.25%), and showed poor health management, including limited deworming (37.5%). Chi-square analysis revealed no statistically significant association between ILT seropositivity and management factors such as flock size, vaccination, rearing system, or veterinary consultation. However, calcium supplementation and farmer gender approached statistical significance ($P = 0.06$), indicating potential factors worthy of further investigation. The high ILT seroprevalence in backyard farms emphasizes the role of suboptimal biosecurity in virus persistence and spread. These findings highlight the urgent need for targeted farmer education, improved biosecurity practices, and the establishment of ILT-specific vaccination programs to mitigate the impact of the disease and safeguard both backyard and commercial poultry operations in Sri Lanka.

Keywords: Infectious Laryngotracheitis, Village chicken, Backyard poultry, Commercial layers, Poultry diseases

Investigation of Selenium Profiles of Goats in Central Province of Sri Lanka Using Blood Glutathione Peroxidase Assay

Kanagaraththinam L.[1], De Seram H.E.L.[2], Fouzi M.N.M.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**mnmf@pdn.ac.lk*

Selenium (Se) is an essential trace element for goat health, supporting reproduction, immunity, muscle function, and successful kidding. Knowing regional Se levels is vital for planning mineral supplementation and improving veterinary care. However, information on Se status in goats in Sri Lanka is limited. This study aimed to assess blood Se concentrations in goats from the Central Province and to examine potential factors associated with Se levels. Goat farms (Kandy: n=11, Nuwara Eliya: n=1) were strategically selected through government registration and private contacts. Blood samples were collected from 201 goats (15-20 per farm) and used to estimate Se concentrations through a commercial assay of glutathione peroxidase activity (GSH-Px), an indirect indicator of blood Se levels. Gastrointestinal nematode intensity was assessed using faecal egg counts derived from the McMaster method, with other potential influencing factors obtained from animal-level and farm management data. Associations between these factors and blood Se concentrations were analysed using generalized estimating equation models, with clustering at the farm level. The mean GSH-Px activity was 1137.9 U/L (range: 749.9–1877.1). No significant associations were observed with type of management ($P = 0.544$), forage feeding ($P = 0.715$), concentrate feeding ($P = 0.348$), pregnancy status ($P = 0.529$), or lactation status ($P = 0.958$). In contrast, mineral supplementation ($P = 0.010$), deworming status ($P = 0.010$), and breed ($P = 0.040$) showed significant associations with GSH-Px activity. Goats receiving mineral supplementation had 10.4% higher GSH-Px activity than those without supplementation and dewormed goats had 11.2% higher GSH-Px activity than those not dewormed. GSH-Px activity in Saanen goats was 9.4% higher than in Alpine goats and 10.1% higher than in other breeds, with no significant difference compared to Jamnapari goats. These results provide valuable baseline data on selenium profiles in goats in the Central Province. Positive associations between GSH-Px activity and both mineral supplementation and deworming support their inclusion in nutritional and parasite management strategies. The comparatively lower GSH-Px activity detected in Saanen and Jamnapari goats may reflect higher utilization of functional selenium in high-producing exotic breeds. Further research is needed to establish selenium concentration thresholds for guiding veterinary interventions.

Keywords: Selenium, Minerals, Goats, Deworming, Sri Lanka

Topographic, Macroscopic and Microscopic Study of the Digestive Tract of Koi Carp (*Cyprinus rubrofuscus*)

Karunarathna A.G.G.N.[1], Jagoda S.S.S. de S.[2], Munasinghe D.M.S.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**maduravet87@gmail.com*

The ornamental fish industry in Sri Lanka is rapidly expanding catering to both domestic and international market. Among various species, Koi carp is popular among breeders due to its high profitability. The digestive tract of fish varies according to feeding habits and taxonomy, and this study aimed to describe the topographic, macroscopic, and microscopic features of the digestive tract of Koi carp. Seven Koi carps were euthanized, and standard parameters were recorded. The topography and morphology of the organs were examined, and tissue samples were processed for histological study. Sections were stained with haematoxylin and eosin, Periodic Acid Schiff (PAS), or Masson's trichrome. Histometric measurements of the different components were taken. The digestive system is comprised the mouth cavity, pharynx, oesophagus, intestinal swelling, intestinal loops, and rectum The digestive tract is found ventral to the swim bladder and gonads and embedded within the liver. Koi carps do not possess a true stomach, and it replaces by the intestinal swelling. The intestine is arranged in proximal, middle, and distal loops. Histologically, pharynx and oesophagus are lined by stratified squamous epithelium. The gut wall is composed of tunica mucosa, tunica submucosa, tunica muscularis, and serosa. The intestinal mucosa displays folds of varying heights along its length, while the intestine and rectum are lined by simple columnar epithelium with enterocytes, numerous goblet cells, and wandering cells. Special cells such as telocytes and rodlet cells are present in propria submucosa. The tunica muscularis is consisted of two layers separated by the myenteric nerve plexus, and the serosa/adventitia formed the outermost layer. Overall, the anatomical features of the Koi carp digestive tract support its omnivorous feeding habit. These findings serve as a reference for nutritional management, disease diagnosis, and further anatomical and physiological studies.

Keywords: Koi carp, Digestive tract, Topography, Morphology, Histology

Optimization of Activated Autologous Leukocyte-rich and Leukocyte-poor Platelet Rich Plasma and Their Comparative Efficacy in Enhancing in-vitro Regeneration of Bovine Skin Explant Fibroblastic Tissue in the Context of Cutaneous Wound Healing

Karunarathna W.N.T.[1] , Prasadinie M.G.T.M.[2], Perera G.D.R.K.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** dammikaperera183@gmail.com*

The healing process involves a complex series of intracellular and extracellular events, including inflammation, proliferation, and remodeling. Growth factors and cytokines, such as platelet-derived growth factors (PDGFs), fibroblast growth factors (FGFs), and granulocyte-macrophage colony-stimulating factor (GM-CSF), play a crucial role in regulating healing. Activated Platelet-Rich Plasma (PRP) gel is a novel blood derivative containing activated platelets, fibroblasts, leukocytes, other cells, and proteins. Activated PRP gel provides numerous growth factors, including epidermal growth factor (EGF), FGF, vascular endothelial growth factor (VEGF), PDGF, transforming growth factor-beta1 (TGF-β1), insulin-like growth factor-I (IGF-I), fibronectin, and cytokines. Several studies have shown differences in growth factor concentrations between leukocyte-poor PRP (P-PRP) and leukocyte-rich PRP (L-PRP). The healing process requires precise coordination of bioactive mediators to ensure effective tissue repair. The objective of this study was to optimize preparation of L-PRP and P-PRP and evaluate their comparative efficacy in enhancing fibroblast proliferation in cutaneous wound healing. Optimization of the first centrifugation step in the double centrifugation method was performed using a two-way repeated-measures analysis (PROC MIXED procedure in SAS) for seven efficiency-related parameters and haematological counts. Optimal conditions were determined as 130×g for 15 minutes for L-PRP and 160×g for 10 minutes for P-PRP. Bovine skin explant fibroblasts were treated with activated autologous L-PRP, P-PRP, a positive control, or a negative control, and cell confluency was assessed at three time points: initial, 24 hours, and 96 hours post-treatment. Statistical analysis using repeated measures ANOVA revealed a significant effect of time on cell confluency ($p < 0.0001$) and a significant time × treatment interaction ($F = 22.05$, $p < 0.0001$). One-way ANOVA indicated significant differences in mean difference percentage among the four treatment groups ($F(3, 52) = 17.02$, $p < 0.0001$). Both L-PRP and P-PRP significantly enhanced fibroblast proliferation compared to the negative control, with P-PRP showing superior efficacy. These findings suggest that optimizing PRP preparation can substantially influence its biological activity. The results provide methodological guidance for future PRP-based wound healing therapies and highlight the potential of P-PRP as a more effective option for promoting fibroblast regeneration *in vitro*.

Keywords: Platelet-Rich Plasma (PRP), Fibroblast proliferation, Wound healing, Leukocyte-Rich PRP (L-PRP), Leukocyte-Poor PRP (P-PRP)

Determination of Cytological Prognostic Factors for Canine Stage Three Lymphoma

Kavindya H.D.[1], Wijayawardhane K.A.N. [2*], Ariyarathna H.A.[2]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**nayanaw@vet.pdn.ac.lk*

Canine lymphoma is a common hematopoietic malignancy, and stage three multicentric lymphoma is among its most frequently diagnosed forms. Accurate prognostic assessment is critical for therapeutic planning and client communication. This study aimed to determine the prognostic significance of selected cytological features in dogs with stage 3 lymphoma treated with a CHOP-based chemotherapy protocol. Cytological smears from 27 dogs were retrospectively analyzed for six features: cell size, mitotic figures, lymphoglandular body density, nuclear-to-cytoplasmic (N:C) ratio, presence of tingible body macrophages, and number of nucleoli. Overall survival times were compared using Kaplan-Meier survival analysis. Among the six cytological features assessed, mitotic activity and N:C ratio emerged as statistically significant prognostic indicators. Dogs with lymphomas exhibiting a low mitotic rate and low N:C ratio had significantly longer median survival times (307 and 305 days, respectively) compared to those with high mitotic activity and high N:C ratio (160 and 96 days, respectively). These findings suggest that mitotic rate reflects tumor proliferation, while the N:C ratio may be indicative of cellular differentiation and tumor aggressiveness. In contrast, cell size, lymphoglandular body density, number of tingible body macrophages, and nucleolar number did not show significant associations with survival outcomes, possibly due to subjective variability or limited independent predictive value. Breed and gender were also found to significantly influence survival, with German Shepherds and male dogs exhibiting more favourable outcomes. No significant differences were observed across age groups. These results support the use of mitotic rate and N:C ratio as accessible, cost-effective cytological prognostic tools for canine lymphoma, particularly in resource-limited veterinary settings. Limitations of this study include a small sample size and single observer bias in cytological evaluation. Future studies incorporating AI-based cytology, larger cohorts, and multi-stage comparisons are warranted to further validate and refine these prognostic indicators.

Keywords: Cyclophosphamide, Doxorubicin (hydroxydaunorubicin), Vincristine (Oncovin) & Prednisone/Prednisolone drug-based protocol

Topographic, Macroscopic and Microscopic Study of The Liver & Pancreas of Koi Carp (*Cyprinus rubrofuscus*)

Kavishani K.B.V.R.D.[1], Jagoda S. S. S. de S.[3], Munasinghe D. M. S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**maduram@vet.pdn.ac.lk*

The Koi carp (*Cyprinus rubrofuscus*) is a well-known ornamental fish species with increasing economic importance in Sri Lanka's aquaculture industry. Studies on biology of Koi carp are essential to enhance management practices, and to facilitate disease diagnosis and treatment. Despite its growing importance, there remains a lack of detailed anatomical information on the visceral organs of this species, particularly the liver and pancreas. The present study was undertaken to investigate the topographic, macroscopic, and microscopic anatomy of these organs in adult Koi carp. Eight healthy adult Koi carp were used in this study. Standard dissection procedures were followed to assess the topography and gross morphology of the liver and pancreas. Tissue samples were taken, processed and histological sections were prepared. The sections were stained using Hematoxylin and Eosin (H&E), Periodic Acid-Schiff (PAS), Masson's Trichrome, Gomori Silver and Oil Red. Topographically, the liver was found to be large and multi-segmented organ, occupying a substantial portion of the body cavity surrounding the intestinal loops. No clear macroscopic distinction between the liver and pancreas was observed. Microscopically, the liver tissue lacked the typical lobular organization seen in mammals and showed no classical portal triads. Instead, the hepatic parenchyma consisted of irregularly arranged cords of polyhedral hepatocytes radiating around central veins. The hepatocytes featured cytoplasm rich in lipids with relatively low glycogen content. Notably, Kupffer cells were absent. The pancreas exhibited both intrahepatic (hepatopancreatic) and disseminated patterns, with exocrine acinar cells located predominantly around branches of the portal vein. These cells displayed zymogen granules in their apical cytoplasm, indicative of digestive enzyme production. The endocrine portion, comprised of the islets of Langerhans, was scattered within the exocrine tissue and enveloped by a thin layer of connective tissue. These anatomical and histological features suggest a high level of structural integration between the liver and pancreas in Koi carp, supporting their omnivorous feeding behavior and aquatic physiology. The findings of this study provide critical reference data for ornamental fish medicine, disease diagnostics, and health management in aquaculture practices involving Koi carp.

Keywords: Koi carp, Liver, Pancreas, Hepatopancreas

Assessment of Subclinical Endometritis in Goats: A Pathological Study from Abattoir Samples in Kandy

Kavishka S.M.C.[1], Wijesundera R.R.M.K.K.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**kavindra@vet.pdn.ac.lk*

Subclinical endometritis (SCE) in goats is a hidden reproductive disorder with significant impacts on fertility, productivity, and farm economics, particularly in regions like the Kandy district of Sri Lanka where diagnostic resources are limited. The condition, characterized by inflammation of the endometrium without visible clinical signs, often leads to reduced fertility, irregular estrous cycles, and early embryonic loss. This study aimed to determine the prevalence and histopathological characteristics of SCE in goats, providing baseline data to support improved reproductive management. A total of 20 reproductive tract samples were collected from abattoirs in the Kandy district through the municipal meat inspection unit. Samples without gross pathological changes were selected for histopathological evaluation. Sixteen uterine tissue samples were processed using hematoxylin and eosin (H&E) staining and examined microscopically for inflammatory cell infiltration, epithelial damage, vascular changes, and other pathological features. Histopathological analysis revealed lymphocytic infiltration in all slides (100%), indicating a chronic inflammatory response, with macrophages present in 50% of cases. Neutrophils were observed in only 18.75% of samples, suggesting a possible shift from acute to chronic inflammation or immune evasion by pathogens. Epithelial necrosis was detected in 56.25% of samples, and red blood cell extravasation in 18.75%. Half of the examined samples exhibited a comprehensive pathological profile, including inflammatory cell infiltration, epithelial damage, vascular changes, and debris accumulation. The pattern of findings suggests a likely viral etiology in the chronic stage of infection. These results represent the first detailed histopathological documentation of SCE in goats from this region. The findings emphasize the silent but severe impact of SCE on reproductive health and underscore the need for early detection strategies. Establishing baseline histopathological profiles will assist veterinarians in accurate diagnosis and guide the development of cost-effective field diagnostic methods, ultimately helping farmers improve productivity, reduce economic losses, and support sustainable goat farming.

Keywords: Chronic inflammation, Fertility reduction, Histopathological findings, Reproductive management, Subclinical endometritis

Acknowledgements: University Research Grant (URG/V/2019-60)

The Effect of Germination on the Nutritional Profile of Foxtail Millet and Proso Millet

Kodikara Y.N. [1], De Silva S.H.N.P.[2], Wanigasekera W.M.A.P.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Crop Science, Faculty of Agriculture, University of Peradeniya,
[3]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

[*]anojapw@vet.pdn.ac.lk

This study evaluated the impact of germination on Gamma-AminoButyric Acid (GABA), Total Phenolic Content (TPC), and proximate composition (total fat and ash) in Foxtail millet (*Setaria italica*) and Proso millet (*Panicum miliaceum*) over six germination durations (0, 6, 12, 24, 36, and 48h). Grains were germinated under controlled laboratory conditions, and analyses were performed using spectrophotometric methods for GABA and TPC, and AOAC protocols for fat and ash. Two-way ANOVA revealed significant effects of crop type, germination time, and their interaction on all parameters ($p < 0.001$). GABA content increased progressively in both species, peaking at 48h with values of 0.079 ± 0.002 mg/ml in Foxtail millet and 0.106 ± 0.006 mg/ml in Proso millet, representing ~1.9-fold and ~3.2-fold increases over non-germinated controls ($p < 0.001$). TPC also rose significantly, reaching 1.626 ± 0.024 mg/ml and 1.719 ± 0.016 mg/ml in Foxtail and Proso millets, respectively ($p < 0.001$), reflecting enhanced antioxidant potential. Fat content, in contrast to many published studies reporting reductions during germination, increased markedly in this study, with Foxtail millet rising from 4.18 ± 0.10% to 9.61 ± 0.16% and Proso millet from 4.47 ± 0.06% to 10.81 ± 0.14% ($p < 0.001$). This discrepancy may be linked to species-specific lipid metabolism, improved extractability due to cell wall softening, and possible accumulation of free fatty acids during germination. Ash content also increased significantly ($p < 0.001$), reaching 6.03 ± 0.12% in Foxtail millet and 6.60 ± 0.08% in Proso millet at 48h, suggesting improved mineral bioavailability via phytate degradation. Across all parameters, Proso millet demonstrated greater responsiveness to germination than Foxtail millet. The optimal germination period for nutrient enhancement was 36–48h. These findings confirm germination as a cost-effective biofortification strategy, while the unusual fat content trend warrants further biochemical investigation to understand its mechanisms and implications for product development.

Keywords: Germination, Foxtail millet, Proso millet, GABA, Nutritional enhancement.

Establishment and Optimization of a Machine Learning Approach for Live Weight Estimation in Dairy Cattle

Kumara M.N.T.[1], Perera G.D.R.K.[2*], Liyanarachchi V.W.[3]

[1] Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Miracle Agro Private Limited.

**gdrkperera@vet.pdn.ac.lk*

This study aims to establish a primitive software model which can estimate the live weight of a cow by analysing its image. This model was trained to use 2D Images from the lateral view of the cows during the weight estimating process. While capturing those images, a fixed distance was maintained between the animal and the camera. Additionally, the camera was maintained at a fixed height. This study mainly focused on the Holstein Friesian × Jersey crossbred cows, and 32 animals were taken as the sample population. 83 lateral images of selected 32 cows were pre-processed, and those images were used to train the convolutional neural network (Efficient net b2). This study explored the use of machine learning models to estimate the body weight of cattle from 2D lateral images. Three different modified models were trained and compared based on their training dynamics, prediction accuracy, and generalization performance. The evaluation was conducted using four metrics, which were Total Loss, Mean Squared Error (MSE) Loss, L1 Loss, and Mean Absolute Error (MAE in kg). Then the results showed the initial model overfitted due to insufficient regularization, while the second modified model underperformed due to overly restrictive learning capacity or inadequate training. The first modified model achieved the most optimal results, and showed a balance between underfitting and overfitting. In conclusion, the study successfully demonstrates that machine learning models, when properly optimized, can serve as efficient tools for cattle weight estimation using simple mobile phone camera-captured images. This approach holds great potential for implementation in resource-limited dairy farms, contributing to precision livestock management with minimal infrastructure. Future improvements may include expanding the dataset, incorporating multiple camera angles, and integrating real-time processing to enhance accuracy and usability in different farming conditions.

Keywords: Two-Dimensional, Mean squared error, Mean absolute error

Histopathological Grading of Canine Chronic Kidney Disease-associated Renal Lesions

Kumarage L.K.M.P.[1], Wijesundara R.R.M.K.K.[2*], Dayaratne H.R.O.E.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Statistics and Computer Sciences, Faculty of Science, University of Peradeniya.

**kavindra@vet.pdn.ac.lk*

Chronic kidney disease (CKD) is a significant cause of morbidity and mortality in canine populations, with early stages often remaining undiagnosed due to limitations in routine diagnostic investigations. This study aimed to investigate the clinicopathological and histopathological characteristics of CKD in a cohort of 25 (n=25) dogs in Sri Lanka, comprising 22 police working dogs and 3 private-owned dogs. Dogs were classified according to the International Renal Interest Society (IRIS) criteria based on serum creatinine levels, and renal tissues were examined for histopathological lesions in glomerular, tubular, and interstitial compartments regard to chronic kidney disease. The degrees of glomerulosclerosis, tubular degeneration, interstitial inflammation, and interstitial fibrosis were evaluated semiquantitatively on a 0 to +4 grading scale, and their correlations with CKD stages based on Plasma creatinine concentrations were statistically analyzed. The study revealed that while 60% of dogs were classified in early CKD stages (I and II), histopathological analysis frequently showed advanced renal damage, particularly among dogs assigned to narcotic and explosive detection tasks. A statistically significant association ($p = 0.047$) was found between CKD stage and glomerular lesion severity, indicating that glomerulosclerosis may be a reliable marker for disease progression. However, tubular and interstitial scores were not statistically significantly correlated with creatinine stages, likely due to the small sample size. A strong positive correlation was observed between serum creatinine and blood urea nitrogen (BUN) levels in male dogs ($R = 0.909$, $p = 0.001$), but not in females. These findings emphasize the inadequacy of serum creatinine as a sole diagnostic marker for CKD and highlight the value of incorporating histopathological evaluation in assessing renal health. The study also suggests a potential occupational risk for CKD in working dogs, emphasizing the need for early screening and comprehensive diagnostic protocol.

Keywords: Chronic kidney disease (CKD), Histopathological grading, Glomerulosclerosis, Serum creatinine, Working dogs

Development of the Black Coconut Beetles in Donkey Faeces

Kumarasinghe K.W.D.P.[1], Dangolla A.[2*], Karunarathna I.[2]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2] Department of Veterinary Basic Sciences, faculty of Veterinary medicine and Animal Science, University of Peradeniya.

**adangolla@gmail.com*

Coconut plantation is a one of the Sri Lanka's major cultivations and Sri Lanka is the 4 th largest coconut producer in the world. Coconut provides a substantial income to the country and thousands of people depend on coconut cultivation and surrounded industries. Coconut plantation is the largest plantation in Sri Lanka and annual production of 2022 is 335 million nut that contributed 0.9% of GDP according to Central Bank Report, 2022. Normally coconut is growing all around the country but it is mainly concentrated special area consisting with Puttalam, Kurunegala and Gampaha districts (West coastal area). There are numerous pests that damage the coconut tree. Coconut rhinoceros beetle, Red palm weevil, coconut hispine beetle and black headed caterpillar are some of them. Coconut rhinoceros beetles are very important amongst them and adult beetles cause severe damage to underdeveloped coconut leaves and buds in young coconut palms. Coconut beetles develop from eggs, larva, pupae and into adults in their life cycle. Knowledge on life cycle of beetles is very important to control rhinoceros beetle such as other pests. On the other hand, Donkeys (*Eqqus africanus africanus*) are ecological part of northeastern coastal areas (Puttalam, Kalpitiya and Mannar) of Sri Lanka. They had been introduced to the country several centuries ago by Arabian traders but later, arabs gave up on the idea because Sri Lanka is a greener country and terrain does not require carrying weights on them. Therefore, the donkeys who were initially owned by people now are stray. Further some of the donkey owners left the country due to civil war years ago leaving their donkeys behind in unprotected lands. Such donkeys also joined the stray group. At present, donkeys are used by coconut landowners in their coconut plantations because they believe that donkey braying drives away or kill coconut beetles. The truth of this statement, however, is still not known. It is possible that the, Black coconut beetle eggs do not develop in donkey feces thus reducing beetle populations in a given area. In my research, information is collected on this hypothesis. My work therefore, has three objectives, firstly whether rearing and development rhinoceros beetle eggs in the donkey feces is possible, secondly whether the coconut beetle is attracted to donkey feces and subsequently lay eggs and thirdly, whether in the field there is evidence to state that donkey feces attracts coconut beetle and lay on it. Thus, I examined these objectives (first and second objectives) in laboratory and in the field conditions (in third objective) within the limitations of resources available.

Keywords: West coastal area, *Eqqus africanus africanus*, Coconut rhinoceros beetle, larva, Donkey faeces

Acknowledgements: University Research Grant (URG/V/2019-60)

Assessing Current Biosecurity Measures of Broiler Chicken Farms in Selected Veterinary Ranges in Kurunegala District

Kumari R.M.V.V. [1], Kalupahana R.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health & Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**rskalupahana@vet.pdn.ac.lk*

This study assessed the current biosecurity measures implemented in commercial broiler farms in the Kurunegala District, Sri Lanka. Data were collected from farmers through a structured questionnaire and on-site observations. A cross-sectional study was conducted in which 43 small-scale to medium-sized broiler chicken farms were selected from 09 veterinary ranges in the Kurunegala district. With yes/no outcomes as responses and farm size as a reference, a comparison was made of management practices across broiler chicken farms. Results revealed high compliance with several conceptual biosecurity standards, including maintaining adequate distances from migratory bird hotspots (100%) and garbage dumping sites (100%), as well as proper poultry house orientation (100%). However, gaps were identified in rodent and wild bird proofing (48.84%) and skirting installation (37.21%). Operational biosecurity was strong in areas such as separation of age groups (100%) and regular cleaning of feeding and watering equipment (100%), but weak in enforcing visitor protective gear (coveralls: 20.93%, footwear: 10.5%). Structural biosecurity measures such as fencing (95.34%) were widely implemented, whereas permanent rodent control (27.9%), a functional foot bath was rarely found among the farms; it was only limited to guidelines. The findings highlight that while many farms meet critical biosecurity requirements, targeted improvements, particularly in pest control, visitor management, and disease surveillance, are essential to mitigate the risk of infectious disease outbreaks in the poultry industry. Farmers need to increase their profit at a low cost. This may lead to an increase in the likelihood of disease transmission between farms. Policy makers & authorities should take the perceptions and attitudes of producers to implement effective and applicable biosecurity measures. They should also collaborate with private sectors such as breeder companies and veterinarians to raise awareness and motivate farmers to implement biosecurity measures to protect wealth as same as health.

Keywords: Biosecurity, Poultry, Chicken, Broiler, Sri Lanka

Evaluation and Enumeration of CD14 Cells and γδ, CD4+, CD8+, T Lymphocyte Levels in Sri Lankan Indigenous Cattle

Lakshani K.L.G.C.[1], Anupama N.M.T.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya

**thilinianupama@vet.pdn.ac.lk*

Sri Lankan indigenous cattle are known to be resistant against parasitic diseases such as Babesiosis. However, reference values for their lymphocyte subsets remain undocumented. This study aimed to evaluate and quantify the levels of CD14 cells and T lymphocyte subsets ($CD4^+$, $CD8^+$, γδ T cells) in Sri Lankan indigenous cattle and compare these immunological parameters with temperate cattle breeds. A total of 30 phenotypically identified extensively reared healthy indigenous cattle from four veterinary ranges in the Galle District were selected for the study. Blood samples were collected via jugular venipuncture into EDTA tubes, maintained at 4°C during transportation. Flow cytometry was used to identify and quantify lymphocyte subsets using fluorescent antibody markers such as FITC and APC. Additionally, differential white blood cell counts were obtained on blood smears, along with total WBC counts and PCV values. Flow cytometric analysis revealed the mean proportions of $CD4^+$, $CD8^+$, $CD14^+$, and γδ T cells in the indigenous cattle population as 12.84%, 7.07%, 0.12%, and 0.23%, respectively. The $CD4^+/CD8^+$ ratio was 1.81, indicating a relatively higher cytotoxic T cell presence compared to helper T cells. These values were statistically compared to those of temperate cattle breeds using pooled t-test. Temperate breeds exhibited significantly higher $CD4^+$ T cell counts (Mean ± SD: 14.90 ± 3.67) than indigenous cattle (12.84 ± 2.11; $p < 0.00001$, 95% CI: 1.26–2.87). In contrast, $CD8^+$ T cell counts were significantly elevated in indigenous cattle (7.07 ± 1.07) compared to temperate breeds (6.59 ± 2.00; $p = 0.022$, 95% CI: -0.89 to -0.07). Holstein Friesian cattle exhibited a mean γδ T cell level of 6.98% ± 5.74%, while indigenous cattle showed a markedly lower mean of 0.23% ± 0.19%. Statistical comparison confirmed this difference to be highly significant ($t = 21.34$, $p < 0.001$). These findings suggest a distinct immunological profile in indigenous cattle, characterized by a comparatively enhanced cytotoxic T cell response and reduced helper T cell levels. These findings suggest that the immune profile may contribute to their increased resistance to infections.

Keywords: Sri Lankan Indigenous Cattle, $CD4^+$ T Cells, $CD8^+$ T Cells, Flow cytometry, Temperate cattle.

Behaviours of Spotted Deer in Captivity in Sri Lanka

Liyanage J.D.U.[1] , Gamage B.G.S.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

*****sashi@vet.pdn.ac.lk*

Ex situ conservation is an important strategy to protect species outside their natural habitat. Information related to their behaviours has greater importance in the welfare aspects of these animals. The study addressed the limited details about the behaviour patterns of spotted deer (*Axis axis ceylonensis*) in captivity. This study used National Zoological Gardens, Pinnawala, Sri Lanka as the study area.Behaviours of 12 spotted deer (4 adult males, 4 adult females, 4 juveniles) were video recorded during four time zones: morning (8–9 a.m.), feeding (10–11 a.m.), noon (11:30 a.m.–12:30 p.m.), and evening (5–6 p.m.) in October 2024. Feeding, resting, grooming, locomotion/play, reproductive, and alertness behaviours were evaluated using a pre-defined ethogram. Feeding behaviour was most intense during the designated feeding time, dominated by adult males, especially those with antlers. Ruminating was more common during noon and evening, indicating distinct feeding and digestion periods. Females rested more than other categories, with the highest resting at noon. Grooming was most frequent in males, peaking in the evening, with males showing the longest grooming duration. Locomotion was highest in the morning, likely due to release from the confined den area. Young animals showed the longest duration of movements compared to other categories. Reproductive behaviour was limited to one dominant male with the largest antlers and best body condition. Alertness peaked in the evening, possibly due to reduced light. Even though all these findings were significant as previous studies of captive deer species, the result would have good statistical value, if its carried out over several days and for a longer duration of time. Feeding behaviour, being mostly confined to one hour (10:00–11:00 a.m.) highlights the need for improved food management. To comment on the welfare aspects of captive deer management in National Zoological garden, a comparison of behaviour between wild and captive is essential. However, with the limited literature availability, future research direction of seasonal, environmental, and human-related variations of wild deer is suggested, especially when the captive deer are intended to be released into the wild when population capacities are exceeded.

Keywords: Spotted deer, Captive behaviour, Ethogram, Pinnawala, Zoological gardens

Pet Owners' Awareness on Ocular Conditions in Dogs at Two Veterinary Hospitals in Sri Lanka

Madurawala J.M.M.[1], Nuwanshika R.M.N.S.[2], Wijayawardhane K.A.N.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2] Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** nayanaw@vet.pdn.ac.lk*

Pet ownership is rising globally, with dogs being one of the most popular companion animals. In Sri Lanka, the strong human-animal bond significantly influences household life. Vision is vital for dogs' quality of life, yet ocular conditions are often overlooked due to limited awareness and understanding among pet owners. This aims to evaluate pet owners' knowledge of ocular diseases in companion animals, emphasizing the importance of early detection, appropriate care, and timely referral to ophthalmology trained veterinarians when required. Both quantitative data and qualitative insights were gathered through a questionnaire administered in Sinhala, English, and Tamil. A total of 570 samples were used for the study, with 300 participants from the Veterinary Teaching Hospital (VTH), University of Peradeniya, and 270 from Rover Veterinary Hospital (RVH), Battaramulla. Data were collected through face-to-face discussions with the participants over a three-month period from October to December. The findings, analysed using SPSS and qualitative analysis, reveal a significant lack of awareness among pet owners regarding the symptoms, causes, and treatment options for ocular conditions. Many participants were unfamiliar with specialized ophthalmic services for pets and had received little to no education on preventive eye care. While some owners could recognize clinical signs, only a few demonstrated an understanding of the underlying causes. This study highlights the need for targeted educational programs, routine ocular examinations, and broader awareness of available ophthalmic services. It is recommended to educate pet owners about the risks associated with untreated eye diseases and facilitate improved access to appropriate veterinary care.

Keywords**:** Ocular conditions, Pet owner awareness, Pet owner engagement, Pet caring responsibility, Pet owner knowledge

Molecular Diagnosis of Newcastle Disease Affecting Poultry Farms in Kurunegala District

Madushanka J.M.K.P.[1], Kalupahana A.W.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**anilwkalupahana@yahoo.com*

Newcastle disease (ND) is a highly contagious RNA viral disease affecting over 250 bird species, including chickens and turkeys. ND is caused by the Newcastle disease virus (NDV), a member of the Avulavirus genus. NDV is classified into five pathotypes based on virulence namely, viscerotropic velogenic, neurotropic velogenic, mesogenic, lentogenic, and asymptomatic enteric. Clinical signs of ND vary by pathotype, with severe forms leading to neurological, respiratory, and gastrointestinal symptoms, and can be accompanied by specific histopathological lesions. The objective of this study is to employ a molecular technique to diagnose ND in birds exhibiting clinical signs suggestive of ND. Diseases birds were collected from various poultry establishments in the Kurunegala district. Tissue samples were taken from the spleen, gastrointestinal tract, trachea, oesophagus, lungs, and brain, and stored at -20 °C before being homogenized for RNA extraction using an RNA extraction kit. The extracted RNA was subjected to a conventional RT-PCR targeting the matrix (M) gene of the NDV. As the positive control, a commercially available ND vaccine strain was used and as the negative control, nuclease-free water was used. The amplified PCR products were subjected to electrophoresis at 200 A, 120 V for 40 minutes in 2 % agarose gels, and images were captured using a gel documentation system. Samples producing anticipated 232 bp band were considered positive. In this study, out of the 12 samples tested, 4 (33%) were positive for ND, indicating that NDV is circulating among poultry farms in the Kurunegala district. ND can result in up to 100% mortality severely impacting poultry industry. Diagnosing ND is challenging due to its similarity to other avian diseases, necessitating laboratory confirmation through virus isolation or molecular techniques such as RT-PCR. This is particularly critical in places like Sri Lanka, where ND misdiagnosis can occur due to the limited use of molecular diagnostics at the field level. The country's expanding poultry industry underscores the importance of accurate ND detection in preventing significant economic losses.

Keywords: Newcastle disease, RNA extraction, RT PCR, Virulence, Virus isolation

Selected Farmer and Cow Factors Affecting the Success of Artificial Insemination in Dairy Cattle in Mahawa Veterinary Region

Maheshika G.K.[1], Ramanayake U.D. [2], Ranasinghe R.M.S.B.K.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Animal Production and Health, Peradeniya, Sri Lanka
[3]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

[*]bimalka@vet.pdn.ac.lk

Artificial insemination (AI) is a widely used reproductive technology in dairy farming, aimed at enhancing genetic potential and improving herd productivity. The success of AI depends on multiple factors. This study evaluated the influence of selected farmer and cow factors on AI success in the Mahawa veterinary region. Data were collected from 70 dairy farmers through structured questionnaires, farm visits, and veterinary records. Chi-Square tests, and logistic regression were used to analyse the associations between cow and farmer related factors and AI outcomes. The overall AI success rate in the study population was 58.57%. Most of the farmers were males (85.71%), with most of the farmers having educational levels up to Ordinary Level (O/L) (52.86%). Semi - intensive management (67.14%) was predominant in the region. 54.29% of the farmers allocated a specific time for heat detection while 41.43% of the farmers observed heat by chance. Most of the farmers (72.86%) spent less than 20 minutes per session on heat detection. Among the inseminated cows, 52.86% were temperate breeds (crossbreds with temperate ancestry), 12.86% were zebu, and 34.29% were crossbreds. Among all variables analysed, only the breed of the cow was significantly associated with AI success. Logistic regression indicated that crossbred cows were 2.608 times more likely to conceive than temperate breeds (OR = 2.608; 95% CI: 0.681-9.987; p-value = 0.0197), highlighting the influence of genetic factors on the reproductive performance. Other cow factors, such as BCS and parity, did not show statistically significant associations. There were no significant associations between selected farmer related factors and AI success rate. These findings emphasize the importance of breed selection. The study highlights the critical role of farmer knowledge and management practices in AI success, along with the importance of cow health. Therefore, recommendations are to included in farmer training programs to improve heat detection accuracy and AI timing, regular veterinary health checks to address subfertility issues and genetic selection strategies to minimize repeat breeding cases.

Keywords: Artificial insemination, Cow and farmer factors, Dairy Cattle, Success

Assessment of Freshman Veterinary Undergraduates' Understanding of Behavioural Indicators of Welfare in Cats and Dogs

Malalanayake M.Y.[1], De Silva M.L.W.P.[2], Wijayawardhane K.A.N.[3*]

[1] Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2] Veterinary Medical Education Unit, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3] Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**nayanaw@vet.pdn.ac.lk*

Animal welfare assessment has evolved significantly over the past fifty years, initially focusing on farm animals and later extending to laboratory and companion animals. Despite the growing attention towards companion animals, the welfare of pet dogs and cats has often been overlooked, based on the assumption that they are always in an optimal welfare condition. However, increasing reports of surrendered pets suggest that this assumption may not reflect the reality. As veterinary education increasingly incorporates animal welfare science, the ability of veterinarians to interpret behavioral signs becomes crucial. This study assessed the baseline understanding of freshman veterinary undergraduates regarding behavioral indicators of welfare in cats and dogs through a questionnaire. Descriptive and statistical analyses were performed to evaluate students' understanding and to identify demographic and opinion-based factors associated with their ability to assess animal welfare accurately. Results revealed moderate to high levels of student understanding, along with a fair ability to assess the welfare status of their own pets. Several key behaviors, particularly those indicating stress or subtle discomfort, were frequently misinterpreted. These findings highlight the importance of early and comprehensive welfare training in veterinary curricula. By establishing a baseline of student understanding, this research underscores the importance of incorporating follow-up studies to monitor students' progress and support the development of veterinarians capable of providing accurate welfare assessments, identifying behavioral problems, and delivering improved care for companion animals.

Keywords: Animal welfare assessment, Behavioral indicators, Cats and dogs, Companion animal, Veterinary education

Molecular Detection and Characterization of Avian Reovirus in Commercial Poultry Farms

Mithbhashana D.M.D.S.[1], Hathurusinghe M.H.[2*], Satharasinghe D.A.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
3Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**madhavi@vet.pdn.ac.lk*

Avian reovirus (ARV) is an economically important pathogen that causes significant economic losses in the global poultry sector by inducing arthritis, tenosynovitis, and immunosuppression. ARV detection as quickly and precisely as possible is essential for effective disease control and management strategies. This study aimed to optimize and compare molecular detection methods for ARV using quantitative PCR (qPCR) and conventional PCR assays within the σC gene, a significant gene implicated in ARV pathogenicity and diversity. Three primer sets amplifying the 5′, middle, and 3′ regions of the σC gene were used, to gain sufficient coverage of the gene. As a positive control, Nobilis Reo 1133 vaccine strain was used, from which RNA was extracted, quantified, and reverse-transcribed into cDNA. SYBR Green based qPCR assays and melting curve analysis were conducted for product specificity verification. Despite intensive assay design, qPCR amplification profiles did not show specific melting peaks, demonstrating that under the current conditions, the qPCR assay was not specific for the detection of ARV. Nevertheless, conventional PCR assays showed successful amplification of the target region, and clear distinct bands at approximately 370 bp were observed on agarose gel electrophoresis. These results refer to the greater resilience of conventional PCR in these conditions and show that further optimization of the qPCR conditions, such as primer concentrations, annealing temperature, or use of probe-based chemistry, may be necessary to achieve specific amplification. This research underscores the pressing need for validated molecular assays to facilitate ARV surveillance in Sri Lanka's poultry industry. While conventional PCR was effective at amplifying ARV's σC gene, the lack of specific qPCR amplification is suggestive of the presence of inhibitors, primer inefficacy, or the need for optimized thermal cycling conditions. Future work will entail the optimization of qPCR conditions and the validation of these assays on field samples to determine their utility in diagnostic laboratories. In conclusion, these findings provide a baseline for ARV molecular diagnostics in Sri Lanka and highlight the necessity for assay validation before introduction into disease control programs. This will ultimately result in improved biosecurity and poultry health management across the region.

Keywords: Avian Reovirus, qPCR, Nobilis Reo 1133 vaccine strain, Conventional PCR, σC gene

Responses of the Indian Palm Squirrel to Native and Non-Native Avian Predators

Nandadewa G.K.[1], Jayasena N.U.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**nilminijayasena@gmail.com*

This study is about the responses of the Indian palm squirrels (*Funambulus palmarum*) to playback experiments calls of native and non-native avian predators, both nocturnal and diurnal. The predators used for playback experiments were the native diurnal shikra (*Accipiter badius*), native nocturnal brown wood owl (*Strix leptogrammica*), the non-native diurnal northern goshawk (*Accipiter gentilis*) and non-native nocturnal tawny owl (*Strix aluco*). The spotted dove (*Spilopelia chinensis*) was used as a control. Playback experiments were conducted in peri-urban areas of the University of Peradeniya, Sri Lanka. Squirrels from ten sites, more than 100 m apart, were exposed to calls of the selected species (n = 10 each) and video recorded before (30 s), during (30 s) and after (30 s) the playbacks, using a mobile phone. Squirrels showed behavioural reactions to both predatory and non-predatory calls. No vocal responses were observed. Behavioural responses such as the time they first responded, the time they showed alertness, froze or ran away were recorded. Differences of these responses between the treatments were analysed using analyses of variances (with post-hoc tests) and generalized linear models. Squirrels responded significantly more quickly ($P = 0.006$) and with greater alertness ($P = 0.01$) to the shikra, compared to the brown wood owl and the tawny owl. No significant differences were observed in flee responses between diurnal and nocturnal predators ($P > 0.05$ for all responses). Squirrels showed a freeze response significantly more quickly ($P = 0.006$) and with a longer duration ($P = 0.02$) to diurnal vs. nocturnal predators. Predator-avoidance behaviours (time to first show a response/ alertness; time they started a flee or freeze response; the duration of the flee or freeze response) of squirrels to native vs. non-native predators were not significantly different from each other ($P > 0.05$ for all responses). These findings suggests that Indian palm squirrels prioritize escape from diurnal over nocturnal predators and that alarm responses are highly evolutionarily conserved to closely related non-native predators.

Keywords: Indian palm squirrel, Playback experiments, Predator avoidance behaviour, Diurnal vs nocturnal predators, Native vs non-native predators

Assessing the Contamination of Veterinary Scrubs and the Impact of the Clinical Attire on Public Perception

Nethmini K.U.[1], Bandara T.P.M.S.D.[2], Seelagama P.K.[3] Jinadasa H.R.N.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Sociology, Faculty of Arts, University of Peradeniya.

**rnjinadasa@vet.pdn.ac.lk*

In veterinary settings, healthcare-associated infections present significant risks, and clinical attire may serve as a vector for the spread of pathogens. The purpose of this study was to assess the microbiological contamination of veterinary scrubs and investigate the perception of pet owners on veterinary clinical attire in terms of professionalism, approachability, trust and disease transmission risk. A questionnaire survey was given to 251 pet owners as part of a mixed-method approach that also included microbiological sampling of scrubs from Veterinary teaching hospital of University of Peradeniya. The results of microbiological analysis indicated widespread contamination, with coliform bacteria identified in about 27% of samples and Staphylococcus spp. detected in 100% of samples. The colony-forming unit (CFU) counts ranged widely (11 - 653), indicating significant variation in the bacterial load. Higher contamination risks associated with environmental exposure were suggested by a strong positive correlation ($r=0.82$, $p<0.05$) between CFU counts and coliform presence. According to the survey's findings, more than 80% of participants thought that a veterinarian's attire affected their professionalism and level of trust, and 68% of them had concerns about how attire might spread diseases. The preferences for clothing varied by veterinarian gender, emphasizing how appearance affects client confidence and approachability. Contextual factors in public perceptions were highlighted by the fact that urban respondents were more concerned about infection risks than their rural counterparts. Therefore Evidence-based laundry procedures and attire policies are necessary, as these findings illustrate the dual roles that veterinary attire plays in infection control and client engagement. Standardized hygiene procedures could improve public confidence in veterinary care as well as biosafety.

Keywords: Veterinary attire, Microbial contamination, Public perception, Healthcare-associated infections, Infection control

Acknowledgements: University Research Grant (URG/V/2019-60)

Human Elephant Conflict in Mullaitivu District: Extent and Methods of Mitigation by Affected Public

Priyanka T.[1], Dangolla A.[2], Nizanantha K.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**adangolla@gmail.com*

The Asian elephants (*Elephas maximus maximus)*, native to Sri Lanka, is classified as endangered and plays a vital role in the country's biodiversity, ecological stability and culture. Increasing incidences of human elephant conflict (HEC) has emerged as a significant socio-economic and environmental concern, particularly in areas where agricultural expansion, deforestation, and human settlements encroach upon traditional elephant habitats. As Sri Lanka's human and elephant populations continue to grow, the demand and competition for land and food has intensified leading to habitat fragmentation and increased human-elephant interactions. These often lead to loss of human life, crop destruction, property damage, and elephant fatalities mostly due to retaliatory killings. This study investigates HEC in the Mullaitivu District in Sri Lanka, where such incidents have rarely been studied, since of late, have increased in frequency. Using questionnaire surveys (n=173), stakeholder interviews (n=25) and spatial mapping, this research examines the patterns, causes, impacts, and methods of HEC mitigation. Findings indicate that middle-aged male farmers are the most affected group, with conflicts mostly occurring in Maha agricultural season near paddy fields bordering forest patches. Crop raiding (n=148: 86%) is the most common complaint, followed by property damage (n=16; 9.3%), according to respondents (n=173). Although various deterrents such as electric fences (n=71: 41%), firecrackers (n=61; 35%) and chili-based methods (n=29:17%) are employed, their effectiveness is limited by cost, due to poor maintenance and lack of institutional support. Community dissatisfaction is high (n=149: 86%) due to inadequate compensation (n=50:29%) and ineffective state responses (n=59, 34%). Officers in the Department of Wildlife Conservation face resource constraints that hinder effective HEC management. This research emphasizes the importance of a holistic, community-centred approach to mitigating human-elephant conflict. Recommendations include investing in more durable and cost-effective physical barriers, expanding awareness and education programs, and promoting co-management strategies involving local communities, government agencies, and conservation organizations. This study contributes valuable insights to wildlife conservation and human-wildlife coexistence in Sri Lanka, in an area in which they are rarely studied, by documenting experiences in affected communities and highlighting ecological and socio-political dimensions of the HEC.

Keywords: Elephant, HEC, Mullaitivu District, Mitigation, Conservation

A Preliminary Investigation of the Antibacterial Potential of the Aqueous and Hexane Extracts of Cladodes of *Opuntia Monacantha* and *Opuntia Dillenii*, Two Wild Cactus Species Present in Sri Lanka as an Antibiotic Alternative in Poultry Industry: An *in-vitro* Study

Pupulawatte T.[1], Jinadasa H. R.N.[3], Satharasinghe D.A.[2] Jayasooriya L.J.P.A.P.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**apjayasooriya@vet.pdn.ac.lk*

Antimicrobial resistance is a critical global health concern, intensified by the overuse of antibiotics in human and veterinary medicine, particularly in the poultry industry. This growing challenge has increased the global interest in natural alternatives to conventional antibiotics. This study evaluated the antibacterial potential of *Opuntia monacantha* and *Opuntia dillenii*, two wild cactus species present in Sri Lanka, against *Staphylococcus aureus* (ATCC 25923) and *Escherichia coli* (ATCC 25922). Fresh cladodes of *O. monacantha* (Dambulla) and *O. dillenii* (Ussangoda) were cleaned, removed spines, sliced, oven-dried at 50 °C for three days, powdered, and subjected to aqueous and hexane extractions. Aqueous extracts were prepared by stirring at 45 °C for five hours, centrifugation, and freeze-drying, while hexane extracts were obtained via Soxhlet extraction. Antibacterial activity was assessed using agar well diffusion, drop diffusion, and agar dilution methods. In the well diffusion assay, neither extract produced inhibition zones; in the drop diffusion method, aqueous extracts showed small, irregular zones without clear inhibition margins, while hexane extracts exhibited no visible activity. In agar dilution, both aqueous extracts produced slight but detectable reductions in bacterial growth, against both bacterial species, while the hexane extracts showed no observable activity. These limited effects may be due to extraction methods, solvent polarity, low active compound concentrations, or poor diffusion in agar. Although crude extracts showed minimal activity under the tested conditions, the presence of known bioactive constituents in these species suggests potential for stronger effects with optimized extraction, higher concentrations, or purified fractions. This preliminary study provides baseline data for further exploration of Sri Lankan *Opuntia* species as natural antibacterial agents for the poultry industry.

Keywords: Antimicrobial resistance, Natural alternatives, Wild cactus species, *Opuntia monacantha*, *Opuntia dillenii*

Group Composition and Body Condition Scoring of Spotted Deer in Captivity

Rajapaksha R.D.H.A.K.[1], Gamage B.G.G.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**sashi@vet.pdn.ac.lk*

Captive management of wildlife plays a key role in species conservation, health monitoring, and education. This study focused on the spotted deer (*Axis axis ceylonensis*), a subspecies native to Sri Lanka, housed at the Pinnawala National Zoological Gardens. The research aimed to assess herd structure and body condition in relation to environmental factors and presence of gastrointestinal parasite over a six-month period, from October 2024 to March 2025. Population composition was recorded monthly, and body condition scores (BCS) were visually assessed using a 5-point scale across various age and sex categories such as adult males, adult females, yearlings, juveniles and fawns. Fresh faecal samples were collected for parasitological analysis such as flotation, sedimentation, and McMaster techniques. Data on climatic factors, including temperature, humidity, rainfall, and rainy days, were tracked concurrently. The initial number of the total population had been increased from 25 to 30 by the end of the study period. The herd showed strong reproductive performance, with a 25% birth rate, low mortality (3.57%), and a fertility rate of 63.63%. Adult females consistently dominated the population throughout the study. Adult males had the highest average BCS (3.06), while juveniles and fawns consistently showed lower scores (2.00), potentially due to nutritional competition and age-related physiological demands. Despite environmental fluctuations, BCS remained relatively stable across the study period, suggesting consistent nutritional management. Parasitic egg types, primarily *Trichuris spp*. and *Fasciola spp*. were detected only during the rainy months. A significant positive correlation was found between faecal egg counts (EPG) and rainfall, humidity, and number of rainy days ($p < 0.05$). However, EPG had limited impact on BCS overall. The findings suggest that the current captive management practices including regular feeding, enclosure design, and annual deworming effectively support herd health and reproduction. However, targeted parasite monitoring during rainy periods remains important. These insights contribute to improving welfare strategies and long-term sustainability of captive cervid populations in similar environmental conditions.

Keywords: *Axis axis ceylonensis*, Body Condition Score, Captive, Gastrointestinal parasites, Herd composition

Assessment of Current Welfare Status of Broiler Chickens at Selected Commercial Broiler Farms

Ranasinghe R.A.P.S.[1], Kalupahana R.S. [2*], Gunasekare E.M.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Veterinary Regulatory Affairs, Department of Farm Animal Production and Health.

*****rskalupahana@vet.pdn.ac.lk*

Broiler chicken welfare is a crucial component of sustainable poultry production, directly influencing animal health, productivity, and ethical standards. This study aimed to assess the current welfare status of broiler chickens in selected commercial farms in the Kurunegala District, Sri Lanka. A structured questionnaire, developed in line with internationally recognized welfare guidelines, was administered through face-to-face interviews across 46 farms, assessing housing and environmental management, feed and water provision, health management, and production performance. Most farms (93%) maintained recommended stocking densities (<30kg/m^2) and all used curtain systems for environmental control. Litter was used and replaced per batch by all farms. In the sample of farms (n=15) where litter depth and quality were assessed, 80% of farms had inadequate litter depth and 53% showed excessive moisture. While 89% of farms used commercial feed, only 7% performed quality checks. Bell drinkers were predominant, with 83% cleaned daily, but with limited monitoring of water hygiene (2%). Vaccination programs were implemented in 87% of farms and parasite control in 67%. Performance outcomes were generally favourable, with 98% of farms achieving more than 1.5 kg average body weight at catching and 89% reporting more than 90% liveability. Despite these strengths, key gaps were identified in environmental monitoring, litter quality management, feed and water quality assurance, and certain biosecurity measures. Addressing these deficiencies through targeted farmer training, regular welfare monitoring, and the development of national broiler welfare guidelines could enhance animal well-being, improve productivity, and align Sri Lanka's poultry sector with evolving global welfare and sustainability standards.

Keywords: Broiler welfare, Litter, Performance, Sri Lanka, Stock density

Acknowledgment: One Health Poultry Hub

Analysis of the Quality of Radiographic Images of Elephants' (*Elephas Maximus Maximus*) Hind Feet By Using Modified Sante's Rule

Ranaweera R.M.R.T.[1], Nizanantha K.[2], Jayasekara N.K.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**niromikj@vet.pdn.ac.lk*

Radiographic imaging is a crucial diagnostic tool for evaluating the musculoskeletal health of elephants. But there is no established protocol for X-ray exposure guidelines specially for hind feet of *Elephas maximus maximus*. This research aimed to assess the effectiveness of diagnostic X-ray guideline technique which has been established for hind limbs of Thai elephants (*Elephas maximus indicus*) to produce quality radiographic images, on Sri Lankan elephants' (*Elephas maximus maximus*) hind feet. The study was initially designed to conduct in two phases. Phase 1 involved testing the guideline on wild elephant cadavers collected from Randenigala area and phase two was planned to involve live wild elephants in Anuradhapura, Sri Lanka. Due to logistical and technical constraints, only phase one was completed. In this phase, hind feet of 2 elephants' cadavers were examined according to the guideline. Key parameters such as kVp and mAs were adjusted based on tissue thickness and source image distance. Then lateral, caudo-cranial and plantarodistal-dorsoproximal radiographic views of the hind foot were captured by using a portable X-ray machine (Model-ULTRA 1040BT Collimator(S/N:2204-5BTCL03)). The radiographic imaging technique that used here is Digital radiography. Then radiographic image quality will be assessed. The expected outcome of this research is to determine if the X-ray guideline established in Thai elephants is applicable and can effectively produce quality radiographic images under different conditions, such as using different subspecies of the elephant, model of the portable X-ray machine, the anatomical location and radiographic views. The modified guideline was able to produce radiographs with adequate visualization of skeletal structures, though image quality varied depending on equipment limitations and field conditions. While the live animal component could not be carried out, the findings from phase 1 provide a foundation step toward developing standardize radiographic protocols for *Elephas maximus maximus*. It is intended that the study be extended in future to include live elephants, to further validate and refine the exposure guideline under clinical conditions.

Keywords: *Elephas maximus maximus*, Radiography, Hind foot, Exposure guidelines, Diagnostic imaging

Molecular Diagnosis of Chicken Anaemia Virus Infection among Poultry Farms in Kurunegala District

Ruwanga P.A.N.[1], Kalupahana A.W.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**akalupahana@vet.pdn.ac.lk*

Chicken Anaemia Virus (CAV) infection is an immunosuppressive disease adversely affecting the poultry industry worldwide, causing mortality, loss of production, and economic loss, and is reported in commercial and backyard poultry globally. The study was carried out to determine the presence of CAV in anaemic and poor-performing sick birds in boiler and layer farms in the Kurunegala district through conventional PCR. Ten thymus and bone marrow samples were collected from recently dead birds showing signs of anaemia, immunosuppression, and mortality. The samples were stored at -20℃ for the molecular diagnosis. Total DNA was extracted from samples using a commercially available QIAGEN DNAeasy® mini kit. Conventional PCR targeting 186 bp fragment of the highly conserved VP2 coding gene of the CAV was performed using the CAV1: 5'-GCAGTAGGTATACGCAAGGC-3' and CAV2: 5'-CTGAACACCGTTGATGGT C-3' primers. Commercially available Circomune®, a live CAV vaccine strain was used as the positive control, and nuclease-free water was used as the negative control. The amplified PCR products were subjected to electrophoresis in 1.5% agarose gel, and images were captured. Samples producing a specific 186 bp band were considered positive, while those without a band were considered negative for CAV. In this study, out of the 10 samples tested, 7 (70%) were positive for CAV and 3 (30%) were negative, indicating that CAV is circulating among poultry farms in Kurunegala district. This study contributes to the accurate diagnosis of CAV and plays a crucial role in developing effective management strategies, interventions, and supports the improvement of poultry health and productivity in Sri Lanka.

Keywords: Chicken Anaemia Virus, Immunosuppressive, Conventional PCR, Thymus, Bone marrow

Cost-Effective Tilapia Growth Enhancement Using Black Soldier Fly Larval Meal

Safrana T.F. [1], Fouzi M.N.M. [2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.
[2]Department of Farm Animals Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** mnmf@vet.pdn.ac.lk*

Tilapia is one of the important species of freshwater aquaculture yet rising commercial feed costs continue to erode farm profitability and challenge long-term sustainability. Black Soldier Fly Larval (BSFL) meal, produced by converting food waste into a high-protein, nutrient-rich ingredient, offers a promising, eco-friendly alternative to conventional fish feed. This study evaluated the effects of substituting commercial feed with BSFL meal on tilapia growth performance and production economics in Sri Lanka. A 42-day feeding trial was conducted using four dietary treatments: 100% commercial feed (control) and diets containing 50%, 75%, or 100% BSFL meal. Each treatment was duplicated in a completely randomized design, with 10 tilapia fries (27 ± 2 g; 9.5 ± 0.5 cm) stocked in 1000 l tanks. Growth performance (weight gain, length), feed conversion ratio (FCR), and feed costs were measured. Final weights of fish ranged from 45.56 ± 2.24 g (in 100% BSFL meal) to 52.55 ± 5.93 g (control). Significant differences ($P < 0.05$) were observed only between the control and 100% BSFL groups. Feed conversion ratio values (1.20–1.46) showed no significant variation among treatments. Notably, incorporating BSFL meal reduced feed costs by up to 33% without compromising growth when replacing up to 75% of commercial feed. These findings demonstrate that BSFL meal is a viable, sustainable, and cost-effective protein source for tilapia farming. By transforming organic waste into high-value feed, this approach not only enhances profitability but also promotes a circular, environmentally responsible aquaculture industry.

Keywords: Tilapia, Black Soldier Fly Larval Meal, Feed Conversion Ratio, Sustainable aquaculture, Economic viability.

The Association Between Gastrointestinal Parasitism and Body Condition Score of Stray Donkeys in Mannar, Sri Lanka

Sathsarani M.H.S.[1], Nizanantha K.[2], Dangolla A.[3], Gamage B.G.S.S.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Veterinary Clinical Science, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**shashi@vet.pdn.ac.lk*

This study evaluated the relationship between body condition score (BCS) and gastrointestinal (GI) parasitic burden in stray donkeys from the Mannar District, Sri Lanka. A total of 30 donkeys, including both sexes and age groups (juveniles and adults), were assessed for BCS using a standardized 9-point scale, and fecal samples were analyzed for parasite eggs to determine Eggs per Gram (EPG) by Mac master chamber counting, salt floatation method and sedimentation method. Age was determined by observing the physical characteristics of life stage. Body condition score and EPG counts were statistically analyzed using descriptive statistics, Pearson's correlation test, ANOVA and regression analysis, in Minitab. The BCS values ranged from 3 to 7, indicating moderate body condition across the population, with no cases of extreme emaciation or obesity. Parasitic burden varied widely, with EPG counts ranging from 0 to 5700, and nine donkeys did not have detectable fecal parasitic eggs, likely due to recent deworming or natural resistance. A negative correlation between BCS and EPG was observed, suggesting that donkeys in poorer condition tend to carry higher parasite loads, though this was not statistically significant. Juvenile donkeys had significantly higher EPG values compared to adults ($p = 0.001$), showing age as a key factor influencing the parasite burden. Males showed higher average EPG counts compared to females but were not statistically significant. Parasitological examination showed diverse gastrointestinal parasites, including strongyle type eggs, Strongyloides spp., Coccidian oocysts, *Fasciola* spp., Toxocara spp., and tapeworm eggs. Mixed infections were common, especially in donkeys with lower BCS and higher EPG. The findings emphasize the importance of age targeted parasite management programs and suggest that while BCS provides useful health information, only BCS is not a reliable independent indicator of parasite burden. This study provides valuable insights for improving donkey health and parasite control strategies in stray populations within tropical environments in Sri Lanka.

Keywords: Body Condition Score, Gastrointestinal parasites, Eggs per gram, Donkeys, Mannar District

Morphological Features which Contribute to Aerial Performance in Domestic Pigeons

Senevirathna P.M.N.S.[1], Jayasena N.U.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

[*]nilminijayasena@vet.pdn.ac.lk

This study focused on how morphological features vary between domestic pigeons used for different types of aerial performance. In Sri Lanka, racing (homing) pigeons are used in competitions to determine the fastest; while "timing" pigeons are used in competitions to determine which pigeons can spend the most time aloft without resting. Racing pigeons generally fly faster and lower than timing pigeons, while timing pigeons spend more time in the air and are relatively slower. It was hypothesized that artificial selection practiced by pigeon breeders/keepers for these two types of activities have resulted in morphological characteristics which help the different flight strategies of racing and timing pigeons. Thirty healthy pigeons over one year old from a breed were used for each activity and measured morphological features of each type. ANOVA test was used to compare the differences between two types. In terms of body weight; lengths of the body, head and beak, beak, humerus, tarsus, and the longest primary feather; body circumference, and wing loading; racing pigeons had significantly higher values when compared to those of timing pigeons ($P < 0.05$). Tail length, wing surface area and of the width between the shoulders did not show significant differences between ($P > 0.05$) the two types. In addition, there were significant interactions ($P < 0.05$) between sex and the type of pigeons for body weight, tarsus length and body circumference. It was found that the wing loading of racing pigeons is higher than that of timing pigeons. Accordingly, it was concluded that the lower wing loading helps the timing pigeons to fly higher in the sky for a relatively longer period, while the higher wing loading of racing pigeons help them to fly at a higher speed. These morphological variations between racing and timing pigeons are most likely to have occurred due to the selection pressure for their different flight strategies, as pigeon breeders would have practiced artificial selection to breed the best pigeons for each type of competitive racing.

Keywords: Racing pigeons, Timing pigeons, Flight performance, Wing loading, Morphological features.

Assessing Awareness, Knowledge, Opinion on Use of Alternatives to Antibiotics Among the Veterinary Professionals in Kandy District

Shashikala V.K.W.[1], Kottawatta K.S.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**sanda@vet.pdn.ac.lk*

Antibiotic resistance is a critical global health problem that affects both human and animal health. To address the problem of antibiotic resistance, numerous alternatives to antibiotics have been scientifically researched by scientists worldwide. In response to this growing challenge of antibiotic resistance, the veterinary profession must alert and adopt alternatives to antibiotics. This research, titled "Assessing Awareness, Knowledge, Opinion on Use of Alternatives to Antibiotics among the Veterinary Profession in Kandy District." Research specifically focused on assessing awareness, knowledge, and the use of alternatives to antibiotics among veterinary professionals of Sri Lanka is scarce or non-existent. This research aimed to fill this knowledge gap by evaluating the current state of these factors within this specific population. A descriptive cross-sectional study was conducted among four groups of veterinary professionals in the Kandy District. A structured, printed questionnaire was developed and distributed and completed questionnaires were collected in hard copy format from 31 first-year undergraduates, 59 fourth-year undergraduates, 14 government veterinary surgeons, and 12 private veterinary practitioners, resulting in a total of 116 respondents. The responses were entered into Microsoft Excel and analysed using descriptive statistical methods, including calculation of counts and percentages, to evaluate patterns of awareness, knowledge, opinions, and use of alternatives to antibiotics. The majority of participants were aware of AMR and recognized it as a critical issue in veterinary practice. Most respondents showed high awareness of commonly used alternatives such as vaccines, probiotics and prebiotics. However, knowledge about newer or less conventional alternatives was limited, especially among undergraduate students. While vaccines and symbiotics were commonly used, the practical application of advanced alternatives remained low. Factors such as lack of evidence, limited availability, cost, and client or owner reluctance were identified as barriers. Despite this, most participants expressed positive attitudes toward the use of alternatives The findings of this research emphasize differences in knowledge and practice in veterinary field about alternatives to antibiotics. Outcomes from this research will be utilized to improve the veterinary practices and educational methodologies to combat antibiotic resistance and contribute to the global effort to fight antibiotic resistance through innovative and sustainable approaches.

Keywords: Antibiotic resistance, Alternatives, Antibiotics, Veterinary professionals, Awareness

Assessing the Antimicrobial Properties of *Michelia Champaca* (Gini Sapu) Against Respiratory Pathogens in Goats and Its In-Vitro Ruminal Digestibility

Silva W.J.K.[1], Wanigasekara A.[1], Priyantha M.A.R.[2], Weerasinghe W.M.P.B.[2], De Seram H.E.L.[2*]

[1] Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Veterinary Research Institute, Gannoruwa, Peradeniya.

**eranga.seram@vet.pdn.ac.lk*

Respiratory infections significantly affect goat health and productivity. Although antibiotics are the mainstay of treatment, rising antibiotic resistance necessitates alternative approaches. *Michelia champaca* (Gini Sapu), traditionally included in goat diets by local farmers, may offer both nutritional and antimicrobial benefits. This study evaluated the antimicrobial effects of *M. champaca* leaf extracts against respiratory pathogens in goats and assessed the leaves' nutrient composition and *in vitro* digestibility. Water and ethanol extracts were prepared from 25 g of dried leaves and tested using a two-fold agar dilution method against *Pasteurella multocida* (a primary respiratory pathogen), *Staphylococcus aureus*, and *Escherichia coli*. Both water and ethanol extracts inhibited *P. multocida*, with the water extract effective at 25% of the original concentration and the ethanol extract at 50%. No inhibition was observed against *E. coli* or *S. aureus*. Proximate analysis revealed 13.5% crude protein, 47.1% acid detergent fibre (ADF), 59.1% neutral detergent fibre (NDF), 7.0% ash, and 35.4% dry matter, indicating suitability for inclusion in goat diets. *In vitro* ruminal fermentation showed moderate fermentative potential, with average gas production of 38.8 mL, organic matter digestibility of 55.9 g/100 g DM, and metabolizable energy of 8.25 MJ/kg DM. The results suggest that the *M. champaca* has antimicrobial potential against *Pasteurella multocida,* a primary causative agent of caprine pneumonia. Additionally, proximate analysis showed a high crude protein content, providing nutritional benefits while supporting the management of respiratory diseases in goats through its targeted action against *P. multocida*. Incorporating *M. champaca* into ruminant feeding strategies may help to reduce reliance on antibiotics and support sustainable goat production, but further *in vivo* trials are required.

Keywords: Antimicrobial, *Michelia champaca*, Respiratory Infections, *Pasteurella multocida*, Animal feed

Antibacterial Activity of Methanol Extract of Sea Cucumber: *Holothuria Scabra* against Selected Bacterial Species Causing Pyoderma in Dogs

Sithumini A.M.I.[1], Dissanayake D.R.A.[2*], Dissanayake D.C.T. [3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.
[2]Department of Veterinary Clinical Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura.

**anuruddhika@vet.pdn.ac.lk*

Pyoderma is one of the most common skin diseases in dogs, frequently caused by *Staphylococcus spp*. The increasing prevalence of multidrug-resistant strains, such as methicillin-resistant *Staphylococcus aureus* (MRSA) and *Staphylococcus pseudintermedius* (MRSP) has significantly limited the treatment options for pyoderma. This emphasizes the need for exploring alternative treatment options. In this study, we investigated the antibacterial activity of body wall extract of sea cucumber species, *Holothuria scabra* against bacteria causing canine pyoderma. To isolate organisms causing pyoderma, skin scrapings were collected from 30 dogs presented to the Veterinary Teaching Hospital (VTH), University of Peradeniya. Bacterial isolation and identification were performed according to the standard microbiological procedures. Antimicrobial susceptibility of the isolates for levofloxacin, ampicillin, cefotaxime, trimethoprim-sulfamethoxazole, and erythromycin was assessed by disk diffusion method following EUCAST 2025 guidelines. Body wall contents of *H. scabra* were extracted using methanol. Antibacterial activity of the crude extract of *H. scabra* was assessed by microbroth dilution method. Of the 30 isolates collected from canine pyoderma, 24 (80%) were identified as Staphylococcus spp. (18 pathogenic, 6 non-pathogenic), while remaining isolates were identified as *Streptococcus*, *Escherichia coli*, *Klebsiella*, *Enterobacter*, and *Pseudomonas* spp. When antimicrobial activity of body wall extract of *H. scabra* against these strains was tested, 14 of the 24 Staphylococcus isolates (58.3%), and the Streptococcus isolate were susceptible to the extract with MICs ranging from 0.125 to 0.5 g/L. No activity was observed against Gram negative organisms. Of the 15 isolates susceptible to the *H. scabra* extract (14 Staphylococcus isolates and the Streptococcus isolate), 8 isolates (>50%) were resistant to at least one of the tested antibiotics. These findings indicate that methanol extracts of *H. scabra* body wall possess selective antibacterial activity against Gram-positive bacteria, particularly Staphylococcus spp., suggesting potential as a topical therapeutic for canine pyoderma. Further investigations are needed to isolate the active compounds, evaluate safety, and develop suitable veterinary formulations.

Keywords: Pyoderma, *Holothuria scabra*, Methanol extract, Antibacterial activity, *Staphylococcus spp*.

In-vitro Evaluation of Anticoccidial Efficacy of Garlic (*Allium sativum*) Against Avian Coccidiosis

Subasinghe S.A.P.S.[1], Anupama N.M.T.[2], Gunawardana T.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thusharigunawardana@vet.pdn.ac.lk*

Coccidiosis is a highly prevalent parasitic disease in poultry, caused by protozoa belonging to the genus *Eimeria*. It significantly impacts poultry production worldwide by impairing growth, reducing feed efficiency, increasing mortality, and leading to substantial costs for treatment and prevention. The disease is especially problematic in intensive broiler operations. For decades, the poultry industry has relied on anticoccidial drugs to manage coccidiosis. However, the continued use of these drugs has resulted in two major concerns: the development of drug-resistant strains of *Eimeria* and the presence of residual chemicals in poultry meat and eggs; both of which have implications for animal health, food safety, and consumer confidence. As a response to these challenges, this study was focused on evaluating a natural alternative: garlic (*Allium sativum*) for its potential anticoccidial properties. Garlic is widely known for its medicinal value, particularly its antimicrobial, antioxidant, and immune-enhancing effects. These benefits are largely due to its bioactive sulfur-containing compounds, including allicin and S-allyl cysteine. In this *in vitro* study, aqueous garlic extract was tested at four different concentrations (1 mg/mL, 0.1 mg/mL, 0.01 mg/mL, and 0.001 mg/mL) against *Eimeria* oocysts isolated from naturally infected broiler chickens. The oocysts were exposed to each concentration, and their development was observed over 24, 48, and 72 hours. The study measured the rate of sporulation and the occurrence of morphological deformation as indicators of the extract's effectiveness. A commercial anticoccidial drug was used as a positive control, and distilled water served as a negative control. The results showed that all tested garlic concentrations reduced sporulation and caused visible structural changes in the oocysts compared to the untreated group. These effects were more pronounced over time and exhibited a dose-dependent pattern. Even at lower concentrations, the garlic extract interfered with the parasite's life cycle, suggesting it can hinder the development of infectious stages. Overall, the findings support the idea that garlic extract can be used as a natural means of controlling coccidiosis in poultry. It offers advantages such as low toxicity, no chemical residues, and a reduced risk of resistance development. Integrating plant-based alternatives like garlic into poultry health management could lead to more sustainable, consumer-safe practices in the industry.

Keywords: Coccidiosis, Eimeria, Garlic, Oocysts, Sporulation

Association between Milk Progesterone Concentration at Artificial Insemination and Conception Rate in Dairy Cows in Mahawa Veterinary Range

Sudarshana K.K.P.L.[1], Ranasinghe R.M.S.B.K.[2*], Ramanayake U.D.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Animal Production and Health, Peradeniya.

**bimalka@vet.pdn.ac.lk*

Reproductive efficiency is crucial to the success and sustainability of dairy farming, particularly in smallholder systems, where conception failures result in substantial economic losses. Artificial insemination (AI) is widely used to enhance reproductive outcomes and genetic quality; however, its effectiveness relies heavily on accurately identifying the optimal time for insemination. In Sri Lanka, limited success rates in AI are often linked to poor heat detection practices and mistimed procedures. This study aimed to investigate the relationship between milk progesterone concentration at the time of AI and subsequent conception rates among dairy cows in the Mahawa veterinary range, to evaluate the utility of milk progesterone as a biomarker for effective oestrus detection. A total of 61 milk samples were collected from cows immediately after AI and analysed using a competitive ELISA method to measure progesterone levels. The results revealed a significant inverse relationship between progesterone concentration and pregnancy. Cows with progesterone levels ≤6 ng/ml exhibited a conception rate of 53.7%, whereas cows with levels >6 ng/ml had a much lower success rate of 14.2%. Logistic regression analysis confirmed that higher progesterone levels at the time of AI significantly reduced the likelihood of conception, with an odds ratio of 0.641 and a statistically significant p-value (p = 0.0055). The model's predictive accuracy was moderate, with a concordance rate of 74.4% and a c-statistic of 0.745. Farmers' heat detection practices were evaluated to determine their impact on milk progesterone levels and the success of artificial insemination (AI). The analysis found no statistically significant differences in progesterone concentrations based on the duration of heat detection or whether farmers set aside specific time for this task. This suggests that routinely observing behavioural signs alone may not reliably confirm oestrus. These findings highlight the value of incorporating milk progesterone testing into AI programs to improve timing and reproductive outcomes. Given its ease of application and non-invasive nature, milk progesterone analysis represents a promising tool for enhancing fertility management in dairy herd.

Keywords: Artificial insemination, Milk progesterone, Conception rate, ELISA, Dairy cows

Production and Consumer Preference Assessment of Buffalo Yogurt among the University of Peradeniya Community

Sudharaka G.A.[1], Hathurusinghe M.H.[2], De Seram H.E.L.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Depertment of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[32]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**eranga.seram@vet.pdn.ac.lk*

In Sri Lanka, buffalo milk is predominantly used for curd production, while its application in yogurt manufacturing remains limited, indicating untapped potential for value-added dairy products. This study aimed to produce buffalo yogurt using locally available dairy starter cultures and to assess consumer preference for buffalo yogurt among a university-based community. Three yogurt variants: 100% buffalo milk, 100% cow milk, and a 50:50 blend, were prepared using a standardized protocol with *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. Sensory evaluation was conducted with 10 panelists from the University of Peradeniya community, assessing color and appearance, body and texture, aroma, flavor, sweetness, mouthfeel, and overall acceptance. All three yogurt types were successfully produced using the standard cow milk yogurt protocol. Statistical analysis revealed a significant difference among variants only for mouthfeel ($P = 0.035$), while body and texture ($P = 0.128$), overall acceptance ($P = 0.160$), color and appearance ($P = 0.295$), aroma ($P = 0.277$), flavor ($P = 0.420$), and sweetness ($P = 0.429$) were not significantly different. These findings demonstrate that buffalo yogurt can be successfully produced using existing cow milk yogurt protocols and showed broadly comparable consumer acceptance to cow milk yogurt, highlighting its potential as a competitive dairy product in Sri Lanka. Future research should focus on optimizing buffalo-specific processing parameters to increase consumer familiarity and acceptance of buffalo yogurt as a competitive dairy product in Sri Lanka.

Keywords: Buffalo milk, Yogurt, Sensory evaluation, Dairy industry, Sri Lanka

Nutritional Evaluation of Meals Served in Hostel Canteens at the University of Peradeniya

Sugathadasa M.D.T.J.[1], Palliyeguru M.W.C.D.[2], Fernando R.[3*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Division of Animal Nutrition, Veterinary Research Institute, Gannoruwa,
[3]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**ruchika@vet.pdn.ac.lk*

The nutritional adequacy of meals provided in university hostel canteens is essential for maintaining the health and academic performance of undergraduate students. This study evaluated the nutrient composition of meals served in 10 hostel canteens at the University of Peradeniya, comparing the adequacy of macronutrients with national and international dietary recommendations. A questionnaire survey of 85 hostel residents identified meal patterns, commonly consumed food items, and their consumption frequency for breakfast, lunch, and dinner, enabling the creation of weekly food consumption profiles. Based on these findings, frequently consumed items (e.g., rice, dhal, chicken etc.) were selected, and their nutritional values were estimated using standard food composition tables. Weekly intakes of energy, protein, fat, carbohydrates, and fibre were calculated from average portion sizes and consumption frequency. Results revealed considerable variation in nutrient intake compared with recommendations for moderately active adults. While staples such as rice and dhal were served regularly, protein sources and key macronutrients were often limited. Weekly energy, dietary fibre, and protein intakes from hostel meals fell below recommended allowances, and many students skipped meals or relied on snacks purchased outside the canteens, further reducing nutritional balance. The findings underscore the need for improved meal planning, greater nutritional awareness among university students, and revised food service guidelines under subsidized rates to ensure adequate nutrient intake for sustaining health and supporting academic success.

Keywords: University of Peradeniya; Nutritional adequacy; Hostel canteens; Dietary intake; Meal planning

Evaluation of Antimicrobial Resistance Profile of *Staphylococci Spp.* Isolated from Mastitis Milk in Cattle in Kandy District

Sulochana H.L.G.S[1], Jayawardane P.G.T.S[1], Wickramasingha R.M.R.P[1], Wijesekera D.P.H[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**himali@vet.pdn.ac.lk*

Mastitis is a major health issue in dairy cattle, leading to reduced milk yield, compromised animal welfare, and substantial economic losses. In Sri Lanka, particularly in the Kandy district, where dairy farming supports rural livelihoods, mastitis poses a significant challenge, with subclinical cases often remaining undetected yet contributing to long-term udder pathology and herd-level transmission. This study aimed to isolate *Staphylococcus* species from mastitis-infected milk and assess their antimicrobial resistance profiles. Accordingly, thirty milk samples were collected from mastitis-positive cattle across multiple farms in Kandy district and analyzed using standard bacteriological methods, including blood agar, Gram staining, catalase and coagulase tests, mannitol salt agar, and the Voges-Proskauer test. Antimicrobial susceptibility testing was conducted according to Clinical and Laboratory Standards Institute guidelines. Results showed subclinical mastitis was more frequent (76.7%) than clinical mastitis (23.3%), reinforcing the need for routine herd health monitoring. *Staphylococcus* species were the predominant pathogens, isolated from 22/30 samples (73.3%). Among these, *Staphylococcus aureus* accounted for 55% (12/22 isolates) and coagulase-negative staphylococci 45% (10/22 isolates). Gentamicin demonstrated universal effectiveness (100% susceptibility), while resistance was observed to commonly used antibiotics, including ampicillin (18.2%), ceftriaxone (moderate), cloxacillin (intermediate in 9.1%), and oxytetracycline (27.3%). Multidrug resistance was present in 18.2% (4/22) isolates, though methicillin-resistant *Staphylococcus aureus* (MRSA) was not detected. These findings highlight the risk of relying on empirical antibiotic therapy, a common practice in rural farms, and stress the importance of antimicrobial sensitivity testing to guide effective treatment. The high rate of subclinical mastitis necessitates the routine use of cost-effective tools such as the California Mastitis Test (CMT) and somatic cell count monitoring, and other preventive measures.

Keywords: Mastitis, Dairy cattle, Antimicrobial resistance, Methicillin-Resistant *Staphylococcus aureus* (MRSA), Sri Lanka

Consumer Preference and Socioeconomic Factors Influencing the Consumption of Goat Milk in Jaffna District

Thanaventhan M.[1], Fouzi M.N.M.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**mnmf@vet.pdn.ac.lk*

Goat milk is a nutrient-rich dairy product recognized for its ease of digestion and lower allergenic potential compared to cow milk. Despite these advantages, its consumption in the Jaffna District remains limited. This study examined consumer preferences and the socioeconomic determinants influencing goat milk consumption in the district. Survey results revealed that only 29.54% of respondents currently consume goat milk, with the primary barrier being limited market availability, followed by high prices and less favourable sensory attributes. However, 70.46% of non-consumers expressed a willingness to try goat milk if it were more accessible and affordable, indicating a substantial untapped market. Statistical analysis demonstrated that income level, educational attainment, and health awareness had a significant influence on consumption patterns ($p < 0.05$), whereas gender and age showed no significant association. Among current consumers, most sourced goat milk from home-reared animals, highlighting the absence of a formal supply chain. Furthermore, 74.77% of respondents were aware of the health benefits of goat milk, and 74.15% perceived it as more nutritious than cow milk, particularly in terms of calcium content. From the production perspective, goat farming in the district is predominantly meat-oriented, with a low average milk yield of 0.47 litres per goat and no established commercial distribution network. Farmers cited low production levels, limited profitability, and a lack of market orientation as key reasons for not marketing goat milk. The findings indicate a clear gap between consumer interest and supply. Addressing this mismatch will require measures to increase production, develop an efficient distribution system, and enhance public awareness of goat milk's benefits. Introducing suitable dairy goat breeds and improving the productivity of existing breeds could enhance both availability and economic viability. Nevertheless, under current conditions, meat production remains more profitable than milk production for most goat farmers in Jaffna District.

Keywords: Socioeconomic factors, Dairy, Breed, Market Availability, Health Awareness

Detection and Characterization of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Broiler Chickens Sold in Public Market Chicken Meat Shops in Colombo Municipality, Sri Lanka

Tharanga K.G.N.A.[1], Sewwandi U.[2], Karunarathna T.[2], Kalupahana R.S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**rskalupahana@vet.pdn.ac.lk*

Staphylococcus aureus is a pathogen that causes a wide range of infections in humans and animals. The emergence of methicillin-resistant *S. aureus* (MRSA) has become a global public health concern due to resistance shown to commonly used antimicrobials. While MRSA has been reported in animal production environments in Sri Lanka, its occurrence in broiler chickens sold in public market meat shops remains largely undocumented. These outlets often house live birds, slaughter and process them under minimal hygienic conditions. This study, conducted from November 2024 to April 2025, aimed to detect and characterize MRSA in broiler chickens sold in Colombo Municipal public markets. Initially, in phase 1, 45 stored *Staphylococcus*-suspected cultures were analyzed to refine detection protocols and select optimal sample types. In Phase 2, nasal swabs were collected from two freshly slaughtered broiler chickens from 15 meat shops. Fifty *Staphylococcus*-suspected colonies (five per bird from the first 10 chickens) were further analyzed. Isolates underwent Gram staining, catalase testing, and haemolysis observation. MRSA detection employed PCR for *nuc* and *mecA* genes and phenotypic antimicrobial susceptibility testing (AST) by the Kirby–Bauer method with cefoxitin and other antibiotics, following CLSI 2024 guidelines. Of the 50 isolates, 35 (70%) carried *nuc*, 20 (40%) carried *mecA*, and 17 (34%) carried both. Cefoxitin resistance was seen in 11 (22%) isolates, with 8 (16%) confirmed as MRSA by both methods. Three isolates showed phenotypic resistance without *mecA*. Among MRSA isolates (n = 17), resistance was recorded to sulfamethoxazole–trimethoprim (23.5%), ciprofloxacin (70.6%), erythromycin (70.6%), gentamicin (5.9%), tetracycline (82.4%), and chloramphenicol (52.9%), indicating multidrug resistance. These findings confirm MRSA presence in broiler chickens sold in Colombo's wet markets and highlight the need for enhanced surveillance, prudent antimicrobial use, and improved hygiene across the poultry supply chain to reduce public health risks.

Keywords: Antimicrobial resistance, Broiler chickens, Colombo municipality, MRSA *Staphylococcus aureus*

Comparative Histopathology of Rabies-Infected Brain Tissues of Dogs and Cattle

Vijayan V.K.[1], Premalal M.S.E.[2], Jayaweera W.R.[2], Indunika S.A.S[2], Wijesundera R.R.M.K.K.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**kavindra@vet.pdn.ac.lk*

Dogs are the main reservoir and transmitter of rabies to humans in Sri Lanka due to easy contact with humans. Cattle are occasionally infected and act as the end host because they rarely bite so seldom transmit. This research focuses on comparing histopathological lesions observed in the brains of rabies-infected cattle and dogs and to find out whether the difference in the disease transmission from the two animal species to humans leads to a difference in the disease pathology including neuronal damage and glial cell proliferation between the two species. To conduct the research, histopathological slides were prepared using five (n=5) hippocampus samples of each rabies-positive canine and cattle brains. The numbers of astrocytes, oligodendrocytes and microglia were counted in three high-power fields of the hippocampus and number of abnormal neurons was counted out of 30 random neurons in the hippocampus and calculated as a percentage of each slide. Data was analysed using an t-test. Due to the absence of a comparative histology between the two animal species, two (n=2) normal brain samples of each cattle and dog were obtained and analysed similarly. But no difference was found in terms of glial cell numbers. As per the results obtained, astrocytic and oligodendrocytic proliferation was higher in the rabies-positive dog. However, the microglial cell proliferation and neuronal damages were higher in rabies-positive cattle. Statistical comparison using t-test revealed that the differences between the species in terms of astrocytic proliferation ($p=0.0155$) and neuronal damage ($p=0.0027$) were significant, whilst the differences in terms of oligodendrocytic ($p=0.2616$) and microglial cell proliferation ($p=0.3134$) were insignificant. Thereby, it is proven by this study, that there is a difference in the pathology of rabies in the brains of dog and cattle, with regard to neuronal degeneration and glial cell proliferation.

Keywords: Rabies, Dog, Cattle, Glial cell proliferation, Neuronal cell degeneration

Organic Waste Bioconversion Through Black Soldier Fly Larvae: Application in a University Setting

Vijenthini S.[1], Fouzi M.N.M.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**mnmf@vet.pdn.ac.lk*

Black soldier fly larvae (BSFL) efficiently convert organic waste into protein rich biomass, providing a sustainable solution for waste management and producing valuable animal feed. This study assessed the potential of BSFL to process organic waste from the dairy farm and student canteen at the University of Peradeniya, focusing on larval growth performance and nutritional composition. BSF eggs were obtained from a commercial supplier in Kuliyapitiya and initially incubated in hen mash to support hatching and early development. Larvae were maintained in this substrate until five days (5 DOL) to ensure survival and optimal growth. At 5 DOL, larvae were transferred to three substrates: a control diet (broiler starter), canteen waste, and a 1:1 mixture of dairy farm and canteen waste. Growth performance was monitored every two days by measuring larval length and weight, while nutritional analyses including crude protein, crude fat, and crude ash were performed every four days. Larval growth varied significantly across substrates. Larvae fed on canteen waste achieved the highest growth, reaching 1.135 ± 0.112 cm in length and 44.83 ± 5.93 mg in weight, outperforming both control and mixed diets. Nutritionally, the control diet yielded the highest crude protein (up to 55.9%), canteen waste-fed larvae had the highest crude fat (up to 28.5%), and mixed-diet larvae had the highest crude ash content (up to 15.45%). Larvae at the age of 10 to 13 days maintained high protein levels across diets: 53.24% in the control, 45.52% in the canteen waste diet, and 49.98% in the mixed diet. Canteen waste-fed larvae also demonstrated the lowest feed conversion rate (FCR), highest bioconversion ratio, and a well-balanced nutrient profile. These findings highlight the importance of substrate composition in influencing both growth and nutritional quality of BSFL and underscore their potential as an effective, sustainable approach for organic waste bioconversion and production of high-value animal feed.

Keywords: Black Soldier Fly Larvae (BSFL), Growth performance, Crude protein, Crude fat, Crude ash

Acknowledgements: University Research Grant (URG/V/2019-60) and Mr. M.M. Mohamed Rila

Development of a LAMP-Based Diagnostic Kit for Identifying Pathogens Causing Canine Tick Fever

Vitharana B.V.S.N.[1], Fernando B.R.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**ruchika@vet.pdn.ac.lk*

Canine tick fever, caused mainly by *Anaplasma platys*, *Babesia gibsoni*, and *Ehrlichia canis*, is a major health concern in dogs. Accurate pathogen identification is vital, as treatment varies with species causing the disease. Clinical signs of anaplasmosis, babesiosis, and ehrlichiosis are similar, making diagnosis challenging. Conventional microscopy lacks sensitivity and specificity, requiring skilled personnel, while serology risks cross-reactivity and cannot distinguish active from past infections. PCR is accurate but costly, equipment-intensive, and time-consuming. Loop-Mediated Isothermal Amplification (LAMP) offers a rapid, sensitive, and field-deployable alternative, operating under isothermal conditions with minimal equipment. Species-specific LAMP primers for *B. gibsoni*, *E. canis*, and *A. platys* were designed. Due to limited samples, only the *B. gibsoni* assay was validated against microscopy and PCR. LAMP showed 61.9% sensitivity and 80% specificity compared to microscopy, while PCR detected *B. gibsoni* in all samples, including samples obtained from clinically healthy dogs. DNA sequencing confirmed these findings, revealing asymptomatic carriers. Results highlight LAMP's potential as a practical diagnostic tool for low-resource veterinary settings. Further validation for *E. canis* and *A. platys* is underway, aiming to develop a multiplex LAMP kit for commercial use.

Keywords: Canine tick fever, Loop mediated isothermal amplification assay, *Babesia gibsoni*, Veterinary diagnostics

Characterization of in-vitro Antimicrobial Properties of Native and Hydroxyapatite Coated Sodium Nitrite Against Uropathogenic *Escherichia coli* Strains

Wedisinghe N.H.[1], Bandara T.P.M.S.D.[2], Madanayake N.H.[3], Jinadasa H.R.N.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Botany, Faculty of Science, University of Peradeniya.

**rnjinadasa@vet.pdn.ac.lk*

Antimicrobial resistant (AMR) bacteria causing urinary tract infections (UTIs) are a growing concern in human and veterinary medicine. UTIs are among the most common bacterial infections worldwide, and *Escherichia coli* (*E. coli)* is the major cause of UTIs in companion animals. Rising antimicrobial resistance complicates treatment, with recurrent infections often occurring despite appropriate therapy. Since conventional antibiotics are losing efficacy, alternative approaches are needed. Sodium nitrite ($NaNO_2$) has shown potential to destroy *E. coli* by inhibiting biofilm formation and triggering bacterial self-destruction. This study investigated the ability of sodium nitrite to inhibit the growth of uropathogenic antimicrobial-resistant *E. coli* and whether hydroxyapatite nanocarriers can enhance the efficacy of sodium nitrite. Samples were collected from the Veterinary Teaching Hospital, University of Peradeniya. Initially samples were cultured on MacConkey agar, and the resulting colonies were sub-cultured on nutrient agar. Biochemical tests, Gram staining, and antimicrobial susceptibility tests were performed to isolate antimicrobial-resistant *E. coli* strains. In the experimental procedure, sterile urine that was filtered using 0.22 µm microfilters was used as the growth medium. First, 50 µL of *E. coli* (1.5×10^8 CFU/mL) suspension was added to 5 mL of sterile urine, and 1 M sodium nitrite was added to achieve a final concentration of 5 mM $NaNO_2$ in the sample. Vitamin C was added to a final concentration of 10 mM to act as an acidifier. Three control experiments were also performed; filtered urine with *E. coli* (1.5×10^8 CFU/mL) and 5 mM $NaNO_2$ without ascorbic acid, filtered urine with *E. coli* (1.5×10^8 CFU/mL) only, and filtered urine incubated without any additions as a sterility control. Samples were incubated at 37°C for 20 hours. Bacterial growth was measured at the start and after 20 hours of incubation using the serial dilution method. Results indicated a 75.81% reduction in the growth of uropathogenic antimicrobial-resistant *E. coli* in the sample treated with 5 mM sodium nitrite compared to the untreated control. These findings demonstrate that sodium nitrite possesses significant antimicrobial activity against uropathogenic antimicrobial-resistant *E. coli*. This promising finding paved the way for further research into its potential use in therapeutic applications.

Keywords: Urinary tract infections, *Escherichia coli*, Antimicrobial resistance, Sodium nitrite, Alternative therapies

Genetic Analysis of Feral Ponies of Delft Island, Sri Lanka, Based on Mitochondrial D-Loop Variations

Weerasinghe T.W.M.C.K.[1], Lokugalappatti L.G.S.[2*], Nizanantha K.[3]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[3]Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**slokug@vet.pdn.ac.lk*

Delft Island ponies represent a unique and isolated equine population with an unclear origin and significant conservation value. This study investigates the genetic diversity and evolutionary relationships of these ponies by analysing variations in the mitochondrial D-loop region. Twenty-five previously collected blood samples were used, and DNA was extracted using a commercial kit. PCR was performed with published primers. After quantification and electrophoresis, the best five PCR products were selected for bidirectional sequencing using Big Dye terminator chemistry. The resulting sequences were checked with NCBI BLAST to confirm the correct gene fragment, then edited and created input files with ingroups and outgroups. Comparative analyses were conducted using NCBI submitted global equine mitochondrial sequences to construct phylogenetic trees and assess genetic diversity through software including RAxML, MrBayes, Popart and Arlequin. Results revealed a high level of genetic variation within the Delft pony population, identifying five unique haplotypes absent from other global populations. Phylogenetic analysis showed that Delft ponies form a unique subgroup within European-Arabian clade, closely related to Croatian horses, with strong bootstrap support. Genetic diversity indices showed moderate to high variation with haplotype diversity of 1.000 ± 0.127, nucleotide diversity of 0.00878 ± 0.0061 with an expected heterozygosity of 0.5125. Pairwise FST values ranged from 0.32 to 0.81, indicating significant genetic differentiation between Delft and all other populations. In the mismatch distribution analysis, Delft Pony population Tau value was 3.000 and 0.02749 SSD value with high p value. Tajima's D was positive but non-significant but Fu's Fs results showed negative value with marginally non-significant p value. Mismatch distribution and neutrality tests emphasized a recent demographic expansion of the Delft population but without strong statistical support. AMOVA results also supported above findings with significant FST value of 0.34233. Overall, these results show that Delft ponies are genetically unique and diverse, likely because of their isolation conditions. Understanding the genetic makeup and evolutionary history of the Delft ponies provides good understanding about future conservation strategies. This research not only clarifies the origins of the Delft ponies but also contributes to the broader knowledge of equine genetics and the management of that population.

Keywords: Delft island ponies, Equine genetics, Mitochondrial D-loop, Genetic diversity, Phylogenetics

Extended Spectrum Beta Lactamase (ESBL) *Escherichia coli* in Commercial Chicken Layer Farms in Kurunegala District, Sri Lanka

Wickramarachchi A.[1], Karunarathna T.K.[2], Kottawatta K.S.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

** sanda@vet.pdn.ac.lk*

Antimicrobial resistance (AMR) is a growing global health threat, particularly among Gram-negative bacteria such as *Escherichia coli*, which can acquire and disseminate resistance genes. Extended-spectrum β-lactamase (ESBL) production is a key resistance mechanism, conferring reduced susceptibility to a wide range of β-lactam antibiotics and limiting treatment options. ESBL-producing *E. coli* are associated with increased morbidity and mortality and have been reported in humans, animals, and environmental sources. Poultry is a recognized reservoir, facilitating transmission of AMR to humans through contaminated food products, direct contact, or environmental exposure. In Sri Lanka, data on ESBL-producing *E. coli* in layer farms and surroundings remains scarce. This study aimed to determine the phenotypic and genotypic prevalence of ESBL E. coli among previously isolated and identified E. coli from layer farms in Kurunegala District. Thirty E. coli isolates, collected from the waterers and feeders of 52 commercial chicken layer farms and stored at -80 ºC were recovered on nutrient agar. Initially they were screened for ESBL production using the disk diffusion method, following the standards provided by CLSI, 2013. Thereafter, phenotypic confirmatory identification was conducted for the screened isolates using the Combination Disk Method as per the manufacturer's instructions. Additionally, they were tested for the ESBL-encoding bla_{TEM} gene using Polymerase Chain Reaction (PCR). AMR profiles of the isolates were identified using Kirby-Bauer disk diffusion method for 5 antibiotics. Of the 30 isolates, 14 (46.67%) were positive on initial screening. None were phenotypically confirmed as ESBL producers; however, all screened isolates tested positive for bla_{TEM} gene. AMR profiling showed the highest resistance to tetracycline (71%), followed by amoxicillin–clavulanic acid and trimethoprim/sulfamethoxazole (50% each). About 5% resistance was observed for meropenem, and all samples were susceptible to gentamicin. The detection of bla_{TEM} in phenotypically negative isolates highlights the potential for silent dissemination of ESBL genes in poultry farm environments. The resistance patterns observed suggest that excessive antimicrobial use in poultry production may be a contributing factor. These findings emphasize the need for ongoing surveillance, prudent antimicrobial use, and comprehensive strategies to reduce the spread of antimicrobial resistance from poultry farms to the environment and, to humans.

Keywords: Antimicrobial resistance, *Escherichia coli,* Extended-spectrum β-lactamase (ESBL), bla_{TEM} gene, Poultry layer farms

An AI-Powered Chatbot Bridging Information Gaps and Enhancing Stakeholder Support in the Sri Lankan Veterinary Sector

Wickramasinghe H. A. S. S. K.[1], Jayasooriya L.J.P.A.P [2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Basic Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**apjayasooriya@vet.pdn.ac.lk*

In Sri Lanka, many pet owners and even some veterinary professionals struggle to find reliable information about pet products, medicines, and services. This lack of access creates a noticeable technology and knowledge gap in the veterinary sector. Our research project attempted to address this issue by designing and testing an AI chatbot called Woolie. The main purpose of the chatbot was to provide localized veterinary information in a simple and trustworthy way. At the beginning, we carried out a survey to understand the actual needs of different users, including pet owners, veterinary students, and practicing vets. The results showed that most people wanted quick access to drug and product details, advice on common symptoms, and an easy way to locate clinics or shops nearby. Using these findings, we built Woolie with Node.js and Express.js for the backend, MongoDB for data storage, and integrated it with a conversational AI API. The development process was managed with Visual Studio Code and Git. Right now, the chatbot mainly does three things. First, it lets users check information on pet foods and medicines that are actually available in local markets. Second, it gives some basic guidance on common pet symptoms, but always with a reminder that only a vet can give proper treatment. Finally, it helps people find nearby clinics and pet shops without much hassle. When we tested these features with users, the feedback was encouraging. More than 70% of users said they would be willing to use Woolie again or even recommend it to others. Our observations from this project suggest that AI tools can be very helpful in improving access to veterinary information for everyone involved in pet care, including owners and veterinarians, in places like Sri Lanka. Woolie is still in its early stage, but it has already shown good potential for raising awareness about various aspects of pet healthcare.

Keywords: Artificial Intelligence, Chatbot, Veterinary, Sri Lanka, Pet care, Information gap

Investigation of the Optimum Dosages of Tricaine Methanesulfonate (MS-222) and Clove Oil for Anaesthesia in Different Life Stages of Goldfish

Wickramasinghe V.P.V.J.[1], Jagoda S.S.S. de S.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**samanthika@vet.pdn.ac.lk*

Anaesthesia is essential in fish husbandry and research, offering significant benefits for animal welfare. Proper anaesthesia reduces stress and pain during handling, surgical procedures and various experimental procedures, while ensuring ethical standards are met. However, its optimal application in fish remains less defined than in terrestrial animals. Dose and efficacy of anaesthetic agents depend on various factors such as water quality, size and the species of the fish and other environmental factors. The development of standardized anaesthesia protocols will ensure that fish are treated humanely, facilitating accurate and reproducible scientific results. Therefore, identifying optimum and safe dosages is necessary. This study aimed to determine optimal doses of clove oil and Tricaine methanesulfonate (MS-222) for anaesthetizing three life stages of goldfish- fry, juvenile, and adult. Each stage was exposed to three concentrations of both agents. For MS-222: fry and juveniles received 80, 90, and 100 mg/L; adults 90, 100, and 120 mg/L. For clove oil: fry received 50, 60, and 70 mg/L; juveniles 80, 90, and 100 mg/L; adults 100, 110, and 120 mg/L. Ten fish per dose were used. Optimal doses were determined based on quick induction (<3 minutes), rapid recovery (<5 minutes), and absence of toxicity. Statistical analysis was conducted to validate the significance of differences in induction and recovery times, supporting the reliability of the selected doses. Based on both statistical results and ideal anaesthetic properties, the recommended doses were identified as, MS-222 at 100 mg/L for all stages; clove oil at 70 mg/L for fry, 100 mg/L for juveniles, and 120 mg/L for adults. Anaesthetic stages were observed through consistent behavioural signs: reduced motility and opercular movements, decreased response to stimuli (Stage 1), partial loss of equilibrium (Stage 2), and complete unresponsiveness (Stage 3). These signs were clearly observed in juveniles and adults compared to fry. Clove oil produced deeper anaesthesia with longer recovery, while MS-222 demonstrated more predictable, dose-dependent induction. Both agents showed 100% survival during anaesthesia and 48 hours post-exposure. These findings emphasize the importance of selecting statistically supported, stage-appropriate doses to improve the efficacy, safety, and standardization of fish anaesthesia protocols.

Keywords: Fish anaesthesia, *Carassius auratus*, Optimum dosages, Tricaine Methanesulfonate (MS-222), Clove oil

Assessing the Point Prevalence of the Velogenic Newcastle Disease Virus in Backyard Poultry Located in Rathnapura Veterinary Office Range in Rathnapura District, Sri Lanka

Wijerathna W.K.P. [1], Satharasinghe D.A.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2] Department of Veterinary Basic Sciences, faculty of Veterinary medicine and Animal Science, University of Peradeniya.

**dilansatharasinghe@vet.pdn.ac.lk*

Newcastle disease (ND) is a widespread and important cause of loss in productivity of village poultry. It is caused by Avian Paramyxovirus type 1 (APMV-1) or Newcastle disease virus (NDV). NDV is a non-segmented, negative-sense, single stranded RNA virus in the family Paramyxoviridae. The infection takes place by inhalation or ingestion of the virus or by contact with mucous membranes, especially the conjunctiva. Clinical diagnosis based on history, signs, and lesions may establish a strong index of suspicion, but the laboratory confirmation must be done. Common diagnostic methods include hemagglutination-based assays, and molecular techniques such as reverse transcription polymerase chain reaction (RT-PCR) can be used for confirmation of the ND virus. The aim of this study was to detect and estimate the point prevalence of NDV in village poultry using an optimized SYBR Green-based quantitative PCR (qPCR) assay. Oropharyngeal swab samples were collected and preserved for RNA extraction. Reverse transcription was performed to synthesize cDNA from the extracted RNA. PCR amplification and melt curve analysis were performed using SYBR Green based qPCR assay by targeting the NP gene and the assay produced a single melt peak corresponding to the LaSota lentogenic vaccine strain, confirming specificity. Point prevalence was assessed by determining the proportion of NDV-positive samples using this optimized qPCR method. However, with the assay's sensitivity, all field samples tested negative, indicating no detectable NDV in the sampled population at the time of the study. This approach allows for the detection and quantification of NDV in poultry populations, providing an estimate of the point prevalence. These results are crucial for understanding the current epidemiological status of NDV in village poultry implementing appropriate control measures.

Keywords: Avian Paramyxovirus type 1, Oropharyngeal swabs, quantitative PCR, cDNA, lentogenic

Acknowledgements: University Research Grant (URG/V/2019-60)

Infectious Coryza in Backyard Poultry: A Case Study from Monaragala District, Sri Lanka

Wikramasingha R.M.R.P[1], Sulochana H.L.G.S[2], Jayawardane P.G.T.S[2], Wijesekera D.P.H[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

[*]himali@vet.pdn.ac.lk

Infectious coryza (IC) is an acute, highly contagious respiratory disease in poultry caused by Avibacterium paragallinarum, significantly impacting poultry health and productivity, especially in developing countries like Sri Lanka. The study focused on backyard poultry in the Monaragala District, characterized by small-scale farming. Sampling involved 23 farms with nasal and tracheal swabs collected from symptomatic and dead chickens. Isolation was done on chocolate agar and blood agar, with biochemical tests, PCR, and 16S rRNA sequencing planned for characterization. The disease prevalence was found to be 4.4% among the samples. Antimicrobial susceptibility testing showed susceptibility to gentamicin, oxytetracycline, enrofloxacin, and cotrimoxazole. Clinical signs observed included nasal discharge, conjunctivitis, facial swelling, and mucous in the nasal passages. Pathogen identification showed typical features of A. paragallinarum, including gram-negative bacilli morphology, negative indole and urease tests, and colony morphology consistent with known characteristics. Disease transmission is primarily bird-to-bird via the respiratory route and contact with contaminated feed and water. Risk factors include poor biosecurity, multi-age flocks, overcrowding, poor ventilation, and movement of birds between households. Control measures in the area could benefit from better biosecurity, flock management, vaccination, and early antimicrobial treatment. The study highlights the importance of further molecular analysis and sequencing for precise identification and understanding of local strains. Overall, this research provides valuable epidemiological and microbiological data on infectious coryza in backyard poultry in the Monaragala District, addressing a gap in local scientific literature and offering practical insights for disease control in Sri Lanka's rural poultry production.

Keywords: Infectious Coryza (IC), *Avibacterium paragallinarum*, Backyard poultry, Monaragala District, Sri Lanka

Prevalence of *Escherichia Coli* O157:H7 in Cow Dung Used as Fertilizer and Its Impact on Contamination of Vegetables in Upcountry

Wimalasooriya S.A.A.V.B.[1], Kottawatta K.S.A.[2], Karunarathna H.M.T.K.[2*]

[1]Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,
[2]Department of Veterinary Public Health & Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya.

**thusithakarunarathna@vet.pdn.ac.lk*

Escherichia coli (E. coli) O157:H7 is a significant zoonotic pathogen capable of causing severe gastrointestinal illnesses in humans including bloody diarrhea, hemorrhagic colitis, and hemolytic uremic syndrome (HUS). Contamination of vegetables through the use of untreated cattle manure as fertilizer represents a potential public health risk, particularly in mixed crop–livestock farming systems. This study aimed to investigate the potential risk of contamination of vegetables through the use of cattle manure as fertilizer in upcountry mixed crop-livestock farming systems of Sri Lanka. A total of 28 samples, comprising fresh cattle dung and associated vegetable samples, were collected from three mixed crop-livestock farms in Galpalama, Nuwara Eliya. Samples were enriched using buffered peptone water and cultured on CT-SMAC agar to isolate presumptive *E. coli* O157:H7 colonies. Colorless colonies suggestive of non-sorbitol fermenting *E. coli* were further analyzed using biochemical tests and polymerase chain reaction (PCR) targeting the *eaeA* and *fliC*h7 genes. Although presumptive colonies were observed, molecular analysis did not confirm the presence of *E. coli* O157:H7. Positive and negative controls have given the expected results highlighting the use of correct methods for detection of *E. coli* O157:H7. These findings suggest a low or undetectable levels of *E. coli* O157:H7 in the sampled locations, yet highlight the importance of routine surveillance and hygienic handling practices in manure-based vegetable farming. The study contributes valuable baseline data for future investigations and reinforces the need for good agricultural and food safety practices to mitigate potential health risks.

Keywords: *Escherichia coli* O157:H7, Hemolytic uremic syndrome, Cattle manure, Vegetable contamination, PCR

Organizing Committee

• Dr. A.W. Kalupahana (Dean, Faculty of Veterinary Medicine and Animal Science)

• Prof. R. S. Kalupahana (Chairperson, Faculty Research Committee)

• Prof. K. A. N. Wijayawardhane (Chairperson, Veterinary Medical Education Unit)

• Mr. M. I. L. De Zoysa (Deputy Chairperson, Veterinary Medical Education Unit)

• Dr. N. M. T. Anupama

• Prof. A. Dangolla

• Dr. R.M.S.B.K. Ranasinghe

• Dr. S.S.S. de S. Jagoda

• Dr. K.S.A. Kottawatta

• Dr. N.D. Karunaratne

• Dr. M. L. W. P. De Silva

• Mr. S. Ekanayake (Senior Assistant Registrar, Faculty of Veterinary Medicine and Animal Science)

Special Acknowledgements

Dr. I. D. V. L. Dharmawardhana, Director (Retired), Ministry of Livestock Development and Rural Economy and Consultant Veterinary Surgeon (Poultry), for His Generosity in Sponsoring “Dr. Vijitha Dharmawardhana award for the best final year research project related to poultry industry”.

Financial Assistance by

Senate Research Council, University of Peradeniya