University of Agronomic Sciences
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Faculty of Veterinary Medicine

International Conference

"Agriculture for Life, Life for Agriculture"

BOOK OF ABSTRACTS

Section 4

VETERINARY MEDICINE

2026
Bucharest

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SUMMARY

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CLINICAL SCIENCES

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HAIR AS A BIOMARKER OF HEAVY METAL EXPOSURE IN CATTLE: METHODOLOGICAL CONSIDERATIONS, VALIDATION, AND ONE HEALTH RELEVANCE

Mihăiță IORDACHE[1], **Emanuela BADEA**[1], **Gheorghe Valentin GORAN**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: mihai_iordache86@yahoo.com

Abstract

Heavy-metal contamination of soils and feed has implications for cattle health and food safety. Hair provides a non-invasive matrix for exposure monitoring, but only if sampling, processing, and interpretation are standardized. This review critically appraised bovine hair as a biomarker by synthesizing sampling and pre-analytical protocols, analytical and quality-control approaches, and validation evidence, including correlations with internal matrices (blood, urine, liver, kidney), to identify variability drivers and support One Health surveillance. We conducted a systematic literature search with narrative synthesis in PubMed, ScienceDirect, and Google Scholar (2015-2025). Eligible studies reported hair sampling and quantitative metal measurements. Data were extracted on sampling site, washing/decontamination, target analytes, analytical methods, quality-control reporting, and correlations with internal matrices. Most studies assessed Pb, Cd, As, Cu, and Fe, comparing hair with internal matrices. Higher burdens were linked to industrial legacies and contaminated soils. Substantial inter-individual variability and inconsistent washing protocols limited cross-study comparability and hindered meaningful thresholds. Bovine hair could support farm-to-fork surveillance, but actionable One Health use requires standardized collection, preparation, and reporting, multi-matrix validation, and LOD/LOQ reporting.

Key words*: bovine hair, heavy metals, biomonitoring, method standardization, one health.*

MOLECULAR DETECTION OF CORONAVIRUSES (CORONAVIRIDAE) BY RT-QPCR IN BATS FROM A WILDLIFE REHABILITATION CENTRE IN ROMANIA

Radu-Ștefan DRAGOMIRESCU[1], **Oana Cristiana VASILIU**[2], **Ovidiu Ionuț GEICU**[1], **Andreea Iren ȘERBAN**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Wildlife Rescue and Rehabilitation Centre - "Visul Luanei" Foundation, Popesti-Leordeni, Ilfov County, Romania

Corresponding author email: andreea-iren.serban@fmvb.usamv.ro

Abstract

Bats are recognised as natural reservoirs for numerous viruses, including the family Coronaviridae. The aim of this study was to investigate the presence of coronaviruses related to the Sarbecovirus [OV3.1] subgenus in bats admitted to the Wildlife Rescue and Rehabilitation Centre. A total of 22 samples from 18 bats were analysed, including 14 intestinal samples and 8 oral swabs. For two larger individuals, three intestinal segments were analysed separately. RNA extraction was performed using the Auto-Pure32 system with the Nucleic Acid Extraction or Purification Reagent (MedicalSystem), followed by RT-qPCR detection (CFX96 Touch Real-Time PCR Detection System) using the STAT-NAT-SARS-CoV-2 kit (Sentinel-Diagnostics) targeting the E gene common to Sarbecovirus and the N and RdRp genes specific to SARS-CoV-2. Testing with the 2019-nCoV kit (PrimerDesign) confirmed the absence of SARS-CoV-2. Four bats (22.2%), identified as[OV4.1] Pipistrellus kuhli, Nyctalus noctula, and Vespertilio murinus, were positive for the E gene (4/14 intestinal samples and 2/8 oral swabs). These findings indicate the presence of Sarbecovirus in bats from the Bucharest - Ilfov and Prahova region, highlighting the importance of continued molecular surveillance within a One Health framework.

Key words*: chiroptera, coronaviruses, sarbecovirus, rt-qpcr, wildlife surveillance.*

FORGOTTEN FRUITS, SOLUTIONS FOR VETERINARY MEDICINE: *Cornus mas* AND *Sorbus aucuparia* FRUITS IN URINARY TRACT INFECTIONS AND RENAL PROTECTION

Mara AURORI[1], Emoke PALL[1], Mihai CENARIU[1], Mihaela NICULAE[1], Nicodim FIȚ[1], Cristiana NOVAC[1], Sanda ANDREI[1]

[1]University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, 3-5 Calea Manastur, Cluj-Napoca, Romania

Corresponding author email: sandrei@usamvcluj.ro

Abstract

This study investigates the bioactive potential of two underutilized fruits - Cornelian cherry (Cornus mas) and Rowanberry (Sorbus aucuparia) - as novel natural sources of therapeutic compounds. Rich in polyphenols and carotenoids, these "forgotten fruits" exhibit notable antioxidant properties. The antimicrobial activity was assessed in two stages: initially on standardized laboratory strains, followed by testing on bacterial strains isolated from urinary tract infections in companion animals. The study identified rare uropathogens such as Kocuria spp. and Leclercia adecarboxylata. Findings indicate that Cornus mas is more effective against Gram-negative bacteria, whereas Sorbus aucuparia shows stronger activity against Gram-positive strains. Their cytoprotective effect was evaluated in vitro on normal renal epithelial cells, both under physiological conditions and in the presence of gentamicin. Results show that the extracts mitigate gentamicin-induced nephrotoxicity by enhancing cell viability and reducing apoptosis. Overall, these results highlight these fruits as promising new natural sources of bioactive compounds, with potential applications as alternative or adjunct therapies in veterinary medicine, addressing antimicrobial resistance and drug-induced organ toxicity.

Key words*: bioactive compounds, antimicrobial activity, cornus mas, sorbus aucuparia, nephroprotection.*

CLINICAL SCIENCES

OUTBREAK OF MAREK'S DISEASE IN GALAȚI COUNTY, ROMANIA: A CASE STUDY

Ramona-Florina JINGA[1], Elena-Gabriela IVĂNUȘ[1], Andreea-Georgiana STANCIU[1], Maria-Rodica GURĂU[1], Elvira GAGNIUC[1], Emilia CIOBOTARU-PÎRVU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: ramona-florina.jinga@doctorat.usamv.ro

Abstract

Marek's Disease (MD) is a contagious lymphoproliferative poultry disease caused by Gallid alphaherpesvirus 2 (GaHV-2). It is widespread in both industrial and backyard farming systems and may manifest in both typical and unusual forms. In backyard poultry systems, inadequate biosecurity measures, lack of vaccination and direct contact with infected birds facilitate rapid viral transmission. This study investigated an MD outbreak in a backyard flock in Galați County, Romania, focusing on anatomopathological findings and molecular detection through Real-Time PCR (RT-PCR). Birds of different ages and breeds, suspected of MDV infection, were examined. Clinical signs included weight loss, egg production halt, lethargy and anorexia. Necropsy, histopathology, immunohistochemistry and RT-PCR were performed for diagnosis. RT-PCR revealed a Ct value of 18 in tissues, indicating a high viral load; blood samples showed a Ct of 35. Gross pathological findings included splenomegaly, hepatomegaly, myocardial infiltration. Histopathological examination revealed neoplastic round cells infiltration within the myocardial tissue and circumferential edema of the sciatic nerve. Confirmation of diagnosis highlighted ineffective prevention and control measures, emphasizing that clinical and anatomopathological examinations remain complementary to molecular diagnostic methods.

Key words*: Marek's disease, real-time PCR, histopathology, immunohistochemistry, poultry.*

SEVERE MULTISYSTEMIC FELINE CALICIVIRUS INFECTION WITH EXTENSIVE ORAL AND DERMATOLOGICAL INVOLVEMENT: A CASE REPORT

Georgeta FILIP[1], **Stelian BĂRĂITĂREANU**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: vetgeorgetafilip@gmail.com

Abstract

Feline calicivirus (FCV) commonly causes upper respiratory and oral disease, but rare cases may involve severe systemic manifestations. This report describes an atypical multisystemic FCV infection in a 5-year-old neutered male cat, marked by mucosal necrosis, peripheral oedema, hepatic dysfunction, and aregenerative anaemia. Clinical signs included lethargy, anorexia, severe lingual ulceration, and limb swelling, with trauma ruled out radiographically. FCV infection was confirmed by PCR. The cat required intensive hospitalization with fluid therapy, antibiotics, immunomodulation, vitamin supplementation, and assisted enteral nutrition. Complications included hypoalbuminemia, elevated liver enzymes, ulcerative skin lesions, and aregenerative anaemia requiring erythropoietin therapy. After three months of multidisciplinary management, the cat made a full clinical recovery. This case highlights the potential severity of systemic FCV and the importance of early, comprehensive treatment.

Key words*: anaemia, calicivirus, oedema, multisystemic, ulceration.*

A REVIEW OF INFECTIOUS ABORTION IN HORSES: ETIOLOGIC AGENTS, PATHOGENESIS, DIAGNOSIS AND PREVENTION

Andreea-Georgiana STANCIU[1], Ana-Alexandra DOBRIN[1], Ramona-Florina JINGA[1], George Laurențiu NICOLAE[1], Elvira GAGNIUC[1], Raluca-Elena TIU[1], Emilia CIOBOTARU-PÎRVU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: andreea-georgiana.stanciu@doctorat.usamv.ro

Abstract

Infectious abortion is a major cause of pregnancy loss in mares, with substantial economic impact and occasional zoonotic risk. This review summarizes recent evidence on priority pathogens, such as equine herpesvirus-1 (EHV-1), which remains the most important cause of sporadic and outbreak-associated abortions, typically linked to maternal viremia and placental infection. Bacterial causes are predominantly associated with placentitis, particularly ascending placentitis, in which Streptococcus equi subsp. Zooepidemicus is recognized as the principal pathogen implicated in late-term abortion and stillbirth. This opportunistic pathogen ascends to the placenta, inducing severe inflammatory lesions and placental dysfunction. Other infectious agents of relevance include Leptospira spp., increasingly associated with equine reproductive loss in endemic areas, and Chlamydia psittaci, an emerging cause of equine abortion with confirmed zoonotic risk. Accurate diagnosis relies on comprehensive fetoplacental examination combined with molecular, bacteriological, and histopathological investigations. Improved understanding of infectious etiologies is essential for effective prevention, surveillance, and stud-farm biosecurity.

Key words*: equine abortion, EHV-1, Leptospira, placentitis, Streptococcus equi subsp. zooepidemicus.*

A SHORT REVIEW REGARDING THE ACROPODIAL PATHOLOGY OF SHEEP - ETIOLOGY, CLASSIFICATION AND TREATMENT METHODS

Anca ANGHEL[1], **Andrei Ovidiu TĂNASE**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: ancaang@yahoo.com

Abstract

Concern for the economic interest animals' welfare and their scientific research began to be of particular interest in the 1960s, when public attention was drawn to the cramped and inappropriate conditions in which some animals were kept. During time, the economic effects of providing animal welfare focusing on nutrition, behaviour, reproduction, disease treatment, the physical and social environment were addressed for all species and all production systems. In line with the welfare conditions a better understanding of the acropodial pathology in sheep is essential. The aim of this paper is to present, in a short manner, the etiology and classification of different acropodial conditions and the examination and treatment methods used for sheep. Treatments such as cleaning the foot, cutting off necrotic and segregated parts of the horn should be used. As a preventative measure, leg trimming should be done twice a year, and leg treatment as often as necessary, regardless of the area where the farms are located or the breed of animal.

Key words*: acropodial pathology, sheep, etiology, treatment methods.*

THE USE OF SERUM BIOMARKERS IN MONITORING CARDIAC ONCOPATHIES IN COMPANION ANIMALS

Nicoleta Andreea MINCĂ[1], Dorin ȚOGOE[1], Niculae TUDOR[1], Alina ȘTEFĂNESCU[1], Lucian IONIȚĂ[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: lucian.ionita@fmvb.usamv.ro

Abstract

Cardiac oncopathies in companion animals, particularly dogs, are often underdiagnosed due to nonspecific clinical signs and limitations of standard diagnostic tools. In our study involving 42 dogs, we evaluated the diagnostic potential of several serum cardiac biomarkers for detecting myocardial damage or dysfunction of neoplastic origin. The biomarkers tested included cardiac troponin (cTnI), creatine kinase (CK), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and NT-proBNP. Among these, cTnI and NT-proBNP proved to be the most specific and valuable markers for identifying cardiac involvement, whether from primary cardiac tumors or metastatic infiltration. NT-proBNP was particularly useful in differentiating cardiac causes from non-cardiac causes of clinical signs, while elevated cTnI levels reflected direct cardiomyocyte injury. Supporting enzymes such as CK, AST, and LDH indicated tissue damage but lacked specificity for cardiac lesions. The combined profiling of these biomarkers in our cohort of 42 dogs enhanced diagnostic accuracy and may serve as a useful tool for monitoring disease progression and therapeutic response in veterinary cardiac oncology. Further research is needed to establish reference ranges and to tailor applications for specific species.

Key words*: cardiac biomarkers, NT-proBNP, cTnI, creatine kinase, cardiac oncopathies.*

PERIANESTHETIC MANAGEMENT OF DOGS WITH INTRACRANIAL PATHOLOGY UNDERGOING MAGNETIC RESONANCE IMAGING

Aisha HAMEED[1], Alexandru Gabriel NEAGU[1], Ruxandra PAVEL[1], Ruxandra COSTEA[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: aisha.hameed@fmvb.usamv.ro

Abstract

Magnetic resonance imaging (MRI) is an essential diagnostic modality in veterinary neurology and requires close collaboration among neurologists, anesthesiologists, and radiologists. The aim of this study was to evaluate the perianesthetic management of 20 dogs with intracranial disorders undergoing MRI, with particular emphasis on protocols and the incidence of anesthesia-related complications. The dogs were assigned to three groups according to age. All patients were referred for MRI following a specialized neurological examination and underwent a comprehensive preanesthetic assessment. After premedication, anesthesia was induced and maintained for 25-38 minutes. The recorded complications included hypothermia (n = 5), delayed recovery (n = 3), hypotension (n = 2), and hypertension (n = 2). These findings highlight that a tailored anesthetic approach, guided by thorough preanesthetic evaluation and proactive management, is essential for optimizing patient safety and clinical outcomes in dogs with neurological disorders.

Key words*: anesthesia, MRI, dogs, neurology.*

OPTIMIZATION OF THE DIAGNOSIS AND THERAPY OF PAIN IN DIFFERENT SPECIES

Cătălina Ruxandra BICAN[1], **Iustin Gabriel URSICĂ**[1], **Ruxandra COSTEA**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: catalinaruxandrarcr@gmail.com

Abstract

Pain represents an essential component of modern veterinary practice, significantly influencing diagnosis, clinical progression, and patients' quality of life. Recognized as the fourth vital sign, pain requires accurate and systematic assessment to establish a precise diagnosis and implement appropriate treatment. This article analyses the neurophysiological mechanisms of pain, methods for its recognition and evaluation across different species, as well as current therapeutic strategies used in the management of acute and chronic pain. The behavioural characteristics of pain in dogs, cats, and cattle are presented, along with the advantages of multimodal analgesia, which combines pharmacological and non-pharmacological approaches. Understanding the complexity of pain and applying therapeutic protocols tailored to each patient contribute to improving animal welfare and increasing the effectiveness of veterinary medical practice.

Key words*: pain, nociception, multimodal analgesia, animal welfare.*

BRONCHOALVEOLAR LAVAGE AS A DIAGNOSTIC TOOL FOR CALF PNEUMONIA IN THE BOVINE RESPIRATORY DISEASE COMPLEX

Mihaela-Felicia SITARU[1], **Elvira GAGNIUC**[1], **Manuella MILITARU**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: elvira.gagniuc@fmvb.usamv.ro

Abstract

Bronchoalveolar lavage (BAL) is a valuable diagnostic tool for investigating bovine respiratory disease (BRD), as it provides representative samples from the lower airways with minimal contamination from the upper respiratory tract. The presence of neutrophils actively phagocytosing bacteria is strongly indicative of active bacterial infection. Lymphocytes are normally found in small numbers and may increase in cases of chronic inflammation or viral respiratory disease, whereas their proportion is often reduced in acute bacterial pneumonia. In a cross-sectional study conducted on 305 indoor calves, calves with clinical pneumonia and neutrophil phagocytosis showed a significantly higher BALf neutrophil percentage compared to healthy calves (59.0% vs. 37.7% in healthy calves). Inversely, lymphocyte percentage was lower in these calves (1.8% vs. 5.3% in healthy calves). The relative proportions of macrophages, neutrophils, and lymphocytes provide important information regarding the presence, severity, and nature of respiratory disease and complement clinical examination and imaging techniques in the diagnosis of BRD.

Key words*: bronchoalveolar lavage, calf pneumonia, bovine respiratory disease complex, pulmonary cytology.*

CLINICAL MANAGEMENT AND CONTROL OF OVINE FOOTROT ON A SHEEP FARM IN ARGEȘ COUNTY, ROMANIA

Anca ANGHEL[1], **Cătălin MICȘA**[1], **Andrei Ovidiu TĂNASE**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: ancaang@yahoo.com

Abstract

Footrot remains one of the most significant causes of lameness in sheep worldwide, with major welfare and economic implications. This study describes the occurrence, clinical presentation, and control of footrot on a commercial sheep farm in Argeș County, Romania. Lameness was a primary contributor to production losses and antibiotic use within the flock, directly affecting profitability and animal welfare. Clinical examination revealed lesions ranging from interdigital dermatitis (scald) to severe under-running of the sole and hoof wall separation, accompanied by a characteristic foul odour. Environmental conditions, particularly prolonged moisture and poor pasture management, were identified as predisposing factors that facilitate bacterial survival and transmission. The persistence of D. nodosus in soil for extended periods increases the risk of reinfection and complicates eradication efforts. Selective breeding of resilient individuals was also considered a long-term strategy. The findings highlight the importance of rapid intervention, evidence-based treatment protocols, and integrated flock management in reducing disease prevalence and improving both animal welfare and farm productivity in Romanian sheep enterprises.

Key words*: Dichelobacter nodosus, flock management, footrot, lameness, sheep.*

SURGICAL STABILIZATION OF FLAIL CHEST IN CATS USING FIRST GEN U-GRIP ANATOMICAL PLATES: THREE CLINICAL CASES

Seralp UZUN[1], Jacqueline MOCANU[1], Iuliana IONAȘCU[1], Mateusz PAWLIK[2], Daria Teodora GĂNESCU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Faculty of Biomedical Engineering, Silesian University of Technology, Zabrze, Poland

Corresponding author email: seralp.uzun@fmvb.usamv.ro

Abstract

Thoracic trauma in cats frequently results in rib fractures which may progress to flail chest and severe respiratory compromise. Three feline patients diagnosed with multiple rib fractures and flail chest were presented to the University Veterinary Emergency Hospital "Prof. univ. dr. Alin Bîrţoiu", Faculty of Veterinary Medicine, Bucharest. Diagnostic evaluation included thoracic radiography and computed tomography (CT) to assess the extent of rib fractures and associated thoracic injuries. Initial stabilization included oxygen therapy, analgesia and thoracocentesis in cases presenting pneumothorax. Due to severe thoracic wall instability, surgical stabilization of the fractured ribs was performed using first-generation U-GRIP anatomical plates developed in collaboration with Cabiomede, representing a novel fixation option in veterinary thoracic surgery. In one case, a fractured rib perforated the lung parenchyma requiring lung lobectomy, while another patient presented pulmonary bullae that also required lobectomy. The third cat underwent surgical stabilization of the rib fractures.

Key words*: rib fractures, flail chest, thoracic trauma, cats, U-GRIP plate.*

CLINICAL MANAGEMENT OF PYOTHORAX IN CATS: DIAGNOSTIC AND THERAPEUTIC CONSIDERATIONS

Seralp UZUN[1], **Jacqueline MOCANU**[1], **Iuliana IONAȘCU**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: seralp.uzun@fmvb.usamv.ro

Abstract

Pyothorax, also termed empyema, is defined as the accumulation of purulent septic exudate within the pleural cavity and represents one of the most severe pleural diseases in cats. The condition may arise from thoracic bite wounds, penetrating trauma, extension of pulmonary infection, or other sources of pleural contamination. Affected patients commonly present with dyspnea, lethargy, fever, and systemic illness. Thoracentesis is both a diagnostic and therapeutic procedure, allowing confirmation of septic pleural effusion and immediate relief of respiratory distress. Cytologic evaluation typically reveals degenerate neutrophils with intracellular bacteria. Successful management requires aggressive pleural drainage through thoracostomy tubes combined with repeated pleural lavage and systemic broad-spectrum antimicrobial therapy. When clinical improvement is not achieved within 48-72 hours, surgical exploration may be required to eliminate persistent infectious foci or non-functional pulmonary tissue. Early recognition and decisive management are essential, as delayed treatment may result in pleural fibrosis and irreversible fibrothorax.

Key words*: pyothorax, pleural effusion, pleural fibrosis, fibrothorax.*

MAGNETIC RESONANCE IMAGING DIAGNOSIS OF WOBBLER SYNDROME IN DOGS

Marius-Mihai BĂDULESCU[1], Alexandru Gabriel NEAGU[1], Raluca Mihaela TURBATU[1], Ruxandra Georgiana PAVEL[1], Niculae TUDOR[1], Constantin VLĂGIOIU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: marius.badulescu@fmvb.usamv.ro

Abstract

Wobbler syndrome refers to a group of disorders affecting the caudal cervical vertebrae and intervertebral discs in large and giant-breed dogs, resulting in spinal cord compression. While the disc-associated form is most prevalent in middle-aged large breeds such as the Dobermann Pinscher, the syndrome also encompasses vertebral malformations and articular proliferations, typically seen in young adult giant-breed dogs. The condition manifests clinically through varying degrees of neurologic dysfunction, ranging from neck pain to severe ataxia and tetraparesis. This article aims to detail the clinical characteristics of Wobbler syndrome and describe the specific aspects of its diagnosis using Magnetic Resonance Imaging (MRI). By evaluating a series of clinical cases of dogs presenting with this syndrome, the study highlights the use of MRI to evaluate the spinal cord and intervertebral structures. Magnetic resonance imaging enables direct, noninvasive, and safe assessment of compressive lesions without ionising radiation. By accurately visualising the spinal cord parenchyma, the condition of the intervertebral discs, and the surrounding soft tissues, MRI is a vital tool for understanding, diagnosing, and differentiating the various forms of this complex condition.

Key words*: disc associated, MRI, spinal cord compression, disk degeneration, cervical spondylomyelopathy.*

UROLITHIASIS ÎN WILD FELIDES

Cosmin MATEESCU[1, 2], Alexandra Mihaela CRISTIAN[1], Romanița MATEESCU[1, 2], Mario CODREANU[1], Maria Andrada MATEESCU[2], Constantin VLĂGIOIU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Agervet One Health SRL, Aninoasa, Dâmbovița, Romania

Corresponding author email: agervet99@yahoo.com

Abstract

Urolithiasis in wild felids is uncommon in natural conditions but becomes clinically relevant in captivity due to dietary, environmental, and behavioral changes. This study describes a descriptive case series conducted between 2020 and 2025 on nine captive large felids (Panthera leo and Panthera tigris altaica). Clinical evaluation revealed signs of urinary tract involvement, including dysuria, hematuria, pollakiuria, and lethargy. Urinalysis identified crystalluria in 4/9 animals, with calcium oxalate, struvite, bilirubin, and cystine crystals, along with hyaline and non-hyaline casts. Biochemical analysis showed severe azotemia (mean BUN 162 mg/dL; creatinine 17.1 mg/dL), indicating advanced renal dysfunction. Urinary findings, including high specific gravity (>1.030), alkaline pH, proteinuria, and leukocyturia, suggest altered urinary homeostasis. Although urolith formation appeared infrequent, the presence of renal impairment highlights the clinical significance of urinary disorders in captive wild felids and supports the need for regular monitoring and preventive management strategies.

Key words*: urolithiasis, wild felids, crystalluria.*

PANCREATIC INSULINOMA IN A DOG - CASE STUDY

Romanița MATEESCU[1, 2], Alexandra Mihaela CRISTIAN[1], Cosmin MATEESCU[1, 2], Maria Andrada MATEESCU[2], Constantin VLĂGIOIU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Agervet One Health SRL, Aninoasa, Dâmbovița, Romania

Corresponding author email: agervet99@yahoo.com

Abstract

Insulinoma is the most common functional pancreatic endocrine tumor in dogs, characterized by autonomous insulin secretion and persistent hypoglycemia. This case study describes a 9-year-old female Wirehaired Fox Terrier presenting with recurrent neurological episodes. Clinical evaluation revealed severe hypoglycemia (28 mg/dL) and elevated insulin levels (76 µIU/mL). Imaging investigations, including ultrasonography and computed tomography, identified pancreatic masses and lymphadenopathy. Surgical excision was performed, and histopathology confirmed malignant insulinoma with metastases. Despite treatment, the outcome was unfavorable. This case highlights the diagnostic challenges of insulinoma and emphasizes the importance of considering hypoglycemia in dogs with neurological signs for early diagnosis and management.

Key words*: insulinoma, dog, hypoglycemia, pancreatic tumor, case study.*

CASE REPORT: A COMPARATIVE STUDY OF THE REMOVAL OF A LARGE RECTAL POLYP USING A HYBRID TECHNIQUE THAT COMBINES ENDOSCOPIC SUBMUCOSAL DISSECTION WITH TRANS-ANAL RECTOSCOPIC-ASSISTED MINIMALLY INVASIVE SURGERY - INSIGHTS FROM PAEDIATRIC AND SMALL ANIMAL SURGERY

Dorin ȚOGOE[1], Cătălin MICȘA[1], Florin DUMITRESCU[1], Iustin URSICĂ[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: dorin.togoe@fmvb.usamv.ro

Abstract

Over the past few decades, colonoscopic polypectomy has become a fundamental approach to preventing and treating colorectal neoplasia, with most colorectal polyps now suitable for endoscopic rather than open surgical removal. However, in veterinary medicine, endoscopic management of colorectal polyps, particularly large pedunculated lesions with thick stalks, remains technically challenging in small-breed dogs due to anatomical constraints and limitations of available instruments. This report details the endoscopic management of a colorectal polyp in a small French Bulldog and evaluates the procedure`s feasibility, safety, and clinical outcomes, compared with techniques commonly used in paediatric colorectal surgery. In paediatric endoscopy, advanced endoscopic methods, such as endoloop-assisted polypectomy and endoscopic submucosal dissection, have demonstrated favourable efficacy and safety profiles for managing complex colorectal polyps in patients with limited luminal diameters. This study draws parallels between paediatric and veterinary minimally invasive colorectal interventions, emphasising the translational potential of paediatric endoscopic techniques for small-animal patients. It underscores the need to adapt human paediatric surgical principles to advance endoscopic colorectal therapy in veterinary medicine.

Key words*: biopsy, canine, colonoscopy, endoscopy, histopathology, laparoscopy, lesions, minimally invasive surgery.*

ANIMAL PRODUCTION, PUBLIC HEALTH AND FOOD QUALITY CONTROL

MICROBIOLOGICAL CONTRIBUTIONS TO THE KNOWLEDGE OF THE MICROFLORA OF SOME VARIETY OF COMMERCIALIZED MEAT

Rita GOLBAN[1]

[1]Technical University of Moldova, Chișinău, Republic of Moldova

Corresponding author email: golbanrita@gmail.com

Abstract

The aim of this research was to investigate the microflora of some meat varieties from young animals sold in different halls in the central market of Chisinau. Classical microbiological research methods were used with preparation and staining according to the Gram method, visualization by immersion microscopy and passage on common and special culture media. At the same time, the microflora on the surfaces and in the air of the sales halls of rabbit, veal and lamb meats was determined. Data were obtained that fall within the category of indices admitted for the delivery of the investigated meats for consumption by insignificant differentiations of indices in veal of 15 microbial cocci cells, compared to indices of 10 and 9 cocci cells in lamb and rabbit meats.

Key words*: meat, young animals, microscopy, microbial colonies, bacteria.*

RESEARCH ON THE MICROBIOLOGICAL QUALITY OF FISH MEAT FROM AQUACULTURE

Florica STĂNICĂ (ION)[1], Constantin SAVU[1], Mariana Cristina TRIFAN (ARCADE)[2], Mioara COSTACHE[2], Alin BARBU[2]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Fish Culture Research and Development Station of Nucet, Dâmbovița, Romania

Corresponding author email: ionfeli@yahoo.com

Abstract

Research on the microbiological quality of fish meat from aquaculture represents a field of major interest for food safety and public health. The present study aims to evaluate the total microbial load and to identify the main microbiological indicators associated with fish products obtained from intensive and semi-intensive aquaculture systems. Fish meat samples from the species Hypophthalmichthys molitrix (Valenciennes, 1844), harvested from several production ponds within the experimental base of S.C.D.P. Nucet, were analyzed. The total number of aerobic mesophilic bacteria, the presence of coliform bacteria and Escherichia coli, as well as the detection of potential foodborne pathogens, were determined. The methodology employed included standardized microbiological culture techniques. The results revealed no significant differences between the analyzed samples from the different rearing systems studied, being influenced by growth conditions, handling, and subsequent analysis of the fish samples. The conclusions emphasize the need to maintain rigorous hygiene measures and microbiological control throughout the entire production chain, in order to obtain safe products that comply with current quality standards, thereby contributing to the sustainable development of the aquaculture sector.

Key words*: bacterial density, food safety, infectious agents, production technologies, silver carp.*

BIOSECURITY AND ITS IMPACT ON MAMMARY GLAND HEALTH IN ROMANIAN DAIRY FARMS

Bianca LUNGU (GROSEANU)[1], **Stelian BĂRĂITĂREANU**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: groseanu.bianca363@gmail.com

Abstract

Biosecurity is a fundamental component of dairy farm management, playing a key role in maintaining herd health and economic performance. Inadequate biosecurity measures can lead to serious consequences for animal health, milk production, and farm profitability. In the current context of increasing prevalence of infectious diseases and associated economic losses, the proper implementation of biosecurity measures in Romanian dairy farms is a strategic necessity. However, reluctance to fully adopt and apply these measures is still observed in some farms, limiting the effectiveness of preventive and control interventions. A critical aspect of biosecurity is the protection of mammary gland health, as udder diseases, particularly mastitis, are among the most important causes of economic losses in dairy production. This study aimed to assess the impact of biosecurity measures on mammary gland health by evaluating prevention, treatment and control practices applied in 20 dairy cattle farms from Romania. The results highlight a clear relationship between the level of biosecurity implementation and the prevalence of mammary disorders, emphasizing the importance of biosecurity in modern dairy farm management.

Key words*: biosecurity, dairy cattle, mammary gland, mastitis, herd health.*

RECENT ADVANCES IN QPS MICROORGANISMS FOR FOOD AND FEED SAFETY, A PUBLIC HEALTH OVERVIEW

Cătălina Nicoleta BOIȚEANU[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: catalina-nicoleta.boiteanu@fmvb.usamv.ro

Abstract

The 2006 EU ban on antibiotic growth promoters (AGPs) in animal feed marked a pivotal shift toward sustainable alternatives like probiotics, regulated under EFSA`s Qualified Presumption of Safety (QPS) framework to ensure food and feed safety. Recent 2026 QPS updates expanded approvals for bacteriophages and select microalgae while excluding others due to safety gaps, supporting One Health strategies amid persistent challenges from feed contaminants (mycotoxins, heavy metals), zoonotic risks in novel plant/insect-based feeds, and AMR transmission. This overview synthesizes post-AGP impacts - initial 1-3% growth dips and 4-6% cost rises, offset by probiotics achieving 70-90% AGP efficacy - alongside regulatory evolution, key research gaps in long-term microbiome effects and climate-resilient forages, and practical implications for veterinary public health surveillance from farm to fork.

Key words*: qualified presumption of safety (QPS), antibiotic growth promoters (AGPS), food safety, feed contaminants, One Health.*

ESSENTIAL MINERALS AND TOXIC ELEMENTS IN ANIMAL AND PLANT-DERIVED FOODS: OCCURRENCE, DIETARY EXPOSURE, RISK-BENEFIT BALANCE, AND FOOD SAFETY IMPLICATIONS

Ioan-Ștefan PRICOP[1], Cosmin ȘONEA[1], Emanuela BADEA[1], Gheorghe Valentin GORAN[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: ioan.pricop@fmvb.usamv.ro

Abstract

The presence of essential minerals and potentially toxic elements in food is a major concern for food safety and public health. Both animal and plant-based foods provide vital nutrients but may also serve as sources of exposure to toxic metals. This review summarizes current knowledge on the occurrence of essential and toxic elements in major food matrices, dietary exposure, analytical methods, and related health implications. A structured literature review (2010-2026) was conducted using major scientific databases, including studies with quantitative data and validated methodologies. Essential minerals such as Ca, Mg, Fe, Zn, and Se are widely present in foods, whereas toxic elements (As, Cd, Pb, Hg, Cr) vary according to food type and environmental conditions. ICP-MS, ICP-OES, and AAS are the most commonly used analytical techniques. Although contaminant levels are generally within regulatory limits, gaps remain regarding bioaccessibility, cumulative exposure, and method standardization. The study aims to improve data comparability and assess the dietary risk-benefit balance.

Key words*: trace elements, essential minerals, potentially toxic elements, food safety, dietary exposure.*

WET VERSUS DRY DIETS IN DOMESTIC CATS: NUTRITIONAL COMPOSITION, WATER INTAKE, METABOLIC EFFECTS, UROLITHIASIS RISK, AND HEALTH IMPLICATIONS

Dimitrie-Vlad NEAGU[1], **Ioan-Ștefan PRICOP**[1], **Ștefania Mariana RAITA**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: neaguvlad27@gmail.com

Abstract

Diet composition plays a critical role in the health and metabolic regulation of domestic cats, particularly in relation to hydration status, urinary health, and body weight management. Domestic cats are physiologically adapted to low water intake, relying primarily on moisture obtained from prey; however, modern feeding practices often include dry diets with low moisture content, which may not adequately support optimal hydration. This review aims to evaluate the nutritional, metabolic, and clinical implications of wet versus dry diets in domestic cats, with a particular focus on hydration, urinary parameters, urolithiasis risk, and obesity. A qualitative synthesis of current literature was conducted, examining the effects of dietary moisture, energy density, macronutrient composition, and feeding behavior. Overall, current evidence highlights the importance of dietary moisture and energy density in maintaining feline health. Both wet and dry diets can be nutritionally adequate when properly formulated; on the other hand, wet diets may offer advantages in supporting hydration, urinary health, and weight control. Further research is needed to better understand long-term clinical outcomes and optimize feeding strategies for domestic cats.

Key words*: domestic cats, wet diet, dry diet, obesity, feline nutrition.*

POLYPHENOL-GENTAMICIN SYNERGY AGAINST MULTIDRUG-RESISTANT GRAM-NEGATIVE BACTERIA

Lucian-Mihai MERCAN[1], Grigore MIHĂESCU[1], Alina-Maria HOLBAN[1], Elena Narcisa POGURSCHI[2], Andreea-Maria PÎNDARU[1, 2], Elena DRĂGULESCU[3]

[1]Department of Botany and Microbiology, Faculty of Biology, University of Bucharest, Bucharest, Romania
[2]Department of Production and Processing Technologies, Faculty of Animal Productions Engineering and Management, University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[3]"Cantacuzino" National Military-Medical Institute for Research and Development, 103 Splaiul Independenței, 050096, District 5, Bucharest, Romania

Corresponding author emails: lucian_mercan@yahoo.com, lucian.mercan@bio.unibuc.ro

Abstract

Antimicrobial resistance in Gram-negative ESKAPE pathogens demands adjuvant strategies that restore first-line antibiotics. We screened ten natural polyphenols against 32 MDR/XDR clinical isolates of Klebsiella pneumoniae, Acinetobacter baumannii and Pseudomonas aeruginosa, combining broth microdilution, checkerboard FICI, time-kill and crystal-violet biofilm assays. Gallic acid and quercetin displayed the strongest intrinsic activity, while gallic acid and curcumin-gentamicin pairs produced consistent synergy, reducing gentamicin MICs 4- to 16-fold and resensitizing high-level resistant strains. Synergistic combinations achieved rapid bactericidal killing with durable suppression of regrowth over 24 h and curtailed biofilm formation by up to 82% at sub-inhibitory concentrations. These findings position selected polyphenols as rational aminoglycoside adjuvants and provide a translational basis for polyphenol-antibiotic combinations against critical Gram-negative resistance.

Key words*: antimicrobial resistance, biofilm, gentamicin, polyphenols, synergy.*

AI - ONE HEALTH AND VETERINARY MEDICINE

Nicoleta CIOCÎRLIE[1], **Gheorghe Valentin GORAN**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: nicoleta.ciocirlie@fmvb.usamv.ro

Abstract

Artificial Intelligence is emerging as a valuable tool that can support an integrated approach to health through the lens of the One Health concept. One Health shows us that we are all connected: people, animals, and nature. The proactive approach - focused on risk analysis, data integration, epidemic prevention, and financial support for zoonosis control - has led to the signing of global cooperation agreements and the establishment of government bodies dedicated. Artificial Intelligence is already present today in hospitals, laboratories, research, smart farms, medical imaging, and epidemic monitoring. Artificial Intelligence does not mean robots replacing doctors. It means systems capable of analyzing huge volumes of data and helping specialists make better and faster decisions. And veterinary medicine can benefit enormously from these technologies. In veterinary medicine, it helps speed up diagnosis because AI algorithms can analyze veterinary diagnostic imaging or laboratory test results; symptoms can be analyzed comparatively for differential diagnosis; in some cases, AI can identify subtle patterns that are difficult for the human eye to detect.

Key words*: One Health, veterinary medicine, artificial intelligence.*

ASSESSMENT OF MUSCLE TISSUE CAPILLARY DENSITY AND ITS IMPACT ON MICRONUTRIENT CONTENT IN GAME SPECIES

Mihai-Romeo DINICĂ[1], **Andrei CĂLINOIU**[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: dinica_m@yahoo.com

Abstract

Game meat represents a nutritive source of high biological value, being distinguished by an increased concentration of micronutrients compared to domestic species. The present study, conducted over a period of one year, investigates the relationship between muscle tissue capillary density and the micronutrient profile of four game species: wild boar (Sus scrofa), roe deer (Capreolus capreolus), European hare (Lepus europaeus), and pheasant (Phasianus colchicus). Muscle samples were collected from the Longissimus dorsi and Biceps femoris muscles, with three samples taken per species during the 2024-2025 hunting season. Roe deer exhibit the highest values of heme iron (4.0 mg/100 g) and zinc (3.0 mg/100 g), directly correlated with dense tissue vascularization. Wild boar shows a significantly higher iron level (3.5 mg/100 g) compared to domestic pig (1.2 mg/100 g). Fine muscle fibers (38-40 µm) and increased capillary density (>580 fibers/mm^2) ensure a protein content of 22.5-23.3%, explaining the superior mineral intake of game species compared to domestic ones.

Key words*: game, meat, capillary density, micronutrient profile.*

VETERINARY EDUCATION

ADVANCING VETERINARY EDUCATION THROUGH CIVME'S GLOBAL NETWORKS AND GRANT-SUPPORTED RESEARCH

Gheorghe-Valentin GORAN[1]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania

Corresponding author email: gheorghe.goran@fmvb.usamv.ro

Abstract

The Council on International Veterinary Medical Education (CIVME) offers a global framework for connecting veterinary educators, encouraging educational innovation, and strengthening the visibility of veterinary education research. This abstract presents CIVME not only as a collaborative network, but also as a strategic mechanism through which grant programs can stimulate scholarly exchange, institutional partnerships, and educational development across regions. By supporting educational research and exchange-oriented initiatives, CIVME creates opportunities for educators and emerging researchers to move beyond local practice and contribute to a broader international conversation on teaching and learning in veterinary medicine. Its grants are especially relevant because they encourage collaboration, support dissemination, and help build capacity where veterinary education research may still be under-recognized. For educators, institutional leaders, and early-career academics, CIVME represents a platform for connection and a route for engagement with veterinary education. Greater awareness of CIVME and its funding mechanisms may strengthen participation, expand research visibility, and foster coordinated responses to shared educational challenges. CIVME can therefore be viewed as a catalyst for global veterinary educational development and for the future growth of veterinary education research.

Key words*: CIVME, capacity building, educational innovation, international collaboration, veterinary education research.*

EXPERIMENTAL MEDICINE

ANIMAL MODELS OF SKIN INFECTIONS AND TREATMENT WITH ESSENTIAL OILS - REVIEW

Mariana VĂDUVA[1, 2], Diana-Larisa ANCUȚA[2], Ruxandra-Mihaela TUBAC[2], Cristin COMAN[1, 2]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]"Cantacuzino" National Military-Medical Institute for Research and Development, 103 Splaiul Independenței, District 5, 050096, Bucharest, Romania

Corresponding author email: mariana.popescu.93@gmail.com

Abstract

Polymicrobial wound infections represent a major clinical challenge, stimulating interest in alternative therapeutic solutions such as essential oils (EOs). The aim of the study was to perform a synthesis analysis on the efficacy of EOs in the in vivo treatment of these infections, including antimicrobial mechanisms, anti-inflammatory and healing effects. Articles were identified using PubMed, ScienceDirect, Scopus and Google Scholar, published between 2010-2025 and written in English. In vivo evaluations predominantly used murine animal models, on which wounds infected with aerobic and/or anaerobic bacterial strains were induced. The results showed that EOs (lavender, oregano, thyme and clove) significantly reduce bacterial load, disrupt biofilms and enhance antibiotic efficacy. Certain EOs reduce proinflammatory cytokine levels and accelerate wound closure, an aspect confirmed by histological analyses and standardized statistical tests, thus underlining the potential of this approach as an adjuvant therapy even though limitations related to chemical composition variability, irritation risks, lack of regulation and the need for large-scale standardized studies are also highlighted. Evidence suggests a promising role for EOs in the treatment of polymicrobial infections, requiring, however, further clinical validation.

Key words*: essential oils, polymicrobial infections, wound healing, biofilms, in vivo studies, antimicrobial activity.*

NANOTECHNOLOGY RESEARCH IN VETERINARY MEDICINE: ADDRESSING GLOBAL CHALLENGES IN THE ANIMAL HEALTH SECTOR

Mohamed SHAALAN[1]

[1]Cairo University, Cairo, Egypt

Corresponding author email: Mohamedibrahim@cu.edu.eg

Abstract

The integration of nanotechnology into veterinary medicine marks a significant shift toward precision animal health in livestock, poultry, and aquaculture. This presentation reviews the use of engineered nanoparticles (NPs) to address critical industry challenges. Key applications include utilizing metal NPs as powerful antimicrobials against multi-drug-resistant bacteria, serving as vital alternatives to antibiotics. Furthermore, polymeric and biological nanocarriers are discussed for their role in enhancing nutrient bioavailability and functioning as advanced vaccine adjuvants for targeted, slow-release delivery. The review also highlights green synthesis methods that produce eco-friendly NPs with reduced toxicity. Beyond therapeutics, functionalized NPs are revolutionizing diagnostics by enabling rapid, cost-effective, and sensitive on-site pathogen detection. Finally, while acknowledging these benefits, the presentation underscores the urgent need for rigorous safety assessments concerning the eco-toxicity and biological impact of nanomaterials entering the food chain.

Key words*: nanotechnology, animal health, antimicrobials, vaccines.*

MISCELLANEOUS

INTEREST, USE, AND PERCEIVED EFFICACY OF ALTERNATIVE THERAPIES IN ANIMALS AMONG VETERINARY PROFESSIONALS IN BULGARIA

Petya STOYANOVA[1], **Gergana BALIEVA**[1]

[1]Trakia University, Stara Zagora, Bulgaria

Corresponding author email: petya.stoyanova@trakia-uni.bg

Abstract

The study aimed to explore the attitudes, motivation, and experience of veterinary professionals in Bulgaria toward the use of alternative therapeutic methods in animal treatment of various health disorders. A structured questionnaire was distributed among veterinarians and veterinary students during three scientific events in 2025. The survey included demographic and professional variables, interest in alternative therapies, personal experience with their application, and opinions regarding the efficacy of herbal and essential oil treatments. Statistical analysis using chi-square and t-tests revealed significant associations between respondents' age, professional sphere, and their interest in or application of alternative therapies ($p<0.05$). Veterinarians expressing higher interest were more likely to have used such methods, particularly phytotherapy, aromatherapy, and probiotics, mainly in cases of chronic and gastrointestinal diseases. Significant relationships were found between the perceived efficacy of herbal products and beliefs about their role in reducing antimicrobial resistance ($p<0.01$). Younger professionals and those in clinical practice demonstrated greater openness to alternative treatments. The findings indicate growing awareness and cautious acceptance of alternative therapies in veterinary medicine, emphasizing the need for evidence-based validation and integration of such methods into standard practice.

Key words*: alternative therapy, veterinary medicine, phytotherapy, antimicrobial resistance, animal health.*

HUMAN-DOG INTERACTION IN EMOTIONAL REGULATION: ANIMAL-ASSISTED INTERVENTIONS VS. CLASSICAL PSYCHOTHERAPEUTIC INTERVENTIONS

Ionel Papuc[1]

[1]University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, 3-5 Calea Manastur, Cluj-Napoca, Romania

Corresponding author email: ionel.papuc@usamvcluj.ro

Abstract

Animal-assisted therapies, particularly those based on human-dog interaction, have generated increasing scientific interest due to their capacity to influence emotional processes through specific psychophysiological mechanisms. Emotional regulation represents a fundamental psychological process for mental health and individual adaptation and is recognized as a major transdiagnostic factor in anxiety and affective disorders. The present experimental study aimed to compare the effectiveness of dog-assisted therapy with classical psychotherapeutic interventions. The controlled design included an experimental group that received dog-assisted therapy and a control group that underwent classical psychotherapy. The assessment targeted psychological indicators of emotional regulation, anxiety, and positive and negative affect, as well as psychophysiological markers, namely salivary oxytocin, heart rate, and heart rate variability. The results revealed significant increases in oxytocin levels and heart rate variability, along with more pronounced reductions in heart rate in the experimental group. Oxytocin levels were positively correlated with heart rate variability and negatively correlated with difficulties in emotional regulation, supporting the effectiveness of dog-assisted therapy as a complementary intervention in the management of stress and anxiety.

Key words*: human-dog interaction, oxytocin, emotional regulation, animal-assisted therapies, heart rate variability.*

IMPROVING ASFV SURVEILLANCE: OPTIMISATION OF NUCLEIC ACID EXTRACTION AND VALIDATION OF A ROBUST REAL-TIME PCR WORKFLOW

Claudia DÎRLĂ[1], Maria Rodica GURĂU[1], Fănel OȚELEA[2], Doina DANEȘ[1], Stelian BĂRĂITĂREANU[1], Marius Andrei MĂNESCU[3], Mihai TURCITU[4]

[1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd, District 1, Bucharest, Romania
[2]Romanian College of Veterinarians, Brăila, Romania
[3]DSVSA Dambovita, Dâmbovița, Romania
[4]Omnivet Impex SRL, Bucharest, Romania

Corresponding author email: claudia_darla@yahoo.com

Abstract

African swine fever (ASF) is a highly contagious viral disease affecting domestic and wild suids, causing severe mortality and major economic losses in the global swine industry. Because no effective vaccines or therapeutic protocols are currently available, ASF control relies on strict biosecurity measures, rapid molecular diagnosis, and continuous epidemiological surveillance. In Romania, the persistent circulation of African swine fever virus (ASFV) requires sensitive and reliable diagnostic methods to support national monitoring programmes. This study compared the performance of two commercial nucleic acid extraction systems: the PureLink Genomic DNA Mini Kit (Invitrogen) and the QIAamp Cador Pathogen Mini Kit (Qiagen). DNA concentrations were measured using the Qubit 3.0 Fluorometer with the DNA HS Assay Kit to ensure accurate quantification at low concentrations. Comparative analysis of serial dilutions (10^{-2}-10^{-6}) showed that the Qiagen kit provided higher DNA recovery and improved analytical sensitivity, especially in low viral load samples. The validated workflow, including exogenous internal controls during extraction and amplification, ensured sample integrity and reduced false-negative results. These findings support standardized laboratory surveillance and improved early detection of ASFV outbreaks nationwide effectively

Key words*: ASFV, DNA extraction, analytical sensitivity, diagnostic validation, Real-Time PCR.*

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