75th Annual Scientific Sessions
Sri Lanka Veterinary Association

Programme and Abstracts

15th September 2023
The Grand Kandyan Hotel
Kandy
Sri Lanka

SRI LANKA VETERINARY ASSOCIATION
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ANNUAL SCIENTIFIC SESSIONS
SRI LANKA VETERINARY ASSOCIATION

15th September 2023
The Grand Kandyan Hotel, Kandy

Programme

8.30 a.m. – 9.00 a.m.	Registration
9.00 a.m. – 9.15 a.m.	Arrival of the Guests and Ceremonial Procession
9.15 a.m. – 9.30 a.m.	National Anthem and Traditional Lighting of the Oil Lamp
9.30 a.m. – 9.40 a.m.	Welcome Address by Dr. Dilan Satharasinghe President, Sri Lanka Veterinary Association
9.40 a.m. – 9.50 a.m.	Address by the Guest of Honour Dr. Nimal Jayaweera Additional Secretary, Ministry of Agriculture
9.50 a.m. – 10.05 a.m.	Presentation by the Platinum Sponsor Dr. Susil Silva Head of Animal Utilization, SAASSA US Soybean Export Council
10.05 a.m. – 10.20 a.m.	Address by the Chief Guest Prof. Hemantha Dodampahala Chairman, National Research Council - Sri Lanka
10.20 a.m. – 10.25 a.m.	Vote of Thanks by Dr. Kaundika Wanigasundara Secretary, Sri Lanka Veterinary Association
10.25 a.m. – 10.40 a.m.	T E A
10.40a.m. – 10.45 a.m.	Opening Remarks for Scientific Sessions Dr. Rasika Jinadasa Chair, Scientific Sessions
10.45a.m. – 11.10 a.m.	Keynote Speech via virtual platform Dr. Hirofumi Kugita Regional Representative for Asia and the Pacific World Organization for Animal Health, Tokyo, Japan
11.10 a.m. – 11.30 a.m.	Plenary Speech via virtual platform Prof. Naoki Isobe Graduate School of Integrated Sciences for Life Hiroshima University, Japan

Parallel Technical Sessions: Session I

11.30 a.m. – 1.00 p.m.	Clinical, Wildlife & Aquatic Medicine, Public Health and Animal Production, Poster presentations
1.00 p.m. – 2.00 p.m.	LUNCH

Parallel Technical Sessions: Session II

3.00 p.m. – 3.45 p.m.	Clinical, Wildlife & Aquatic Medicine, Animal Health Poster presentations
3.45 p.m. – 4.00 p.m.	Appreciation for the Scientific Committee, Session Chairs & Judges of Scientific Sessions 2023
4.00 p.m. – 4.10 p.m.	Vote of Thanks – Dr. Nilukshi Liyanagunawardena Secretary, Scientific Sessions

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Message from the Guest of Honor

Dr. Nimal Jayaweera
Additional Secretary (Livestock Development)
Ministry of Agriculture

I would like to begin by expressing my sincere gratitude for the invitation to join you as the guest of honour at the 75th Annual Scientific Sessions of the Sri Lanka Veterinary Association. It is indeed an honour and a privilege to stand before such a distinguished gathering of veterinarians and professionals in the field.

The Sri Lanka Veterinary Association (SLVA) holds a special place in the hearts of veterinarians across the nation as it is the largest organization of veterinary professionals in Sri Lanka. Since its inception, the SLVA has consistently worked tirelessly to advance our noble profession. I must acknowledge the immense support and cooperation extended by the Ministry of Agriculture and the Department of Animal Production and Health (DAPH) in facilitating the activities of the Sri Lanka Veterinary Association. The Annual Scientific Session is undeniably a cornerstone event in the veterinary calendar. It serves as a vital platform for our profession, offering an unparalleled opportunity to share scientific knowledge, introduce new innovations, showcase cutting-edge technologies, and present the latest research findings. This forum is the lifeblood of our profession, equipping our membership with the most up-to-date information and steering them toward new horizons in various disciplines.

This year's chosen theme, "One Health for Food Safety and Sustainable Production," resonates profoundly with the current global context. Food safety issues have become increasingly prevalent, and the concept of One Health collaboration has never been more crucial. The Ministry and the Department have actively engaged in various One Health forums, including the International Health Regulations-Performance of Veterinary Services (IHR-PVS) One Health Bridging Workshop and the IHR-Joint External Evaluation (IHR-JEE), where food safety has been a prominent topic of discussion. I am pleased to share that the DAPH has initiated a surveillance system in poultry meat production targeting food safety and the export market requirements. Ministry is in the process of developing safety standards for foods of animal origin, with the final draft for the standards for raw milk recently completed in collaboration with stakeholders and relevant ministries.

I am confident that the scientific knowledge and skills shared during this event will play a pivotal role in the development of the livestock sector in Sri Lanka. The findings presented here today will undoubtedly find their way into future development programs, further contributing to the growth and sustainability of our nation's agriculture and food production.
In closing, I extend my heartfelt wishes for success to all the authors and presenters participating in today's event. Your dedication to advancing the field of veterinary medicine is commendable, and your contributions are invaluable. I also extend my best wishes to the Sri Lanka Veterinary Association in all its future endeavours. May you continue to be a beacon of knowledge, collaboration, and progress in the years to come.

Thank you, and I look forward to the enlightening discussions and presentations ahead.

Message from the Chief Guest

Professor Senani Hemantha Dodampahala
Professor in Obstetrics and Gynaecology, University of Colombo
President, Sri Lanka College of Obstetricians and Gynaecologists
Chairman, National Research Council, Sri Lanka

There is no end to scientific discovery or scientific progress in this world. Scientific progress or discoveries are always based on evidence and the main method of uncovering evidence is the paradigm of research. Therefore, it is imperative that developing countries like Sri Lanka engage in constructive research activities to move forward and to uncover pathways towards sustainable and inclusive development.

The theme of this year's SLVA conference is "One health for food safety and sustainable food production" and I believe that this theme is very relevant for Sri Lanka. Food security and sustainable food production have emerged as Non-traditional security threats which can affect the political, economic and cultural paradigms of any nation state. Especially with the spread of zoonotic diseases, the development of anti-microbial resistance, the lack of spending on promoting public health care and the breakdown in food supply chains due to the economic crisis have all severely affected developing countries in various means and ways. One such means to critically engage with such issues would be the one health approach, which is holistic and multisectoral combining of human, animal and plant life. This holistic approach will open avenues for novel research activities and create alternative outlooks and spaces for research and development. I, as the chairman of the National Research Council, have always been engaged in promoting such constructive research activities across the country. I have also provided funding wherever possible to promote such research and development activities. We are also now in the process of presenting Presidents Awards to acknowledge the quality research done by our scientists covering diverse fields in Sri Lanka which we hope will act as a catalyst for upcoming researchers.

Further, it is important that professional bodies like the SLVA develop and strengthen their research foundations through activities like these. For example, the Sri Lanka College of Obstetricians and Gynecologists, of which I am a member and the current President, has its own research journal, and carries out a variety of activities to promote research and development activities within the association. Such activities do have wider social benefits as they will always work towards improving the paradigm of health as a whole. I hope the SLVA will also move towards such a broad paradigm in terms of its research activities and output.

I would also like to take this opportunity to offer my best wishes to the SLVA for organizing this event and hope it will carry on these rich traditions to further the research and development activities of this country.

Keynote Speech

"Animal health is everyone's health – WOAH's approach and perspective"

Dr. Hirofumi Kugita
Regional Representative for Asia and the Pacific
World Organization for Animal Health (WOAH), Tokyo, Japan

The World Organisation for Animal Health, whose acronym "WOAH", was founded in 1924 as the Office International des Epizooties (OIE). As an intergovernmental organisation responsible for improving animal health and welfare worldwide, the WOAH focuses on transparently disseminating information on animal diseases, improving animal health globally and thus build a safer, healthier and more sustainable world.

In the current trend of globalisation, animal health measures have increasing importance to facilitate safe international trade of animals and animal products while avoiding unnecessary impediments to trade. As a WTO reference organisation for standards relating to animal health and zoonoses, the WOAH works to set and update its international standards (WOAH Codes and Manuals) regularly through transparent and democratic procedures.

WOAH RRAP serves as the Secretariat of the Regional GF-TADs Steering Committee for Asia and the Pacific, which is a joint FAO/WOAH coordination mechanism, and organises regular meetings to promote TADs control in the region, particularly for regional priority TADs, namely FMD, PPR, AI, ASF and LSD.

Under the "One Health" concept, FAO, WHO and WOAH, known as "Tripartite", have been working together both at global and regional level to effectively address the risk at the human-animal-ecosystem interface and the negative impacts associated with zoonotic diseases. In March 2022, UNEP joined the Tripartite as an equal partner to form a new Quadripartite Collaboration for One Health and agreed on the One Health Joint Plan of Action, which identified six "Action Tracks", to be implemented by members under multisectoral collaboration.

The Veterinary Services are crucial for the prevention, early detection and control of animal diseases, including those transmissible to humans. WOAH develops specific tools based on the PVS Pathway, under which WOAH conducts, at the request of members, missions to evaluate and support the performance of their Veterinary Services. WOAH also works on strengthening Veterinary Education, Veterinary Workforce Development, Public Private Partnership to effectively support the Veterinary Services.

Plenary Speech

"Innate immunity of mammary gland and recent developments in treatments for mastitis in Japan"

Professor Naoki Isobe
Graduate School of Integrated Sciences for Life
School of Applied Biological Science
Hiroshima University
Japan

Mastitis is the most economically important disease in dairy cows. It causes huge economic losses to the dairy industry due to milk discard, poor milk quality, and low yield of value-added dairy products. The direct negative economic impact of premature culling of high-yielding animals, cost of treatment, and carrying of antibiotic residues in milk further discourage dairy farming in the world. In Japan, it has been estimated that the annual economic loss from mastitis is about $800 million. The most common method of treating mastitis is by infusion of antibiotics to the affected quarter. However, the mammary tissue itself has an innate immune mechanism to suppress the infection where antibiotic-free methods have recently been recommended. The objective of this presentation is to introduce two such methods. The first is intra-mammary lavage. This method is simple; saline is infused into the udder and then drained; this process is repeated several times. Since it is simple, it can be performed by farmers and is inexpensive. Moreover, it has also been reported to be effective. The second is the temporal cessation of milking. This method was developed in Japan, and it involves stopping the milking of the inflamed udder quarter for three days after antibiotic infusion. The advantage of this method is that the infused antibiotic remains in the udder quarter, so it is effective. However, it is only effective for some gram-positive bacteria, such as *Streptococcus uberis,* and symptoms may worsen in the cases where other bacteria are involved. Although new methods are being developed, mastitis still occurs; therefore, preventive efforts, such as vaccines, should be focused on.

Technical Sessions: 75th Annual Scientific Sessions of SLVA

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Session Chair – Dr. Chandika Wickramasinghe		Page No
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11.45-12.00	Perineal urethrostomy in recurrent urethral obstruction due to feline lower urinary tract disease *A. Peiris* and D. Siriwardane*	2
12.00-12.15	Detecting anaplasmosis as a cause of hemoglobinuria in goats in the mid-country of Sri Lanka *Y.K. Jayawardana, G.M.Vidura, S.U.G.Amarasena, B.K. Ketapearachchi, N.M.T. Anupama and G.D.R.K.Perera**	3
12.15-12.30	Successful surgical management of colonic intussusception in a heifer: a Case Report *G.M. Vidura, N.T. Hewagamage, Y.K. Jayawardana, D.L.D.A. Lakshan, P.R. Danthanarayana, R.M.A.N. Senevirathne and K. Nizanantha**	4
12.30-12.45	Protothecosis in dogs and cattle: A disease caused by a parasitic algae *B.M.L.N. Bandaranayake, K.A.R. K. Perera, Y. V. Wickramasinghe, R. A. U. Kaushalya, G.M. Vidura, M.M. K. S. Senevirathne, E. M. U Dissanayake, A. S. Fernando, T. A. Manathunga, R.M.N.S. Nuwanshika, G.A.D.K.K. Gunathilaka, P.V.H.N.K. Poonahela, T. P. M.S. D Bandara, D. R. A. Dissanayake and H. Ariyarathna**	5
12.45-1.00	Clinical presentation and surgical management of chronic intestinal pseudo-obstruction at the ileocecal junction in dogs: A retrospective case series *G.A.D.K.K. Gunathilaka, T.M.S.K. Piyadasa, B.S. Abeykoon, H.D.S. Hewapathirana, B.M.L.N. Bandaranayaka, R.A.U. Kaushalya**, R.G.W. Sirimanna, E.R.K.V. Edirimanne, H.S. Ariyarathna and E. Rajapaksha*	6

Parallel Technical Sessions I – Wildlife & Aquatic Medicine Session (11.30 a.m. – 1.00 p.m.)		
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11.45-12.00	Success of the orphan elephant rehabilitation program at the Elephant Transit Home, Udawalawe, Sri Lanka *B.V. P. Perera*, B.A.D.S. Jayawardena, P. Dewasurendra, N. Kumudini, G.A.T. Prasad, M. K. Abeywardena, K. P. Samarakoon, B. G. S. S. Gamage, S. Suranjith and K. Dhammi*	8
12.00-12.15	Circulating insulin-like peptide 3 and testosterone concentrations in three male Bengal tigers (*Panthera tigris tigris*) *O.B. Gunawardena, M.H.D. Madumadhawa, P. Ediriwarna, S.T.D. De Silva, E. Pathirana and I.N. Pathirana**	9
12.15-12.30	The first confirmed SARS-COV-2 infection in a captive African lion (*Panthera leo*) in Sri Lanka: A case report *K. M. P. Perera*, D. K. Sonnadara, R. C. Rajapaksa, K. K. Sumanasekera, and D. A. Satharasinghe*	10
12.30-12.45	Qualitative assessment of air rifle injuries in purple faced leaf monkeys: Case reports *B.A.D.S. Jayawardhana, M.M.K.G. Mallawa*, P. Dewasurendra and G.A.T.Prasad*	11
12.45-1.00	Diurnal pattern of salivary cortisol and changes following an exogenous adrenocorticotrophic hormone (ACTH) stimulation in Asian Elephant calves *B. V. Perera*, A. Silva-Fletcher, C. Thitaram and J. L. Brown*	12

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11.45-12.00	Evaluation of the impacts of Covid- 19 pandemic and the present economic crisis on the animal feed industry in Sri Lanka *D.M.U.N.K. Dunuwila*, S.S.K. Daluwatta and D.L.N. Kumudinie*	14
12.00-12.15	Effect of pre incubation storage duration on embryonic development, hatchability and yolk free biomass in Cobb 500 broiler hatching egg *K.W.I. Eranga, P.K. Kospalawaththe2* and P. Manjula*	15
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12.45-1.00	Serological evidence of the presence of multiple serovars of leptospirosis among dairy farms situated in Nochchiyagama divisional secretariat division, in North Central Province of Sri Lanka *N.C.M. Cooray, G.M.T.M. Herath, P.S. Fernando, M.A.R. Priyantha, K.H.M.S.M. Herath and C.D. Gamage**	18
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2.15 – 2.30	Surgical correction of urethral proplapse in five male dogs *A. Thennakoon* and A. Dangolla*	37
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2.15 – 2.30	An improved DNA extraction method for the PCR detection of microsporidian parasite *Enterocytozoon hepatopenaei* in shrimp feces Samples *K.L.N. Ananda*[1], *A.H.K.DE.S. Wijayawickrama*[1], *R. M. N. P. K. Ranathunga*[3], *N.M.T. Anupama*[2] *A. W Kalupahana*[1] *and S.S.S. de S. Jagoda*[1*]	41
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Parallel Technical Sessions II – Animal Health Session (2.00 p.m. – 4.00 p.m.)		
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A case of disseminated transmissible venereal tumour in a 4-month-old crossbred puppy

H.E.M.K. Kanishka[1], D.R.A. Dissanayake[1], K.A.R.K Perera[1], M.T.A. Manathunga[1], K.W.D.M.Y.W. Wickramasinghe[1], K.M.G.W.C.P.B. Abeyratne[1], P.V.H.N.K. Poonahela[2] and H.S. Ariyarathna[1*]

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A 4-month-old crossbred intact male puppy weighing 10kg was presented for severe dyspnoea, coughing and reduced appetite for 2 months. The water intake of the puppy was normal. The puppy had been previously treated with antibiotics for 3 months without any success. Tachypnoea (180/min), rapid shallow breathing and mild generalized lymphadenomegaly were identified in the physical examination. The differential diagnoses for dyspnoea were pulmonary oedema and pneumonia. The plain right lateral thoracic radiographs contained multifocal to coalescing irregular radiopaque foci in all lung lobes but with varying density. Complete blood count revealed moderate neutrophilic leukocytosis. Based on the radiographic findings and absence of response to previous antibiotic therapy the condition was tentatively diagnosed as fungal pneumonia, nasal swabs were obtained for fungal culture and treatments for fungal pneumonia was started (itraconazole 5 mg/kg, 24 hrs). After 2 weeks, no fungal growth was reported, and the puppy's condition found to remain the same in the second visit except for numerous variably sized nodules observed on the skin and conjunctivae. Fine needle aspirations obtained from the nodules contained a round cell population with cytological features consistent with canine transmissible venereal tumour (cTVT) including eccentric nuclei with single prominent nucleoli and lightly basophilic cytoplasm with clear punctate vacuoles. Abdominal ultrasound scanning revealed multiple well demarcated hypoechoic areas in the liver parenchyma. Based on the laboratory findings and absence of response to previous treatments, disseminated cTVT was suspected and treated with vincristine sulfate (0.25 mg/kg IV). In the next follow-up after one week, the puppy was only mildly dyspnoeic, the radio opaqueness in the lateral thoracic radiographs were markedly reduced and cutaneous nodules were absent. The owner was advised for weekly follow-ups. Disseminated cTVT is rare and even rarer in puppies. Although mainly a sexually transmitted tumour, cTVT, lesions are possible to occur in extragenital sites of sexually immature dogs. Occasionally, cTVT may metastasise from original sites in immune compromised dogs. In the present case, it was not possible to identify the source of the disease, but dissemination was suspected to occur due to the very young age of the puppy where immune system is naïve.

Perineal urethrostomy in recurrent urethral obstruction due to feline lower urinary tract disease

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Perineal urethrostomy is recommended in cats with irresolvable or recurrent obstruction or permanent urethral narrowing. Feline lower urinary tract disease (FLUTD) is a spectrum of disease that causes recurrent urethral obstruction. The objective is to describe the surgical intervention in urethral obstruction due to FLUTD. Seven cats with FLUTD which did not respond to medical treatments with more than two episodes of recurrent obstruction were included. Blood urine analysis, ultrasonography, radiographs, and urine culture with antibiotic sensitivity testing (ABST) were performed. Cats were sedated and cefuroxime was administered preoperatively. Anesthesia was induced with propofol and maintained with isoflurane. The cats were positioned on sternal recumbency with supported hind legs hanging down. A catheter was intact during the procedure. An elliptical incision was made around the penis and prepuce. Surrounding tissue were dissected along the penile body towards the penile attachment at the ischiocavernous muscles, while preserving vessels and nerves supplying to urethral muscles. Ischiocavernous muscles were transected and the fibrous tissue which connects the penis to the pubis was separated. The retractor penis muscle was incised. An incision was made along the dorsal midline of the penis to the urethral lumen. Starting from the dorsal urethral opening and cutting on the dorsal midline cranially to the level of the cranial extent of the bulbourethral glands, until the urethral diameter is large enough to insert a large forcep. While the prepuce was pulling ventrally, pelvic urethral mucosa was sutured to the skin. The distal end of the penile urethra was amputated, and a suture was placed on the ventral penile body at this level. The remaining skin and penile urethral mucosae were sutured. Cefuroxime and meloxicam were continued for one week. All cats were examined for recurrence of FLUTD, haematuria, hemorrhages, urinary tract infection (UTI), and urinary incontinence. Two cats had penile urethral bleeding, two cats had inflamed surgical site, two cats had haematuria and one cat had infected suture line which were resolved later. One cat had a UTI within the first two weeks and one cat had UTI five months after the surgery. Perineal urethrostomy relieves pain and suffering of cats affected with recurrent obstruction or permanent urethral narrowing while improving the quality of life. It can be considered as a salvage procedure to enlarge the urethral diameter in affected cats to enrich life.

Detecting anaplasmosis as a cause of hemoglobinuria in goats in the mid-country of Sri Lanka

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A four-month-old intensively managed female goat kid was brought to the Farm Animal Veterinary Teaching Hospital with the complaints of red-colored urine, anorexia (for 2 days), and cough (for 3 days). Physical examination revealed a positive tracheal sensitivity test and lung congestion. Heart rate, respiratory rate, temperature and the full blood count (FBC) results were within normal ranges while a fresh urine sample was positive for haemoglobinuria. Thin smears of peripheral blood, stained with Leishman's stain, revealed the presence of *Anaplasma* species, apparently *A. marginale* and *A. centrale* but not *A. ovis*. To confirm the species, DNA was extracted using the 'Bioflux® DNA extraction kit and PCR was performed using previously published primers: *A. marginale* forward primer (5'-ACCTTCTGCTGTTCGTTGCT-3'), *A. marginale* reverse primer (5'-CAAAATCGCCGCTACTGACG-3'), *A. centrale* forward primer (5'-AGGGGA TAGCCTCTGCATCT-3'), and *A. centrale* reverse primer (5'-ATTCCTAGCTCGGTAGGGCA-3'). The PCR targeted approximately 180bp segment of the MSP5 protein gene of *A. marginale* and a 142bp segment of the MSP5 protein gene of *A. centrale.* The PCR product was visualized through 2% agarose gel electrophoresis, revealing bands at 180bp and 142bp, corresponding to *A. marginale* and *A. centrale*, respectively. The goat kid was admitted to the hospital and treated with oxytetracycline 5% ('Vetocycline'® - 2.5ml administered slow-intravenously, daily), dexamethasone 0.2% ('Hado Dexa'® - 2ml intramuscularly for 3 days), and vitamin B12-butaphosphan combination ('Catasal'® 3ml intramuscularly at 3-day intervals). After 7 days of treatment, the parasites were negative in the blood smear, and the goat kid was discharged with fully recovery. It is recommended that *A. marginale* and *A. centrale* be considered in the differential diagnosis for goats exhibiting haemoglobinuria in the future in Sri Lanka. These findings would be supportive for the planning of treatments and preventive measures for *A. marginale* and *A. centrale* in goats as well.

Keywords; Goat, Haemoparasites, *A. marginale*, *A. centrale*

Successful surgical management of colonic intussusception in a heifer: a Case report

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Causes of intussusception include irregular peristalsis related to enteritis, severe intestinal parasitism, dietary disorders and mural masses. Four types of intussusceptions are recognized in cattle according to the anatomical location: enteric, ileocecocolic, cecocolic and colonic. A one-year-old heifer (150kg) was referred to the Farm Animal Veterinary Teaching Hospital with the complaint of distended abdomen, anorexia and absence of defecation over two weeks. Diarrhoea was reported before the onset of above clinical manifestations. General clinical examination revealed 10% dehydration, pale mucous membrane and right abdominal enlargement. Per-rectal examination showed scanty faeces with blood-tinged mucus. A hard mass was palpated during right paralumbar percutaneous palpation. Full blood count and plasma protein level revealed polycythaemia and hyperproteinaemia. Faecal salt flotation was positive for strogyle eggs. Standard surgical procedure was followed for right flank laparotomy under general anaesthesia with 2% xylazine HCL (0.1mg/kg IM) and 10% ketamin HCl (2mg/kg IV).10% Ketamin HCl was topped up intermittently during the surgery. The hyperemic intussuscepted mass (12cm) was exteriorised, two clamps were applied on either side of the mass over the healthy part of intestine and resected. To maintain the intestinal luminal patency for proper suturing, a new method was adopted by inserting a partially ripened banana into the intestinal lumen. End-to-end anastomosis and suturing of mesenterial pouch was done by continuous suture pattern with Vicryl (USP 3/0). The banana was crushed intraluminally and anastomosed site was checked for leakage and replaced into the abdomen. Abdominal lavage was done with luke normal saline and place-diluted procaine benzyl penicillin and the laparotomy incision was closed. Fluid therapy (normal saline and 50% dextrose, IV) and flunixine meglumine 10ml IV, vitamin B complex 10ml IM were administrated for five days. Standard post-surgical wound management was followed. Animal passed faeces next day and discharged after five days of surgery without any complications. Gastrointestinal parasitism which can lead to intussusception should be prevented by appropriate deworming. Intussusception can be surgically corrected successfully under local conditions by ensuring intestinal luminal patency and standard surgical procedure.

Keywords: Intussusception, cattle, gastrointestinal parasitism, resection and anastomosis

Protothecosis in dogs and cattle: A disease caused by a parasitic algae

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Protothecosis is a zoonotic disease caused by unicellular, achlorophyllous, intracellular, microalgae found in fresh and marine water, soil, mud and sewage. The predominant form of protothecosis varies between animal species such as mastitis in cattle, disseminated diseases in dogs and cutaneous form in humans and cats. Protothecosis is mostly refractory to treatment with limited response to itraconazole and amphotericin B. This clinical communication describes five disseminated and one cutaneous canine protothecosis cases reported in dogs (male=5, female=1) aging 1 ½ -6 years and one prototheca mastitis case in cattle. The main presenting complaints of dogs with disseminated form was haematochesia (n=5) and ocular lesions including uveitis (n=5), blindness (n=3), retinal detachment (n=2) and granulomatous retinitis (n=1). One dog had severe renal insufficiency. Other than a firm cutaneous lump, the dog diagnosed with cutaneous protothecosis was clinically normal. Prototheca mastitis that was resistant to repeated antibiotic therapy was diagnosed in a 3-year-old Friesian x Jersey cow from a small holder farm at Mawanella. In all canine cases initial diagnosis was attempted by feaecal cytology (n=5) and cutaneous cytology (n=1) followed by microbiological culture and identification using Sabouraud's Dextrose Agar (SDA) (n=3). The typical cytological features of prototheca included oval shape organisms of 7-10 x 8-20 µm with a prominent, clear cell walls and small centrally located inconspicuous nuclei often obscured by dark basophilic cytoplasmic granules. In addition, sporangia containing multiple wedge shaped sporangiophores were also identified. Prototheca mastitis was diagnosed by SDA culture followed by cytology. Except one, all the dogs diagnosed with disseminated protothecosis were treated with itraconazole (5mg/kg q 24) and one dog with itraconazole and amphotericin B (0.5 mg/kg q 24) which was the only disseminated prototheca case that showed a moderate improvement with treatments. Prototheca mastitis was detected in one of the four quarters in the said cow and the farmer stopped milking from the affected quarter after the diagnosis was made. Protothecosis is previously reported in Sri Lanka and these findings suggest that protothecosis needs to be included as a differential in dogs presenting with haematochesia/ocular/cutaneous lesions and mastitis in cattle non-responsive to antibiotics.

Keywords: Protothecosis, mastitis, haematochesia, uveitis, blindness

Clinical presentation and surgical management of chronic intestinal pseudo-obstruction at the ileocecal junction in dogs: A retrospective case series

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Chronic intestinal pseudo-obstruction (CIPO) is a rare condition characterized by intestinal dysfunction mimicking obstruction without an actual mechanical impediment. This retrospective study reviews the clinical presentation, diagnosis, surgical interventions, and treatment outcome of CIPO at the ileocecal junction in five Crossbred, one Boxer, one Great Dane and a Labrador. The median age was 6.25 years (range, 3.5 - 11 years). Consistent clinical signs included vomiting (8/8), irregular or no defecation (8/8), distended abdomen with visible intestinal loops (8/8) and progressive weight loss (8/8). The chronology of presentation was 14 to 196 days. Imaging results revealed severely dilated small intestines (8/8) and hypomotile small intestines (8/8). Complete blood counts, liver panels, and kidney panels were conducted for all dogs, with unremarkable findings. Dogs had received combinations of immune-modulatory, antimicrobial, antiemetic, and fluid treatments by referring veterinarians with no improvement. Exploratory laparotomy was performed on all dogs and hypomotile, distended small intestines with regular pulse, was observed during the surgery. Restoration of the passage of ingesta was achieved by ileocolostomy (a bypass technique) caudal to the caecoocolic junction in seven dogs while only the evacuation of intestinal materials proved sufficient to establish patency in one dog. Extra care was taken during the bypass procedure to minimize the risk of contamination. Ceftriaxone (20mg/kg), Metronidazole (15mg/kg), antiulcer drugs, analgesics, normal saline, lactated ringers' and 50% dextrose were administered postoperatively. Outcomes were diverse, with four dogs surviving (clinical recovery period; 3-7 days), three dying within the following day, and the dog without the bypass eventually died two weeks after exhibiting prolonged clinical signs. The etiology of CIPO in dogs remains multifactorial and early diagnosis is crucial. There are few options of the bypass procedure including complete ileocaecal valve resection followed by ileocolic anastomosis, side-to-side or end-to side ileocolostomy or the use of stents. In this study, side-to-side and end-to-side ileocolostomy techniques were proved to be convenient and preserving the structural integrity of the intestines. In summary, timely diagnosis, prompt surgical intervention through bypass procedure, and also proper postoperative monitoring and management can improve quality of life in these patients.

Keywords: Pseudo-obstruction, Ileoceacal Junction, Ileocolostomy

Strong evidence suggests that Foot and Mouth Disease among cattle could potentially cross-infect wild elephants (*Elephas maximus maximus*) in Sri Lanka

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Foot-and-mouth disease (FMD) is a highly contagious acute vesicular disease affecting cloven-hoofed animals. It is endemic in Sri Lanka, impacting cattle, buffalos, sheep, goats, and pigs. The potential for FMD virus transmission among other cloven-hoofed animals in the wild, such as wild buffaloes, wild boars, spotted deer, and Sambhar deer, exists. Instances of FMD have been documented in African elephants (*Loxodonta africana*) and Indian elephants (*Elephas maximus*). While a domesticated Sri Lankan elephant clinically suspected of having FMD, was ultimately diagnosed as having a bacterial infection (pododermatitis). An FMD outbreak among cattle in the eastern region occurred between February and April 2023. Concurrently, three elephants from the same area (Pothuvil, Ampara) displayed foot lesions with a partial detachment of sole covering and lameness. All three elephants were subjected to antibiotic treatment, pain relief, and other supportive measures. However, the young elephant succumbed to starvation later. In contrast, two adult male elephants responded well to antibiotics and supportive therapy, eventually recovering over a two-week period. To isolate FMD antibodies, blood samples were obtained from superficial veins in the hind limbs of the elephants under sedation. Additionally, blood samples were collected from three cattle with a history of natural FMD infection from nearby locations. These blood samples were dispatched to the Central Veterinary Research Center in Peradeniya for antibody testing. Among the submitted serum samples, four samples exhibited seropositivity for antibodies against the FMD serotype "O" virus (with inhibition levels exceeding 70% at a 1/10 dilution). Conversely, despite the affected elephant demonstrating similar clinical signs, the corresponding serum sample from one elephant was negative for antibodies against the FMD serotype "O" virus. This discrepancy might be attributed to the early stage of infection, with antibody levels insufficient to exhibit over 70% inhibition. Given that FMD vaccination is not a practice among wild elephants, the presence of FMD virus antibodies in elephant serum samples suggests a natural infection. Notably, this region experiences significant interaction between domestic animals and wild elephants during the dry season, particularly following paddy harvesting. This finding is valuable for future investigations into disease transmission between domestic animals and wildlife.

Keywords: Foot-and-mouth disease (FMD), *Elephas maximus maximus,* Sri Lankan elephant

Success of the orphan elephant rehabilitation program at the Elephant Transit Home, Udawalawe, Sri Lanka

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The Elephant Transit Home (ETH) in Udawalawe, Sri Lanka has been dedicated to rehabilitating wild orphaned elephant calves and reintroducing them to their natural habitat since 1995. This study assesses the effectiveness of the rehabilitation program by analyzing intake and mortality rates, rehabilitation and release processes, as well as post-release survival and reproduction. An examination of health records and post-release monitoring data spanning 27 years reveals favorable outcomes for the program. The ETH receives elephant calves from across the country who are injured or orphaned due to various circumstances. During this extensive timeframe, the ETH received a total of 427 elephant calves, comprising 241 males and 186 females. These calves arrived at varying ages, spanning from 1 day old to several years. Among the new arrivals, a notable 4.7% (20) were estimated to be less than one week old, and a significant 67% (295) were under 1 year old. The rehabilitation protocol for newly arrived elephant calves comprises two distinct phases: the initial health stabilization phase, aimed at achieving health stability, followed by the subsequent rehabilitation phase, ensuring their preparedness for eventual release back into the wild. Mortalities primarily occurred during the health stabilization phase, accounting for 41% of cases. Remarkably, during the rehabilitation phase within the ETH, the survival rate was 94.5%, surpassing rates observed in other facilities and even certain wild populations. Since its inception, the ETH has successfully rehabilitated and released a total of 162 elephants (129 hard releases and 33 softer releases). The ETH has consistently enhanced its rehabilitation process, providing elephants with increased freedom, and refining their care. The positive outcomes are evident through post-release monitoring, aided by VHF and GPS collars. This monitoring has further highlighted the successful behavior and establishment of home ranges among the released elephants. Additionally, it has led to successful reproduction among the released females, with a recorded 19 mothers in the wild. The findings of this study emphasize the significant and positive impact of the ETH in rehabilitating and reintroducing Sri Lankan elephants, solidifying its position as a successful global rehabilitation program.

Keywords: Elephant Transit Home, Orphaned Elephant Calves, Post-release Monitoring, Wildlife Conservation

Circulating insulin-like peptide 3 and testosterone concentrations in three male Bengal tigers (*Panthera tigris tigris*)

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Hormones tightly regulate animal reproduction. It is believed that the reproductive status of males can endocrinologically be assessed by two primary male hormones, namely, testosterone and insulin-like peptide 3 (INSL3). The INSL3 is a major secretory product of Leydig cells in mature testes of all male mammals. In felids including Bengal tigers (*Panthera tigris tigris*), INSL3 is yet to be measured due to a lack of optimized enzyme immunoassays (EIAs). The present study attempted to: (1) optimize an enzyme immunoassay to measure circulating INSL3 concentrations (2) examine the correlation between INSL3 and testosterone concentrations in male Bengal tigers. Three male Bengal tigers, Miki (6 years), Kolla (19 years), and Caprio (5 years) kept at Ridiyagama Safari Park, Sri Lanka were used in the study. Eight to ten blood samples (2 mL) per animal were collected in 2 to 4-week intervals (except two samples), through medial saphenous vein. Competitive EIAs were used to measure INSL3 and testosterone concentrations. The minimum detection limit was 0.31 ng/mL and the percentage of binding at this limit was (B/B0: 97.03 ± 1.11%) for the newly optimized INSL3 assay. The detection ranges of INSL3 and testosterone were 0.31 to 80 ng/mL and 0.04 to 40 ng/mL, respectively. The intra-assay coefficients of variations were 7.6% (n = 5) for INSL3 and 11% (n = 5) for testosterone EIAs and were within the satisfactory range as 20% is considered the appropriate maximum value. The INSL3 and testosterone concentrations of Miki, Kolla, and Caprio ranged from 0.43 - 0.82 ng/mL to 1.76 - 3.85 ng/mL, 0.82 - 2.03 ng/mL to 0.16 - 3.15 ng/mL, 0.50 - 1.18 ng/mL to 0.96 - 6.26 ng/mL, respectively. In conclusion, circulating INSL3 concentrations were quantified in male felids for the first time, to the best of our knowledge. There was no significant correlation between circulating INSL3 and testosterone hormones in Bengal tigers based on the limited samples of this study.

Keywords: Bengal tiger, enzyme immunoassay, INSL3, testosterone

The first confirmed SARS-COV-2 infection in a captive African lion (*Panthera leo*) in Sri Lanka: A case report

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In 2019, Severe Acute Respiratory Syndrome (SARS-COV-2) emerged as a new global pandemic. The first transmitted human case of SARS-COV-2 in Sri Lanka was reported on March 11th, 2020. During the third wave of the pandemic in Sri Lanka, a fourteen-year-old male African lion (*Panthera leo*) at the National Zoo, Dehiwala, was observed with breathing difficulties on 12.06.2020. External physical examination of the lion revealed tachypnea and dyspnea and basic hematology tests showed abnormalities such as band neutrophils with mild thrombocytopenia and mild monocytosis. Anal swabs collected from the lion tested positive for SARS_COV-2 RNA by one step quantitative reverse transcriptase PCR assay on day 1, which was later re-confirmed by nasal swabs tested using RT-PCR (RealStar SARS COV-2 RT PCR kit 1.0, Altona Diagnostics GmbH, Germany) on day 3. Due to the lion's poor health condition, further tests such as oropharyngeal or tracheal wash could not be performed. Thoracic radiography revealed a pronounced bronchial pattern, and the lion was isolated from the rest of the pride, and symptomatic and supportive treatment were initiated. Over the next few days, the lion developed nasal discharge, ocular discharge, and wheezing. Further, in addition to the respiratory signs, gastrointestinal signs including vomiting frothy bile with indigested food, and inappetence, developed on day 20. Despite continued treatments, the lion developed complications including epistaxis, pneumonia, secondary skin lesions, and septicemia during the course of the disease. Antibiotics were administered based on the antibiotic susceptibility test results. Despite being the most possible source of infection, none of the keepers were tested positive for PCR. Despite the cessation of other clinical signs, the lion continued to experience respiratory symptoms and fatigue for months following the initial infection. This case represents the first recorded instance of SARS-COV-2 in an animal in Sri Lanka. Understanding the transmission dynamics and clinical manifestations of SARS-COV-2 in animals is crucial for prevention and control strategies. This case also emphasizes the importance of implementing strict biosecurity measures in zoos and other animal facilities to prevent such zoonotic disease transmission between humans and animals.

Keywords: SARS-COV-2, African lion, *Panthera leo*, Sri Lanka

Qualitative assessment of air rifle injuries in purple faced leaf monkeys: Case reports

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Human-monkey conflict is a significant challenge across the country, particularly the Purple-faced leaf monkeys (*Semnopithecus vetulus*) cause substantial damage to crops, gardens, and properties in Sri Lanka. In addition, certain aggressive monkeys that display solitary behavior inflict severe physical injuries on humans. One common method used to repel such monkeys is the use of air rifles though it can be life threatening. This abstract discusses four cases of Purple-faced leaf monkeys presented to the Aththidiya Wildlife Rehabilitation Centre over a period of three months. All four monkeys exhibited neurological signs to varying degrees, including hind limb paresis, paraplegia, and tetraplegia with recurrent seizures. Upon physical examination, small rounded wounds with and without purulent exudates and small rounded healed scars were noticed on both ventral and dorsal sides of the thoracic region and along the spine. The primary differential diagnoses of these injuries were dog bites, road traffic accidents, and air rifle injuries. Radiological investigations, using x-rays, on all four monkeys confirmed the presence of small radio-opaque foreign bodies, both round and rod-shaped, in both anterior-posterior and lateral views in chest, spinal cord, and brain. These findings correlated with the clinical presentations confirmed that the neurological signs were a result of air rifle pellet injuries. Unfortunately, all four monkeys succumbed to secondary complications from same injuries, ultimately leading to their deaths. These findings highlight the severity of the injuries caused by the use of air rifles on monkeys. Such use of air rifles on trouble making monkeys possesses numerous disadvantages, including the risk of injury to both humans and monkeys, ethical concerns, potential habituation by monkeys, and noise pollution. Nonetheless, the challenge for the scientists would be to propose complementary long-term solutions to address this conflict. Strategies for managing human-monkey conflict should explore mitigating measures beyond air rifles, such as habitat conservation, physical barriers, and comprehensive management strategies, to address the root causes.

Keywords: Purple faced leaf monkey, air rifle, x-rays

Diurnal Pattern of salivary cortisol and changes following an exogenous adrenocorticotrophic hormone (ACTH) stimulation in Asian elephant calves

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This study aimed to evaluate the dynamics of salivary cortisol concentrations in wild elephant calves undergoing rehabilitation at the Elephant Transit Home in Udawalawe, Sri Lanka. This evaluation was conducted through the non-invasive measurement of salivary cortisol levels. Four clinically healthy elephant calves (two males and two females), aged between 2-3 years, were selected as subjects. Saliva samples were collected using the Salivette kit® at specific time points during feeding hours, including 0200, 0600, 0900, 1200, 1500, 1800, and 2200 hours. The samples were processed by centrifugation and stored at -20°C until analysis. Salivary cortisol concentrations were determined using an enzyme immunoassay. A total of 71 saliva samples were collected from male calves and 73 samples from female calves. Baseline mean salivary cortisol levels were compared at each time point, excluding the day of adrenocorticotropic hormone (ACTH) injection. There was no significant difference in salivary cortisol levels between male (0.093 - 2.154 ng/ml) and female calves (0.032 - 2.548 ng/ml) at any time point. A circadian pattern of salivary cortisol secretion was observed from the samples collected five days before and nine days after the ACTH stimulation, with the highest levels (1.10±0.18) in the morning (0600 hours) and the lowest levels (0.39±0.05) in the evening (1800 hours). The administration of synthetic ACTH involved three doses of 1.25 mg, given at 2-hour intervals (0600, 0800, and 1000). The results showed a significant increase in salivary cortisol levels after the ACTH injection than before the injection, with the highest value recorded at 1200 hours (16.837 ng/ml). This study highlights the diurnal variation of cortisol levels in elephant calves, with higher concentrations in the morning and lower concentrations at night. The non-invasive nature of saliva sampling, along with the ability to collect samples at different time points, allowed for a comprehensive evaluation of cortisol levels and diurnal patterns. The findings contribute to our understanding of stress response mechanisms and hypothalamic-pituitary-adrenal (HPA) axis functioning in elephant calves. Additionally, this study demonstrates the feasibility of using salivary cortisol as a non-invasive measure of adrenocortical activity in elephant calves.

Keywords: cortisol, diurnal pattern, elephant calves, exogenous ACTH stimulation, salivary cortisol.

Assessing the appropriateness of ethanol stability as an indirect measure of heat stability in cow milk

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The Ethanol Stability (ES) test in milk was initially used to measure acidity based on milk pH, which is mainly caused by bacterial fermentation leading to casein micelle aggregation. Recently, it has been employed as an indirect method to assess milk Heat Stability (HS) in many countries, including Sri Lanka, particularly with the production of ultra-high temperature milk. Although stable at 68%, ethanol was sufficient in terms of microbiological quality, today very high ethanol percentages (68% to 86%) are used to detect HS. Consequently, a considerable amount of milk stable at 68% ethanol is being rejected daily. HS detection is crucial during high heat treatments, where calcium (Ca) plays a major role. In milk, Ca exists in an equilibrium between non-ionized Ca associated with casein micelles bound to phosphate and citrate in the colloidal phase, while ionized Ca (Ca_i) is present in the aqueous phase. As the temperature increases, more Ca_i is formed, leading to the destabilization of casein micelles. This destabilization can be indirectly measured through ES. The objectives of the current study were to evaluate the suitability of ES as an indirect indicator of HS in cow milk. Fifty-eight milk samples were collected from collection points in the Kandy district. Milk samples were brought to 26°C and analyzed for ES testing at 68% to 86%, along with Ca_i assessment. Resazurine test was conducted to determine the microbial quality. Results were analyzed using One-way ANOVA and Chi square tests. All the samples were negative for mastitis and the pH, acidity and specific gravity were within acceptable range. Results, revealed a significant association ($p<0.05$) between ES and Ca_i levels at 74% ethanol. However, no statistically significant relationship was observed beyond 74% ethanol. This study concluded that a maximum of 74% ethanol is appropriate as a measure of HS for milk subjected to high heat treatments, avoiding unnecessary milk rejection.

Keywords: Heat stability, Ethanol stability, ionized calcium

Evaluation of the impacts of Covid- 19 pandemic and the present economic crisis on the animal feed industry in Sri Lanka

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The animal feed industry in Sri Lanka has expanded considerably after 1970s parallel to the expansion of the commercial poultry industry. At present, Sri Lanka produces approximately 1.1 million metric tons (mMT) of animal feed annually, of which nearly 95% is poultry feed. The covid-19 pandemic has severely impacted the animal production industry globally. However, its impact on animal feed industry in Sri Lanka was not assessed previously. For this purpose, animal feed production data received by the Department of Animal Production & Health in the last 10 years was evaluated. Specifically, data on total feed production, proportions of commercial and self-mixed operations, usage of major raw materials and poultry populations were evaluated. There was a gradual increase of total animal feed production over the past ten years (0.87 mMT in 2013 to 1.15 mMT in 2022) and a sudden reduction (18%, 0.21 mMT) was observed in 2022. Similarly, poultry population has gradually increased over the past ten years (16.26 million in 2013 to 31.35 million in 2022) and a 10% reduction (3.51 million) was observed in 2022. Moreover, both commercial and self-mixed feed production gradually increased over the past years and there was a 14% increase of commercial feed production and 50% reduction of self-mixed feed production in 2020. However, there was a 22% drop in commercial feed production during 2022 without any significant reduction in self-mixed feed production. A similar pattern was observed in major raw material usage and there was a reduction of usage in 2022. The analysis revealed that there was no major impact made by the Covid-19 pandemic on total feed production & poultry industry in Sri Lanka as there was no reduction in feed production during the years of 2019, 2020, & 2021. However, the present economic crisis has significantly affected the animal feed and poultry industries as there was noticeable reduction in both feed production and poultry population in the year 2022.

Keywords: Animal Feed, Commercial Feed, Poultry Feed, Self-mixed Feed

Effect of pre incubation storage duration on embryonic development, hatchability and yolk free biomass in Cobb 500 broiler hatching egg

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The effect of pre-incubation storage duration on embryonic development, hatchability and hatch weight of day-old chicks has not been fully investigated. The objectives of the current study were to determine the effect of different hatching egg storage durations on embryonic development, hatchability, hatch weight, and yolk-free biomass. Eggs were collected from Cobb 500 broiler cross parents (age 39-40 weeks) line. The collected eggs weighed between 65-67 g. A total of 3000 eggs were stored for five different storage durations (T0-3 days, T1-6 days, T2 -9 days, T3-12 days and T4-15 days) between 18–21°C and 75% relative humidity (RH), each with 4 replicates, in a completely randomized design (CRD). All the egg were provided with the same optimum incubation conditions (38.05-36.2 ºC, 60-45 % RH). Embryonic development was assessed by measuring blastoderm diameter, embryonic membrane diameter (blood ring), the maximum distance between the air sac and blood vessel spread area, embryo weight (15th and 18th days), and yolk weight (15th and 18th days). Further, measurements were taken for yolk weight, yolk free biomass, and hatch weight at 21 days. The data were analyzed using a one-way ANOVA. The highest level of embryonic development and the hatching weight were observed in eggs stored for 3 days. The values for blastoderm, blood ring development, and the distance between the blood vessel area and air sac were significantly higher ($P<0.05$) in the control. It was noticed that the development of embryos was significantly lower ($P<0.05$) in eggs stored for more than 9 days. The embryonic development decreased ($P<0.05$) starting from day 9 of storage, while the hatching weight decreased ($P<0.05$) starting from day 6 of storage. When the storage time increased from 3 to 15 days, the hatch weight loss was 3.77%. It was observed that yolk-free biomass and hatch weight decreased gradually with the increase in storage time and a negative relationship was observed between hatch weight and yolk weight. The hatchability of eggs stored for 15 days (82.9 %) was significantly lower than that of the others. Therefore, in conclusion, storing hatching eggs for more than 9 days and, if possible, for longer than 6 days in cool rooms is not recommended.

Keywords: Hatch weight, Pre-incubation storage, Yolk free biomass; Hatchability; Cobb 500

Phylogroup, antimicrobial profiles and occurrence of *qnr* genes in ciprofloxacin resistant avian pathogenic *Escherichia coli* isolated from commercial chickens in Sri Lanka

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Colibacillosis, caused by *Escherichia coli*, represents an economically significant disease in commercial chickens. The emergence of *E. coli* strains resistant to commonly used antimicrobials, particularly fluroquinolones (FQs), has posed challenges in controlling these infections. FQ resistance in *E. coli* is mediated by both chromosomal and plasmid mechanisms. This study aimed to determine the phylogroup, antimicrobial resistance profile, and occurrence of plasmid-mediated quinolone resistance genes *(qnrA, qnrB,* and *qnrS*) in ciprofloxacin-resistant avian pathogenic *E. coli* (APEC) isolated from commercial broiler and layer chickens in Sri Lanka. A total of 35 ciprofloxacin-resistant *E. coli* isolates were obtained from commercial layer and broiler chickens with colibacillosis across more than 30 farms in different areas of the country during 2020-2022. Antimicrobial susceptibility testing (AST) for 12 antimicrobials was conducted according to EUCAST guidelines. *E. coli* isolates were classified into six phylogroups (A, B1, B2, D, E, and F) using quadraplex PCR. The presence of plasmid-mediated quinolone-resistant genes *qnrA, qnrB,* and qnrS was detected using multiplex PCR. All 35 isolates demonstrated multidrug resistance (across more than three antimicrobial classes), and over 80% exhibited co-resistance against ampicillin, amoxicillin-clavulanate and trimethoprim/sulfamethoxazole. Phylotyping revealed that the isolates primarily belonged to group D/E (42.9%), followed by B1 (22.8%), B2 (22.8%), and A (11.4%). Among the 35 isolates, eight isolates lacked qnr genes, while qnrS, qnrB, and qnrA were detected in 62.8%, 25.7%, and 2.8% of the isolates, respectively. Co-occurrence of qnrS and qnrB was observed in 14.2% of the isolates, whereas 2.8% harbored both qnrB and qnrA. The study also highlighted a substantial prevalence of qnr genes in APEC strains. Interestingly, the phylogenetic origin of the isolates did not reveal any significant association with antimicrobial resistance or the occurrence of qnr genes. In summary, the presence of multidrug-resistant and FQ resistant *E. coli* strains causing colibacillosis in commercial chickens underscores the critical public health concern of potential transmission to humans through the food chain, necessitating immediate surveillance and control measures.

Keywords: Antimicrobial, Chicken, Colibacillosis, Phylogroup, Plasmid mediated, Resistance
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Detection of bacterial antibiotic resistance genes (ARGs) among commercial chicken: A preliminary investigation in Kurunegala district

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Antibiotic resistance is a serious public health concern. It is a multifaceted issue that has been driven by various factors, with the use of antibiotics in farm animals being one contributing factor. Sri Lankan poultry farmers frequently engage in the overuse, prophylactic use, sub-therapeutic use, and misuse of medically important antibiotics without proper veterinary guidance. This can exert a selective pressure on gut microbiota and facilitate the development of ARGs. These ARGs can enter into the environment through poultry manure, and their persistence poses a potential human health risk. This study was conducted to detect the presence of specific bacterial ARGs in poultry gut microbes using a molecular based approach. Thirty Poultry midgut samples, which included 22 layers and 8 broilers, were collected while performing necropsy procedures at a private veterinary clinic in the Wariyapola area. The DNA was extracted directly from the midgut content using the boiling-lysis method. Subsequently PCR was conducted to detect the presence of ARGs for three frequently used antibiotic groups: tetracycline resistance gene (*tet(M)*), quinolone resistance gene (*qnrB*) and sulfonamide resistance genes (*sul1* and *sul2*). PCR positive samples were confirmed by gel electrophoresis using positive controls, which were validated through sequencing. Out of the 22 layer samples, four were positive for *sul2* (18.18%, 4/22), three were positive for *sul1* (13.64%, 3/22), two were positive for *tet(M)* (9.09%, 2/22), and one was positive for *qnrB* (4.55%, 1/22). Out of eight broiler samples, two were positive for both *sul1* and *sul2* (25%, 2/8). Study results indicate that poultry gut bacteria in the Kurunegala area contain ARGs that can contaminate surrounding environments indicating failure in proper disposal of waste from poultry farms. Some of the ARGs have shown the capability of horizontal transmission among bacteria and may pose a risk to human wellbeing in the area.

Keywords: Antibiotic resistance, poultry *qnrB, sul1* and *sul2, tet(M)*

Serological evidence of the presence of multiple serovars of leptospirosis among dairy farms situated in Nochchiyagama divisional secretariat division, in North Central Province of Sri Lanka

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Leptospirosis is a ubiquitous disease found throughout the world. Rodents are important reservoirs of leptospirosis, while domestic, wild, livestock mammals are considered as leptospira carriers. Leptospirosis in cattle is an occupational risk to agricultural, livestock farming communities and to veterinarians. In the North Central Province of Sri Lanka, no recent information has been reported on the status of leptospirosis among dairy cattle. This study aims to detect the exposure of cattle to pathogenic leptospires in dairy farms located in the Nochchiyagama Divisional Secretariat Division, in North Central Province of Sri Lanka. A questionnaire-based survey was conducted to collect information about the farms, the history of abortion among cows, and details related to the clinical disease. Subsequently 5 ml of blood from a total of 73 cattle were collected from 25 medium-scale farms in Nochchiyagama Divisional Secretariat Division. Samples were analysed serologically by Microscopic Agglutination Test (MAT) which comprises of 12 serogroups recommended by the WHO, and the cut-off titre value for exposure was considered to be 1:100 dilution. Farms that house seropositive cattle were considered as contaminated farms. Among 25 farms, 18 (72%) were reported to be exposed to pathogenic leptospires, according to MAT results. From 73 sampled cattle, a total of 38 showed sero positivity. Among the 38 cattle with a history of abortions, 47% (18) were MAT positive, while among the 35 cattle with no history of abortions, 57% (20) were MAT positive and no significant association was detected between exposure to pathogenic leptospires and the history of abortion through the Chi-square analysis. The study detected eight circulating serogroups, Javanica (6/38), Panama (6/38), Sejroe (5/38), Hebdomadis (4/38), Semaranga (4/38), Grippotyphosa (2/38) and Shermani (2/38) in the area studied, with the most common serogroup being Canicola at 34.6% (9/38). A statistically significant association was detected between infection with the *Leptospira spp* serogroup Serjoe and history of abortion among cattle in Chi square analysis, with a p value of < 0.05 (95% CI: 1.59-4.22). The detection of anti-leptospiral antibodies against a variety of pathogenic leptospiral serogroups indicates higher degree of exposure among dairy cattle and the potential transmission by various carriers.

Keywords: Leptospirosis, MAT, dairy cattle

Detection of antimicrobial drug residues in chicken meat, eggs, and poultry feed available in the Sri Lankan market using LC-MS/MS

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Chicken and eggs are consumed widely as rich protein sources in Sri Lanka. Lack of cultural and religious constraints and increasing demand for chicken meat and eggs have led to a well-developed poultry industry with intensive management practices and disease prevention strategies. Further, farmers may misuse antimicrobials without veterinary advice or inadvertently use poultry feed containing/contaminated with antimicrobials which could result in antimicrobial residues in chicken meat and eggs. Antimicrobial residues in food could have direct negative impacts on human health and environmental contaminations may lead to development of antimicrobial resistance. This study was aimed at determining 30 different antimicrobial residues belonging to sulfonamides, tetracyclines, fluoroquinolones, and beta-lactams in chicken meat and eggs collected from the local market and poultry feed using an LC-MS/MS method accredited under ISO 17025. In this ongoing study, 77 chicken, 52 egg, and 60 poultry feed samples (layer n=37, broiler n=23), were collected. Out of the samples analyzed, 33.7% of chicken, 19.2% of egg, and 30.0% of feed were positive with at least one antimicrobial. Eleven, seven, and eight different antimicrobials were detected in chicken meat, eggs, and feed, respectively. Out of the eleven, enrofloxacin (57.7% of positives) and ciprofloxacin (38.5% of positives) had the highest occurrence in chicken meat. The results revealed that all detected antimicrobials in chicken samples were below the Maximum Residue Limits (MRLs) established by European Commission, 37/2010. Out of the positive egg samples, four samples contained sulfadiazine (0.003-8.072 mg/kg) although sulfonamides were not permitted to be used in layers. The positive feed samples contained sulfonamides: sulfadimidine (n=8, 0.003-0.094 mg/kg) and sulfamethazine (n=7, 0.004-0.097 mg/kg), followed by tetracyclines: chlortetracycline (n=5, 1.957-16.604 mg/kg), tetracycline (n=5, 0.071-0.991 mg/kg), doxycycline (n=4, 0.282-0.904 mg/kg), oxytetracycline (n=4, 0.116-0.281) and demeclocycline (n=1, 0.029 mg/kg). The presence of antimicrobials in feed samples could be due to unintentional contaminations or intentional additions by the feed manufacturers. The positive poultry meat and egg samples complied with MRL regulations except for one egg sample. The presence of antimicrobials in feed violates the Gazette Notification No.1, 292 on 06.06.2003, and therefore stringent measures have to be taken to prevent antimicrobials in feed.

Keywords: antimicrobial residues, food safety, public health, poultry products

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Pathogenicity of novel genotype of low pathogenic avian influenza virus H9N2 isolated from specific-pathogen-free chickens in Malaysia

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The poultry sector was seriously threatened by the silent spreading of the H9N2 strain of the low-pathogenic avian influenza (LPAI) virus worldwide causing significant economic damage. Even though the H9N2 virus has the ability to spread from animals to humans, it can directly infect mammals and donate its gene sequences, resulting in novel subtypes that raise pandemic concerns. Recently, Malaysia reported major outbreaks of LPAI H9N2 in commercial poultry. Genome analysis of this study confirmed that Malaysian LPAI H9N2 is a novel virus of the G57 lineage. Although the H9N2 virus is endemic in Malaysian poultry, the pathogenicity of Malaysian isolates has not been evaluated. This research aimed to determine the pathogenicity of the H9N2 isolate that was previously reported in 2018 after the virus was administered via the intra nasal route at 10^7 EID50 in one-week-old specific-pathogen-free (SPF) chickens and PBS was inoculated in to the control group. Mild clinical signs were observed. At day 7pi, the infected chicken demonstrated a 13% of the growth retardation that was significantly different (<0.01) compared to the control group and no mortality was recorded. Mild to moderate histopathological lesions were observed in the lungs, tracheas and kidney tissues. Based on real-time PCR results, the virus nucleic acid was detected in the lungs, tracheas, and kidneys of the inoculated chickens on the second day and increased until day 10, then declined at day 16 pi. However, swab samples collected from the oropharyngeal and cloacal remain positive from day 2 to day 14 pi, with the highest viral load detected at day 10 pi. In conclusion, the H9N2 virus is pathogenic in SPF chickens, and lesions can be associated with the respiratory, gastrointestinal, and renal systems.

Keywords: low-pathogenic avian influenza (LPAI), H9N2, Malaysia

Morphological and molecular characterization of *Babesia spp.* in donkey: A Case report

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Babesiosis has been reported in donkeys as early as 1893 in the world and found to be caused by *Babesia caballi* and *Babesia equi* species. *B. equi* piroplasm was small and approximately measures 1.0 ×2.0 µm whereas *B. caballi* is larger and measured 2.0 ×3.0 µm. A molecular study done in Donkeys of Mannar and Kilinochchi using 111 free-roaming donkeys in 2022, has shown that 85.6% were positive for *Theileria equi*. However, the previous study done in 2022 has not characterized Babesia spp. in donkeys. In the current study, an approximately one-year-old female donkey was presented to the Veterinary Teaching Hospital (Farm Animal) in June 2023. The animal was reared in Puttalam. The complaint was severe lethargy and an unhealing ulcer in the leg. General clinical examination revealed that physiological parameters such as heart rate, respiratory rate, and temperature were in the normal range. For further diagnosis, a Full Blood Count (FBC) was taken, and it showed severe anemia with a Hemotocrit of 10%. Leishmann's stained thin blood smear examination revealed the presence of intra-cellular Babesia piroplasms. The size of the piroplasms (2.3×3.5 µm) and the and the morphology (large pyriform shaped paired piroplasms forming acute angle) revealed Babesia spp. in RBCs. DNA was extracted from 200 µL of blood using the 'Bioflux® DNA extraction kit' following manufacturer's instructions. *Babesia* 18S rRNA gene specific universal primers were used to confirm the presence of the parasite using conventional PCR. The PCR product was visualized using 2% agarose gel electrophoresis and PCR amplicon of 186 bp was observed. A canine *Babesia* spp. positive sample was used as a positive control. Despite the treatment with enrofloxacin, dexamethasone, butaphosphan and cyanocobalamin via intra-muscular delivery route, the animal died 4 days following hospitalization. The postmortem findings revealed severe hepatomegaly, pale mucus membranes, and the distended urinary bladder with dark yellow urine. The clinical picture, post-mortem findings, morphology of piroplasms and PCR confirmed the presence of *Babesia* spp. in the donkey and future studies will be carried out to confirm the species by Sanger sequencing of PCR amplicon and phylogenetic analysis.

Keywords: *Babesia spp.*, morphology, donkey, PCR

Prevalence of Bovine Brucellosis in North Central Province

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Brucellosis is one of the zoonotic diseases in Sri Lanka. It is a bacterial disease infects number of livestock animals such as cattle, buffalo, pig, goat, sheep, horse and dog. Brucellosis in livestock is economically important and significant in public health as well. It is endemic in North Central Province (NCP). Most common livestock affected are cattle and buffalo. Reasonable numbers of positive cases are reported every year from NCP. Common clinical signs are abortions, retain placenta, stillbirth and weak calves. In the field, range veterinary surgeons have done the tentative diagnosis of the clinical cases. If it is suspected as brucellosis, it is informed to the relevant veterinary investigation officer. Rose Bengal Plate Test (RBPT) is done in veterinary investigation center (VIC) and confirmation is done by using Compliment Fixation Test (CFT) in Bacteriology division, Veterinary Research Institute, Peradeniya. After confirmation of the disease, the identified farm is added to the brucellosis control program of Department of Animal Production and Health. S19 vaccination is done for the affected farms as one for lifetime basis and farmers are advised not selling animals without informing the range veterinary surgeon. Study has been done to see the sero- prevalence of Bovine Brucellosis in NCP. Samples were collected within 3 months period in 2021. Bovine blood samples (200) were collected randomly from 20 divisional secretary divisions (DSD) in Anuradhapura District and 50 samples were taken from 5 DSDs in Polonnaruwa District. RBPT had been done for all 250 samples in VIC. All samples were tested by CFT as well. Similar results were given by both RBPT and CFT. Sero- prevalence of Bovine Brucellosis in North Central province was 5.2%. Sero- prevalence of Bovine Brucellosis in Anuradhapura District and Polonnaruwa District were 4% and 10% respectively. Compared to previous brucellosis sero- prevalence values, findings from this study were fairly high. Most probably it may be due to the sample size of the study. Further studies are needed to increase the validity of these findings.

Keywords: Brucellosis, RBPT, CFT

Significant mortality of ruminants due to acute hypothermia in Northern and Eastern regions in Sri Lanka

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Ruminant deaths due to cold shock have never been reported in Sri Lanka. A considerable number of deaths of ruminants occurred in an extreme cold exposure event in the Northern (Kilinochchi, Mulativu and Jaffna districts) and Eastern (Trincomalee district) regions in Sri Lanka on 8th December 2022 attributed to cyclone Mandous which caused heavy rains and gusty winds. Temperature in the affected regions suddenly dropped below 20ºC from 34ºC. Sudden deaths were reported in extensively managed animals that were free grazing in the forests and natural grasslands. A total of 831 cattle, 33 buffalo, and 199 goat deaths were reported. Many deaths were occurred at night and, most of them were calves, body condition score 1-2, emaciated and malnourished. Most animals housed in shelters and provided with extra heat (from fires) and supplementary feed did survive the incident. Clinical signs observed in affected animals were shivering, cold nostrils and hooves, tachycardia, incoordination, tachypnea, loss of consciousness. Samples collected from dead animals were negative for infectious diseases such as haemorrhagic septicaemia and black quarter that may cause sudden death. Blood samples from affected animals and non-affected animals were tested for blood pH. In comparison to the normal blood pH of cattle (n=20) and goats (n=20), affected animals had higher pH levels, in goats (n=27) pH 8.5-9.5, cattle (n=39) pH 8.5-10.5. Mean pH of affected ruminants (pH=9.2) was significantly ($p<0.001$) higher than non-affected ruminants (pH=7.5). Cold shock responses in ruminants are characterized by tachycardia, tachypnea, and respiratory gasp. Tachypnea causes blood to become more alkaline, as observed in the affected animals. The cause of the deaths was attributed to hypothermia. This was the first reported extreme cold event encountered in Sri Lanka, heavy rains caused a lower environment temperature, and gusty winds further lowered the temperature during cyclone Mandous. This indicates that strategies to minimize the impact of extreme extremely cold weather on extensive livestock rearing are needed to be considered to minimize losses.

Keywords: Ruminants, cold shock, cyclone Mandous, blood pH

Efficacy of levamisole and ivermectin against gastrointestinal helminths in a semi-intensively managed dry zone goat farm

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Gastrointestinal helminth infections negatively impact livestock productivity. Although the decreasing effectiveness of commonly used anthelmintics is a global concern, there is a lack of recent investigations addressing this issue in Sri Lanka. This study evaluated the effectiveness of two commercial products containing levamisole and ivermectin in controlling gastrointestinal helminth infections in goats. The study was carried out in a semi-intensive commercial goat farm managed in the dry zone. Forty-five goats with a helminth egg count exceeding 200 eggs per gram of faeces (EPG), aged 4 to 21 months that were not treated with anthelmintics for over a year, were enrolled in the study. Goats were strategically randomized into two treatment groups and one control group, considering their body weight, sex, age, and pre-treatment EPG with each group comprising of 15 animals. Depending on their individual body weights, treatment groups received levamisole orally or ivermectin subcutaneously according to the manufacturer's recommendations, while the control group remained untreated. Faecal samples were collected from the rectum of goats immediately before treatment and 10 days post-treatment and EPG counts were determined by modified McMaster method. Coprocultures and larval identification were performed to obtain additional information on the species of nematodes present in the farm. According to established guidelines of World Association for the Advancement of Veterinary Parasitology (WAAVP), a faecal egg count reduction test (FECRT) was conducted to determine whether the anthelmintic efficacy was > 95%, using pre-treatment and post treatment EPG counts. The mean EPG count which was 1256.25 (±623.53) prior to treatment in Levamisole treated group, reduced to 12.5 (± 8.2) 10 days post treatment. In ivermectin treated group, pre-treatment mean EPG count which was 1266.67 (± 550.08), reduced to 26.67 (± 32.87) 10 days post treatment. In the control group, mean EPG count increased from 1233.33 (± 806.5) and reached a maximum of 2086.66 (± 928.27) 10 days after starting the experiment. Coproculture morphology of larval head and tail revealed that the cultured larvae belonged to the genus *Trichostrongylus*. Percentage efficacy of levamisole and ivermectin in reducing EPG in goats in the farm was 99.4% and 98.7% respectively. In conclusion, these findings underscore the high efficacy of both tested products in effectively managing gastrointestinal helminth infections in Sri Lankan goats.

Keywords: Ivermectin, Levamisole, Goats

Effects of cassava-based silage feeding on production performance of lactating cows in Sri Lanka

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Given the escalating costs of commercial concentrate cattle feed in Sri Lanka, it is essential to explore economical feeding approaches that utilize locally available raw materials to formulate feed. The objectives of the current study were to examine the effects of feeding silage made from cassava roots and leaves on the milk production of cross bred dairy cows. One and half months before the commencement of the feeding trial, silage was produced using chopped cassava roots and cassava stems with leaves (50:50 on a fresh matter basis). Then 2 % (v/w) fermented juice of lactic acid bacteria and 5% molasses were added. Six early lactating Sahiwal cross bred cows (with a mean age 6.67 ±2.3 years and body weight of 452.34 ±40.07kg) from a commercial-intensive dairy farm were randomly assigned into two groups, each containing three cows. Cows in the treatment group (T) were offered diets consisting of cassava silage (2 kg of cassava silage per cow per day on a wet matter basis), while cows in control group (C) were provided with the standard farm-prepared lactating cow diet. Each cow was individually fed and had free access to water. After a five-day adaptation period to the diets, milk production was recorded for three consecutive days, and milk samples were obtained on the last day of the experiment for the analysis of milk fat content. The data were analyzed using a two-sample t-test. The milk production of cows who were fed diet T was higher ($p<0.05$) than that of cows fed diet C (9.2 ± 1.25 L and 8.4± 1.09 L for cows fed diets T and C, respectively). However, there was no difference ($P>0.05$) in the average milk fat percentage between cows fed diets T and C (fat percentages of 5.9 ± 0.4 and 5.5 ± 0 for cows fed diets T and C, respectively). It can be concluded that silage made from locally available feed materials like cassava can be effectively utilized to increase milk production in cross bred dairy cows.

Keywords: Cassava, Milk Yield, Silage

Molecular detection and treatment of subclinical *Theileria orientalis* Type 1 infection in cattle in Kundasale

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Oriental theileriosis caused by *Theileria orientalis* complex is a tick transmitted haemoparasitic disease in bovines. Currently there are 11 genotypes. Certain genotypes such as genotype I, known as *T. orientalis* (chitose) causes huge economic losses in dairy industry. Affected animals develop anaemia, depression, anorexia, high fever with marked loss in production. Reproductive performances are also affected causing still birth and late term abortions. This study describes clinical signs, molecular diagnosis and treatment of theileriosis in cattle caused by pathogenic *Theileria orientalis* Type I. Twenty-five animals in Sri Lanka School of Animal Husbandry farm were constantly lethargic with reduced appetite for more than two weeks. The animals were anaemic with lymphadenopathy. The animals showed progressive loss in body condition with marked drop in milk production by 30%. Moreover, reproductive performances were also affected and manifested by non-return to estrous and continuous conception failure. The condition was tentatively diagnosed as theileriosis by clinical signs observation. Examination of blood smears revealed the presence of *Theileria* spp. in each smear examined. Conventional PCR was performed using *Theileria orientalis* species specific primers. The sequences of the forward and reverse primers were 5'-CTTTGCCTAGGATACTTCCT -3' and 5'- ACGGCAAGTGGTGAGAACT -3' receptively. All tested samples were positive for PCR. Then, the samples were tested for *Theileria orientalis* types I, II and III using primers specific for each genotype. The sequences of genotype I specific forward and primers were 5'-TTGCCTAGGATACTTCCTC -3' and 5'- TGCGGTGTATTTGGCCTTC -3' respectively. The sequence of genotype II specific forward primer was 5'-CGCATCAAGACACTCAAGGTC -3' and the reverse primer sequence was 5'-CACTGTTCATGGCGTGCA -3'. The sequences of genotype III specific forward and primers were 5'- CCCTTCAAGGTTAAGAGT -3' and 5'- ACGGCAAGTGGTGAGAACT -3' respectively. All tested samples were positive for *Theileria orientalis* type I and were negative for the other two genotypes. The positive animals were treated with oxytetracycline with supportive therapy. The treatment was repeated at day 3 and 30. The animals showed a marked increase in the condition with enhanced production. Another PCR assay conducted 30 days after completion of treatment revealed absence of parasite in circulation. Thus, it is concluded that, accurate diagnosis and prompt treatment lead to good prognosis of Thieleriosis caused by *Theileria orientalis* Type I in cattle.

Identification of coronaviruses in a selected farm in the Central Province of Sri Lanka

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Coronaviruses have been detected in animals since 1930s and they usually are associated with mild to moderate respiratory and/or gastrointestinal infections. The emergence of SARS-CoV-2 in 2019 with the COVID-19 pandemic worldwide has highlighted the importance of coronaviruses (CoV) in both animals and humans. All known human CoV are spilled-over animal alpha and beta CoV from various animals including rodents, cattle and exotic animals. Increasing contact between animals and humans is a factor that determines cross-species transmission of viruses. So far, studies on SARS-CoV (2002/2003) and SARS-CoV-2 (2019) have demonstrated a positive link between human CoV and farm animals. We aimed to identify the CoV distribution in farm animals in the Veterinary Teaching Farm, University of Peradeniya belonging in the Central province of Sri Lanka. Sampling of farm animals was conducted in August 2022. A total of 163 oral swabs were obtained from pigs (n=88), cows (n=32) and goats (n=43) and each of the sample was mixed with 1mL of PBS separately for viral RNA extraction. Viral RNA was extracted using the Spinstar™ Viral Nucleic Acid Kit (ADT Biotech, Malaysia) as per manufacturer's instructions. RNA extracts were subjected to a PanCoV nested one-step RT-PCR (1), which is designed to target the RNA-dependent RNA polymerase (RdRp) gene, a 442 base pair fragment commonly known as a conserved region in the *Orthocoronavirinae family*. All PCR products were run on a 2% agarose gel along with a 1 kb ladder, positive and negative control to detect CoV. Of the 163 samples tested, CoV positivity was detected in 3.4% (n=3) pigs, 72% (n=23) cows and 19% (n=8) goats by PanCoV RT-PCR. Sequencing of positive samples are in progress to identify the CoV present within the individual farm animals. Sequencing results may identify CoV only known in animals or pathogenic CoV also found in humans. Based on the results, CoV are present in a selected farming environment in the Central Province of Sri Lanka.

Keywords: SARS-CoV-2, COVID-19, PanCoV RT-PCR, Central Province, Sri Lanka

Preliminary screening of imported food rejects before utilizing them for animal feeding: To prevent Aflatoxin M1 in milk

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Feed is the major expenditure in the livestock industry. Due to the recent economic crisis, importation of feed ingredients was restricted and thereby local feed production was reduced by 40% in 2022, severely affecting the livestock industry. To compensate for the feed ingredient scarcity, rejected food items such as maize and rice that were imported for human consumption were considered as substitute animal feed ingredients. Such food rejects have a high potential for aflatoxin contamination, which are carcinogenic for humans and animals. Aflatoxins are mycotoxins produced by fungi under humid, warm, and long storage conditions. Under the animal feed regulations in Sri Lanka, 20 ppb is the approved maximum aflatoxin (B1, B2, G1, G2) levels in feed materials and high levels can appear in animal products especially in milk as M1 metabolites. To serve the purpose, the animal nutrition division at Veterinary Research Institute (VRI), established a sensitive and accurate test method to quantify Aflatoxin in animal feed and feed ingredients using the liquid chromatography tandem mass spectrometry (LCMSMS) system. Analysis verifications were conducted with each batch of analysis using standards. 34 maize and 23 rice samples from imported food rejects were randomly collected by VRI officials from different warehouses and container terminals of the ports authority and customs, representing all storage conditions from January to May 2023, and they were extracted and analyzed for Aflatoxin.
The results indicated that Aflatoxins were positive for all the samples (100%) ranging from 1 to 60 ppb. T test results showed a significantly low number of ($p>0.05$) samples exceeding 20ppb which was 23% of maize and 13% of rice. However, among those samples, 87.5% maize and 66% rice samples were highly positive for Aflatoxin B1, compared to B2, G1, and G2. As a considerable proportion of feed ingredients are exceeding the limit of total aflatoxin, there is a need to implement a systematic control programme to minimize its effect on animals and humans thus to ensure public health.

Keywords: Aflatoxin, LCMSMS, Maize, Rice

Dosage of ketamine: xylazine combination on toque monkeys (*Macacca sinica*)

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Community monkeys are conveniently attracted to human settlements in search of food and shelter which increases the human-monkey conflict (HMC). Jungle fragmentation and increasing human population have made HMC worse which has compelled to find short and long-term solutions, in addition to proper and responsible garbage collection and disposal. As a long-term solution, population control is thought to be the most effective, and as a mean of population control conventional open surgical ovariohysterectomy has been practised. Sri Lankans are uniquely compassionate toward monkeys due to cultural and religious reasons; therefore, monkey population control should be done in a socially acceptable manner, which requires a good knowledge on anaesthesia. This study focuses on establishing an anaesthetic combination favourable for endoscopic hysterectomy/tubectomy in toque monkeys (*Macacca sinica*). After obtaining approvals, we trapped 30 community monkeys (subadults/ adults) in a hostel premise of the University of Peradeniya to perform endoscopic hysterectomy/ tubectomy. All monkeys after capture were injected intramuscularly with 2% xylazine Hydrochloride and 10% Ketamine Hydrochloride in combination as the anaesthetic, dosages were determined using previous experience. The doses of these two drugs used on 25/30 monkeys are summarized here. After capture, their body weights were visually estimated, then the drug combination was administered as anaesthesia induction and maintenance was carried out by administrating repeated doses when required. All monkeys were weighed following induction. Diclofenac suppositories and Amoxicillin long-acting intramuscular injection were administered postoperatively. Ketamine 11.97mg/kg and xylazine 1.70mg/kg were the arithmetic means of the combinations used (highest dose combination: ketamine 20.58mg/kg and xylazine 3.23 mg/kg; lowest: ketamine 4.07mg/kg and Xylazine 0.54mg/kg). Females tolerated the combination better (mean ketamine 13.29mg/kg and Xylazine 1.75mg/kg; n=16) than males (mean ketamine 8.33mg/kg and xylazine 1.30mg/kg; n=9). A total of five monkeys required a second dose of the combination, while three were given a second dose of only ketamine, and another three had to be given even a third dose for anaesthesia maintenance. The duration that the monkeys were anaesthetised varied from 30 minutes to 168 minutes, where the mean duration for females was 68 minutes and 75 minutes for males. Five monkeys with higher xylazine doses developed mild bradycardia while no others developed unwanted effects. In conclusion, ketamine:xylazine combination at 7:1 is a safe anaesthetic combination for toque monkeys, though further studies would provide better results.

Export performance and trends of Sri Lankan ornamental fish industry

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Ornamental fish industry has become popular in Sri Lanka due to favourable weather conditions for breeding. More than 125 countries are engaged in ornamental fish export trade including Sri Lanka while the USA is the main importer of ornamental fish. The objective of this study was to analyze data on ornamental fish exporting in the last five years, understand the performance and trends in the industry. Data from Sri Lanka custom and Export Development Board (EDB) is gathered and used for the analysis of this study. More demand has been observed for guppy, molly, platy, swordtail, goldfish, carp among fresh water fish and surgeon, wrasse are more popular as marine fish. Total export earning to Sri Lanka showed as US $ million 8.45, 12.6, 13.83 in the years of 2020, 2021 and 2022. Export earnings from Ornamental fish increased by 86.17% to US$ 1.23 million in 2022 compared to 2021. Although number of export consignments has decreased from 8178 to 3748, income and number of fish exported has been increased. However, drastic improvement was reported on number of consignments from 2936 to 8178 between 2019 and 2021. The reason may be due to the less supply from other exporters to the routine destinations during the Covid pandemic. The USA alone has paid Rs.1,653,215,831 in 2022 than Rs.327,740,685 in 2018. Number of Export destinations has been slightly decreased compared to 2018 from 64 countries to 59 countries. It depicted that more exporters favour to engage in more profitable destinations within the importing countries. There is no remarkable adding of new countries into the exporting country list during previous five years. The potential export market expansion has become a positive trend in Sri Lanka as a sustainable industry in the country. The government should support on providing quality brood stock and introducing quality packaging system which may enhance the carrying capacity and simultaneously decrease the freight charges. Moreover, adequate awareness programs are required to upgrade the knowledge of farmers on intensive farming systems.

Keywords: Ornamental fish, Fresh water fish, Marine Fish

Successful surgical removal of an intra-coelomic cyst in an albino Indian spectacled cobra (*Naja naja*)

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Indian spectacled cobra (*Naja naja*) receives much attention not only because it possesses deadly venom but also because it represents charisma, fear, and honour in Sri Lankan culture and folklore. This write up briefly describes the diagnostic approach and the surgical removal of an intra-coelomic cyst in an adult albino Indian spectacled cobra presented to the Veterinary Teaching Hospital of University of Peradeniya. The snake was presented with the complaint of having a bulging mass on the ventral aspect of the body approximately on the cranial end of the middle third of its length, with in appetence for about one month, and regurgitation after force feeding. Radiography of the swelling revealed a radio-opaque, well-marginated, round structure roughly 5 cm x 8 cm in dimensions with a soft tissue attachment to the body wall. Upper gastrointestinal endoscopic imaging established its patency at the level of the lesion. Fine needle aspiration of the mass revealed the presence of a viscous, blood-tinged fluid that contained large amounts of macrophages and neutrophils suggesting a granulomatous lesion. Upon histopathological findings of the aspirate, surgical removal of the mass was suggested. Thus, anesthesia was induced with Ketamine hydrochloride (30 mg/Kg) that was given intra-muscularly. A ventrolateral incision was placed at the margin of the lateral body scales and ventral body skates and muscle layers were incised at the same level to access the coelomic cavity. After locating the lesion, the cyst membrane was gently punctured, and approximately 15ml of fluid was completely evacuated and scarified. The muscle layers and skin were then sutured as two separate layers with Polyglactin 910 suture material. Simple interrupted suture pattern was used. The recovery from anesthesia was smooth, uneventful, and took about two hours. Postoperatively, the snake was treated with Enrofloxacin at 5 mg/kg dose rate intramuscularly at three-day intervals for two consecutive weeks. As surgeries in reptiles are not common in Sri Lankan context, this surgical case report offers knowledge sharing and inspiration to novel veterinarians in reptile medicine and surgery.

Keywords: Albino cobra, granulomatous lesion, intra-coelomic cyst

Antimicrobial Resistance in *Escherichia coli* Strains Isolated from wild and captive elephant feacal samples in Sri Lanka

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Antimicrobial resistance (AMR) has emerged as a critical global menace. The consequences of AMR on wildlife are particularly disconcerting, as they encompass the jeopardization of wild animal health, disruption of ecosystems, and posing potential hazards to human wellbeing. Notably, wildlife can serve as reservoirs for antimicrobial-resistant bacteria, which can subsequently be transmitted to humans and domestic animals. Sri Lanka is home to the second-largest wild population of Asian elephants among the thirteen countries they inhabit and boasts the highest recorded density of these magnificent creatures. Remarkably, over 50% of Sri Lanka's elephants reside beyond protected wildlife zones, often sharing water sources and grazing areas with human populations, thereby facilitating elephant exposure to antimicrobial residues through contaminated environments like water and soil. Against this backdrop, a comprehensive study was undertaken to assess the extent of AMR in fecal isolates of *Escherichia coli* among wild, semi-captive, and fully captive elephants in the country. A meticulous collection of 348 fresh fecal samples was carried out under aseptic conditions, encompassing 221 samples from wild elephants, 76 from semi-captive elephants 41 fully captive elephants, and 10 elephants from garbage dumping sites. Samples were tested at the Microbiology laboratory of the Department of Veterinary Public Health and Pharmacology using standard protocols (CLSI). The study yielded an overall *E. coli* isolation rate of 51%, with the highest rates recorded in samples from Pinnawala Elephant Orphanage (94%). In this study, microbes that demonstrated resistance to two or more antimicrobials were classified as Multidrug-resistant (MDR). Among the 221 fecal samples collected from wild elephants, 23.15% of *E. coli* isolates exhibited susceptibility to all tested antimicrobials, while 15.43% displayed MDR. Intriguingly, over 50% of isolates from garbage disposal sites, Minneriya, and Kaudulla National Parks demonstrated resistance to ampicillin. Among the tested antibiotics, streptomycin exhibited the highest resistant percentage (54.019%) among the 311 isolates. Ampicillin (43.408%) and cephalosporin antibiotics (CTX: 14.469%, CAZ: 26.688%) also showed considerably higher resistance percentages compared to the other antibiotics (SXT: 9.646%, CIP: 5.466%, TE: 10.289%, IMP: 2.572%, and CN: 0.321%). Crucially, this study delves into the antimicrobial resistance of fecal *E. coli* strains extracted from healthy elephants in Sri Lanka. Understanding resistance patterns in non-pathogenic strains is pivotal, given their capacity to disseminate antibiotic resistance. Remarkably, captive elephants, subject to elevated antibiotic exposure, showcased nuanced resistance patterns, potentially furnishing insights into the interplay between captivity and resistance development.

Assessing the efficacy of leopard faeces as a temporary repellent for torque macaque in human-macaque conflict scenarios

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Red faced monkey (*Maccaca sinica*) is one of the 13 animal species in conflict with people in Kandy. Repelling such problematic monkeys plays a role in providing a temporary solution to human-monkey conflict (HMC) though a permanent solution for population control is needed. Leopard (*Panthera pardus kotiya*) faeces, has shown to be effective in repelling monkeys coming into Kandyan home gardens. One of the University girls' hostels at the University of Peradeniya had reported HMC to an intolerable extent. After obtaining ethical clearance and approvals, the changes in behavioural patterns of these community monkeys were studied in response to the application of leopard faeces, to study the possibility of recommending its application as a temporary solution, and perhaps the use of extracted volatile compounds. Leopard faeces were daily collected for a week, stored under refrigeration in the Pinnawala Zoo, transported to the University in a cold box, and used on the following day. A prior one weeklong behavioural study within the hostel showed that the monkeys did not stay overnight in the hostel and used three routes of entry. A combination of fresh leopard faeces and saline made into a paste was applied on all three places of entry, every day around 5.30 am, before monkeys entered the hostel. The observations on monkeys and time spent within the hostel were compared during 5.30 am until 6.30 pm every day for seven consecutive days. The consistency and the odour of the paste were examined from time to time. On the first day, monkeys appeared disturbed due to the smell of the application and were reluctant to enter through their normal routes of entry into the hostel. However, within a minimum of one hour, they gradually entered into the hostel using all three regular routes of entry. There was no evidence of influence on their entrance or subsequent behaviour due to the application of leopard faeces. There were no positive results for the application of leopard faeces as a temporary monkey repellent. In conclusion, this study indicates that the monkeys in the study premises may have lost their wild instincts, thus, minimizing feeding opportunities for monkeys may act as a better option to mitigate the macaque nuisance in the area.

Preliminary findings on comparison of the effectiveness of the state and privately erected electric fences in mitigating human elephant conflict in Anuradhapura district

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Escalating human-elephant conflict (HEC) is a challenge to the Department of Wildlife Conservation in Sri Lanka, resulting in increased human and elephant deaths. In resolving HEC, a heavy reliance on electric fences (EFs) has been observed. Such EFs theoretically allow better land use patterns though wild elephants have been noticed on both sides of the government-erected EFs and it involves expenses to the state. Nonetheless, the EFs erected by HEC-affected private individuals are said to be satisfactory though studies in this regard are limited. We have compared the satisfaction of private EFs and state-erected EFs by using a questionnaire administered to private EF owners and Grama Niladari (GN), respectively in mitigating HEC within the Anuradhapura district. GNs were selected for this study from villages along the state-erected EFs. Even though this would seem statistically obscure because they may not be the end users, their response matters in administrative decision-making. This is an ongoing study, thus, up to date, 25 out of the 53 GN divisions along EFs within the district, and 95 responses from the private EF owners have been collected and compared. Private EF users are not regulated by a central authority, and there are several service providers within the area and outside. Results clearly indicated that none (0/25) of the GNs were satisfied with the state EF while the majority (55/95) of the private fence owners were highly satisfied with the effectiveness of the private EF. When the effectiveness of the state EF was questioned by private EF owners, only 7.3% of them were satisfied, which shows that the latter was extremely unpopular and ineffective in the mindsets of the end users. Failures and faults are more frequent with the state EF compared to private EFs and the time taken to repair such faults is impressively short for private EFs. In addition, the government has not invested in the installation or maintenance of the private EFs, hence the latter is cheaper to the state. These findings within an extremely limited budget indicate that the state must win the acceptance of the state-erected EF by making it more effective, in collaboration with the public through their participation in the installation and maintenance of EFs. Better and more convincing results on this matter are anticipated by the end of this study while proposing larger and better-planned studies to properly address the objective of effective utilization of state public funds.

Application of Porter's Framework to assess the freshwater ornamental fish value chain: An empirical study in Gampaha District, Sri Lanka

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Even though Sri Lanka is one of the leading freshwater ornamental fish exporters in the world, understanding the overall local industry is limited. The urge for sustainable practices in the global scenario has driven the ornamental fish industry in Sri Lanka to a new direction, compelling to study the coordinated effort of the stakeholders for new paths of expansion. This study examines the freshwater ornamental fish value chain in Sri Lanka, assessing the entire value chain and determining the appropriate steps to participate in an economically sustainable way. The Porter's Framework was used with Factor Evaluation Matrix (FEM) to assess the attractiveness at each stage by reviewing five competitive forces namely, competitive rivalry, threat of new entrants, bargaining power of suppliers, threat of substitutes, and bargaining power of buyers. A cross-sectional study was conducted from December 2022 to June 2023. Survey interview using purposive sampling was conducted by contacting ten participants from each actor of the value chain, including breeders, contract out-growers, non-contract out-growers, middlemen, local market sellers, and exporters in Gampaha District, Sri Lanka. The structured questionnaire designed for each type of stakeholder was used to gather information. In order to quantify the model, the Factor Evaluation Matrix was used to compare the competitiveness of the value chain actors. Results revealed that 99% of the value chain actors were male. High scores were obtained for the fish breeders (FEM score=1.2) and local market sellers (FEM score=1) for the threat of the established rivals. Considering the ornamental fish breeder, the bargaining power of suppliers is higher (FEM score=1.2) than other competitive forces. The study revealed that low barriers persisted to entering the marketing sector which does not need much experience or special knowledge. Consequently, there were high threats of new entrants (FEM score=1.5) in fish breeding sector but there are still opportunities for the existing farmers who produce quality fish or raring fish species difficult to breed without experience. In this study, customers were considered to have huge bargaining power (FEM score =1.5-1) on each actor which implies the need of appropriate programs, policies, and institutional reforms in the local setups. By studying the value chain, the actors can discover the weak points in the chain and take precautions for long-term stability of the industry.

Keywords: Porters Framework, Ornamental Fish Value Chain, Factor Evaluation Matrix

Surgical Correction of Patellar Luxation in Dogs

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During 2021-2023, we surgically corrected unilateral patella luxation in 23 dogs whose breeds were poodle (8), Labrador retriever (5), American bull terrier (4), Chihuahua (3) and cross bred (3) with male:female 16:7 and age between 6 months to 5 years. Out of that 16 medial luxation and 7 lateral luxations. All of them had abnormal gait (Lameness) suspected as patella luxation on observations made on gait and the case history and confirmed on radiographs as grade 4 patella Luxation. After pre anesthetic evaluation, general anesthesia was induced in 20 dogs using IV Midazolam (0.2mg-0.4mg/kg) and Propofol (4-6mg/Kg) in combination, Buprenorphine (0.2mg/kg) and maintained using 4-2% of Isoflurane and 1.5-2L/min of oxygen. For the remaining 3 dogs, Xylazine 1mg/Kg, followed by Ketamine 15mg/Kg, both IM and subsequently with repeated doses of their combination (0.3mg/Kg Xylazine and 0.6mg/Kg Ketamine) IV was used. In all patients, the skin was incised between the patella and the tibial crest (Side of the incision was depends on type of luxation). Subcutaneous tissues were retracted to increase visibility and the patella tendon was located with its attachments to femur and tibia. The tendon was retracted to the side to which patella has moved in order to reach the trochlear groove. Subsequently, trochlear groove sulcoplasty tibial tuberosity transposition was done with 1mm to 1.25mm pins and wire method, lateral imbrication was done with Mayo mattres pattern and soft tissue reconstruction was done. All surgeries were completed within 1 hour and all dogs recovered from anesthesia without complications. After recovery, Buprenophine IV (0.01-0.02mg/Kg) followed by Ketoprofen 2mg/Kg were administered IM on 1st day and were hospitalized for 2 to 7 days. During hospitalization, intravenous Clavulunated amoxicillin 20mg/Kg 8/h, Pantaprazole1mg/kg q24h, and Buprenorphine 0.01-0.02mg/kg/6h during first 24hours and a fentanyl patch was applied for 7 more days. Clavulunated amoxicillin, Fexofenadin and Rimadyl were prescribed to be given twice daily per os when discharged and only slow walk was strictly recommended for 1 week. All patients were monitored with no complication, on 14th day sutures were removed, gradual exercise and hydrotherapy was recommended, and complete recovery reported within 1-3 months.

Surgical correction of urethral proplapse in five male dogs

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Urethral prolapse, extrusion of distal urethra through the urethral opening, an extremely painful condition, is a rare surgical condition which is mostly seen in Brachycephalic breeds. All 5 dogs reported to us with urethral prolapse during 2021-2023 were 2 pugs and 3 American bully of 8 -12 months of age without a history of mating with the main complaint of dysuria and penile bleeding. None of them have had any history of urinary tract involved health condition and were apparently in good health and body condition when presented. All dogs were pre anesthetically and hematologically evaluated. Medazolam (02.-04mg/kg) intravenously as the pre anaesthetic medicant, propofol 2-4mg/kg to induce anesthesia and isoflurane (3-2% and 2-1 L/min. of oxygen) was used to maintain anesthesia. Entire surgical procedure took approximately 20-30 minutes. Prepuce and penis was cleaned with diluted Chlorhexidine 1:10 solution after which the penis was retracted until glans was exposed. A male urinary catheter with appropriate guage was inserted which was removed only day after the surgery. A tourniquet was applied around the glans penis on the fore skin to prevent excessive bleeding and the prolapsed urethral mucosa was held with non-tooth tissue forceps. Incision was applied between the prolapsed urethra-penile junction in a circular manner. First circular ¼ of the prolapsed urethra was then removed and the urethra and penile mucosa was sutured (per string pattern). Afterwards, the second circular 1/4th of the prolapsed tissue was incised at urethral-penile junction, removed and sutured. Then, the third 1/4th is incised removed and sutured. This process continued until the entire circumference was included and the prolapsed tissue was completely removed. Finally, urethropexy was applied.
Post surgically, Fusidic acid cream was applied, and advice given on post-operative wound care and Meloxicam 0.1mg/Kg o.d po, flucoxacillin 7.5mg/kg/12h po, chlopheniramine 4mg/12h po was recommend for All patients were discharged on the same day and requested to revisit the clinic on 10th day. The client was advised to apply an Elizabethen collar for 14 days. None of the dogs had post-surgical complications.

Assessment of diagnostic accuracy of tele cytology performed using images captured by a smart phone camera: A preliminary study

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Cytology is an inexpensive and minimally invasive diagnostic method that can be effectively used in veterinary practice. Many veterinary practices in Sri Lanka are equipped with basic requirements to perform in-house cytology but often lacks expertise to interpret results. Physical distance between veterinary practices and pathologists greatly affects rapid interpretation of cytology results. Recently, tele cytology has been identified as a potential tool useful to facilitate rapid interpretation of cytology results in human medicine. Tele cytology includes acquisition of digital images, transferring images to a pathologist in a distant location and obtaining results through networking. Smart phone cameras can be used as an alternative to conventional image capturing devices used for tele cytology. This project was designed to determine the diagnostic accuracy of tele cytology by comparing cytology diagnoses with corresponding histopathology. For this purpose, cytology images of 20 lesions of dogs obtained by a veterinary clinician using a smart phone camera (photographed with resolution 13MP, f/1.8 aperture in Huawei y6 prime (Android) smartphone camera) were emailed to a pathologist who was blinded to the histopathology diagnoses. Three images each at low power (x10) and high power (oil immersion) were obtained from each slide. The pathologist was asked to provide the diagnoses at three levels: neoplastic/non-neoplastic/other, main type of neoplasm/type of inflammation and specific type of neoplasm. The cytology diagnoses were then compared with the histopathological diagnoses to determine the diagnostic accuracy using Fleiss kappa test. The 20 cases included neoplasms (n=16) including round cell neoplasms (n=6), epithelial neoplasms (n=6) and mesenchymal neoplasms (n=4) and inflammatory lesions (n=3) and a single normal tissue. The overall agreement between cytology and histopathology was very good for first diagnostic level (κ=0.84, p=0.02) and good at the second level (κ=0.72, p=0.04) while the agreement was moderate at the third level (κ=0.54, p=0.04). In addition, it was identified that considering low power and high-power images together was more effective than considering low/high power images separately, when attempting a diagnosis. These findings suggest that tele cytology performed with smart phone camera is a potential way of rapid diagnosis of neoplastic as well as non-neoplastic conditions encounter in veterinary practice.

Keywords: tele cytology, smartphone, tele cytopathology, mobile device, camera

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Geographical distribution, and seasonality of highly fatal acute respiratory distress syndrome (ARDS) of unknown aetiology among young dogs in Sri Lanka

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Acute Respiratory Distress Syndrome (ARDS) is a clinical syndrome characterized by diffuse lung inflammation and non-cardiogenic pulmonary edema, which can lead to acute respiratory failure within 72 hours. While ARDS can have numerous infectious and non-infectious causes, it is rarely reported in dogs. However, in recent times, cases of ARDS with an unknown aetiology have emerged among young dogs in several geographical areas of Sri Lanka. Despite hundreds of annual deaths attributed to this disease, there has been no documentation regarding its geographical distribution and time of occurrence. Therefore, this study aims to bridge this knowledge gap. The study used an online questionnaire and telephone interviews to gather data from veterinarians across various provinces. Additionally, patient records from the Veterinary Teaching Hospital (VTH) spanning from 2015 to 2023 were used for time-series forecasting. Responses from 47 participating veterinarians in the online survey and 38 in the telephone interviews indicated a high incidence of the disease in the Central and Uva provinces. In the Central Province, the disease was predominantly observed in Gampola, Yatinuwara, Gangawata Korale, Pasbage Korale (Nawalapitiya), Kundasale (Kandy district), and Hatton (Nuwara Eliya district). In the Uva Province, it was mainly reported in Badulla, Bandarawela, Haputhalae, and Kandaketiya. Isolated cases of the disease were also noted in Kegalle, Rathnapura, Ambilipitiya, Athurugiriya, Puttlam, Kurunegala, Matara, and Deniyaya. Time-series analysis of VTH records revealed seasonal peaks of the disease occurring in June-August and December-January, which aligned with the information provided by participating veterinarians. Furthermore, the disease predominantly affected purebred dogs younger than six months, with over 90% of these afflicted dogs succumbing to the illness. It appears that the disease is primarily confined to the Central and Uva provinces and occurs most frequently during months of heavy rainfall. Identifying the aetiology of the disease and analyzing meteorological data from these locations are essential in understanding the seasonal patterns and geographical associations of this condition.

Keywords: ARDS, dogs, Sri Lanka

In vitro antibacterial efficacy of acriflavine on selected bacterial pathogens of fish

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Acriflavine, a water-soluble brownish-red crystalline powder, is known for its antibacterial, antiparasitic, and antifungal properties. It is a commercially available and inexpensive over-the-counter medicine used to treat and prevent external bacterial infections in ornamental fish. Acriflavine is administered in water at doses ranging from 2 to 10 mg/L as a bath treatment for several hours (short bath) or days (prolonged immersion). The objective of the present study was to evaluate the *in vitro* antibacterial efficacy of acriflavine against two selected bacterial pathogens isolated from diseased ornamental fish; *Aeromonas hydrophila* and *Bacillus* spp. Two different dosages (2mg/L and 5mg/L) were examined. To determine effective exposure times, the antibacterial efficacy of acriflavine at these dosages was assessed after defined periods of exposure. Given that 2mg/L is a relatively lower dose, prolonged exposure times (1hr, 3hrs, 6hrs, and 24hrs) were investigated. Conversely, as 5mg/L is a higher dose, shorter exposure times (30min, 1hr, and 3hrs) were utilized. The antibacterial activity of acriflavine was assessed by comparing the aerobic, viable counts of bacterial broths before and after exposure to the two different acriflavine doses and selected exposure times. The findings of this study revealed that the bactericidal efficacy of acriflavine is influenced by dosage, time of exposure, and the species of bacterial pathogens. Exposure to 5mg/L acriflavine resulted in a considerable and gradual reduction in viable counts of tested bacteria within tested 3hrs. Conversely, the antibacterial activity at 2mg/L acriflavine lasted only upto 6hrs, after which viable counts gradually increased. Moreover, Acriflavine showed more bactericidal efficacy against *Bacillus* spp. than *Aeromonas hydrophilla*. Therefore, based on a thorough evaluation of the safety of acriflavine *in vivo*, a concentration of 5mg/L can be recommended for a short bath lasting 1-3 hrs. While farmers widely use 2mg/L acriflavine as a long bath lasting 24-48 hrs, our findings revealed that the antibacterial efficacy at 2mg/L diminishes with long-term exposure. Further *in vivo* and *in vitro* experiments should be carried out to determine the efficacy of acriflavine against different fish pathogens and its safety in various fish hosts. Fish farmers need to be educated about the proper usage of acriflavine.

Keywords: Acriflavine, Antibacterial efficacy, Ornamental fish

An improved DNA extraction method for the PCR detection of Microsporidian parasite *Enterocytozoon hepatopenaei* in shrimp feces samples

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Microsporidian parasite *Enterocytozoon hepatopenaei* (EHP) that causes Hepatopancreatic Microsporidiosis (HPM) is an important pathogen of Pacific whiteleg shrimp (*Litopenaeus vannamei*) resulting in slow growth. *L. vannamei* was introduced to Sri Lanka in 2019 to maximize aquaculture production. In 2022, a disease condition causing slow growth and white faeces in juvenile *L.vannamei* shrimp was reported in the farms in the Puttalam district that had stocked post larvae (PL) originated from imported SPF broodstock, and was confirmed as EHP. Broodstock shrimp have to be screened and ensured free from EHP using noninvasive techniques, as they can pass EHP infection horizontally to their offspring through release of feces containing spores into spawning tanks in hatcheries. Detection of EHP in broodstock shrimp by PCR using DNA extracted from faeces has been hampered by the poor recovery of DNA and the presence of PCR inhibitors. In this study, we describe an improved DNA extraction method for the detection of EHP in fecal samples containing EHP spores, by a nested PCR using the primers targeting small subunit RNA (SSU-RNA) gene. DNA was extracted from ten faecal samples collected from the shrimp suffering from slow growth from ten ponds/farms from ten different geographical locations in Chilaw using three protocols: Wizard Genomic purification kit (Promega) using tissue protocol, QIAamp DNA mini kit (Qiagen) using tissue protocol, prior treatment with EDTA and Phosphate Buffered Saline (PBS) followed by extraction with QIAamp DNA mini kit. Modification in the latter method was done to maximize the recovery and purity of extracted DNA. Starting amount of faeces for DNA extraction was the same for all three techniques. The presence of EHP spores was confirmed in all samples by examining faecal smears stained with Modified Trichrome. The expected target was not amplified when DNA was extracted using the former two methods leading to false negative results. However, expected target was amplified in the nested step of PCR in all fecal DNA samples when the modified method was used, consistent with microscopy results. This simple modification in DNA extraction allows detection of EHP in fecal samples by PCR and can be applied to screen shrimp broodstock as well as juvenile shrimp in the future in both clinical and epidemiological investigations. Determination of the sensitivity of PCR based on EHP spore counts in faecal samples will be attempted in the future.

Keywords: DNA extraction method, Microsporidia, Feces

Diagnosis and management of diabetes mellitus in a group of captive chimpanzees (*Pan troglodytes*)

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Type II Diabetes mellitus (DM2) is a relatively common condition in non-human primates in zoological parks, possibly due to the feed, stress, and restricted conditions in captive collections, however, there are few reports in great apes. Here, the authors describe the diagnosis and management of DM2 in three captive Chimpanzees (*Pan troglodytes*) at Dehiwala Zoo, Sri Lanka. Three cases showed different clinical pictures, where the first case was an 18-year-old female with a normal body condition, the second case was a 33-year-old female with a poor body condition and lethargy, and the third case was an obsessed 42-year-old female. Normal fasting blood glucose (FBG) level of chimpanzees is slightly lower than humans which is less than 120mg/dl. In our cases, the first detected levels of FBG of each chimp were 371mg/dl, 370mg/dl, and 152mg/dl respectively. Glucosuria was present in all three cases, whereas ketonuria was present in case 2. Clinical management of DM2 of the Chimps included treatment with hypoglycemic drugs, where only metformin (500mg bid PO) was used for 3rd case, while Sitagliptin and Gliclazide were given together with Metformin for 1st and 2nd cases. These additional drugs were added when the glucose levels were not responding only to Metformin. Moreover, immediate diet changes were made where sweet fruits were replaced with unripened fruits and food with low hypoglycemic index. Additionally, Thebu leaves sambal and Jack leaves boiled water were given as indigenous medicinal remedies to reduce blood glucose levels. Frequent enrichment activities were provided to increase activities and reduce stress. Animals were trained through positive reinforcement to monitor glucose by finger pricking. Following treatment and husbandry changes, FBG levels were controlled under 180mg/dl. HbA1c was tested occasionally to monitor the management of glucose levels. Out of the six chimps in the collection, three chimps have DM2, which is a high percentage of 50%. Interestingly all these three Chimps are related. The healthy three chimps' FBG levels were lower than 100mg/dl. Furthermore, as the literature suggests we can agree that females are more prone to DM2 as 3/4 of females are positive, but none of the males (0/2) have the condition. In conclusion, great apes can acquire similar diseases to humans, thus proper husbandry management and nutrition are vital when animals are kept in captivity.

Knowledge, attitudes, and practices of ornamental fish farmers in Gampaha District, Sri Lanka on antibiotic use and antimicrobial resistance

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The indiscriminate usage of antibiotics in ornamental fish industry is considered as a key contributor to antibiotic resistance, similar to other live animal industries. However, studies examining social and behavioral perspectives on antibiotic use and resistance in the ornamental fish industry in Sri Lanka is limited. The objective of this study is to evaluate the ornamental fish farmers' knowledge, attitude, and actual practice regarding antibiotic use and resistance in Gampaha District, Sri Lanka. This study was constructed by proposing a theoretical model that integrates the Theory of Planned Behavior and the Theory of Knowledge, Attitude, and Practice. A cross-sectional study based on structured interviews was conducted with 91 ornamental fish farmers in Gampaha District between July 2022 and January 2023. The questionnaire comprised 31 questions to assess the respondent's knowledge, attitude, and practice on antibiotic use and resistance. Responses to each question were later dichotomized as desirable/undesirable and appropriate/inappropriate. Data were converted to scores and the percentages of scores were calculated for each KAP item. Results of descriptive statistics revealed that 35% of farmers possess desirable knowledge, 48% have desirable attitudes, and 17% performed appropriate practices regarding antibiotic use. According to the demographic details, small-scale (58%), medium-scale (26%), and large-scale (16%) farms were included in this study. Most of the farmers were male (91%) and 45% of farmers had more than 10 years of experience in ornamental fish farming. Professional advice on antibiotic use was observed among 12% of farmers. Only 1% of farmers had training on antibiotic use and 8 % of farmers rely on biosecurity practices. The present study suggested that large-scale farmers, experienced farmers, and farmers engaged in direct exports scored better in relation to knowledge-attitude and practices. Therefore, small and medium-scale farmers should be encouraged to practice rational use of antibiotics through professional involvement and training. Positive correlations were found between knowledge-attitude, attitude-practice, and knowledge-practice. Therefore, improving both knowledge and attitude is crucial in preventing the looming threat of antibiotic resistance in the ornamental fish farming industry.

Development of an irradiated vaccine seed for bovine *Babesia bigemina* infection in Sri Lanka

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Babesia bigemina, a bovine tick-borne haemoparasite in Sri Lanka leads to tick-fever in cattle and results in significant economic losses. An irradiated vaccine was produced to control the disease but due to short shelf life (24 hours) it was discontinued. This study's objective was to produce an irradiated *B. bigemina* vaccine seed with a long (6 months) shelf life, which can be used to produce Tick fever vaccines for the field. The research methodology involved inoculating a healthy 2 months old Friesian bull calf with a 1R seed, monitoring parasitaemia, splenectomy, irradiating parasitaemic blood with doses of 350Gy, 450Gy, and 500Gy, and cryopreserving it with the new agent Trehalose. Safety, efficacy, and potency were assessed using 20 bull calves (3-8 months of age) which were randomly assigned into four homogenous groups (three tests and one control) of five calves each. Test groups received respective 3 doses of irradiated parasites (1 x 10^6 parasites) and were monitored for body temperature, parasitaemia, packed cell volume (PCV), and immune responses. On Day 49, all groups were challenged with heterologous *B. bigemina* (1 x 10^6 parasites). One-way ANOVA and Tukey HSD for post-hoc mean comparisons were used for statistical analysis. Results of not observing any clinical signs or mortality indicated the safety of all three irradiation doses. No significant differences in body temperature ($P>0.05$), blood parasites or red urine were noted among all vaccinated groups throughout the clinical trial. Calves of Group 4 (control) displayed no clinical signs until Day 56 (7 days after challenge) then exhibited *B. bigemina* in blood smears. A substantial PCV reduction ($P=0.001$) was observed in Group 1 (350Gy) after 21 days, recovering by Day 28. Group 4 (control) displayed the highest PCV depression when compared to Group 1 and 2 ($P=0.045$ and $P=0.019$ respectively) and rise in body temperature compared to all vaccinated groups ($P<0.05$). While CD4 cells of all groups did not show any significant difference throughout the clinical trial ($P>0.05$), CD8 cells peaked on Day 56 with Group 2 exhibiting the most significant increase ($P=0.03$) compared to the unvaccinated group. Group 2 (450Gy) exhibited a significant (*B. bigemina* specific) antibody increase ($P=0.02$) by Day 14 compared to other groups. All vaccinated groups showed significant (*B. bigemina* specific) antibody levels by Day 42 ($P=0.03$) when compared to the control. In conclusion, Group 2 (450Gy) shows potential as a seed based on absence of parasites in blood, PCV depression or high fever after vaccination or challenge, increased antibody levels by Day 14, and high CD8 cell percentage by Day 63. Field trials involving natural infections are necessary to validate these findings before they can be adopted within the livestock industry.

Keywords: *Babesia bigemina,* Tick-fever, irradiated vaccine

Molecular detection and phylogenetic analysis of fowl adenovirus (FAdV) serotypes present in selected poultry farms in Central and Western provinces of Sri Lanka during 2021 – 2022

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Fowl Adenovirus (FAdV) infections have become a challenge to poultry industry during past few years, notably in broiler farming in both global and local contexts. FAdVs are classified into 12 serotypes and certain serotypes cause Inclusion Body Hepatitis (IBH), Hepatitis-Hydropericardium Syndrome (HHS) and Gizzard Erosion Ulceration (GEU). This study aimed to detect the DNA originated from FAdV suspected cases and determine the relevant serotypes. This study used ten samples collected during post-mortems of FAdV suspected chickens by field veterinarians of Western and Central provinces and submitted to the Molecular and Nutritional Biochemistry Laboratory (MNBL) at the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya during the time period from 2021(March) to 2022(April). DNA was extracted from liver, kidney, spleen, heart and gizzard samples. Polymerase Chain Reaction (PCR) followed by agarose gel electrophoresis was performed to detect the Hexon gene on DNA originating from FAdV using primers specific to FAdV Hexon gene. DNA originated from Hexon gene of FAdV were detected using PCR. Positive samples were further analysed for serotyping using gene-specific primers designed to determine the major disease-associated serotypes; FAdV-1, -2, -4, -8a and -8b and revealed the presence of FAdV-2 and -8b. DNA sequences of the partial Hexon gene were obtained from the positive samples by Sanger sequencing. The obtained sequences were aligned using Mega 11 to construct the consensus and consensus sequences were used to search similar sequences deposited in NCBI. The results further confirmed the partial hexon gene sequences of local FAdV isolates. A phylogenetic tree was constructed using partial Hexon gene sequences of local isolates and 48 partial Hexon gene sequences obtained from GenBank. The phylogenetic tree was constructed according to the best model suggested and using maximum likelihood method. Phylogenetic tree comprised two clusters and showed the relationship of local FAdV isolates and the isolates obtained from GenBank. First time in Sri Lanka, findings of this study provide molecular evidence for the presence of disease associated FAdV serotypes -2 and -8b. Further investigations are warranted on the prevalence and pathogenesis of respective serotypes and detection of other FAdV serotypes to implement effective prevention and control measures of FAdV in Sri Lanka.

Keywords: Fowl Adenovirus, Hexon Gene, Phylogenetic Analysis, Sri Lanka, Serotyping

Molecular diagnosis and genetic characterization of *Theileria* in imported cattle of Sri Lanka

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The tick-borne diseases in cattle caused by the Theileria parasite are reported from different regions of the world, showing significant economic losses in the dairy industry. *Theileria annulata* causes tropical theileriosis in cattle. While mixed infection with different types of *T. orientalis* in cattle are reported in far-east countries. *T. orientalis* type 2 infection is most pathogenic to cattle which has been reported in Australia and New Zealand highlighting as an endemic disease. High-yielding dairy cattle were imported to Sri Lanka, targeting the development of the dairy sector. Importing foreign animals carries a high risk of introducing and spreading new virulent parasitic species and genotypes. Therefore, molecular identification of the parasite with their genetic diversity is of paramount importance to implement control measures. This study was conducted for the molecular identification and phylogenetic analysis of *Theilaria* species in imported cattle in 2018. A total of 144 imported cattle and 20 local cattle (the control group) were selected to collect blood samples for screening for theileriosis by conventional PCR. Positive samples were subjected to *Theileria* typing by PCR to detect genotypes. PCR results revealed that 24 % of the imported cattle were infected with *Theileria orientalis* and neither of the imported or local groups were positive for *T. anulata.* Based on typing PCR results, all the *T. orientalis* positive animals were co-infected with genotypes 1, 2, 3, and 5, which were present at prevalence of 23%, 27%, 67%, and 43%, respectively, in the imported cattle group. Phylogenetic analysis further revealed that isolated sequences are closely related to the *Theileria* sequences reported in New Zealand. The presence of *T. orientalis* in Sri Lankan cattle is significantly higher (100%) than in imported cattle, while type 1 (25%), 3 (65%), 5 (55%), and 7 (3%) genotypes were identified in the Sri Lankan cattle populations. This study provided the first reported molecular identification of the virulent *Theileria orientalis* type 2 in imported cattle in Sri Lanka, which revealed the importance of improved preventative measures before cattle importation to the country.

Keywords: *Theileria orientalis* type 2, imported cattle, Sri Lanka

Occurrence of Koi Sleepy Disease (KSD) in Koi sold in local aquaria in Sri Lanka: Silent spread of an emerging disease

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Koi Sleepy Disease (KSD) also called Carp Edema Virus Disease (CEVD) is a viral disease affecting both juveniles and adults of common carp and koi (*Cyprinus carpio*). It is caused by a poxvirus of the Poxviridae family. Infected fish become lethargic, unresponsive and lie motionless at the bottom of ponds or tanks. First reported in 1970s, KSD was originally restricted to Japan, international koi trade has led to a worldwide spread of KSD. World Organization of Animal Health (WOAH) currently identifies KSD as an emerging disease in carp. This study aimed to assess the occurrence of KSD sold in selected provinces in Sri Lanka using PCR assays. Koi showing clinical signs or appearing healthy were collected from twenty-five randomly selected aquaria located in the Central, North Western and Western provinces of Sri Lanka as 10, 10 and 5 aquaria respectively from each province. These fish were transported to the Centre for Aquatic Animal Disease Diagnosis and Research (CAADDR). After a thorough external examination to identify the gross abnormalities, the fish were anaesthetized using MS-222. From each aquarium, a pooled gill tissue sample was prepared from two fish. Severity of infection was assessed by considering the morbidity and mortality rate of the fish in each aquarium. DNA extracted from these pooled gill tissues, using a commercial DNA extraction kit, was subjected to a nested PCR assay published by the Centre for Environment Fisheries and Aquaculture Science (CEFAS), UK. Among the sampled Koi, 15 (60%) aquaria showed signs suggestive of KSD, including lethargic and unresponsive behaviour, remaining motionless in the bottom of the tanks, gill oedema, erosive and haemorrhagic skin lesions and gill necrosis. Out of the 25 pooled fish samples tested, KSD was detected in 10 (40%) samples. This included severe infection in 3 aquaria (12%) and low-level infection in the remaining 7 aquaria (28%). Out of the 10 PCR-positive samples, 8 were from shops where fish showed clinical signs similar to KSD. Koi sleepy disease virus was detected in 2 pooled samples from apparently healthy fish, implying subclinical infection. Our findings provide evidence for the widespread occurrence of KSD in koi available for sale in Sri Lanka. The prevalence and spread of KSD must be closely monitored in koi populations to prevent the further spread within the country.

Keywords: Carp Edema Virus Disease, Koi Sleepy Disease, Polymerase Chain Reaction

Impact of constant immersion compared to tidal emersion on the microbiome of Pacific oysters (*Crassostrea gigas)* challenged with *Ostreid herpesvirus-1* (OsHV-1)

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Microvariant genotypes of *Ostreid herpesvirus-1* (OsHV-1) are responsible for mass mortality outbreaks of Pacific oysters. Increasing the height of growing structures in intertidal farm environments decreased mortality of adult oysters as the periods of emersion from water were increased. However, higher mortality was observed in laboratory-infected oysters subjected to prolonged emersion, prompting the study of the microbiome in Pacific oysters challenged with OsHV-1 and kept under different immersion regimes. Two groups of oysters (n = 212 in total; 24 months of age) were maintained in a PC2 aquatic animal facility, one group in constant immersion and the other in periodic emersion. Live oysters that were randomly selected on Days 0, 1, 2, 3, 4 and 7 post-infection, and moribund oysters were sampled for quantification of OsHV-1, total bacteria and total *Vibrio* and for bacterial 16S rRNA gene (V1-V3) diversity profiling in gill and gut. Higher mortality was observed in oysters injected with OsHV-1 in a tidal immersion-emersion cycle compared to those in constant immersion. This result contrasts with the outcome in previous field trials. Interestingly, this higher mortality in the tidal emersion was associated with lower total bacterial counts ($p < 0.05$). Reduced alpha diversity was observed in the gill microbiome of constantly immersed oysters at the onset of mortality (observed operational taxonomic units [OTUs]: Day 1, 192.7 ± 20.7, Day 2, 143.4 ± 8.1; $p < 0.05$). A decrease in *Vibrio* spp. (Day 0: 11.09%; Day 1: 2.9%) and an increase in *Arcobacter* spp. (Day 0: 0.18%; Day 1: 5.93%) were also noted in the gill microbiota of the same group ($p < 0.05$) but did not observe in tidal emersion. Bacterial genera that were rare in the gill microbiota, such as *Polaribacter*, *Marinicella* and *Sediminibacterium* showed an increase in abundance in tidal oysters ($p < 0.05$). Conversely, the alpha diversity of gut microbiota remained unchanged after the OsHV-1 challenge in both immersion systems. In conclusion, the OsHV-1 challenge appeared to trigger differential responses in the microbiome of oysters under different immersion conditions.

Keywords: Pacific oyster, microbiome, OsHV-1, immersion, emersion

Molecular based survey of tick-borne hemoparasites of cattle in selected wet zone and dry zone farms in Sri Lanka

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Bovine tick-borne hemoparasitic diseases are responsible for significant economic losses in the cattle industry in Sri Lanka. Tick vectors including *Boophilus, Rhipicephalus,* Haemophysalis and *Hyalomma* are responsible for transmitting the diseases to cattle. Common Haemoparasitic diseases reported in the literature includes Babesiosis, Anaplasmosis and Theileriosis. Epidemiological screening for haemoparasitic diseases has taken place from time to time focusing on some areas of the country. The last screening was performed in 2019 targeting low country wet zone. In this study, we screened Sri Lankan cattle populations in the wet and dry zones during the year 2022 for the presence of *Babesia bigemina*, *Babesia bovis,* Theileria sp., *Anaplasma marginale* and *Anaplasma centrale*. In total, 100 blood samples were collected from selected cattle farms in the wet zone and same number of animals from selected dry zone farms in the country. Overall, 50 samples were taken from wet zone farms (Nawalapitiya and Kegalle) and 50 from dry zone farms (Anuradhapura and Ridiyagama). The blood samples were taken from randomly selected adult (>1 year of age) animals in the farm and all cattle were healthy at the time of sample collection. DNA was extracted from all blood samples using QIAamp DNA blood minikit (Qiagen) and PCR was performed using genus specific (Theileria) and species-specific primers (*Babesia bovis, Babesia bigemina, Anaplasma marginale, Anaplasma centrale*) for all haemoparasites. In total, 65% animals were infected with at least one hemoprasite and 28% of samples were infected with more than one hemoparasites. The commonest hemoparasite identified were *A. marginale* (33%), Theileria (25%), *Babesia bigemina* (24%), A. *centrale* (21%) and *B. bovis* (6%). As in previous studies performed in many parts of the country, we also found that the dry zone cattle (Ridiyagama and Anuradhapura) had more Babesia-positive (40%) animals than wet zone cattle (8%) (Kegalle and Nawalapitiya), while infection with *Theileria* was high in wet zone (36%) than in dry zone (14%). Co-infection with several hemoparasites was also observed in this study. Therefore, proper control, management and prevention programs against ticks and bovine hemoparasitic diseases are needed to minimize economic losses.

Morphological and molecular characterization of *Moniezia* tapeworms extracted from goat post-mortems performed in veterinary teaching hospital- farm animal, Peradeniya

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Monieziasis is the most common intestinal cestode infection in ruminants, including goats. In Southeast Asia and India, both *Moniezia* species, *M. expansa* and *M. benedeni*, have been identified in livestock animals. In Sri Lanka, even though the prevalence was studied by means of fecal egg counts, morphological and molecular characterization of the species has not been carried out. This study aimed to fill the existing knowledge gap by providing a comprehensive characterization of Moniezia species isolated form local goats. Three adult *Moniezia* worms were collected during the postmortem examinations of a goat from the Veterinary Teaching Farm, University of Peradeniya. Those worms consisted of a scolex with clear apical region devoid of a rostellum and four conspicuous suckers, followed by an unsegmented neck and proglottids. The ring-shaped ovaries, vitelline glands, and rosette-like inter-proglottid glands in the mature proglottids were identified. The length and the width of solaces were 0.45 ± 0.04 × 0.65 ± 0.07 mm in size. The morphological examination revealed that the parasite is *Moniezia expansa* based on the morphology of inter-proglottid glands. The gross average measurements and the three isolated worms were as follows: total length: 414 ± 40.03 cm width: varies with the maturation level of the proglottids. Immature proglottids were 0.23± 0.01 mm in length and 0.31 ± 0.002 mm in width. The mature proglottids were 0.52 ± 0.04 mm in length and 0.83 ±0.04 mm in width while the gravid proglottids were filled with eggs measured at 1.22 ± 0.08 mm in length and 1.85 ± 0.06 mm in width. The Molecular characterization was carried out using generic primers for COX 1 gene(F- TTTTTTGGGCATCCTGAGGTTTAT and R-TAAAGAAAGAACATAATGAAAATG -346 bp) and ITS 2 gene (F-GGTACCGGTGGATCACTCGGCTCGTG and R-GGGATCCTGGTTAGTT TCTTTTCCTCCGC-600bp). Agarose gel electrophoresis resulted in a PCR amplicon size of approximately 346 bp and 600 bp respectively. The PCR amplicons were subjected to Sanger sequencing for molecular phylogenetic analysis. However, the three cestodes isolated from a goat and the morphological features specifically demonstrated that the cestode species belongs to *Moniezia expansa*. Sequence analysis will be performed to identify the phylogenetic relationships of the isolated parasites.

Keywords: *Moniezia expansa*, characterization, morphological, molecular

Dentigerous Cyst in a Cat: A Case Report

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Dentigerous cysts are the most common odontogenic cysts in dogs and cats and are similar to those found in humans. Studies show that these cysts are more common in dogs than in cats and brachycephalic breed dogs appear to be predisposed to this condition. Dentigerous cysts are associated with the crown of an unerupted tooth, usually a permanent tooth. During odontogenesis, dentigerous cysts are formed form secondary to accumulation of fluid between crown and dental follicle. Dentigerous cysts enclose the crown of the unerupted tooth and are attached to the tooth at the cementoenamel junction. Unerupted teeth are typically the result of a physical barrier (impacted tooth) or a lack of eruptive forces (embedded tooth). A 6-month old male domestic shorthair cat was referred to our practice with a localized swelling and discomfort in the orofacial region. Clinical examination revealed a hard, non-painful mass adjacent to the left maxillary canine tooth. The differentials included dentigerous cyst, osteosarcoma and tooth root abscess. Radiographs and detailed dental examinations revealed an unerupted left maxillary canine tooth surrounded by a well-defined radiolucent lesion consistent with a dentigerous cyst. The surgical approach to resolution in this case involved a mucogingival flap to expose the underlying alveolar bone. Thick fluid was drained from the ventral aspect of the initial incision. The exuberant bone was removed with a dental bur, and the defect was enlarged to aid in visualization. The unerupted tooth was then extracted using dental elevators and forceps. Then the flap was trimmed and sutured with absorbable sutures. Ketoprofen was administered pre-surgically for analgesia and Meloxicam was prescribed for post-surgical analgesia. The cat exhibited rapid improvement in clinical signs within few days. The importance of early detection and timely surgical intervention in cases of dentigerous cysts in feline patients should be appreciated. Any missing or unerupted teeth after the usual period of eruption should be properly checked because the issue can be subtle and often shows no clinical signs. This case report, emphasizing the need for thorough dental examinations to accurately diagnose and treat such rare odontogenic pathologies.

Aspergillus rhinitis in a 7-year-old German shepherd

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Aspergillosis is a common fungal infection in many animal species. In dogs, rhinitis is the typical form of aspergillosis and dolichocephalic breeds are at risk. The fungus tends to localize in the nasal cavity or paranasal sinuses and the infection usually begins at the ventral maxilloturbinate. There are only a few confirmed case reports of canine aspergillosis from Sri Lanka. This report describes the clinical signs, treatments and treatment outcome of aspergillus rhinitis diagnosed in a 7-year-old female German shepherd. The dog was presented with complaints of severe chronic profuse bilateral purulent nasal discharges, mild epistaxis and sneezing for several months. At the time of presentation, the dog had open mouth breathing, reduced appetite and water intake and BCS=2. The dog had been previously treated with antibiotics, anti-inflammatories and antihistamines without any success. In the general clinical examination, dog showed pain upon palpation of the nasal area, nasal depigmentation, severe bilateral purulent nasal discharges, epiphora and respiratory stridor. Facial symmetry was normal and both the nostrils were clogged with thickened mucopurulent discharges. Submandibular lymph nodes were bilaterally and moderately enlarged. The temperature and pulse rate were normal, but heart rate and respiratory rates were difficult to determine due to open mouth breathing. Thoracic auscultation identified wheezing sounds in all lung lobes. The differential diagnoses were allergic rhinitis, foreign body reaction, fungal rhinitis, nasal polyp and neoplasia. Cytology of nasal swabs revealed numerous macrophages, moderate number of eosinophils and neutrophils and extra cellular and intra cellular bacterial cocci. Complete blood counts revealed a mild leucocytosis (19.3×10^3 /µL) with moderate neutrophilia and monocytosis. Blood smear contained mildly increased band neutrophils, a few polychromic macrocytes and nucleated red blood cells. Based on the non-responsiveness to antibiotics and pyogranulomatous type inflammation identified by cytology, the condition was tentatively diagnosed as fungal rhinitis. The nasal swab culture was positive for *Aspergillus fumigatus*. The dog was treated with itraconazole (5mg/kg, q 24) and acetylcysteine (10mg/kg, q24) and gradual decrease in clinical signs was observed in 1-week and 2-week post-treatment follow-ups. The complicated nature of treatments obscure identification of the predisposing factors for fungal rhinitis.

Surgical Management of Anorectal Agenesis in Calves; Two Case Studies

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Two bull calves, one a 2-day-old Friesian and the other a 3-day-old Jersey cross, were brought to the Farm Animal Teaching Hospital due to perineal swelling and the inability to pass faeces since birth. The second calf had previously undergone an unsuccessful anoplasty a day earlier. Upon the general clinical examination, the condition was identified as atresia ani due to visible external signs. However, a tentative diagnosis of anorectal agenesis was made based on the absence of faeces during needle aspirations. The calves were admitted to the hospital, and both their hematological and physiological parameters indicated that they were suitable candidates for surgery. Under general anesthesia, a right lower flank exploratory laparotomy was performed using 2% Xylazine HCL (0.1mg/kg) and intramuscular atropine sulfate (0.06mg/kg), along with intravenous 10% ketamine (1mg/kg). After confirming the presence of rectal agenesis, the surgical plan involved performing colostomy as the corrective procedure for both cases. During the surgery, the descending colon was carefully brought outside and gently compressed to push the faeces toward the transverse colon. Two bowel clamps were applied with a 3-inch gap, and the seromuscular layers of the descending colon (middle segment) were sutured using 2.0 chromic catgut, employing a simple interrupted suture pattern against the external abdominal oblique muscles. The chosen section of the colon was aspirated with a needle to confirm the absence of faeces. Subsequently, a 1.5-inch incision was made lengthwise along the intestine, and the mucosal layer of the incised intestine was sutured to the skin using 0.45 nylon in a simple interrupted pattern, creating an artificial mucocutaneous junction. Following the removal of the bowel clamps, additional incisions in the skin and muscle were sutured with 0.45 nylon using a simple interrupted suture pattern, effectively closing the remaining part of the laparotomy incision. Immediately after the surgery, both calves started passing faeces through the artificial anus on the right flank. They were administered procaine benzathine penicillin for 7 days and Ketoprofen for 2 days via intramuscular injection. Wound dressings were carried out daily using Povidone iodine, Cumaphose, and Propoxur paste. The calves were discharged within two weeks, experiencing no post-surgical complications, and they were followed up on for a period of three months. The successful execution of colostomy as a surgical solution for anorectal agenesis in calves demonstrates a positive perspective on animal welfare.

Keywords: Anorectal agenesis is calves, Congenital malformation, Surgeries in calves, Atresia ani

Response to phenobarbital therapy in two dogs with spirocercosis-associated sialoadenosis

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Sialoadenosis is bilateral, uniform, painless enlargement of submandibular salivary glands without evidence of inflammation or neoplasia. There are two forms of sialoadenosis as idiopathic form, and the gastro-esophageal disease associated form. Idiopathic sialoadenosis responds well to anticonvulsants such as phenobarbitone. Sialoadenosis that occur consequent to gastro-oesophageal diseases usually does not respond to phenobarbitone.Sialoadenosis is observed in dogs with spirocercosis and it has been hypothesized to occur due to neurological stimulation of the salivary gland by larval migration and esophageal parasitic nodule formation. Phenobarbitone therapy for dogs with sialoadenosis associated with spirocercosis (SAS) is rarely discussed in literature. This report describes response to phenobarbitone in two dogs diagnosed with SAS. The first case was a 2 ½- years-old, male, crossbred dog (Dog A) presented with hypersalivation, lip-smacking, intermittent vomiting, regurgitation, dysphagia and weight loss for 3-weeks. The second case was a 5-years-old, crossbred male dog (Dog B) with similar but less severe clinical signs. Sialoadenosis was diagnosed in dogs A and B using salivary gland cytology and in Dog A the diagnosis was confirmed by necropsy. Spirocercosis was tentatively diagnosed in Dog A by clinical signs and radiographs that showed increased soft tissue density around the caudal oesophagus while in Dog B *Spirocerca spp* eggs were identified in feaces. Both the dogs were treated with phenobarbitone (2.4mg/kg, q24hr), doxycycline (10mg/kg, q12hr), promethazine (0.3mg/kg, q8hr) and dewormed with Prazimec-D™ (praziquantel 0.05g, abamectin 0.002g). Ivermectin was not used as dog A had microfilaria (8/HF) and dog B showed hypersensitivity to it.However, deworming was not successful in Dog A. Despite the treatments, Dog A died 3 days after initiation of treatments. Dog B showed a significant reduction of clinical signs after phenobarbital therapy and treatments were continued for 4-months until the clinical signs completely disappear. The observations from these two clinical cases suggest that response to phenobarbitone therapy may be useful in dogs with SAS. The findings also suggest severity of clinical signs, severity of spirocercosis lesions and presence or absence of concurrent deworming are possible confounding factors that affect the treatment outcome.

Systemic candidiasis in a 1 ½ -year-old Rottweiler after prolonged corticosteroid therapy

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Candida spp are commensals that often inhabit the lower urogenital tract, upper respiratory tract, and gastrointestinal tract of many animal species. However, systemic candidiasis is only rarely reported in dogs. The risk factors of systemic candidiasis include diseases like diabetes mellitus, the placement of intravenous (I/V) or urinary catheters and prolonged administration of broad-spectrum antimicrobials or corticosteroids. The pathogenesis of systemic candidiasis includes overgrowth of *Candida spp* and translocation into the bloodstream via weakened mucosal barriers. The present case describes systemic candidiasis diagnosed in 1 ½ -years-old female Rottweiler. The dog was recumbent with a distended abdomen at the time of presentation. According to history, hyporexia was present for a week and had intermittent epistaxis since it was 4 months old. Further, the dog was treated with antibiotics and corticosteroids for approximately for 4 months. General clinical examination revealed 8% dehydration, icteric mucous membranes and mild generalized lymphadenomegaly. Abdominal palpation was severely painful for the dog. The differential diagnoses for distended abdomen were pyometra, pyelonephritis, peritonitis and ascites. In the complete blood count haematocrit was 28% and there was moderate leukocytosis (28 x 10^3/µL). Blood smear examination identified monocytosis and the presence of free and intra-monocytic 2-4 µm size organisms with a thin clear cell wall consistent with fungi/yeast. Urinalysis revealed pyuria and moderate proteinuria. Peritoneal fluid cytology included organisms similar to those identified in the blood smear. The condition was diagnosed as fungal peritonitis and after initial stabilization with intravenous fluid and prophylactic antibiotic therapy, an abdominal lavage was performed. Abdominal fluid was sent for microbiological culture. It was unable to treat the dog with antifungals due to the difficulty of using oral preparations and the unavailability of intravenous preparations. Despite supportive treatments, the dog died next day. The fungal culture on Sabouraud Dextrose Agar was identified as *Candida spp.* The cause of systemic candidiasis in this dog could be immunosuppression due to prolonged corticosteroid therapy and the route of entry of the candida was suspected to be the frequent I/V catheterization for systemic antibiotic therapy.

Keywords: *Candid spp,* Systemic candidiasis, Prolonged corticosteroid therapy, Canine

Successful surgical resection of a large lymphangiomatous tonsillar polyp in a 7-year-old crossbred dog

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Benign proliferative lesions originating from tonsils are rare in dogs and only a handful of reports are available on this. The pathogenesis of canine tonsillar polyps includes multi-steps with hamartomatous growth followed by secondary chronic inflammation that causes stromal remodeling and lymphoid hyperplasia. A 7-year-old, intact, female crossbred dog weighing 32kg with an abnormal mass protruding from the mouth during barking and coughing was presented to Veterinary Teaching Hospital (VTH). The mass was not seen during physical examination but was observed in plain lateral cervical radiograph to be in the laryngeal region. Subsequent endoscopy (2.7mm 30degree rigid scope with cystoscopy sheath) revealed an approximately cylindrical muscular mass (3 cm x 1.5 cm), with glistening soft non ulcerated surface, originating from the cervical esophagus obstructing the esophageal lumen and decided to surgically remove. Patient was premedicated with Midazolam (0.2mg/kg) followed by general anesthesia using Propofol (6mg/kg) intravenously. Then the lateral-vertical incision was made on the neck, the esophagus was para medially exposed by retracting sternohyoidius muscles with the guidance of an oro-gastric tube. The esophageal mass was exteriorized through a surgical opening made on esophageal wall. Mucosal mass was dissected close to the stalk using a bipolar diathermy and no esophageal perforation noted. Then the esophagotomy was closed in 2 layers with 3-0 Vicryl® followed by routine closure. Tramadol hydrochloride (2mg/kg) was administered through intravenously as intra-operative analgesic and meloxicam (0.2mg/kg) was prescribed post-operatively. The dog recovered from anesthesia uneventfully and kept NPO for 2 days. And the subsequent follow-up visits proved good health of the animal. Microscopically the mass was composed of a highly vascularized stroma covered by a stratified squamous epithelium. The stroma contained many variably sized dilated endothelial-lined interconnected vascular channels compatible with lymphatic vessels. The lymphatic vessels were separated by hypocellular, dense to loose fibrovascular tissue occupying <40% of the stroma. Occasionally some of the lymphatics were filled with eosinophilic fluid. Large, occasionally coalescing, sub epithelial lymphoid follicles were present which often contained large germinal centers. Plasma cells, small lymphocytes and macrophages were scattered throughout the stroma. Histopathological findings of the mass were consistent with lymphoangiomatous tonsillar polyp.

Keywords: dog, endoscopy, tonsillar polyp

Sialolipoma in the mandibular salivary gland of a dog

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Sialolipoma is a recently described rare type of salivary gland lipoma in dogs histologically characterized by well circumscribed mature adipose tissue admixed with benign salivary gland component. Sialolipoma occurs in a comparatively higher frequency in major salivary glands compared to minor salivary glands. This report describes a sialolipoma in mandibular salivary gland in a 2- year-old intact male Labrador retriever. The dog presented with a complaint of a slow growing mass in the right mandibular area that extended up to the base of the ear. According to the owner the mass originated in the same location where a mass with similar size and consistency, was surgically excised 8 months ago. No further diagnostics were performed on the surgically excised mass. On physical examination, the mass was approximately 5 cm diameter, firm, movable, well circumscribed and painful to palpation. Moreover, the dog was profusely salivating and showed signs of exercise intolerance. The top differential diagnoses were granuloma and abscess, while neoplasia was considered a less likely diagnosis due to the young age of the dog. Fine needle aspiration obtained from the mass was highly haemodiluted and contained a few well differentiated adipocytes and small clusters of epithelial cells. In ultrasound scanning, the mass was well circumscribed, minimally vascularized and mostly hypoechoic with multiple anechoic areas. Plain right lateral radiographs of head and thorax did not show bony changes in the mandible or evidence of pulmonary tumour metastasis. Surgical excision of the mass was performed under general anesthesia. On gross pathological examination, the excised mass was 5.2 cm x 3 cm x 2.5 cm in size, pink, lobulated and had smooth surfaces. The cut surface showed multiple empty areas. Histopathology revealed a mass encapsulated by a thin fibrous capsule predominantly consist of mature adipocytes with scattered acini and ducts composed of well differentiated uniform cuboidal cells separated by a thin fibrovascular septae which confirmed a diagnosis of sialolipoma. As the tumours are usually well-encapsulated and recurrence is very rare after surgical excision. In the dog described in this report, no recurrence was observed in the follow-ups after the second surgical excision.

Keywords: Sialolipoma, Salivary gland, Dogs, Benign tumor

Pyometra Correction in Rabbit – A Case Report

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Pyometra, a life-threatening condition characterized by the accumulation of purulent material in the uterine cavity, is a rare but critical reproductive disorder observed in female rabbits. However, some cases can be insidious because of mild clinical signs and the lack of vaginal discharge. This abstract highlights the case of a 4-year-old female rabbit diagnosed with pyometra. The study reviews the clinical presentation, diagnostic methods, and therapeutic approach used to manage this condition in the affected animal. The peculiarity of this case is the occurrence of pyometra in a rabbit with no history of mating or parturition. This animal belonged to a single rabbit house and there was no history of previous kindling kittens. The presenting complaint was severe abdominal distension in the last 2 months and hyporexia. The clinical manifestations included lethargy, and no observed vaginal discharge. In this case, diagnostic procedures, including physical examination, ultrasonography, and laboratory analysis, were employed to confirm the presence of pyometra. Fluid field anechoic compartments covered with hyperechoic strands resulted in ultrasonography. In the blood smear, neutrophilia was present with immature and toxic neutrophils. The culture report of the vaginal swab was positive for Pseudomonas aeruginosa. After the confirmation of Pseudomonas infected pyometra condition, medical intervention, including surgical removal of the infected uterus by ovariohysterectomy was done. The animal was sedated using ketamin (25mg/kg) as the induction and maintained with 5% isofurane. After the surgery, systemic antibiotics like amoxicillin/clavulanic acid and Metronidazole were administered to treat the condition successfully and pain management was done by giving meloxicam. At the follow-up after one week animal was bright alert and responsive with improved condition. On the same day, another vaginal swab was collected and sent for the culture. No growth resulted from the culture medium. The case underscores the significance of early detection and intervention in managing pyometra in rabbits, emphasizing the importance of routine health checks and spaying as a preventive measure. Further research is needed to elucidate the underlying risk factors and pathogenesis of pyometra in female rabbits, contributing to improved preventive strategies and clinical outcomes for affected animals.

Keywords; Rabbit, Pyometra, Pseudomonas aeruginosa, surgical excision

Surgical repair of medial patella luxation of a dog using trochleoplasty, tibial tuberosity transposition and retinaculum imbrication

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Medial patella luxation (MPL) is a common Couse of orthopedic lameness in both small breed and large breed dogs. Patella is located in trochlear groove at the end of the femur, and does not move out of the groove. A medially luxating patella moves out of its normal location to medial direction. The cause of MPL can be congenital, developmental disorders or secondary to trauma. Lexi 4 years old cross breed female dog presented to the hospital with the complaint of severe pain in right hind limb and bow-legged stance. General clinical examination (GCE) revealed presences of swelling, pain on palpation and patella permanently luxated out of the groove, confirming grade IV MPL. Radiographs too were taken to see any concurrent pathology, in order to properly manage the surgical intervention. Sedation was done with xylazine HCL and induction of anesthesia was achieved using ketamine and maintained by isoflurane. Animal was kept on dorsal recumbency. The skin incision was created, starting just lateral to the tibial tuberosity and extending proximal to the patella, equidistant to the distance between the tibial tuberosity and the patella. The facia Lata and joint capsule had been incised on the same line as the skin incision, exposing the trochlear groove. Trochleoplasty was done using a wedge-shaped recession technique and trochlear groove was deepened. Tibial tuberosity (TT) transposition was done to the lateral side. TT stabilization was done by using two 1mm pins and tension band wire. Retinaculum imbrication was done vest over pant suture pattern by using Vicryl 2/0. Subcutaneous tissue and skin were sutured. The patient was discharged after 5 days of treatments. (ceftriaxone, metronidazole, omeprazole intravenously and meloxicam 0.1mg/kg subcutaneously). Upon discharging, amoxicillin/clavulanate 20mg/kg, metronidazole 20mg/kg and omeprazole were prescribed for 5 more days and oral meloxicam 0.1mg/kg, for 2 more weeks. Owner was advised to confine activities for 8 weeks. The skin sutures were removed 10 days post operatively. Lexi was walking normally from post-operative day 30. Full recovery with no complications was observed after 3 months. In this described case the prognosis was very good and weight bearing was achieved by 14 days post operatively.

Surgical repair of acquired chronic nonhealing oronasal fistula in a four-year-old dog

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Acquired oronasal fistula is an atypical connection between the nasal cavity and oral cavity caused by either trauma or disease. Oronasal fistula can result from most commonly, periodontal disease, in addition to that, complications of oral cavity surgery (mass reduction) and foreign bodies can lead to acquired oronasal fistula. This write-up outlines the successful surgical correction of two oronasal fistulas in a 4-year-old male crossbreed dog using the single-layer flap repair and direct apposition. The patient was presented to Veterinary Teaching Hospital with a history of persistent chronic rhinitis for approximately 8 months. After a proper general clinical examination, it was found that there were 2 fistulas at the junction of the hard palate and the soft palate which required detailed examination for possible surgical correction. The location of the oronasal fistula suggested that it might have been caused by a foreign body lodged between the dental arcades. After pre-anesthetic evaluation, the patient was anesthetized with Xylazine and Propofol. The small fistula (1cm in diameter) was closed via the direct apposition method after debridement of the mucosal edges followed by suturing with simple interrupted pattern. The single-layer flap method was employed for the closure of large fistula (2cm in diameter) located in mid cranial region of the soft palate in close proximity to the hard palate. A buccal mucosal flap was utilized to close the large fistula. The buccal flap was sutured to the mucoperiosteum of the hard palate using simple interrupted suture pattern using 3-0 Vicryl®. Postoperative recovery was uneventful, with the fistulas moderately sealed and no complications observed after 5 days. The dog was treated with systemic antibiotics (Amoxycillin-clavulanate, Metronidazole) and local antibiotics (Metronidazole gel) together with meloxicam, esomeprazole and oxymetazoline for a week. The dog recovered from all complications on the second day of the surgery. The owner was advised to give a liquid and semisolid diet until complete recovery is observed. Remarkably, despite the disruption of some sutures due to the dog's interference and chronicity, the animal exhibited a reduction in previous clinical signs. This approach demonstrates the feasibility of correction of oronasal fistula in dogs providing less invasive access. Further research and larger studies are warranted to validate the long-term efficacy of this approach.

Keywords: acquired oronasal fistula, single-layer-flap method, buccal mucosal flap

Hindlimb amputation of dogs using coxofemoral disarticulation method

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The coxofemoral disarticulation is a hindlimb amputation method that involves completely removing the hindlimb through the coxofemoral joint. This will enhance the patient's overall quality of life, particularly when limb preservation is no longer possible.The objective of this report is to emphasize the fact that severing the nerves as close to the body trunk as possible will reduce the sensation of a 'phantom limb', leading to better patient adaptation. This report considers four cases of dogs that underwent hindlimb amputation in 2023, each suffering from a different condition, such as a chronic necrotic wound, a multi-segmented fracture resulting from a train accident, a neoplastic growth, and an infected surgical wound from a failed fracture repair. These dogs were of varying ages, all with lesions on their hindlimbs. Despite the different causes, all patients experienced irreparable injuries leading to severe pain and discomfort, necessitating amputation surgery. Premedication was done with medetomidine, morphine, and cefuroxime. The coxofemoral joint was exposed and disarticulated by carefully dissecting the thigh muscles while being extra careful to properly ligate the femoral artery and vein. The sciatic nerve was severed after injecting lidocaine. Morphine was also used in continuous rate infusion throughout the procedure. Hemostasis was a top priority. The closure was performed in layers, and a temporary drain was placed for three days post-surgery. Post-operative management included cephalexin for a week, meloxicam for three days, and wound dressing until the suture line was apposed. All four patients fully recovered without complications, quickly adapting to their three-limbed lifestyle. Possible long-term side effects include discomfort from the extra weight borne by the remaining hindlimb and the potential recurrence of neoplastic masses on other limbs. Owners were advised to maintain the patients' optimum body condition. Other benefits of this method are that there is no need to worry about pressure sores over the femoral remnant, and no need to cut through the bone. In conclusion, this surgery is a highly effective approach to alleviate discomfort with minimal risk of complications, provided it is performed with proper care, prompt pain management, and maximum sterility.

Clitoral cell carcinoma in a 10-year-old Labrador retriever

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Clitoral tumors in dogs are rare to uncommon and only a few case reports are available in the literature. The cytopathological, and histopathological features of clitoral tumors closely resemble endocrine tumors. This clinical communication describes the clinical, cytological, and histopathological features of a clitoral cell carcinoma diagnosed in a 10-year-old female Labrador retriever. The dog was referred to the Veterinary Teaching Hospital, University of Peradeniya, for chronic vulval bleeding that started one year ago. A regional veterinarian had previously diagnosed the condition as vaginitis and treated with antibiotics and a small intra vaginal mass had been identified during digital vaginal examination. Physical examination of the dog was normal except for mild vaginal bleeding and a smooth-surfaced, firm mass of approximately 2 cm in the floor of the caudal vagina identified by digital vaginal examination. The mass was further examined by vaginoscopy which revealed multiple pink to yellow masses with similar appearances in the vaginal mucosa. The differential diagnoses were multiple vaginal abscesses, granulomas, and neoplasia. The biopsies obtained for cytology during vaginoscopy revealed cohesive clusters of round to polygonal neoplastic cells with indistinct cytoplasmic borders scattered in a lightly bluish background in the absences of inflammation. Based on cytology, the condition was tentatively diagnosed as vaginal hyperplasia or neoplasia, and the masses were surgically excised under general anaesthesia. Briefly, the largest mass was approached by an episiotomy and excised while applying electrocauterization to control bleeding. Subsequently, an ovariohysterectomy was performed as a precaution to prevent new masses. Post-operative care included analgesics, antibiotics and vaginal pessaries. Histopathology was performed to arrive at a confirmatory diagnosis. According to histopathology, the normal clitoral architecture was replaced by a multilobulated, moderately circumscribed, partially encapsulated epithelial neoplasm consist of tubules/rosette-like structures separated by a fine fibrovascular stroma. The average mitotic index per x400 field was 2.3 and there was moderate anisocytosis and anisokariyosis. The histopathological features of the mass were consistent with a clitoral cell carcinoma. In the subsequent post-operative follow-ups, the dog was clinically normal, and no recurrence of the neoplasm was identified. There are no previous local reports on canine clitoral cell carcinoma.

Oral tumour in a pet guinea pig with histopathological features consistent with a peripheral nerve sheath tumour

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Guinea pigs are commonly used for laboratory research and also becoming popular as pets. Generally, tumours in laboratory guinea pigs are promptly identified and reported. However, reporting of tumours in pet guinea pigs is relatively low as owners often do not seek veterinary attention until they are severe or noticeable. The most common oral tumours reported in pet guinea pigs include squamous cell carcinoma, fibromas, melanomas, and odontogenic tumours. This case report describes an oral tumour found in a two-year-old, intact female pet guinea pig with histopathological features consistent with a peripheral nerve sheath tumour (PNST). The presenting complaint was a solitary mass observed on the left ventral rostral area for a month and reduced appetite and water intake since a few days. The mass was approximately 2 cm in diameter and firm. The guinea pig was quiet alert and responsive and hypersalivating. The differential diagnoses included an abscess, granuloma, or oral tumour. A fine needle aspirate was obtained from the mass revealing a population of spindle cells with mild atypia in a moderately haemodiluted background. The condition was tentatively diagnosed as a spindle cell tumour and surgically excised under general anaesthesia (10% ketamine at 50mg/kg I/M, followed by maintenance with 5% isoflurane). Enrofloxacin 10mg/kg S.C. q24h and Ketoprofen 2mg/kg S.C. q24h were administered postoperatively. Histopathology of the mass revealed an unencapsulated, well-circumscribed, multilobulated, densely cellular neoplasm composed of short interlacing bundles and streams of spindle cells separated by an abundant collagenous stroma which reflects neurofibroma like features. Within the neoplasm, two histologically distinct areas were identified: closely packed cells with a small amount of collagenous stroma (Antoni A-like pattern) and loosely packed cells in an amphophilic matrix (Antoni B-like pattern). In addition, there were areas with nuclear palisading that closely mimic the appearance of Verocay bodies. Neoplastic cells have indistinct cell borders, a moderate amount of eosinophilic cytoplasm, and oval to elongate nuclei with finely stippled chromatin with mostly inconspicuous nucleoli. Anisocytosis and anisokaryosis were mild, with less than 1 mitotic figure per 10 HPF. There were occasional binucleated and multinucleated cells. Tumour recurrence or metastasis wasn't observed in the follow-ups.

Antibacterial Activity of N-Acetylcysteine alone and in combination with selected antibiotics against *Escherichia coli*

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Antimicrobial resistance is a major global health concern. Developing new antimicrobials is time-consuming and less economical, so non-antibiotic substances to enhance their effectiveness are being widely investigated. N-Acetylcysteine (NAC) is known for its antioxidant and mucolytic properties, with recent studies showing potential antibiotic activity against bacterial pathogens. This study evaluated NAC alone and in combination with amoxicillin, cephalexin, norfloxacin and ciprofloxacin against pathogenic *E. coli* strains. Three *E. coli* strains isolated from urinary infections in dogs and humans and *E. coli* ATCC25922 (quality control strain) were used for the study. Minimum inhibitory concentrations (MICs) for four antibiotics and NAC were determined using the microbroth dilution method, as per EUCAST guidelines. The combined effect of antibiotics and NAC was evaluated by inoculating 12.2mM of NAC into the bacterial and antibiotic inoculum. Results revealed that three isolates, including ATCC 25922, showed inhibition of growth at 0.0953125 mM of NAC, while the remaining isolate exhibited growth inhibition at 3.05 mM NAC. According to MICs, all four isolates were resistant to cephalexin. Three isolates, excluding ATCC25922, were resistant to amoxicillin. When 12.2mM NAC was added to different concentrations of cephalexin or amoxicillin, bacterial growth was not inhibited by any of combinations. Furthermore, the bacterial growth inhibition shown by NAC was antagonized. Two strains, including ATCC25922, were susceptible to both ciprofloxacin (MIC 0.06mg/L) and norfloxacin (MIC 0.025mg/L). Among the remaining isolates, one was susceptible to norfloxacin (MIC 0.025mg/L) but resistant to ciprofloxacin, while the other strain was susceptible to ciprofloxacin (0.06 mg/L) and resistant to norfloxacin. When NAC was combined with ciprofloxacin or norfloxacin, it did not change the MIC values of susceptible isolates, but the resistant isolates showed growth inhibition at 0.05mg/L norfloxacin and 0.125 mg/L ciprofloxacin. The strong antibacterial effect of NAC was evident. However, when NAC was combined with amoxicillin or cephalexin, there was no positive effect on bacterial growth inhibition, and antibacterial effect of NAC was antagonized. Furthermore, when NAC was combined with ciprofloxacin or norfloxacin, there was no antagonistic effect between antibiotics and NAC. NAC is widely prescribed with antibiotics, and it warrants further studies to understand the positive and negative aspects of it.

Retrospective Study of feline lower urinary tract disease

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Feline Lower Urinary Tract Disease (FLUTD) describes a variety of conditions that affect the bladder and urethra of cats. Clinical signs vary with stranguria, hematuria, periuria, and dysuria. This study evaluates the clinical indications, causes, and management of FLUTD. 56 FLUTD clinical cases presented to Pet Vet clinic over a period of three years (July 2020-July 2023). Data was collected by history, clinical examination, diagnostic imaging, blood biochemistry, urine full report, and urine culture antibiotic-susceptible test results. The data was then analyzed using descriptive statistics. Most cases were presented in male cats(n=47;83.9%). The highest percentage (n=27;48.2%) of cases were diagnosed as Feline idiopathic cystitis (FIC) (because clinical signs and laboratory data does not support any of other differential diagnoses) with a high tendency of recurrence. Rest of, urinary tract infection (UTI) (n=14;25%), mucus plug (n=6;10.7%), urolithiasis (n=5;8.9%), and tumours (n=1;1.7%). Most cats reported with FLUTD were in the age range of 1–6 years and weighed 3-6 kg. In general, as the drug of choice to control urinary tract inflammation, meloxicam or dexamethasone was used in the treatment plan. Mucus plugs were diagnosed only in male cats. Neutered male cats had an increased risk of UTI, while neutered female cats had an increased risk of urolithiasis. The Young adult population seems to be susceptible to FIC, UTI, urolithiasis, and mucus plug. Senior cats were more prone to urolithiasis. 76% of the FLUTD cases were reported in multi-cat households (n=42;75%), and dry food (n=37;53.6%) increased the risk of FLUTD. Among all the cases reported, 16% cases who had recurrence of FLUTD cases underwent perineal urethrostomy (PU), most of those had UTI simultaneously. Euthanasia was performed in 5.4% of cases due to urethral perforation and uroabdomen. Additionally the most used drugs were terazosin, gabapentin alone, and/or a combination of terazosin and gabapentin. These three drug choices had made a similar outcome.

FIC is the most common reason for FLUTD in this study. A major possible reason could be the multi-cat environmental stress which induces FIC due to feline behavior changes and stress factors. Owner compliance and good communication is needed to overcome this recurring disease.

Effectiveness of autologous platelet rich plasma in treating osteoarthritis in dogs – A case series

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Autologous platelet-rich plasma (PRP) for tissue healing is a rapidly evolving and promising treatment modality with fewer side effects and lower cost. The ability of PRP to promote cell regeneration, control inflammation, and thus reduce pain is used to treat various orthopaedic conditions. This study evaluated the effectiveness of autologous PRP as a sole treatment modality in reducing lameness, pain, and restoring locomotor defects in fifteen (N=15) dogs with degenerative osteoarthritis (DOA) presented to the Veterinary Teaching Hospital, University of Peradeniya. Three injections of autologous PRP were administered intra-articularly to the affected joint in these dogs at two-week intervals. Autologous PRP, was prepared by using modified double centrifugation method on each day of treatment. Pre and post treatment pain and lameness score assessment (LSA) in clinician assessment criteria (CAC) were used to evaluate the efficacy of PRP treatment. According to CAC all DOA, the patients showed a significant reduction in lameness and pain as evident in Mean ± SD of CAC pre and post treatment (12.75± 0.931) and (4.81± 1.471) respectively, and the differences was statistically significant ($P < 0.05$). This communication indicates that PRP therapy is an effective therapeutic option for reducing pain, lameness and inflammation in patients with osteoarthritis which is a regenerative joint disease. It could be concluded that the autologous PRP treatment holds great promise in enhancing the healing process in canine patients with osteoarthritis. The positive outcome of this study encourages continued exploration and application of PRP therapy in degenerative joint diseases and warrants more research to fully understand its potential and optimise its use in veterinary medicine.

Keywords: PRP, Regenerative medicine, Orthopaedic, dogs