EVALUATION OF LEAD AND CADMIUM LEVELS IN FEATHERS FROM CHICKENS RAISED IN TWO RURAL HOUSEHOLDS IN ROMANIA

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Abstract

Biomagnification of heavy metals in the food chain is known to pose great health risks for all life forms involved in the process, including humans. The present study aimed to assess the concentrations of lead and cadmium in chickens by feather sample analysis, in animals raised in two rural households in Romania. Feather samples were collected from clinically healthy chickens from two rural households, one from Galați county (n = 10) and one from Argeș county (n = 10). Samples were taken from both males and females, from birds of different ages. The feathers were processed by wet mineralization (with HNO_3 and HCl), followed by Inductively Coupled Plasma Mass Spectrometry analysis, and the results were statistically analyzed using SPSS software. Heavy metal concentrations were higher in chickens from the Galați household (324.04 ppb Pb, 27.83 ppb Cd) than from the Argeș household (180.95 ppb Pb, 25.44 ppb Cd), however the differences were not statistically significant ($p > 0.05$). Pb and Cd concentrations detected in feathers were generally below the maximum allowed limits (MAL) by EU regulations mentioned for meat and offal of birds, with the exception of the MAL for Pb in meat (0.1 ppm). Further research is needed in order to confirm the possibility of using the noninvasive feathers heavy metal evaluation as means to reflect the concentrations of these toxic elements in meat and offal. In addition, continuous efforts should be made in order to minimize environmental heavy metal pollution, as long-term consumption of subtoxic heavy metal concentrations could still be detrimental to human health and lead to chronic illnesses.

Key words: *lead, cadmium, chickens, feathers, ICP-MS*.

ASPECTS REGARDING THE EVOLUTION OF ENZOOTIC BOVINE LEUKOSIS IN ALBA COUNTY

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Abstract

The purpose of this study was to monitor the evolution of enzootic bovine leukosis, over a period of five years (2019-2023), in the localities within Alba County. For this, samples were taken from 211,029 cattle, females and males, of different ages. The laboratory examination, carried out in the virology department of DSVSA Alba, was carried out by means of two serological tests, AGID and ELISA, applied in the diagnosis of enzootic bovine leukosis in Alba County. All the samples were examined by the immunoenzymatic test (Ingezim BLV Compac 2.0 - Competition/Blocking Leukosis Kit, Manufacturer Ingenasa, Spain, Representative of Noak Romania SRL), and confirmation of the diagnosis, for positive samples at ELISA, was done by agar gel immunodiffusion test. For each test, the number and proportion of positive and negative results per calendar year was determined. We note that the ELISA test allowed the detection of a larger number of animals with enzootic bovine leukosis compared to the AGID test, taken as a reference.

Keywords: *enzootic bovine leukosis, AGID, ELISA, Alba County.*

RESEARCH ON THE EFFECT OF MONOPROTEIN DIETS IN DOGS WITH FOOD ALLERGIES

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Abstract

The purpose of this study was to look into how monoprotein diets reduced clinical symptoms, particularly pruritus, in dogs with food allergy dermatitis. Monoprotein diets are commonly used as diagnostic tests for dogs with food allergies, known as food elimination trials, and are followed by provocation testing using the initial diet to confirm the food allergies. The examined canines (n = 100) had previously undergone a serologic allergy test to identify food allergens and select a more appropriate elimination diet. Depending on the animal's response to the serologic allergy test, a diet with a different protein source was chosen. In this regard, four commercial monoprotein diets based on goat, goose, veal, and rabbit meat were chosen. Diets were switched at three-week intervals only if symptoms did not improve after the first diet. The first diet consisted of veal meat, followed by goat, goose, and rabbit meats. Thus, three weeks after starting the diet, 25% (25/100; 95% CI 17–34) of the dogs showed a reduction in the intensity of pruritus and gastrointestinal symptoms on the veal diet, while the rest switched to a goat meat-based diet, and 37% (28/75; 95% CI) of the dogs showed an improvement in symptoms. Symptom improvement was observed in 15% (7/45; 95% CI) of dogs on the goose diet and in 23% (9/40; 95% CI) of dogs on the rabbit diet. In the provocation tests with the initial diet, the recurrence of pruritus was seen in all patients at different time intervals between 4 and 14 days. The findings suggest that appropriate diet selection for the food elimination trial, owner education on trial compliance, and re-challenging with the previous diet are essential in obtaining the correct diagnosis and improving the patient's life.

Key words: *food, allergens, dermatitis, allergy test*.

THE DETECTION OF OUTBREAKS OF MAJOR INFECTIOUS DISEASES TRANSMITTED FROM WILD ANIMALS IN THE NORTH-EASTERN PART OF ROMANIA DURING THERESEARCH PERIOD (2019-2022)

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Abstract

During the research on the topic of the PhD thesis, three major disease entities in wild animals with a risk of transmission to domestic animals were detected in the North-East region of Romania: rabies, avian influenza and African swine fever. Thus, rabies was diagnosed in 7 foxes that had been hunted, suspected or killed, with transmission to domestic animals in the area. Fifteen domestic cattle were found positive for rabies. The virus reservoir is the wild source of the fox. During this period, avian influenza (flu) was diagnosed in swans, migratory birds most susceptible to this Orthomyxovirus, but also virus reservoirs for domestic (poultry) birds. An outbreak of H5N1 influenza was detected in 35 swans kept in the area. African swine fever has been detected both in wild boar, with 140 positive cases diagnosed, and in 214 domestic pigs, with feral pigs (wild boar) as source of infection and reservoir of virus. The recommended surveillance and control measures have led to a reduction in the number of diseased animals and thus in the number of outbreaks of the three diseases studied.

Key words: *rabies, influenza, African swine fever, virus*.

BEYOND MILK: THE MULTIFACETED IMPORTANCE OF CASEIN PROTEINS

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Abstract

This review examines the significance of caseins in cow's milk, spotlighting their pivotal roles in nutrition and dairy product development. Delving into the sophisticated structure and functionalities of casein proteins, the study reveals their indispensable contribution to the textural and nutritional properties of dairy products. Casein micelles, characterized by their unique ability to form, substantially influence the physical properties of milk, underscoring their crucial role in the dairy industry, particularly in cheese manufacturing and other dairy derivations. Additionally, the analysis explores the impact of genetic variations on the quality and nutritional value of milk and impact in human health. By focusing on the empirical data and systematic reviews, this research underscores the multifaceted importance of caseins in dairy science and human nutrition. The conclusion points towards the need for ongoing research to fully exploit the nutritional and functional potentials of caseins, suggesting future directions such as the examination of different casein variants' health effects, advancements in genetic variations of caseins and exploring casein's role in dairy and non-dairy applications.

Key words: *caseins micelles, caseins structure, A1 and A2 beta-casein, dairy science*.

UNVEILING THE PATHOGENIC LANDSCAPE: A STUDY ON VIRAL DISEASES IN THE WILD BOARS OF NORTHEAST ROMANIA

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Abstract

This study delves into the prevalence and distribution of viral infectious diseases among wild boars inhabiting northeast Romania. The investigated pathogens include African Swine Fever (ASF), Classical Swine Fever (CSF), Transmissible Gastroenteritis Virus (TGEV), Porcine Respiratory Coronavirus (PRCV), and Aujeszky's Disease (AD). Notably, ASF first surfaced in a backyard holding in Satu-Mare County in July 2017, with persistent outbreaks occurring subsequently, as we are still discovering new cases almost every month. In 2002, CSF outbreaks among domestic pigs prompted strict vaccination prohibitions, placing a spotlight on the region's vulnerability to disease transmission. In October 2007, Romania was declared CSF-free. Iași county is part of the "buffer belt" that consists of 10 km along Romania's border with the neighboring countries of Moldova and Ukraine (EU Commission Decision 2008/855), which means that wild boars are still part of the seroprevalence program for CSF. While PRCV and TGEV are prevalent in domestic pig populations globally, their presence and impact on wild boar populations remain understudied. Recent reports of AD outbreaks in European countries (France and the Czech Republic) raise concerns regarding cross-species transmission and the potential threat posed to wild and domestic pig populations, also to hunting dogs. To comprehensively assess the viral landscape, we conducted serological and molecular assays on samples collected from 80 wild boars. We investigated the presence of the antibodies that were specific to all the aforementioned viruses, the positivity rate being above 0% for two assays: ASF, with 1.25%, and AD with 32.5%. We also looked for the antigens of two of the diseases, ASF and CSF, both with a 0% positivity rate. We also reviewed the existing literature. By elucidating the spectrum of viral strains circulating among wild boars in northeast Romania, this study offers important insights into disease dynamics and potential risks to animal health.

Key words: *ELISA, Real-time PCR, infectious diseases, seroprevalence, wild boar*.

ANTIPARASITIC EFFICACY OF OXYCLOZANIDE AND PRAZIQUANTEL IN CESTODE PARASITISM IN LAMBS

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Abstract

The control of cestodes in lambs during the first months of life, reared on open pasture, is a significant management issue in the sheep sector. These parasitoses cause substantial losses by decreasing the average daily gain (ADG) and even causing mortality. In this study, we have assessed the antiparasitic efficacy of two drugs (*Prazicest* and *Douvistome*) and investigated the occurrence of cestode chemoresistance to the active substances in these drugs. We conducted the study using lambs from two sheep farms in Timiș County, specifically Cadar and Berecsăul Mare, to which we administered one drug per flock. To determine efficacy, we evaluated the initial infestation level on day 0, followed by evaluations on days 7, 14, and 21 post-treatment. Infestation levels were determined using the quantitative McMaster method by assessing the number of parasitic eggs per gram of fecal matter (EPG). Efficacy was calculated using the FECRT formula. The antiparasitic efficacy against cestodes in lambs was found to be 94.50% for *Prazicest* and 92.75% for *Douvistome*. Based on the results obtained, we observed no chemoresistance phenomenon for these anthelmintic drugs.

Key words: *sheep, lamb, cestodes, treatment efficacy*.

CASE REPORT SURGICAL MANAGEMENT OF PURULENT OMPHALITIS IN A SIX-WEEKS-OLD FEMALE CALF

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Abstract

Purulent omphalitis is a pathology sporadically diagnosed in calves. Infection entering the umbilicus may result in a local reaction at the entry point of the body, between the muscular layers, or in the peritoneal cavity. The local infection extends via the umbilical vein or urachus channel to the liver or urinary bladder and then at this level via the blood flow or peritoneal absorption through the body, leading to septicemia. The infection of the umbilicus started two weeks after birth, and the owner applied local treatment with a tincture of iodine and general treatment with penicillin and streptomycin in usual doses. The cure lasted five days, however, the infection persisted. Thus, the local infection led to the appearance of the abscess which was drained and the owner initiated local treatment with oxygenated water into the abscess cavity, while a tincture of iodine on the external surfaces of the umbilical skin and general treatment with antimicrobial medication for many days, but the abscess was restored much bigger. Because the initial treatments did not give results, the excision of the umbilical region was resorted to. The capsule of the abscess was gently dissected, separated by the abdominal wall and adjacent skin, and removed along the umbilical part of the abdominal wall. To remove the abscess, the last step was represented by cutting the former umbilical vein, the current round ligament of the liver, and former umbilical arteries, now lateral ligaments of the urinary bladder.

Key words: *umbilical cord, umbilical artery, vein*.

THE PREVALENCE OF PESTICIDE CONTAMINATION IN FRUITS AND VEGETABLES FROM VÂLCEA COUNTY

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Abstract

Pesticide residues, which remain in food materials post-harvest to varying extents, pose risks to human health beyond consumer control. This study focuses on assessing pesticide presence in fruits and vegetables sourced from Vâlcea county. Samples were collected from local producers, markets, and hypermarkets in Vâlcea county throughout 2022. Analysis was conducted using GS-MS and LC-MS methods. Among the nine fruit categories examined (apples, pears, table grapes, peaches, plums, cantaloupe, watermelon, strawberries, and wine grapes), four fungicides were identified in apples, followed by plums and strawberries with two fungicides each, while wine grapes, table grapes, and peaches each contained one fungicide. Of the 23 vegetable categories, three fungicides were found in green onions, two in celery, and one in cucumbers. Additionally, only one insecticide was detected in celery, and no herbicides were found in any vegetable samples. Although most pesticides were within allowable limits, carbendazim in green onion samples exceeded the maximum limit by 96%.

Key words*: pesticide, fruits, vegetables, food products*.

STEAKS AND STATES: FORECASTING THE NEXT TEN YEARS FOR ROMANIA AND EU CATTLE MEAT PRODUCTION

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Abstract

The present study provides a comprehensive forecast analysis of cattle meat production in the European Union (EU) and Romania, outlining the anticipated decline over the next decade. Employing time-series models informed by historical data, the research predicts a modest decrease within the EU and a more substantial reduction in Romania. The analysis incorporates genetic, environmental, and market dynamics that could influence future trends in meat production. Advances in genomics play a critical role in this context, offering the potential to improve production efficiencies through targeted breeding programs. The study also addresses the environmental implications of cattle meat production, emphasizing the need to integrate sustainable practices to mitigate climate impact. Economic analyses within the study indicate potential growth opportunities based on current livestock breeds and technologies. However, these are juxtaposed against the challenges of maintaining meat quality, ensuring animal welfare, and meeting sustainability goals. The forecast models provide insights crucial for policymakers and industry stakeholders, advocating for a strategic approach to address the forthcoming changes in the sector. The study's scope is confined to a decade-long projection within the geographic limits of the EU and Romania, acknowledging the inherent limitations of forecast models and the volatility of agricultural markets. The objective is to present a balanced discourse on optimizing cattle meat production while maintaining environmental integrity and animal welfare.

Key words: *cattle meat production, European Union, Romania, forecast*.

ASSESSMENT OF DOG PERSONALITY AND TEMPERAMENT FROM THE OWNER'S PERSPECTIVE

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Abstract

A dog's temperament or general attitude towards people and other animals is a crucial characteristic that determines their suitability for different roles, such as pets or working dogs. Personality and temperament assessment is essential for understanding dog behaviour. The owner's perception of their dog's temperament is essential in any behavioural assessment. Reliable assessment will give consistent results. An example of a widely used standardized test is the Canine Behaviour Assessment and Research Questionnaire (CBARQ). The CBARQ is a 101-item questionnaire completed by the dog owner that provides information about the dog's personality and temperament in various situations, such as social interactions, sound sensitivity, and hyperactivity. This test has proven to be reliable and valid, providing sufficient data about different aspects of the dog's personality. A self-designed questionnaire was used to assess the personality and temperament of the dogs, based on the items used in the BSAVA's Canine Behaviour Questionnaire and items used in a study by James A. Serpell to validate a new behavioural assessment questionnaire.

Key words: *dog personality, owner's perception, clinical ethology*.

EPIDEMIOLOGICAL AND LESIONAL ASPECTS OF AN AVIAN LEUKOSIS OUTBREAK (HOUSEHOLD SYSTEM)

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Abstract

Avian leukosis virus (ALV) can lead to lymphoid leukosis in various organs of domestic birds. An effective diagnostic method for field practice is one involving rapid tests. The study started from the identification of neoplastic lesions in 7 cadavers of laying birds, which came from a family household (Caras-Severin County). Leukosis was suspected, according to what was observed macroscopically and taking into account that the age of the birds was over 1 year. Most importantly, a lymphoblastic monomorphism was microscopically noted in several organs. To identify the disease in the poultry group, an Avian Leukosis P27 Antigen Rapid Test Kit (Ringbio) was used. Thus, 15 egg samples, 20 fecal samples and 13 samples obtained by cloacal swabbing, were analyzed from 32 birds. The mortality in the poultry flock was 17.94%. As for vertical transmission, out of the 15 egg samples tested, 4 were positive (26.66%). In terms of horizontal transmission, 2 faecal samples (10%) and 4 cloacal swab samples (30.76%) were positive. The spleen and the liver were the most affected and this was noted in all cadavers. Cardiac localization was the least common, being observed in only one hen out of seven. The data presented in this study update the epidemiological aspects of the disease and highlight the importance of using rapid tests in veterinary practice.

Keywords: *poultry, avian leukosis, rapid test.*

POSSIBLE CORRELATION BETWEEN INDIRECT PELVIMETRY AND DYSTOCIA IN ROMANIAN SPOTTED DAIRY COWS

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Abstract

Through pelvimetry, it is possible to assess the obstetric conformation of the pelvic area, which can provide valuable information about potential difficulties during parturition. Indirect (external) pelvimetry consists on measuring some external parameters of the pelvis area and by this, the anterior opening of the birth canal can be appreciated, due to the principle of uniform development of the skeleton. Our research was done on 14 pregnant cows on which we measured height and the external bi-iliac breadth. Based on these data we calculated: sacropubic diameter (SP), dorsal bi-iliac diameter, ventral bi-iliac diameter and the anterior circumference (AC) of the pelvic area. In addition, calf birth weight, calf sex, and calf hoof circumference were evaluated. The differences between cows with dystocia (group 1) and cows without dystocia (group 2) were: 24.4 cm SP and 102,13 cm AC in group 1; 24.12 cm SP and 101,70 cm AC in group 2. Calf birth weight in group 1 was 43.75 kg and 36.6 kg in group 2; 70% of the calves from group 2 were female; the calf hoof circumference was 17.12 cm in group 1 and 16.31 cm in group 2. Although there are no statistical differences between the groups, our preliminary data emphasizes the possible significance of pelvimetry for cattle parturition.

Key words: *pelvimetry, heritability, dystocia, ruminants.*

ESTIMATION OF FINANCIAL LOSSES FROM THE ORGANS AND CARCASSES SEIZURES IN AN ITALIAN CATTLE SLAUGHTERHOUSE

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Abstract

Meat is an ideal source of nutrients containing proteins of high biological value with essential amino acids in balanced proportions for the human diet. Beef, which is one of the main foods consumed worldwide, must meet a high standard of food safety to guarantee consumer protection. The investigation caried-out in this study focused on postmortem inspection of the beef carcasses in an Italian cattle slaughterhouse to identify and quantify the major causes of meat and offal condemnation. During the reporting period of February 2022 and May 2023, 21285 kg of liver; 12427.8 kg of lungs; 8357.5 kg of heart; and 75 kg of kidneys were seized. The major causes of seizure were as follows: for *liver*, carcinomatous hepatis and hydatid cysts; for *lungs*, calcified pleuritis; for *kidneys* generalized interstitial nephritis, for *heart*, cystic valve endocarditis; for *spleen*, fibrinous perisplenitis; for *carcasses* - carcinomatous peritonitis. The financial loss resulting from offal condemnation was more than 67000 €. The total quantity of carcasses seized amounted to 22140 kg, which means an approximate loss of 243540 €. Estimated total economic losses resulting from the seizure of carcasses and offal amounted to 311208.5 €, which is a considerable value.

Key words: *slaughterhouse, seizures, financial losses.*

A STUDY ON ANTIMICROBIAL RESISTANCE OF BACTERIA ISOLATED IN WILDLIFE IN WESTERN ROMANIA

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Abstract

Antimicrobial resistance (AMR) is considered by the World Health Organization (WHO), as one of the greatest public health risks of this century. The aim of the study was to identify and determine the presence of antibiotic-resistant potential pathogens in different species of wild mammals (n=25), in Romania, represented by *Vulpes vulpes* (Red fox), *Canis aureus* (Golden jackal), *Capreolus capreolus* (Roe deer), *Dama dama* (European fallow deer), and *Felis silvestris* (Wild cat). Individuals were sampled by rectal swabbing and the isolates were obtained by cultivation on the following agars: TBX, Oxoid Chromogenic Listeria, XLD, and Chapman. Bacterial strains (n=29) were identificatied with Vitek 2 Compact system, and susceptibility to antimicrobial substances was determined through, both, Vitek 2 and disk diffusion method. The isolation frequencies were as follows: *Escherichia coli* (48.27%), *Staphylococcus* spp. (41.37%) comprised by seven species, *Proteus* (6.89%) with two species, and *Salmonella* spp. (3.44%). Only one strain of *E. Coli,* isolated from the roe deer, was resistant cu ampicillin. One isolate of *Staphylococcus pseudintermedius* originated from the golden jackal was multi-drug resistant. Overall, 37.93% of the identified strains presented resistance to at least one of the antibiotics, with variable resistance towards one, two, respectively three antimicrobials.

Key words: *wildlife, intestinal, bacteria, antimicrobial resistance, zoonosis.*

SPINAL CORD COMPRESSION WITH HYDRATED NUCLEUS PULPOSUS EXTRUSION IN A DOG – CASE REPORT

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Abstract

A 4-month-old male cross-breed was presented to a small animal clinic for assessment of acute paraplegia in a traumatic episode caused by a car accident. On clinical examination, the dog presented proprioceptive deficits and paraplegia on the pelvic limbs more accentuated on the left side, absent panniculus, and reduced sensibility on pelvic limbs. No modification of the spinal vertebras was detected on the radiographic assessment. After clinical evaluation, the dog was referred for diagnostic imaging, including MRI evaluation of the T3-L3 and L4-S1 segments of the spinal cord. MRI had detected a disc extrusion located at T13-L1 that compressed the spinal cord. The MRI features showed a hydrated nucleus pulposus extrusion (HNPE). The case was referred for surgery of spinal cord compression and left hemilaminectomy was done. The material that was extruded was identified as a white gelatinous disc material. After surgery, recovery and treatment, the patient recovered his mobility and sensibility in the pelvic limbs and was discharged from the clinic in a couple of days. The re-check was conducted after 2 months and the owner reported normal walking without any neurological deficits.

Key words: *dog, disc compression, HNPE, MRI, spinal cord.*

THE IMPORTANCE OF PUERPERAL GYNECOPATHIES IN INTENSIVELY RAISED COWS

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Abstract

The puerperal period represents one of the most sensitive links in the reproductive cycle, which is why there is also a higher incidence of uterine disorders. This phenomenon is encountered both in intensive farming systems and in traditional household farming. With such a diverse etiology, our observations aimed to investigate, within a farm in Northeastern Romania, the reproductive process and identify the etiology of both uterine disorders and the genital system in general. The analysis of the distribution of conditions during the years 2022-2023 shows an evolution dependent on certain management factors. Thus, in 2022, out of 220 calvings, 5.4% were medical conditions, 4.5% were surgical conditions, and 20.9% were gynecological conditions. In 2023, with a similar number of calvings (240), medical conditions accounted for 4.6%, surgical conditions for 4.1%, and gynecological conditions for 16.6%. The number of calvings in 2022 shows no significant differences: 73 in spring, 45 in summer, 39 in autumn, and 63 in winter. In the same year, the influence of micro and macroclimate factors is observed through the different percentages of acute endometritis. Thus, in spring, the proportion of acute inflammatory conditions is 26.0%, followed by 23.8% in winter and 15.3% in autumn. The same differences persist in chronic endometrial inflammations: 12.3% in spring, 11.1% in winter, and 5.1% in autumn. Placental retentions, sometimes the cause of inflammations, were diagnosed at a rate of 16.4% in spring, 14.3% in winter, and 5.1% in autumn. The overall analysis of 2022 clearly highlights that acute endometritis accounts for the majority (21.8%), followed by placental retentions (12.7%) and chronic endometritis (10.0%).

***Key words**: cow, puerperal period, puerperal endometritis, placental retentions.*

CORRELATIONS REGARDING ARTIFICIAL INSEMINATION IN COWS, IN RELATION TO THE BIOLOGICAL VALUE OF SEMEN MATERIAL

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Abstract

Puberty generally occurs at a very young age, approximately 6-8 months, usually later at 8-12 months, with some variations depending on: breed, species, and management system. In unimproved breeds with low productivity levels, heat cycles are more pronounced, especially during summer, in cows maintained on pasture, in warm shelters, with provision for exercise and good quality feed and nutrients. Improved breeds with significant exploitation deficiencies can lead to a decrease in the intensity of heat manifestation and ultimately fertility. Within the northeastern region of Iași County, cattle fertility in 2022 showed a descending distribution, from the highest threshold of 77.7% at 2 years of age to the minimum value of 22.5% in cows over 9 years old. Females aged between 2 and 5 years have an upper limit of fertility percentage ranging from 77.7% to 67.2%. In 2022, in the same category of cows, the conception rate recorded higher values than the previous year, ranging from 83.7% to 71.4%. For cows aged 9 years and older, the level of conception rate ranged from 50.0% to 22.8% (2023). In 2022, the highest conception rate percentage in cows was recorded using semen from bull Ivan (57.3%), followed by bull Jimm (55.5%). The lowest value of 48.7% was recorded using straws with semen from bull Rufus. For heifers in the same year, there was an increase in the percentage of gestation using semen from bull Ivan (68.1%), followed by bull Caho (62.5%), and the lowest value of (56.0%) with bull Rufus.

***Key words**: cow, reproductive indices, semen.*

DEVELOPMENT OF INACTIVATED *ESCHERICHIA COLI* AUTOGENOUS VACCINE AGAINST NEONATAL DIARRHEA IN LAMBS

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Abstract

The present investigation aimed to isolate and identify *Escherichia coli* from neonatal diarrhea in lambs and to prepare a potent autogenous vaccine to control this enteritis. Firstly, 6 *Escherichia coli* isolates O78 were collected from diseased lambs. All six strains presented resistance at more than two antimicrobials and were susceptible only at ceftiofur. Multi-drug resistance was recorded at 3 strains at at florfenicol, enroxil, colistine, and ampicilline-sulbactam and one strain present resistance at enroxil, neomycine and colistine. Two resistence pathotypes were identified in the sheep flock: FFC;ENR;N;COL and ENR;N;COL. Inactivated whole culture vaccine (bacterin-type vaccine) was develop from *Escherichia coli* serogroup O78. The prepared autogenous vaccine was free from bacterial and fungal contamination and was found safe with no clinical symptoms when inoculated subcutaneously with a double field dose into ewes. The efficacy of the autogenous vaccine produced was proved at the lambing season ending when only 2% of newborn lambs died. The lambs were healthy, were sucking, and any digestive disorders were absent.

Key words: *Escherichia coli, autogenous vaccine, lambs.*

NITRITE CONTENTS OF MEAT PRODUCTS AVAILABLE IN THE ROMANIAN MARKET

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Abstract

Meat products are an important source of nutrients and are a convenient food alternative in the human diet. However, there are concerns about their quality and safety. Nitrites are food additives commonly used in cured meats, with several beneficial effects, including maintaining the red color, and preventing the risk of bacterial contamination, especially with spore-forming bacteria. On the other hand, nitrite can be transformed to carcinogenic nitrosamines in the human digestive tract. Considering this issue, the study aimed to evaluate the monitoring of nitrite content in meat products available on the Romanian market. To determine the nitrite level, 45 samples were purchased from various retail units in Arad, Timiș, Sibiu, and Gorj counties, representing four product categories: raw and dried meat products (n=10), pasteurized products (n=12), boiled and double-smoked specialties (n=11), and smoked products (n=12). The Griess technique was used to determine the nitrite content. The UV spectrophotometer T60 was used to read the data for all four sample categories. The nitrite value for each studied sample in the first category of samples was below the maximum limit, with the exception of raw muscle, which had a nitrite level of 5.1 mg/100 g. The second category had an average nitrite level of 4.76 mg/100. However, boiled ham prepared from pork exceeded the regulatory limit by 11.2 mg/100 g. The third category of items had an average nitrite concentration of 5.19 mg/100 g, although none exceeded the maximum limits. In the fourth category of products, the samples had an average nitrite value of 5.4 mg/100 g. The homemade Kaiser had the highest content, of 11.6 mg/100 g. The findings of the current investigation revealed that, as a safety criterion, nitrite concentration levels in each tested meat product were less than the maximum limit allowed by legislation. However, producers should stay attentive in adhering to good manufacturing standards to reduce any potential related hazard.

Key words: nitrites, meat products, safety, food quality.

PRELIMINARY STUDY REGARDING THE PREVALENCE OF BACTERIA AND YEAST SPECIES ISOLATED FROM DOGS WITH OTITIS EXTERNA

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Abstract

Occurrence of *Malassezia* and bacteria was evaluated through cytology, culture and Vitek 2 Compact system from samples collected from 40 dogs with otitis externa. *M. pachydermatis* was isolated in pure culture from 30% dogs (12/40). Bacteria were detected in all sampled dogs and species *Staphylococcus pseudintermedius, Staphylococcus aureus, Staphylococcus intermedius, Staphylococcus schleiferi, Staphylococcus lentus, Staphylococcus haemolyticus, Staphylococcus warneri, Staphylococcus saprophyticus* were identified. Among all the identified species, *S. pseudointermedius* had the highest prevalence 30% (12/40) followed by *S. aureus* 15% (6/40) and *S intermedius* 12.5% (5/40). Others bacteria species that cultures allowed the identification were: *Escherichia coli* (4 dogs) and *Pseudomonas aeruginosa* (3 dogs).

Key words: *prevalence, Malassezia pachydermatis, Staphylococcus species, otitis externa, dog.*

MONITORING THE QUALITY AND HYGIENE OF RAW MILK IN A MILK PROCESSING PLANT LOCATED IN CLUJ COUNTY

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Abstract

In recent years an increasing demand and consumption of natural, raw and unprocessed products, was observed. Usually, those products are considered healthier and higher-quality products than the processed ones. At the same time, it is well known that the quality of milk and milk products on the market depends on various factors such as the microbiological quality of raw milk and in particular the initial number of microorganisms. The number and types of microorganisms in milk immediately after milking, defined as the initial microflora of the milk, directly reflect microbial contamination during production, collection and handling stages. Somatic cell number (SCN) has also become one of the most important indicators of the milk quality. The Regulation (EC) No. 853/2004 of the European Parliament allows raw cow's milk to be received and processed if it contains no more than 100.000 germs (expressed in colony-forming units - CFU) and less than 400.000 somatic cells per millilitre. Recent studies monitoring the quality of raw milk in small and medium-sized milk production units located in the western part of Romania, have revealed inconsistent values of integrity, hygiene and freshness parameters. Another major problem is represented by the widespread use of antimicrobials, used to treat various livestock diseases and the possibility that these antimicrobials may later contaminate the milk and reach the final consumer. Ultimately, these actions may lead to the development of antimicrobial resistance. As a result, the present paper aimed to assess the quality and the hygiene of raw cow's milk together with the testing of samples for the presence of antimicrobial residues, in the milk samples originated from five primary production units in Transylvania and processed by a factory in Cluj County, in order to provide a comprehensive insight of the current situation and the risks for the final consumers.

Key words: *milk, quality, antimicrobials, microorganisms, somatic cell.*

COMPARATIVE MORPHOLOGICAL ASPECTS OF PELVIC LIMB BONES IN SOME RUMINANT SPECIES

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Abstract

The study aims to describe the morphological characteristics of the long bones of the pelvic limb in species belonging to the Families *Camelidae* and *Ruminantia*. Families included in the Order *Artiodactyla* are herbivorous animals found in the territories of Latin America and Africa, respectively, in all continents in the case of domestic ruminants. The morphological differences of these bones can be used for clear species identification. The specialized literature provides brief and insufficient data regarding the morphological particularities of the pelvic limb bones among the four species of ruminants. Bones from several domestic ruminants, such as cattle and sheep, and bones from two wild captive specimens, a llama and a Bactrian camel, were used for the study. All the materials are from the anatomy discipline collection. The following conclusions emerge: the gluteal crest is more developed in domestic ruminants than in camelids, where it is significantly reduced; the llama presents, like sheep, at the level of the ischial tuberosity, a hook-like cranio-lateral cusp; the ischiatic spine, in camelids, ends with a pronounced crest that marks an elongated surface of muscular insertion; in camelids, the acetabular fossa is formed slightly eccentrically; also the camelid specimen had a ossified fibula.

Key words: *pelvic limb, ruminants, Bactrian camel, llama.*

PERFORMANCE TESTING OF MACCONKEY AGAR IN *E. COLI* STRAINS ISOLATION

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Abstract

In any microbiology laboratory the accuracy of the obtained results largely depends on the used culture medium quality. As a dehydrated culture medium, the commercial MacConkey agar is rigorously tested by the manufacturer, in terms of quality, reproducibility and physico-chemical characteristics of the medium (17). But, once each batch is rehydrated and sterilized in a laboratory, it is necessary to test the performance of the culture medium (9). In this context, we set out through this study to test the performance of the two types of MacConkey agar: with and without cefotaxime supplement, used for the isolation of antibiotic-resistant Escherichia coli strains, tests otherwise absolutely necessary for all culture media used in any microbiology laboratory.

Key words: *Escherichia coli, agar MacConkey, laboratory examination.*

EVALUATING THE IN VITRO ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF CORNELIAN CHERRY LEAF EXTRACTS

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Abstract

Cornus mas L. (Cornelian cherry) is a shrub or tree, native to southern Europe, known for its medicinal properties. The purpose of the present study was to investigate the antioxidant and microbiological potential of leaf extracts. Spectrophotometric methods were used for total polyphenols content, total flavonoid content, total chlorophylls, total carotenoids, total antioxidant activity (TAA) and free radical activity power (FRAP). Agar-well diffusion test was used to test the antibacterial activity of leaf extracts against *Salmonella enterica* serotype *Enteritidis, Serratia marcescens, Listeria monocytogenes, Enterococcus faecium, Staphylococcus aureus,* and *Bacillus cereus*. The results showed that Cornelian cherry leaves have important concentrations of polyphenols and flavonoids (112.09±10.22 mg/100 g; 67.18±5.19 mg/100 g, respectively). The AA of the leaf extracts was 74.77±6.34 mg TE/100 g DW. On the other hand, the FRAP of the tested berry plant leaves was 56.92±5.36 mg TE/100 g FW. Ethanolic extract had important inhibition zone diameter against all bacterial strains. The extract of *Cornus mas* was more effective in inhibiting *Staphylococcus aureus*, *Bacillus cereus*. In conclusion, the results of the study showed that leaf polyphenol content was strongly correlated with antioxidant properties, and the highest inhibition zone was showed against *S. aureus*.

Key words: *Cornus mas leaf extract, polyphenols, antioxidants, antibacterial activity*.

HEMODIALYSIS-THERAPEUTIC MANAGEMENT IN A DOG WITH VANCOMYCIN-INDUCED ACUTE KIDNEY INJURY – CASE REPORT

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Abstract

A 3 years old, 23 kg, neutered male Alaskan husky, diagnosed at another clinic with osteomyelitis after three orthopedic interventions in two months due to a tibial fracture, presented at the clinic with the following symptoms: lethargy, appetite loss, hypersalivation, moderate weight loss, dehydration (10% with considerable loss of skin turgor) and hypertensive. After long-term Vancomycin and NSAID's administration, the blood work revealed mild anemia and significant increase in BUN 144 (RR: 7-25 mg/dL), CREA 15.3 (RR: 0.4-1.2 mg/dL), PHOS 13.7 (RR: 2.9-6.6 mg/dL), CA 19.8 (RR: 8.6-11.8) mg/dL) and K 6.4 (RR: 3.4-5.6 mmol/L). Urinalysis was performed with UPC 0.2-0.5 (borderline proteinuric), pH 5.0, specific gravity 1.030 and microalbumin >25 mg/L. Abdominal ultrasonography showed loss of corticomedullary junction with increased renal cortex echogenicity associated with significant nephrotoxicosis. Vancomycin is an effective highly hydrophilic glycopeptide antibiotic. Vancomycin is the gold standard for treating methicillin-resistant Staphylococcus aureus, but its long-term clinical use is associated with adverse effects of oxidative stress and kidney injury. Hemodialysis was decided as an extracorporeal replacement therapy for sustaining renal function. Hemodialysis was performed for two times in a period of 10 days. With a protocol of intensive care, fluid therapy and hemodialysis, the values were reduced in BUN from 144 mg/dL to 25 mg/dL, CRE from 15.3 mg/dL to 5.9 mg/dL and PHOS from 13.7 mg/dL to 5.5 mg/dL.

Key words: *hemodialysis, dog, vancomycin, kidney, BUN*.

INVESTIGATION INTO PASTEURELLOSIS AMONG DOMESTIC RABBITS IN EXPANDING FARMING OPERATIONS

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Abstract

The study presents findings from investigations conducted on 314 rabbits across 8 different locations, encompassing both female and male rabbits of various ages and breeds. The observed symptoms included sneezing, whitish nasal and ocular discharges, as well as subcutaneous abscesses primarily located in the head, neck, and forelimb regions. Additionally, abscesses on the nipple chain were noted in some lactating females, occurring intermittently. Otitis externa was reported in 9 rabbits, with 3 of them also exhibiting torticollis. During necropsy examinations, lesions indicative of pasteurellosis were identified, and confirmation was obtained through bacteriological analysis. Furthermore, antibiotic susceptibility testing was conducted to guide the selection of appropriate antimicrobial agents for therapy.

Key words: *Pasteurella multocida, respiratory infections, rabbit, abscesses, antibiotic resistance.*