

University of Agronomic Sciences and Veterinary Medicine of Bucharest

Faculty of Veterinary Medicine



International Conference "Agriculture for Life, Life for Agriculture"

## **BOOK OF ABSTRACTS**

## SECTION 4

# VETERINARY MEDICINE

2022 BucharesT

## UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE OF BUCHAREST

FACULTY OF VETERINARY MEDICINE

International Conference "Agriculture for Life, Life for Agriculture"

## **BOOK OF ABSTRACTS**

# SECTION 4 VETERINARY MEDICINE

2022 Bucharest

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## CHARACTERIZATION, VIRULENCE, AND ANTIBIOTIC SENSITIVITY PATTERN OF *Escherichia coli* ISOLATED FROM CHICKS IN EGYPT

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#### Abstract

This work was carried out on 200 broiler chicks collected from different Egyptian governorates to characterize Escherichia coli (E. coli) isolates and detect the virulence and the antibiotic sensitivity pattern of the isolated strains. Examined chicks were suffered from general signs, diarrhea, high mortalities, septicemic picture, and unabsorbed volk sacs. Samples were collected from liver, heart, and volk sac from each bird and subjected for bacteriological examination. Colonial morphology and microscopic, biochemical, and serological identifications were done for characterization of E. coli isolates. The virulence of the E. coli strains was tested using haemolytic activity and Congo red binding assay method. Moreover, E. coli strains were tested against different antibiotics using disc diffusion method. The results showed isolation of E. coli with an incidence rated of 42.5% (85/200). The colonial morphology and biochemical identification showed typical characters of E. coli. Serological identification revealed detection of 85 sero-groups of E. coli that represented 60 identified O sero-groups and 25 un-typable ones. The results of blood haemolysis indicated that out of 60 strains of E. coli, 35 (58.3%) showed  $\alpha$  haemolysis, 10 (16.7%) showed  $\beta$  haemolysis, and 15 (25%) were non haemolytic. Congo red assay indicated that all tested strains of E. coli were positive. The antibiotic sensitivity pattern show that E. coli strains showed sensitivity (100%) to erythromycin, oxytetracycline, and colistin, but resistance (100%) to ampicillin, chloramphenicol, and flumequine.

Key words: antibiotic susceptibility, broiler chicks, E. coli, Egypt, serology.

## MORPHOLOGICAL ASPECTS OF THE THORACIC LIMB SKELETON IN BACTRIAN CAMEL

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#### Abstract

The paper describes in detail the particular aspects of the thoracic limb bones in two adult Bactrian camels. The working methods used were bone preparation and analysis of their macroscopic morphological features compared to large local domestic ungulates. The scapula of the camel has an intermediate aspect between those of equines and cattle. The humerus shows a reduction of the humeral neck and a less developed epicondylar crest. No delimitation between the articular surface of the proximal extremity of the radius and the semilunar surface of the ulna on the medial side was observed, which gives a maximum of consolidation of the zeugopodium, increasing the resistance to movement. The trapezius is absent from the second carpal bone row. The main metacarpal consisted of the fusion of metacarpals III and IV. The most important difference from the phalanges of equines and cattle is the lack of the sulcus that crosses in dorso-palmar direction the proximal joint surface.

Key words: camel, forelimb, humerus, zeugopodium, autopodium.

## IMPACT OF THE BIOLOGICALLY ACTIVE SUBSTANCES OF THE BIOMASS OF Streptomyces levoris CNMN-AC-01 ON THE PROTEIN METABOLISM OF RABBITS

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#### Abstract

Under the conditions of the SPIBZVM vivarium, the 78-day experiment was organized. The Q Californian ×  $\Im$ New Zealand white rabbits and Streptomyces levoris CNMN-Ac-01 biomass were used as research objects and the animals were assigned 5 heads in the control and experimental group. During the experiment, the rabbits in the control group were fed granulated compound feed, and those in the experimental group consumed the same feed only with the addition of 0.1% biomass of S. levoris. It was found that the biologically active substances of the biomass of S. levoris (amino acids, lipids, vitamins, enzymes, etc.) intensified protein metabolism, indicating an increase of 5.64% and 34.88% (P < 0.001) in the synthesis, respectively of protein and albumin in the blood serum of rabbits in the experimental group.

Key words: biomass Streptomyces levoris CNMN-Ac-01, protein, albumin.

## STUDY REGARDING THE ADAPTATION STRESS IMPACT ON THE NUTRITIONAL BEHAVIOR IN DOMESTIC CATS

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#### Abstract

The adaptation stress activates the hypothalamic-pituitary-adrenal axis, which can lead to the modification of some behavioral manifestations. This paper highlights the adaptation stress effect on nutritional behavior, in direct correlation with plasma cortisol levels' changes as main physiological parameter involved in stress and adaptation mechanisms. The study was carried out on a group of 10 clinically healthy cats, housed in identical environmental conditions, each individual's behavior being studied performing ethograms on days 1, 5, 9 and 10 of accommodation, simultaneously with the evaluation of the serum cortisol levels. On the first day, significant changes in nutritional behavior were observed, resulting in the absence of watering in all individuals and the absence of feeding in 50%. Towards the end of the study (days 5 and 9) no significant variations of the nutritional behavior were observed anymore, data associated with the accommodation to the new living environment. The serological levels of cortisol variations were in accordance with the behavioral changes, registering significantly increased values (p<0.05) in 50% of the studied individuals, values that gradually decreased towards the end of the study period.

Key words: nutritional behavior, adaptation stress, domestic cats.

## COMPARATIVE STUDY REGARDING THE PROTEIN, ENERGY AND MINERAL PROFILES IN THE DIFFERENT CATEGORIES OF INTENSIVE AND HOUSEHOLD BRED CATTLE

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#### Abstract

In micro-farms or households where there are no veterinary health problems, it is recommended that the metabolic tests should be performed during periods when the metabolic strain is more intense, as they represent a method of monitoring the animals' health, especially during critical periods. A total of 52 cattle were divided into 5 groups according to their physiological condition, age category and health status. Total serum protein showed significantly higher values (p<0.05) in adult animals compared to the other age groups. Calves with digestive disorders had moderate hypoproteinemia, as a result of consecutive protein depletion, malabsorption and maldigestion syndrome from gastroenteritis, especially in the case of chronic ones, accompanied by an intake and improper use of ration proteins, respectively by mass elimination following intestinal protein loss. The mean blood glucose values did not differ significantly (p>0.05), the unitary response of the studied cattle categories being remarked. In the case of the mineral profile, the variations that appeared are mainly due to the different nutritional support, specific to the two breeding systems, but also to the different pathological conditions detected.

Key words: cattle, metabolic profile, breeding system.

## THE INFLUENCE OF WATER QUALITY ON THE BIOLOGICAL MATERIAL HEALTH STATUS STOCKED WITHIN AQUARIUM AND DOLPHINARIUM TANKS

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#### Abstract

The aim of this paper is to integrate and discuss the impact of poor water quality in the basins of the Aquarium and Dolphinarium sections, on the health of the biological material held in them, with notable and important functional consequences. The quality of the water in the basins where the biological material is kept is an important part of the management of animal welfare in captivity. It is necessary to have a good understanding and application not only of the principles of water chemistry but also an adequate knowledge of the biology, physiology and ecology of each species owned in order to maintain the necessary water quality for each one. Poor pool water quality has a significant impact on the health of biological material, making animals more vulnerable to disease, infection and parasites

Key words: animal welfare, captivity, water quality.

## MICROSCOPIC STUDIES OF THE CARDIOVASCULAR SYSTEM IN SHEEP

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#### Abstract

This study was performed to determine the histostructural features of the heart wall and blood vessels in sheep. For this study, organs from normally developed, clinically healthy sheep of different ages were used. The samples were processed according to the usual histological techniques and stained by the methods Hematoxylin eosin, orcein and Mallory. Histological examination revealed that in the structure of the endocardium was observed the endothelium represented by a simple squamous epithelium, the endothelial cells have an elongated shape and arranged linearly. The subendothelial layer is represented by lax connective tissue and the subendocardial layer consists of well-represented lax connective tissue that continues with the interstitial connective tissue of the heart. The structure of the myocardium shows the contractile myocardium with a different thickness in the two ventricles and the excitoconductive tissue. The structure of the pericardium shows the visceral sheet represented by the serous pericardium and the parietal sheet represented by the fibrous pericardium. The circulatory system is made up of: macrovessel made up of large caliber arterioles, elastic, muscular arteries, muscular veins and microvessels.

Key words: endocardium, myocardium, epicardium, macrovessel, microvessel.

## LINK BETWEEN DAIRY COWS DIET AND MILK LIPID PROFILE VARIABILITY

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#### Abstract

Milk and dairy products are important sources of biologically active lipid substances. Interest in the nutritional qualities of dairy fats is not recent. It is now well established that milk and dairy products contain many fatty acids, some of which, with specific and sought-after physiological effects, not found in any other food. Milk, however, is not a standard product. Its fatty acid composition is very variable. At the farm level, it can be modulated either through genetics or husbandry practices. Among them, diet is the fastest and most effective lever to put in place and its effects are quickly reversible. The objective of this article is to present the results of a study on the link between the feeding dairy cow's diets and the milk fatty acid profile. Two winter feeding diets were compared: A diet - maize forages as the main component of the feeding diet. B diet - maize forages and grass forage. The obtained results confirm the influence of feeding dairy cows diets in obtaining ideal milk in terms of lipid profile.

Key words: feeding dairy caw, milk fatty acids profile.

## EVOLUTION OF THE BLOOD BIOCHEMICAL PROFILE OF THE HY-LINE VAR. BROWN HENS IN NATURAL MOULTING CONDITIONS

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#### Abstract

The purpose of this paper was to determine the evolution of the blood biochemical profile in 63week-old Hy-Line var. Brown hens, in natural moulting conditions. A control group that showed no signs of moulting and a spontaneously moulted hen group were monitored for eight weeks. The analysed blood biochemical parameters were: glucose, total protein, uric acid, cholesterol, calcium and phosphate concentrations, and Ca/P ratio. All analysed parameters recorded different levels in the moulting period, compared to those in the period before this physiological process. The hens in the moulting group showed significant (P<0.01) variations in serum glucose compared to those in the control group where these variations did not differ significantly. Glucose raised by 19%, uric acid decreased by 2.9% and total serum proteins also decreased by 23.89% compared to the control group. Cholesterol of the moulting group reached its highest values raising with 100% and Ca/P ratio had a decreasing with 5.1% compared to the control group. Thus, it can be stated that the determination of the biochemical profile is useful in the evaluation of the physiological status of moulting hens.

Key words: Hy-Line hen, biochemical profile, moulting.

## STUDY CONCERNING THE THERMAL STRESS IMPACT ON HEMATOLOGICAL AND BIOCHEMICAL PARAMETERS IN DOGS

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#### Abstract

The environmental temperature exceeding either the inferior or the superior limit of thermoneutrality zone may lead to thermal stress, due to the cold or the heat. This study was realized to determinate the changes in hematological and biochemical parameters of dogs exposed to thermal stress. A total of 20 dogs were randomly divided into two groups (10 per group). Group 1 (control group) was exposed to an environmental temperature of  $15 \pm 1^{\circ}$ C, while the group 2 to  $40 \pm 2^{\circ}$ C, to induce thermal stress caused by the heat. Blood samples were collected and subjected for investigations. This study showed that the blood sugar level significantly increased in group 2. However, PCV, Hb and also the cholesterol, triglycerides, total protein and albumin levels were significantly decreased in the experimental group. In the same time, MCH, MCHC, WBC and the globulin levels did not show any significant changes from the control group. It was concluded that thermal stress to dogs could negatively affect the mechanism of thermal regulation in dissipating excess body temperature, so their general condition may change considerably.

Key words: biochemical parameters, dog, heat, hematological parameters, thermal stress.

## AGGRESSION OF BROILER BREEDER MALES AGAINST FEMALES IN A POULTRY REPRODUCTION FARM: INJURIES AND POSSIBLE CONTRIBUTING FACTORS

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#### Abstract

The present paper aims to present the aggressive behavior of broiler breeder males against females and its consequences. The research took place in a breeding poultry farm and the objectives were: to identify and describe the specific lesions found in females and to observe the behavior of the roosters in relation to the females in order to identify behavioral patterns. In the study, 15 corpses were examined and the specific lesions of aggression were described, analyzing the location, extent and acute or chronic nature of the wounds. Thus, it was found that the main areas where the lesions were found, are the head and torso and from the point of view of depth, superficial and deep lesions were identified. Another aspect observed was the clear differentiation of lesions caused by aggression from those caused by cannibalism. Following the behavior observation sessions, it was found that the courtship behaviour of the roosters was poor expressed or even missing, which led in forced mating, and resulted in the described lesions.

*Key words*: the aggressiveness of roosters, broiler breeders, animal aggressiveness, poultry behavior.

## INVESTIGATION INTO THE PHOSPHORUS METABOLISM IN RED-MINI-ROCK HENS FED ON DIFFERENT AVAILABLE PHOSPHORUS DIETS

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#### Abstract

This paper aimed the particularities of the phosphorus (P) metabolism in 40-week-old Red-Mini-Rock hens subject of different available phosphorus (aP) supplemented diet feeding. Six diets containing 4.0, 3.5, 3.0, 2.5, 2.0 and, respectively, 1.5 g aP/kg diet of food were tested. The experimental feeding lasted five weeks. Research on the effect of different levels of aP in the diet on the metabolism of P in Red-Mini-Rock layers allowed the identification of particularities related to the ability to absorb, to store in bones and to release for egg formation of the P. The mobilization of the P from the bone is amplified as the dietary supplement decreases, increasing the loss of soluble P through manure. The total P content of the blood serum decreases with the level of aP supplementation but the variations are not linear. The total P content of the eggs increases only with high levels of aP. Food intake and laying rate are not affected by different levels of aP supplementation. In conclusion, a supplement of 2.0-2.5 g aP/kg diet of diet seems to better meet the metabolic requirements of Red-Mini-Rock hens from 40 to 45 week of age.

Key words: hen, diet, phosphorus metabolism.

# CONTRIBUTIONS TO THE MORPHOLOGY OF THE THORACIC AUTOPODIAL NERVES IN THE HORSE

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#### Abstract

As it is known, taxonomy is one of the most dynamic aspects of biology. Ever since Antiquity, throughout the linnaen and post-linnaen period and until the new cladistics era, all branches of the phylogenetic tree were subject to plenty of modifications. The Equus genus was no exception, one of the most important evolutionary transformations being the reduction of the number of fingers in this genus, criterion considered crucial for correctly placing a species. Numerical reduction is also accompanied by a reorganisation of vascular and nervous trajectories. Based on autopodial parts of 10 individuals, this study aims to identify details and potentially individual variants which may complete existing literature data and which will represent additional arguments to the taxonomic classification of the species. The main objectives of this study were represented by the description of individual variants and clarifying of data regarding anatomical terminology, hoping that once achieved the results will aid veterinary research and practice.

Key words: horse, autopodium, nerves, forelimb.

## IMPACT OF THE ADDITION OF DIFFERENT FOREST BERRY FRUITS ON FUNCTIONAL, PHYSICOCHEMICAL AND SENSORY PROPERTIES OF YOGURT SHELF LIFE

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#### Abstract

The present study aimed to report the effect of black mulberry - BM (Morusnigra), black chokeberry - BC (Aronia melanocarpa), and blackberry - BB (Rubus fruticosus) fruits on some functional and physicochemical parameters and sensorial properties of yoghurt during refrigeration, compared to untreated yoghurt. Yoghurt was prepared from cow milk, provided from a farm near Bucharest. The fruits used for the experiment were bought from a local market. Fruit puree was added at 0% and 5% (w/v). Yoghurt samples were collected after 1, 5, 10, and 15 days of refrigeration for analysis of several parameters [total phenol content (TPC), total anthocyanins content, antioxidant activity (AA), TBARS value, protein carbonyl, pH, titratable acidity, water holding activity, syneresis, and sensory evaluation]. The highest TPC was found in samples treated with BC, and the highest AA was in the samples treated with BC also. For all samples treated with berries puree, protein carbonyl, and TBARS values were lower than untreated samples. The sensory evaluation results revealed no statistical differences (p>0.05) between the acceptability of the three types of voghurts. The addition of black mulberry (Morus nigra), black chokeberry (Aronia melanocarpa), and blackberry (Rubus fruticosus) puree fruits in yoghurt enhanced the lipid oxidative stability, decreased syneresis, and modified its sensorial properties in the acceptability limits.

Key words: yoghurt, forest berry fruits, protein carbonyl, antioxidant activity, anthocyanins.

## MORPHOLOGICAL FEATURES OF THE SKULL IN THE EURASIAN BROWN BEAR (Ursus arctos arctos - Linnaeus, 1758) - CASE STUDY -

## Petronela Mihaela ROȘU, Bogdan GEORGESCU, Cristian Romeo BELU, Letiția PURDOIU, Sorina Andreea MIHAI, Eduard GUREȘOAE, Valerica DĂNACU

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#### Abstract

This study aims to analyze and describe the morphological characteristics of the skull in the Eurasian brown bear (Ursus arctos arctos) in Romania. The morphological particularities of the skull are essential elements for the recognition of the species. The data from the literature on the morphology of the skull in this species are insufficient and focused mostly on the morphometric particularities of the skull. For the present study, we examined a skull from an adult bear, that is part of the collection of the Anatomy department. The bear is a protected animal and is hunted only under conditions established by law. The observational analysis of the morphological features of the skull led to the following conclusions: the skull is compact, elongated and relatively narrow on the dorsal part, the zygomatic processes of the frontal bone are very short and lacking in supraorbital foramen, the external sagittal crest is reduced, the lacrimal bone has a single lacrimal foramen, the articular surface for the mandible is represented by a transversal elongated articular cavity, being delimited in an caudal direction by the retroarticular process, the accessory palatine foramina are very small.

Key words: bear, skull, zygomatic process, external sagittal crest.

## RESEARCH REGARDING THE MORPHOLOGY OF THORACIC LIMB BONES IN THE CARPATHIAN LYNX (Lynx lynx ssp. carpathicus - Linnaeus, 1758)

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#### Abstract

According to the actual taxonomic classification, Lynx lynx is one of the four species of the Lynx genus. The bones studied belong to individuals originating from the area of the Carpathian Mountains, belonging to the carpathicus subspecies. The lynx is a top predator in a food chain, its most important role being to control the populations of small vertebrates in the ecosystem and to maintain the populations of roe deer (Capreolus capreolus) and red deer (Cervus elaphus) under control. Specialty literature includes works of various authors regarding the morphology and morphometry of the locomotor apparatus of the Lynx lynx species and other species of the Lynx genus. However, upon a detailed study of the material, some interesting anatomical aspects could be identified. Worth mentioning are details regarding the contour of the scapula, the morphology of the spina scapularis and the coracoid process, the aspect of the distal extremity of the humerus, the aspect of the radio-ulnar interosseous space, as well as of the distal extremity of the radius and olecranon. These elements may complete existing literature data and may prove useful to clinicians in various interventions (radiological exams, MRI scans or surgical interventions).

Key words: lynx, scapula, coracoid process, humerus, olecranon.

# **CLINICAL SCIENCES**

## EVALUATION OF STABILIZED, NON-VIABLE Lactobacillus FOR THE TREATMENT OF Escherichia coli IN CHICKENS

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#### Abstract

This work was designed to evaluate the efficacy of a compound containing stabilized, nonviable Lactobacillus against Escherichia coli (E. coli) challenge in broiler chickens. A total of 400, day-old broiler chicks were randomly divided into 4 equal groups (1-4) consisting of 100; each assigned into 2 equal replicates (50 each). Chickens in the  $1^{st}$  group were received the dry form of the compound at doses of 1 kg and 0.5 kg/ton feed for the starter and grower, and the finisher rations; respectively. However, chickens in the  $2^{nd}$  group were given the aqueous form of the compound in a dose of 4 ml/liter of the drinking water during the first 3 days of life and at a day before and after each vaccination. Both treatments regimens were administered to chickens in the  $3^{rd}$  group. Each bird in the  $1^{st}$ ,  $2^{nd}$  and  $3^{rd}$  groups was challenged with E. coli (078) at 7-days-old. Group (4) was kept as non-treated but challenged control. All groups were kept for 5 weeks for recording the disease picture, the body weight and immunological parameters, and the intestinal bacterial count. The results indicated that treatment of E. coli challenged broiler chickens with stabilized, non-viable Lactobacillus compound showed amelioration of the clinical disease picture, enhancement of the performance parameters, boosting of the haemagglutination inhibition antibody titers, improvement of bursa/body weight ratio, and reduction of the intestinal bacterial count. In conclusion, the tested stabilized, nonviable Lactobacillus compound either in dry and/or aqueous form is recommended for improving the health, general body conditions, and immunity of the E. coli challenged broiler chickens.

Key words: chickens, E. coli, immunity, performance, stabilized, non-viable Lactobacillus.

## THE PREVALENCE AND MOLECULAR DISTINGUISH OF Brucella melitensis REV1 STRAIN AMONG FIELD ISOLATES THE Brucella FROM SHEEP AND GOAT MILK THROUGH PCR-RFLP ANALYSIS OF OMP2 GENE POLYMORPHISM

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#### Abstract

Brucellosis remain is the main problem in Palestine. Therefore, the present study was undertaking to characterize of prevalence and molecular distinguish of Brucella melitensis filed and vaccine Rev1 strains isolated from milk among sheep and goat population. A study carried out on flocks of sheep and goat suffering from Brucella infection outbreaks. A total 171 of milk samples were collected from different district of the West Bank part of Palestine and isolated on specific Brucella agar. Positive 86 cultures were confirmed by standard biochemical methods and screened for Brucella melitensis 16M of IS711element by convention PCR technique. All these samples were also amplified for the omp2 gene to identify differentiation between field and Rev 1 strains in an infected flock. The result obtained from PstI restriction enzyme pattern revealed that only 2 (4.5%) samples have specific polymorphism accomplished with Brucella melitensis Rev1 strain. Further epidemiological investigation of these flocks indicated that's were recently vaccinated. All other samples were restricted according to Brucella melitensis 16M polymorphism pattern and were originated from nonvaccinated flocks. Despite on adverse effect of Brucella melitensis vaccine, only well-organized whole - flock vaccination and awareness campaign may inhibit virulence of field strain and, subsequently, reduce the prevalence of brucellosis infection among animal and human in Palestine. In conclusion, continues a further investigation of presence Brucella melitensis vaccine Rev1 strain in infected flocks is necessary for understanding the epidemiology of Brucellosis.

Key words: RELP, polymorphism, Brucella melitensis.

## IMPROVING DAIRY FARM HEALTH PLANS BY USING MULTI-ACTOR TEAMS IN ROMANIA

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#### Abstract

At the beginning of 2019, within a European project, activities for organizing the Disseminating Innovative Solutions for Antibiotic Resistance Management thematic network (DISARM) started in Romania. In this project, Romanian dairy farms have agreed to carry out farm health plans adapted to the needs of the farm with the support of farmers, veterinarians, and advisors who have complementary areas of competences. These Multi-Actor Farm Health Teams (MAFHT) should support the farm's health plans in a system of mutual interest and benefit that will decrease the number of sick animals and the need for antibiotics on the farm. This paper aimed to describe the benefits of using the DISARM Multi-Actor Farm Health Plan (MAFHP) in five Romanian dairy farms. In all dairy farms have been recorded the interest in increasing the health of the herd. The MAFHPs were designed with the support of MAFHTs and tailored to the farm needs by the team coach with the support of farm owner or manager. The direct involvement of the owner or manager created the premises for a real improvement of the dairy farm health.

*Key words*: best practices, livestock farming, innovation, precision farming, antibiotic resistance.

## COMPARATIVE STUDY OF CASES OF DIGESTIVE DISEASE IN TWO BOTTLENOSE DOLPHINS (*Tursiops truncatus*) FROM THE MUSEUM OF NATURAL SCIENCES COMPLEX CONSTANTA, DOLPHINARIUM DEPARTMENT

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#### Abstract

This study describes the clinical-evolutionary context of digestive disorders (gastritis) with notable functional consequences and important behavioral changes, which occurred and recorded in the two specimens of bottlenose dolphin (Tursiops truncatus) under human care, from the patrimony of the Dolphiarium department of the CMSN Constanta. It is described the inducing and favoring etiopathogenetic, along with the clinical dominants encountered, the set of paraclinical changes identified and quantified by functional tests, microbiological, biochemical, hematological and imaging examinations. All the hygienic, dietary and medicinal measures were applied sequentially, modularly and dynamically, in order to remedy these severe pathogenetic and functional disorders, soldiers with functional disability and behavioral alterations in its various forms. Integrated correlated assessment of clinical coordinates, functional impairments and imaging data has led to progressive therapeutic outcomes designed to restore functional capacity, supporting and justifying a concerted, comprehensive and holistic multidisciplinary approach to these bottlenose exemplaries. The paper is an integral part of the Research Contract: 'Morphoclinic and laboratory research in order to establish an active medical screening of marine mammals in care at CMSN Constanta'. PROJECT ID -" ETHO-MARINE.

*Key words*: *dolphin, digestive disorders, hematological tests, biochemical tests, marine mammal behavior, blood test parameters, captivity.*
# COULD VEGETAL EXTRACTS ENHANCE THE CELL-MEDIATED IMMUNITY AND ALEVIATE VACCINATION STRESS IN DAIRY CATTLE?

### Paul Adrian BOR<sup>1</sup>, Gheorghița DUCA<sup>2</sup>, Carmen Dana ȘANDRU<sup>1</sup>, Diana OLAH <sup>1</sup>, Marina SPÎNU<sup>1</sup>, Emoke PALL<sup>1</sup>, Constantin CERBU<sup>1</sup>, Emilia UNGUREANU<sup>1</sup>, Adrian POTÂRNICHE<sup>1</sup>, Aurel VASIU<sup>1</sup>

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#### Abstract

This study investigates influence of the anti-anthrax vaccination on blast transformation capacity of the leukocytes and also the possible in vitro influence of two, taxonomically different, autochthonous plants, Calendula officinalis and Vaccinium mirtyllus in promoting post-vaccinal proliferation. For that, blood was sampled on heparine (50IU/ml) before and two weeks after the anti-anthrax vaccination (R 1190 Stamatin strain) of twenty-three dairy cows and 11 calves raised extensively. Blood samples were subjected to the in vitro blast transformation test, where glucose consumption was read after 72 hours of incubation at 37 o Cby the o-toluidine test. The experimental variants included samples treated with alcoholic extracts of the plants (7.5  $\mu$ /ml). There was a statistically significant increase in all the stimulation indices after the vaccination of the animals in cows, including those for Vaccinium myrtillus (48.57 ± 13.27 to 53.53 ± 12.49, p = 0.02) and Calendulla officinalis (56.39 ± 12.57 and 61.51 ± 13.85, p = 0.01). The increase induced in the growth of calf lymphocytes by the two plants was non-significant post vaccination. Both extracts could be used to enhance cell mediated immunity but there was an age dependent improvement of their in vitro response.

Key words: dairy cows, anthrax, vaccination, blast transformation, extensive raising.

# ANTI-ANTHRAX VACCINATION IMPACTS ON IMMUNITY IN EXTENSIVELY RAISED DAIRY COWS

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#### Abstract

Anti-anthrax vaccination is stressful for animals, with a potential negative impact on some immune effectors. This research aimed to investigate the extent of those and estimate the effectiveness of vaccination. Twenty-three extensively raised dairy cows and 11 calves were sampled before and two weeks after the anthrax vaccination (R 1190 Stamatin strain). Blood samples were collected, subjected to blood counts and the N/L ratio was calculated as a stress index. The total Ig (24% zinc sulphate precipitation) and circulating immune complexes (CIC)(4.2% polyethylene glycol precipitation) were quantified from the serum samples. The N/L ratio was of  $0.79 \pm 0.59$  before and  $0.58 \pm 0.45$  after the vaccination in adult animals, while in calves it increased significantly ( $0.61 \pm 0.25$  and  $1.11 \pm 0.68$ , respectively). The total Ig concentrations supported a lesser immunization of the calves than in dairy cows ( $6.95 \pm 2.09$ versus  $12.10 \pm 6.68$  Vernes degrees, respectively) supporting the more stressful effect of the primary vaccination than of the booster one. Nevertheless, the antibody clearance was enhanced in the younger animals ( $5.4 \pm 0.25$  versus  $1.0 \pm 0.1$  ODU, respectively). Repeated stimulation is the substrate for an enhanced adaptive response to vaccination in cattle.

Key words: dairy cows, anthrax, vaccination, immunity, extensive raising.

# EFFICIENCY AND THERAPEUTIC CONDUCTOF SURGICAL PROCEDURES FOR MATURE CATARACTS IN A DOG - CASE REPORT

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#### Abstract

Cataracts are not typically brought to the attention of a veterinarian until owners report their dogs bumping into different kind of things, because when a cataract is fully developed, mature, it leaves the eye functionally blind. The patient of this study is a male old dog, 15 years old, completely blind, with mature bilateral cataract. The quality of his life had a very low score, the dog injured himself with the objects around, his behaviour changed and became retired, sleeping most of the time and became aggressive with owner and dogs around. Because the only effective and recommended treatment is surgery, for economical owner's reason, for the right eye of the dog we chose the manual extracapsular cataract extraction surgical procedure. Short follow-up surgery, dog became visual animal, but irreversible complications occurred, so, after 3 months' time, for the left eye of the dog we proceed with the phacoemulsification method of cataract extraction with the implantation of an intraocular artificial lens. Both eyes surgical methods had good post operatory results, but long-term for the second method results were superior.

Key words: dog cataract, cataract surgery, phacoemulsification, intraocular lens.

# MANAGEMENT AND COMPLICATIONS OF A STRANGLES OUTBREAK

### Anca BULGARU<sup>1</sup>, Elena NEGRU<sup>1</sup>, Horia DINU<sup>1</sup>, Dragoş LUPU<sup>1</sup>, Mihai DANEŞ<sup>2</sup>, Doina DANEŞ<sup>1</sup>

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#### Abstract

The present study is a report of a strangles outbreak in a horse breeding farm. The clinical signs began to appear in the first week of July, and included coughing, purulent nasal discharge, lymph node abscesses and fever. Bacteriological tests confirmed Streptococcus equi ssp. equi infection. The horses were treated with Penicillin 12 mg/kg, from the onset of the clinical signs: 38 of the 42 affected horses showed improved clinical status after 5-10 days of therapy. The other 4 foals were diagnosed Rhodococcus equi induced pneumonia, and they were placed under rifampicin (7.5 mg/kg) and claritromicin (7.5 mg/kg) treatment. Of the 38 horses treated successfully with penicillin, 6 horses aged 3 to 6 months, were later dignosed with Streptococcus equi ssp. zooepidemicus induced pneumonia, and were also treated with rifampicin and clarithromicin. By the end of September, none of the horses present on the farm showed any more signs of respiratory infections. Daily monitoring of the herd, active bacteriological surveillance and early onset of antibiotic therapy were key factors in avoiding severe complications of strangles and limiting mortality.

*Key words*: equine strangles, horses, respiratory infection, Streptococcus equi, Streptococcus equi ssp. zooepidemicus.

# PRELIMINARY RESEARCH REGARDING CLINICAL FINDINGS AND RESPONSE TO NUCLEOSIDE ANALOG GS-441521 TREATMENT IN CATS WITH FELINE INFECTIOUS PERITONITIS

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#### Abstract

The study aimed to determine the safety and efficacy of the new nucleoside analog GS-441521 treatment, for cats discovered with various form of feline infectious peritonitis. The purpose of this study was to identify and classify forms of feline infectious peritonitis along with their effects on feline individuals, and their response to treatment. The 25 cases were recorded in a private veterinary practice, in Bucharest, Romania, for the last two years, 2020-2021. During the aforementioned period, 25 cats were included in the study. Cats ranged from 3-96 months of age. Routine clinical and paraclinical methods of examinations were used, as well as after treatment follow-up. The dose used was 6-10 mg/kg daily (chosen in correlation with the FIP form), administered subcutaneous, for 84 days, followed by 12 more weeks of observation. The cats presented specific clinical signs and morphological features of mild to severe anemia (n = 12.48 %), effusions (n = 13.52%), hepatic failure (n = 14.56%), ocular pathology (n = 12.48 %)4.16%), or severe neurological involvement (n = 3.12%). 6 cats presented with non-effusive disease, 13 had effusive disease, 4 of them had the ocular FIP and 3 cats had neurological disease. Conclusions: 64% of cats were younger than 1 year (n = 16), two animals died (8%), one in the first week, and one after the treatment was finished, and 23 individuals (92%) were fully (n = 16.64%) or partially recovered cases (n = 7.28%).

Key words: nucleotide analogues, cats, feline infectious peritonitis, effusion, neurological.

# CLINICAL AND DIAGNOSTIC SIGNIFICANCE OF ULTRASOUND CHANGES IN GALLBLADDER DISEASES IN DOGS AND CATS

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#### Abstract

This paper briefly reviews the general informations of gallbladder disorders, its clinical changes, digestive and metabolic correlation and their diagnostic protocols. This study was conducted in the Clinic of Faculty of Veterinary Medicine in the period between 1.10.2018 -01.12.2021 using IDEXX VetLab UA and Esaote MyLab 6. Data collected recorded 50 animals, with felines obtaining a precentage of 35.8% and canine 64.2% in regard of cholecystopathies prevalance by species. In case of cholecytopathies prevalence based on gender we registered 62% males and 38% females. In cholecystopathies prevalence by age we listed 35% of animals cu age range between 1-10 years, 65% with 10-21 years, in felines and also 65% in 2-10 years, and 35% with 10-15 years. Ultrasound investigation of gallbladder is the first choice in hepatobilliary disorders. The bile vesicle (gallbladder) is easily identified, presenting itself as an ovoid anecogenous formation, elongated (piriform) in longitudinal section and round-ovoid in crosssection. In ultrasound, the gallbladder appears as an anecogenous structure with a hiperecogenous fine wall. The paper aims to present the ultrasound characterisic features of parietal and / or lumenal gallbladder changes in each condition included in this study (acute and chronic cholecystitis, billiary sludge, billiary mucocele, cholelithiasis and neoplastic or tumoral lesions).

Key words: gallbladder, cholecystopathies, ultrasound, diagnostic.

## CLINICAL-DIAGNOSTIC COORDINATES IN PROSTATIC AND PARAPROSTATIC CYSTS IN DOGS

### Valerica PREDA (CONSTANTINESCU), Maria ROȘCA, Iuliana CODREANU, Alexandra Mihaela CRISTIAN, Mario CODREANU

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#### Abstract

Prostatic cysts are fluid-filled structures located adjacent to the prostate gland. Clinical expression is often asymptomatic, rarely tenesmus, lethargy, anorexia, and hematuria occur. Paraprostatic cysts are more common in uncastrated dogs over 8 years of age, without a predisposition to breed. These fluid-filled cysts are often localized or extend from the outer edges of the prostate. The research took place between 2017-2020 on 23 dogs of different breed and age, within the Clinic of the Faculty of Veterinary Medicine Bucharest and within the private veterinary practices. The diagnosis of paraprostatic cysts was established in 7 dogs age 1-5 years (n = 1), 5-10 years (n = 2), 10-15 years (n = 4), of different breeds. The reason for the presentation at the clinic was the observation by the owners of the tendency to constipation (n = 5), dysuria (n = 2) and a urination with blood (n = 3). Ultrasound identification of cystic formations with paraprostatic localization highlighted the existence of cystic formations with dimensions of 20 mm (n = 4), 70 mm (n = 2) and 3.8 cm (n = 1). In the mass of the prostate glandular parenchyma, cystic dilatations were identified, with an anechoic content with rare corpuscular elements in suspension (n = 3) and cellularity (n = 4), accompanied by ultrasound specific artifact distal enhancenment. Intraprostatic cysts were found in 16 dogs age 1-5 years (n = 3), 5-10 years (n = 5), 11-15 (n = 5) and 16-20 years (n = 3), common breed (n = 6), German Shepherd (n = 3), pointer (n = 1), English Bulldog (n = 1) Dachshund (n = 1), Afghan Greyhound (n = 1) and West Highland White Terrier (n = 3).

The reason for presenting to the doctor was dysuria (n = 5) and hematuria (n = 7), or routine ultrasound examination. Ultrasonography detected single, multiple or scattered cystic formations of round/ovoid type with a fine echogenic wall clearly delimited by the rest of the parenchyma of infra centimetric dimensions (n = 12) centimeters in 4 dogs, with clearly homogeneous and anechoic content, accompanied by the distal enhancement.

Key words: prostatic cysts, dogs, paraprostatic cysts.

# SARS-CoV-2 DETECTION IN THREE CATS (Felis catus) BY REAL-TIME REVERSE-TRANSCRIPTASE POLYMERASE-CHAIN-REACTION IN BUCHAREST, ROMANIA

### Dana Mihaela CREȚU<sup>1</sup>, Maria Rodica GURĂU<sup>1</sup>, Mihai TURCITU<sup>2</sup>, Stelian BĂRĂITĂREANU<sup>1</sup>

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#### Abstract

Since the COVID-19 pandemic began, there have been more and more studies and case-reports regarding the transmission of SARS-CoV-2 to several animal species. In cats, SARS-CoV-2 susceptibility was proved through experimental infection and natural settings (direct contact with infected humans). In this paper, the real-time reverse-transcriptase polymerase-chainreaction (rRT-PCR) results obtained from four cats living in SARS-CoV-2-infected households in Bucharest (Romania) were described. All cases were indoor cats living in close contact with infected owners (in one household, owners were asymptomatic and, in the other households, owners had mild clinical signs). All the cats were lethargic and had a moderate loss of appetite. One cat was slightly dyspnoeic. The genomic material was extracted from deep oropharyngeal swabs using the OIAamp cador Pathogen Mini Kit. The rRT-PCR analysis used the CDC 2019-Novel Coronavirus (2019-nCoV) Real-Time RT-PCR Diagnostic Panel and primers designed to detect the SARS-CoV-2 nucleocapsid (N) protein gene, supplied by Integrated DNA Technologies (IDT, USA). The sample from the cat living with an asymptomatic family was negative, while cats of owners with clinical signs provided positive results, as follows:  $Ct_{(Cat\#1)}=27.04$ ,  $Ct_{(Cat\#2)}=24.13$ , and  $Ct_{(Cat\#4)}=35.0$ . Results revealed the risk of indoor cats' infection with SARS-CoV-2 in households where owners have COVID-19, especially if they show clinical signs.

Key words: SARS-CoV-2, COVID-19, Coronavirus, feline diseases.

# CAN IT BE CARCINOMATOUS MASTITIS AND T-CELL LYMPHOMA WITH SKIN LOCALIZATION - COMPARATIVE STUDY -

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#### Abstract

Carcinomatous mastitis or the inflammatory mammary carcinoma is a malignant entity described in human, dog and cat clinical oncology, it is characterized by a sudden onset, edema, erythema, peau d'orange, hardening and increased local temperature of the mammary gland, with or without the presence of mammary nodules. Blockage of superficial lymphatics with neoplastic cells is the cause of severe edema in the region. This type of cancer is characterized by an extremely fast rate of growth, development and invasiveness. Tumor cells rupture the basement membrane (basal lamina) and invade regional lymphatic vessels and satellites lymph nodes. Cutaneous T-cell lymphoma in the dog is a rare neoplastic condition with unknown etiology. The dermatitis is characterized by infiltration of neoplastic T lymphocytes with a specific tropism for the epidermis and the annexe structures. The abnormal replication of lymphocytes present plaques or other lesions within the skin. It often involves enlarged satellite lymphnodes, edema, erythema and hardening of the malignant nodules. The link between the immune role of the T-cells and the fulminant inflammatory reaction of the carcinomatous mastitis, frameable in the category of autoimmune diseases, is just one of the puzzles researchers are trying to solve in order to prove the connections between the two neoplasias.

One of the pieces is the role of cytokines, having value both in canine inflammatory mammary cancer and T-cell lymphoma. Their purpose has been evaluated because these small proteins that act as cell-to-cell messengers and play an important role within the immune system by stimulating or inhibiting cells in response to a range of stresses can be used as diagnostic biomarker, biologic predictive marker and have therapeutic significance in both cancers (Irac, 2019). The purpose of this study was to characterize the two malignant pathologies clinically, histopathologically and regarding response to treatment in order to identify common ground. Following the information obtained from the studies considered for this article, supplemented with personal case studies, I suspect the presence of a mixed neoplasm in the form of an undifferentiated carcinoma interspersed with T lymphoblasts.

Key words: inflammatory carcinoma, carcinomatous mastitis, cutaneous T-cell lymphoma.

# CASE REPORT: AORTIC THROMBOEMBOLISM RELATED TO POLYCYSTIC KIDNEY DISEASE IN A CAT

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#### Abstract

A cross-breed female cat was presented with clinical signs of abdominal pain, paralysis of both hind limbs, tachycardia, tachypnea and bilateral absence of the femoral pulse. Necropsy confirmed an aortic thrombus at 2 cm above the adrenal glands, the heart with left atrial dilated and hypertrophied left ventricle, multiple bilateral kidney cysts and ectopic thyroid tissue. Histopathological examination reveals the kidney with multiple cysts, diffuse loss of renal structural details without inflammatory cells, hypertrophic cardiomyopathy, and no ectopic thyroid tissue changes. This communication describes a rare case of aortic thromboembolism associated with hypertrophic cardiomyopathy due to autosomal dominant polycystic kidney disease and ectopic thyroid tissue.

*Key words*: aortic thromboembolism, hypertrophic cardiomyopathy, cardiorenal syndrome, polycystic kidney.

# OPTIMIZING THE CYTOPATHOLOGICAL DIAGNOSIS OF CANINE CUTANEOUS MAST CELL BY ESTABLISHING TUMOR GRADIENT

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#### Abstract

Canine cutaneous mast cell tumor (CMCT) is one of the most commonly skin neoplasm in this species. The existence of numerous exceptions regarding the biologic behavior reported in the literature, led to the conclusion that all CMCTs should be considered potentially malignant, regardless of histological grade. Therefore, the study of prognostic factors by rapid diagnostic methods is one of the main themes of research related to CMCT. This study aimed to evaluate the cytomorphological aspects of mast cells to identify the degree of tumor. For this purpose, 42 dogs diagnosed cytological and histological with CMCT were evaluated. In the cytological grading, 8 morphological criteria were followed: anisocytosis, anisokaryosis, caryomegaly, multinucleation, the presence of bizarre nuclei, mitotic index, and degree of degranulation and the presence of eosinophils. Following the assessment, there were no major differences in interpretation between the two types of diagnosis in 5 of the criteria used, minor differences were in 3 of them (mitotic index, anisokaryosis and anisocytosis). The cytopathological examination can determine the tumor gradient of the CMCT, based on clearly established criteria, providing valuable and rapid information to the clinician.

Key words: cutaneous mast cell tumor, dog, cytology, tumor gradient.

# PARACLINICAL DIAGNOSIS AND THERAPEUTIC APPROACH IN ETHYLEN GLICOL POISONING IN DOGS

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#### Abstract

One of the most affected species by various toxic substances is, undoubtedly, the canine species. Among them, ethylene glycol is one of the most possible causes, its use as an antifreeze solution making it a frequently encountered substance. Because of its sweet taste, it is eaten with pleasure by dogs and not only. The dogs were isostenuric after 3 hours after ingestion, also calcium oxalate crystalluria becomes detectable after 3-6 hours after consumption. After the onset of renal impairment, the value of blood urea nitrogen and creatinine increased, which resulted in glomerular filtration damage. The present study highlights the effectiveness of the treatment in the first 8 hours after ingestion, being very important to slow down the oxidation metabolism of ethylene glycol by alcohol dehydrogenase. The administration of ethyl alcohol or fomepizole (4-methylpyrazole) to dogs presented to the veterinary clinic following exposure to ethylene glycol increase their chances of survival.

Key words: diagnosis, treatment, ethylene glycol, dogs.

# THE INFLUENCE OF THE ANTI-Mycoplasma agalactiae VACCINE STRAIN ON THE HUMORAL IMMUNITY IN SHEEP

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#### Abstract

Vaccination against contagious agalactia of sheep, an OIE declarable, highly economically impacting disease, is the most widespread method to reduce the disease prevalence. This research monitored the influence of M. agalactiae S/94 and AG6, two commercial vaccines for sheep, on systemic humoral immunity in two flocks of ewes (n1=95, n2=220, respectively). Blood was sampled from both flocks before and one month after the booster vaccination and subjected to total Ig (24% zinc sulphate precipitation test) and circulating immune complexes' (4.2% polyethylene glycol precipitation test) evaluation. There were significant differences (p<0.001-0.004) in total Ig levels for both strains (7.68±2.63 and 23.68±5.7 for S/94 and 11.1±3.58 and 26.11±3.4 Vernes degrees for AG6, before and after the vaccination, respectively), but no differences in CIC concentrations (p=0.08 and p=0.59, for S/94 and AG6) between the samplings or the strains (p=0.342) were found. A strong positive correlation (r=0.889, p<0.05) was established between total Ig and CIC levels for the AG6 but not the S/94 strain, therefore other influential factors (individual, adjuvant, frequency of vaccination) should be investigated.

Key words: vaccination, M. agalactiae, S/94/AG6 strain, humoral immunity.

# HEALTH IMPACTS AND CONTROL MEASURES IN INFECTIOUS BOVINE RHINOTRACHEITIS -A REVIEW

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#### Abstract

Infectious bovine rhinotracheitis is a viral, endemic, specific bovine, goat and swine (genital) disease with acute evolution, clinically characterized by hyperthermia and respiratory involvement, inflammation of the anterior respiratory tract (rhinitis, tracheitis) or genital disorders (abortions, infertility, balanopostitis), often accompanied by conjunctivitis. This entity is globally spread and is considered to be one of the most costly diseases affecting bovine livestock, and can have major economic consequences by decreasing productivity (milk production, low yield on fattening, animal culling), high morbidity, lethality, which can reach 12% for youth, as well as by restrictions in trade between countries. The review examined the impact of the infection on health status of affected bovine and possibilities to control the disease based on general and specific measures.

Key words: bovine, IBR, clinical outcome, reproductive problems, prevention.

# FIELD CASTRATION OF TEN STALLIONS: ANESTHESIA AND RECOVERY MONITORING

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#### Abstract

This study evaluates an anesthetic protocol for 10 mixed-breed horses (2 - 22 years old) that have undergone field surgical castration. Premedication was administered intravenously in the left jugular vein with Detomidine ( $\overline{X} = 0.02 \text{ mg/kg}$ . Induction was achieved with a combination of Ketamine ( $\overline{X} = 2.38 \text{ mg/kg}$ ) and Midazolam ( $\overline{X} = 0.038 \text{ mg/kg}$ ), administered intravenously, in the same syringe. Heart rate ( $\overline{X} = 43.46 \text{ bpm}$ ), respiratory rate ( $\overline{X} = 20.65 \text{ bpm}$ ), capillary refill time ( $\overline{X} = 1.26 \text{ sec}$ ), Oxygen saturation ( $\overline{X} = 85.73$ ) and rectal temperature ( $\overline{X} = 37.15^{\circ}$ C,) were evaluated from induction until full recovery. We evaluated the time between premedication and induction (T0 -  $\overline{X} = 5.5$  minutes), induction until lateral recumbency (T1 -  $\overline{X} = 1.4$  minues), surgery duration (T2 -  $\overline{X} = 10.5$  minutes), time from induction until recovery in standing position (T3 -  $\overline{X} = 33.4$  minutes). All animals required assistance until complete recovery and were ataxic while standing/walking for T4 -  $\overline{X} = 12.3$  minutes. The anesthetic protocol provided good analgesia and muscle relaxation. All horses recovered well and no postoperative complications were seen.

Key words: equine, anesthesia, castration, midazolam, recovery.

# MICROBIOLOGICAL RESEARCHES OF THE VIRULENT SPECIES OF Staphylococcus aureus IN PATHOLOGICAL ABCESSES AT SWINES

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#### Abstract

Current researches are important due to the frequency of cases caused by some pathologies of abscesses recorded at pigs slaughtered in slaughter house conditions. In this context, samples from various internal abscesses of slaughtered pigs and the assessment of virulence and incidence of identified bacterial microflora species were studied. Microbiological researches on abscesses of different origins at slaughtered pigs has demonstrated the presence of the important bacterial microflora consisting of species of Staphylococcus aureus in allcases of pathological laboratory investigation. S. aureus strains isolated from various sources of pathological abscesses at slaughtered pigs in slaughterhouse conditions expressed a higher proportion of quantitative bacterioscopic and bacteriological microbiological values in heart abscesses, followed by samples invaded with staphylococci in the chest, leg, jaw and so on. The Staphylococcus aureus strain expressed high virulence factors sampled by a phenotypic mechanism, and it was found that this strain showed the gene encoding the collagen binding protein and at the same time mediates the binding of Staphylococcus aureus to fibrinogen.

Key words: abscesses, Staphylococcus aureus, pigs, pathologies, microbial cultures.

# PRELIMINARY RESULTS OF THE PRION PROTEIN GENE (PRNP) GENOTYPING IN ROMANIAN GOATS

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#### Abstract

The genetic susceptibility of goats to scrapie has been less investigated and analysed in order to determine the polymorphism of the prion protein gene (PRNP). In goats, several PRNP polymorphisms have been described and the heterozygosity at codons 1142M, H143R, N146S, R211Q, and Q222K proved to confers decreased susceptibility to scrapie.

The purpose of this paper is to genotype Romanian goats in order to establish the PRNP polymorphism and the potential impact of genetic selection over goat farming. DNA extraction was performed from blood and root hair samples using the PureLink Genomic-DNA Kits.

The PRNP gene was amplified using Amplitaq Gold 360-DNA Polymerase-250U kit and the primers F1 (5`-CATTTATGACCTAGAATGTTTATAGCTGAT-3`) and R1(5`-TTGAATGAATATTATGTGGCCTCCTTCCAGAC-3`). The sequencing reactions were performed by outsourcing, CEMIA. Preliminary results revealed the following alleles: G37G, W102W, T110T, P110T, G127G, I142I, I142M, H143H, N146N, R151R, R154R, P168P, S173S, N173S, R211R, I218I, Q222Q, P240P, and S240S.

From the partial results obtained, the PRNP alleles proved to confers decreased susceptibility to scrapie were very rare and, unfortunately, a future genetic selection program seems to have a negative impact over goat farming.

ACKNOWLEDGMENTS This work was supported by a grant of the University of Agronomic Sciences and Veterinary Medicine of Bucharest, project number 2021-0004/13.07.2021 CaPriRo, within IPC 2021

Key words: PRNP gene, genotyping, goats.

# SPINAL CORD DECOMPRESSION BY HEMILAMINECTOMY SURGERY IN T12-T13 DISC HERNIATION AND RECOVERY PROCESS IN 6-YEAR-OLD PARAPLEGIC DOG - CASE STUDY

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#### Abstract

Spinal cord compression syndrome with paraplegia due to spinal disc herniation is a common problem in dogs. The T12-T13 intervertebral disc herniation with paraplegia we often meet during our activity in the small and agile dog breeds. Spontaneous intervertebral disc herniation include congenital defects of some dog breeds due to a weakening of the column in this body region - between T10-L3 - and due to these dogs life style like jumping on different surfaces and walking on stairs increase the risk of the spinal cord injury. The Imaging confirmation of a herniated disc such as computed tomography or MRI before surgery is essential. In this case we had confirmation of the diagnosis of T12-T13 herniated disc by the result from the computer tomography. The anesthesia used was an inhalation type. The aims of T12-T13 hernilaminectomy surgery is useful and important because is performed on a single side of the vertebral column to modify the regional anatomy and stability as less as possible with very good results and fast recovery.

Key words: dog, paraplegia, hemilaminectomy, disc, herniation.

# INCIDENCE OF CUTANEOUS *Staphylococcus* species IN EXTENSIVELY RAISED SWINE

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#### Abstract

The commensal/opportunistic bacteriome in various animal species includes potentially pathogenic S. aureus. Wide-spread in humans, on the skin or mucosae, it induces a highly variable pathology, depending on its toxins and virulence, on the host and also on the environment. Much less is known about other staphylococci and their involvement in swine pathology. This research envisaged the incidence of Staphylococcus spp., in samples collected from extensively raised clinically healthy pigs, of the same age, during the period 2019-2020. The samples (n = 49) were provided from farms of different sizes and in different years. Cotton swabs were used to sample secretions from anterior nares of individual pigs, and from the skin behind the ears of the animals. Classical microbiology methods were used to isolate Staphylococcus spp. and the isolates were identified using biochemical tests (API Staph, BioMerieux). Forty species of Staphylococcus sciuri (22.5%). These bacterias seemed often present as a commensal animal-associated bacteria, but în some cases they could become pathologic în some diseases like bovine mastitis, and exudative epidermitis.

Key words: swine, extensive raising, skin, staphylococci, pathogenicity.

# ANTIBIOTIC PROFILE OF BACTERIA ISOLATED FROM THE SKIN SURFACE FROM EXTENSIVELY RAISED SWINE

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#### Abstract

Antibiotic resistance of Staphylococcus is increasing worldwide and is becoming a global concern. The present report exposes the study of the antibiotic susceptibility in isolates of Staphylococcus spp. obtained from farm pigs. The samples were collected from healthy pigs, from different farms, in the period between 2019-2020.Forty strains of Staphylococcus were isolated from the anterior nares of individual pigs, and from the skin behind the ears of the animals. These isolates were tested against 12 different antimicrobial agents using the Kirby-Bauer disk-diffusion method. The antibiotic susceptibility profile of different bacteria isolates was studied to detect MAR, MDR. Multiple antibiotic resistance (MAR) indices were determined and it was above 0.2 in 24 of the total of 40 bacteria studied. The highest MAR index was detected in Staphylococcus lentus (0.5) and Staphylococcus xylosus (0.41) and 26 (65%) strains was MDR.

In conclusion, the high levels of antibiotic resistance generally correlates with high antibiotic usage and antibiotics used are a risk to humans with occupational contact with livestock antibiotics.

Key words: Staphylococcus, antibiotic resistance, MDR, MAR.

# THE PREVALENCE OF EXTENDED-SPECTRUM β-LACTAMASE (ESBL) BACTERIA AFTER PROPHYLACTIC USE OF ANTIMICROBIALS IN BROILER CHICKENS

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#### Abstract

Antimicrobials are frequently used in poultry production for prevention of bacterial diseases, starting from first day of growing, which lead to development of multi-drug resistant bacteria, including E. coli infections with producing of Extended-spectrum  $\beta$ -lactamase (ESBL). ESBL are enzymes that make ineffective commonly used antimicrobials, therefore options to treat bacterial infections caused by ESBL producing E.coli are limited. The objective of this study was to establish the correlation between early prophylactic use of antimicrobials and the development of ESBL bacteria in poultry production. A total of 20 isolates of E.coli were studied for ESBL production, 10 isolates from one day old broiler chickens and 10 isolates from 6th day old broiler chickens after prophylactic use of antimicrobials. The presence of the ESBL isolates was determined by using phenotypic double-disk synergy tests recommended by the Clinical and Laboratory Standards Institute (CLSI) which consist in measuring the growthinhibitory zones for Ceftazidime (CAZ 30  $\mu$ g) and Ceftazidime/Clavulanic acid (CAC 30/10  $\mu$ g). ESBL-producing E. coli bacteria were found in 2 isolates from one day old broiler chickens compared with 6th day old broiler were was found 5 isolates. These results indicate that prevalence of ESBL-producing E. coli isolates were higher by 30% after five day of prophylactic use of antimicrobials during growing period. The presence of ESBL-producing organism in poultry production requires improving antimicrobials administration as a prophylactic use, because of their zoonotic potential, and important economic losses.

Key words: E. coli, ESBL, resistance, poultry, antimicrobials.

# ANTIMICROBIAL RESISTANCE ISOLATES FROM OVINE NECROTIC PODODERMATITIS: A REVIEW

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#### Abstract

Infectious pododermatitis is a common condition in sheep with initial lameness, with a variation in severeness over time. Independently on aetiology, the administration of antibiotics has proven to be ineffective, the disease often being exacerbated in a short time, the bacteria being refractory to antimicrobials. The use of antibiotics is common in sheep for disease treatment, health protection and as growth promoters. The main antibiotics used in farmed animals are tetracyclines, penicillin, quinolones and cephalosporins. According to the latest studies, E. coli, an ubiquitous bacterium often isolated from pododermatitis lesions, is unresponsive to all these antibiotics. Studies on the antibiotic resistance of the main pathogens of necrobacillary pododermatitis, Dichelobacter nodosus and Fusobacterium necrophorum, are not found in the literature, but the ineffectiveness of antibiotics on these bacteria directs towards a possible antibiotic resistance. Currently, multiple health organisations have identified proliferation of antimicrobial resistance as a global crisis. The decline in bacterial susceptibility to common antibiotics calls for global efforts on the rational use of antibiotics in veterinary medicine as a response to the spread of antimicrobial resistance.

*Key words*: sheep, necrotic pododermatitis, Dichelobacter nodosus, Fusobacterium necrophorum, antibiotic resistance.

# ISOLATION AND IDENTIFICATION OF TWO Pasteurella STRAINS, RESPONSIBLE FOR AN OUTBREAK OF PNEUMONIA IN SHEEP

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#### Abstract

The present study was carried out with the purpose of isolating and identifying the etiological agent(s) of an outbreak of respiratory infections affecting a flock of sheep. The first cases of pneumonia on the farm were recorded during cold season (November 2020 - February 2021), affecting mainly lambs, with a few isolated cases among adult sheep. Symptoms included nasal discharge, coughing, dispnea, loss of appetite and severe weight loss, a morbidity of 80% among young animals and 5% mortality. Pasteurella spp. was isolated from lung tissue samples collected during necropsy. The lambs were treated with Enrofloxacin administered orally, and the clinical status improved after 6 days of therapy; however, during the fall of 2021, a reoccurrence of respiratory distress was reported, this time affecting both young and adult animals. Bacteriological examinations were performed on nasal and palatine tonsil swabs collected from live animals and lung and lymph node tissue collected from slaughtered animals for diagnostic purposes. Two strains of Pasteurella were isolated, Pasteurella multocida and Pasteurella spp. The isolates were characterized biochemically and antibiotic susceptibility tests were performed. Following test results, the entire flock of 2000 sheep was treated with Enrofloxacin for 6 days and complete remission of respiratory symptoms was achieved.

Key words: Pasteurella multocida, Pasteurella spp., pneumonia, respiratory infection, sheep.

# TOPICAL AUTOLOGOUS PLATELET-RICH PLASMA (PRP) IN MANAGEMENT OF PERIANAL FISTULAS IN A GERMAN SHEPHERD DOG

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#### Abstract

Platelet-rich plasma (PRP) is the processed liquid fraction of autologous peripheral blood with high concentration of platelets. Thanks to its ability to speed up the healing process, PRP is used in the treatment of many diseases in which tissue regeneration is required. Canine perianal fistulas disease (PAF) is a painful and chronic disease of the perianal tissues that affects medium to large breed dogs, predominantly German shepherd dogs.

The aim of this report is to describe the clinical efficacy of autologous PRP in the treatment of multiple perianal fistulas in a nine year old German shepherd dog.

Autologous PRP (3.5 mL) containing 8  $10^5$  platets/ml was administered directly into fistulas by 2 injections at weekly intervals. Complete healing of the lesions occurred four weeks after the first treatment with PRP.

This case report demonstrates how PRP infiltration is a technique capable of promoting the healing of perianal fistulas in dogs even in those cases that are refractory to medical therapy.

Key words: platelet-rich plasma, perianal fistulas, dog.

# OCCURRENCE AND CLINICAL FINDINGS OF PARASITIC AND *Malassezia* OTITIS EXTERNA IN DOGS AND CATS: A RETROSPECTIVE STUDY IN A PRIVATE PRACTICE IN SOUTHERN ROMANIA

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#### Abstract

Parasites and yeast cause otitis externa in dogs and cats and have an important impact on the welfare of the affected animals. Moreover, their treatment is often problematic. Here we present a retrospective study on the occurrence of parasitic and mycotic otitis externa in client owned dogs (n = 179) and cats (n = 157) that were presented in a veterinary practice during a oneyear period. All animals were subjected to the routine clinical examination followed by direct otoscopy, and microscopic evaluation of ear exudates with and without Diff-quick staining. Animals included in the study were presented to the veterinary clinic for different reasons, of which 9.49% of dogs and 15.92% of cats were presented for ear related problems. Of the investigated dogs and cats, 16.75% and 19.75%, respectively were diagnosed with otitis externa. Of the dogs, 10.05% (18/179) were positive for mixed Malassezia and Otodectes infestations, 5.58% (10/179) only with Malassezia, and 1.11% (2/179) with only Otodectes. In cats, 8.28% (13/157) of the animals were diagnosed with Malassezia and Otodectes mixed infestations, 11.46% (18/157) of cats had only Malassezia otitis, and none had only parasitic infestation. Overall, of the 30 dogs and 31 cats diagnosed with otitis externa, 43.33% and 32.25%, respectively were presented for ear related problems. In conclusion, these findings showed a positive correlation between Malassezia and Otodectic otitis in dogs, while in cats Malassezia otitis externa was detected in all ear parasitic infestations. Additionally, the study underlines the importance of ear examination and microscopic evaluation for a proper therapeutic protocol.

Key words: otitis externa, dogs, cats, Southern Romania.

# EAR CYTOLOGY - A KEY TEST IN THE DIAGNOSIS AND MANAGEMENT OF CANINE OTITIS EXTERNA

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#### Abstract

Otitis externa is a common condition in dog with a multifactorial aetiopathogenesis including primary factors along with predisposing and perpetuating factors. Therefore, a successfull therapy of otitis externa should target the identification and correction of primary causes as possible as, not only the elimination of secondary infections. In practice, ear swab cytology is considered to be the best choice for the diagnosis and initial treatment of otitis, recommended to be repeated for the therapy evaluation or adjustment. Our study included 20 dogs exhibiting various clinical forms of otitis externa, from mild acute to severe chronic otitis with often associated pruritus and smelly discharge, came to be investigated at the Dermatology Service of Faculty of Veterinary Medicine of Bucharest. Cytology showed variable proportion of desquamated keratinocytes, lipid droplets and debris of cerumen, leukocytes, especially degenerated neutrophils and free or phagocytized bacterial and yeast elements. The patients have been reevaluated at every 2-3 weeks after initiating therapy and finally, clinical signs resolution together with decreased cellularity in cytological preps were considered good indicators for patient recovery.

Key words: cytology, dogs, external otitis.

# CHARACTERIZATION OF A *Clostridium chauvoei* STRAIN, CANDIDATE AS A VACCINE STRAIN

### Elena NEGRU<sup>1</sup>, Anca BULGARU<sup>1</sup>, Horia DINU<sup>1</sup>, Dragoş LUPU<sup>1</sup>, Mihai DANEŞ<sup>2</sup>, Maria-Rodica GURAU<sup>1</sup>, Doina DANEŞ<sup>1</sup>

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#### Abstract

Clostridium chauvoei is the etiological agent of blackleg, a severe disease of cattle and small ruminants, characterized by necro-hemorrhagic myositis and a superacute evolution. The superacute evolution of the disease does not allow antibiotic therapy to be effective; therefore vaccination remains the main prophylactic measure. The aim of the present study was characterize a C. chauvoei isolate, with the purpose of producing a vaccine against blackleg for small ruminants. The bacterial strain, isolated from a case of blackleg, was identified based on morphological, cultural, biochemical characteristics and PCR. The alpha toxin of the 12 hour anaerobically cultured strain provided a hemolytic titer of 1/1024, and the biological value assessed in vivo on Balb/C mice, calculated as lethal dose 50%, of 16 LD50. The inactivated whole-cell culture absorbed onto aluminum hydroxide was successful in protecting 100% of vaccinated guinea pigs, against death and clinical disease, in the challenge test. The results of the experiments recommend the isolated strain as a candidate for blackleg vaccine production.

Key words: alpha toxin, blackleg, immunogenic, Clostridium chauvoei, vaccine.

# RETROSPECTIVE STUDY ON ANTIBIOTIC RESISTANCE OF MICROORGANISMS ISOLATED FROM CLINICAL CASES

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#### Abstract

Therapeutic options are lately limited for an alarming number of pathogens due to the increasing antimicrobial resistance spread worldwide. Responsible monitoring of certain antimicrobials' effects before treatment provides an efficient tool to counteract this phenomenon. The purpose of this paper was to comparatively evaluate the antibiotic susceptibility of strains in samples from animals of different species and pathologies. Antimicrobial sensitivity statistics involved Staphyloccocus, Streptoccocus, Pseudomonas and Escherichia genera. Regardless of the species, of the 16 antibiotics, staphylococci were the most sensitive to ciprofloxacin, florfenicol, neomycin, whereas the highest percentages of resistance were seen in streptomycin and penicillin. Streptococcus spp. was the most resistant to: amoxicillin, penicillin, amoxicillin with clavulanic acid and the most susceptible to ciprofloxacin. Amoxicillin, amoxicillin/clavulanic acid, and oxytetracycline were completely ineffective against Pseudomonas, while cefotaxime showed the strongest activity. The least effective antibiotics towards E. coli strains were amoxicillin, penicillin and tetracycline, while doxycvcline and marbofloxacin were the most efficient. Escherichia and Pseudomonas showed the highest antibiotic resistance. While a marked resistance was seen with beta-lactams, the fluoroquinolones showed the highest efficiency.

Key words: antibiotic resistance, monitoring, susceptibility, treatment.

# A COMPARATIVE EPIDEMIOLOGICAL EVALUATION OF TWO SUBSEQUENT EPISODES OF MAREK'S DISEASE ON THE SAME FARM

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#### Abstract

Marek's disease (MD) is highly economically impacting viral disease in chickens aged 4 weeks - 4 month. Various hypotheses were posed to explain its recurrent epidemiology and increasing virulence over the years. This study aimed at comparing the epidemiological indicators of two confirmed Marek's disease episodes (DIVA Real Time PCR) in two different series of Isa Brown pullets hatched one week apart on the same farm. The data indicated an increasing mortality due to MD from week 6 towards week 14, from 0.28 to 2.72% in the first series and 0.07 to 1.43% in the second one, with a cumulative mortality 3.26% and 2.28% respectively. There were no statistically significant differences between the weight gains of the two series on week 14 (peak of MD mortality), but it decreased in the first series (1398.7g versus 1478.00 g respectively) by week 16. Although the two episodes significantly differed in mortality (p<0.05), except a slight variation of the size of the flock, no other circumstances could have been identified as influential causes, the variability being attributed to differences in viral pathogenicity.

Key words: Marek's disease, Isa Brown pullets, mortality, variability, viral pathogenicity.

# MICROPHAGIC ACTIVITY IN HENS WITH MAREK'S DISEASE

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#### Abstract

Microphages represent the first line of defence against microbial aggression. The research aimed at evaluating phagocytosis during a Marek's disease episode in Rosso layers, showing ocular lesions, in spite of the vaccination at 1 day of age. Heparinized blood (50IU/ml) was subjected to the in vitro carbon particle inclusion test on days 0 and 15 of the episode. Two microliters of an India ink were added to 0.5ml of blood; 0.15ml of the mixture were transferred to 2ml of saline and the rest was incubated for 30min at 37°C and procedure repeated. Phagocytic activity index was calculated as the difference between the natural logarithms of the optical densities of the phagocytosis read spectrophotometrically ( $\lambda = 535$ mm, d = 1·cm) after centrifugation (2500 rpm for 10 min), divided by time. The values indicated a significant (p =0.0259) increase of the phagocytosis towards the end of the monitoring interval, thus indicating an evolving disease and underlining the probability of innate immunity being stimulated by the herpesvirus during the observation period. Specific cell-mediated immunity and functional levels of humoral immune effectors quantification could complete the pathogenic pattern in these birds.

Key words: Marek's disease, hens, phagocytosis, spectrophotometry.

# POTENTIAL BIOMARKERS FOR TESTICULAR CANCER IN DOGS - GROUNDWORK FOR INNOVATIVE SCREENING PROGRAMS: A REVIEW

### Florin-Petrișor POSASTIUC, Alexandru Ilie DIACONESCU, Nicolae Tiberiu CONSTANTIN, Cătălin MICȘA, Mario CODREANU

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#### Abstract

Testicular cancer is a frequently encountered pathological entity, which is distinguished by wide morpho-histological variability. Only recent research efforts were able to highlight, throughout advanced diagnosis techniques, certain biochemical, immunological and hormonal characteristics. In men, testicular cancer is one of the most common malignant oncopathologies, the usually affected age group being 25-35 years. Statistically, the increasing prevalence in humans can be correlated with veterinary in-field reports, an increase in canine testicular cancers being incriminated. Practically, 90% of the tumours with genital localization, in dogs involve the testicular parenchyma, this being the second most common site of neoplastic evolution in intact males. The aim of this paper is to review the existing data regarding potential biomarkers for testicular cancer in dogs such as the anti-Müllerian hormone, insulin-like factor 3,  $\alpha$ -fetoprotein, lactate dehydrogenase, c-KIT, CD-30, placental alkaline phosphatase and cytokeratins expression. The means of this paper is to lay the foundation for further research in order to establish proper screening protocols for testicular cancer similar to those used in human medicine.

*Key words*: testicular cancer biomarkers, dogs, anti-Müllerian hormone, insulin-like factor 3,  $\alpha$ -fetoprotein.

# SEROLOGICAL SURVEY OF SMALL RUMINANT LENTIVIRUS INFECTION IN A GOAT HERD FROM TRANSYLVANIA, ROMANIA

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#### Abstract

Caprine arthritis-encephalitis (CAE) is an economically significant viral disease of goats caused by a small ruminant lentivirus (SRLV) belonging to Retroviridae family. It causes considerable economic losses worldwide due to its progressively debilitating clinical course where arthritis is the most common clinical symptom. Little information is available regarding SRLVs infection in goats in Romania. The aim of the study was to investigate the presence of SRLV infection in a French Alpine goat herd from the central part of Transylvania. Blood samples were collected from all 58 animals present in the herd. The animals were adult female goats (> 1 year) and none of them presented clinical signs. The serum samples were tested using a commercial ELISA kit (IDEXX CAEV/MVV Total Ab). Twenty-four samples tested positive, which yielded a SRLV seroprevalence of 41.4% (CI 95%: 29.6, 54.2). The results of this study have shown a high prevalence of SRLV infection in a goat herd from the central part of Transylvania where the disease has not been previously reported.

Key words: SRLV, CAE, lentivirus.

# CASE STUDIES REGARDING THE HEMATOLOGICAL PARAMETERS IN POLYCYSTIC KIDNEY DISEASE IN CATS

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#### Abstract

Anemia is a common and potentially fatal complication of chronic kidney failure caused by polycystic kidney disease, leading to faster disease progression and increased mortality. Anemia is due to the loss of erythropoietin-producing cells in the kidneys or due to an inflammatory condition resulting in iron sequestration, bleeding from the gastrointestinal mucosa, reduced red blood cell survival due to uremia or consequent adverse drug effects and poor nutritional status.

The present investigative study was conducted on a number of 7 cats, of Persian, British Shorthair, and European breeds, with different sexes and ages.

In this study, hematological paraclinical investigations were performed in 7 cats, in order to detect a normochromic anemia, the resulting data being grouped in normal results in parameters in one patient, results with minor deficits in 4 cats and severe results in 2 individuals.

Key words: anemia, PKD, cats.

# PHOTOSENSITIVITY ASSOCIATED WITH Anaplasma spp. IN CATTLE: A CASE REPORT

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#### Abstract

Photosensitization, also known as photodermatitis is an abnormal reaction of the skin when exposed to light and is caused by accumulation of photosensitizing substances in the skin, resulting a severe dermatitis of unprotected and unpigmented skin. There are three types of photosensitization: (a) primary, in which photodynamic chemicals, or plant toxins, reach the skin through the circulation, (b) congenital porphyria, in which there is a metabolic defect in porphyrin metabolism and (c) secondary (hepatogenous), occurs when the capacity of the liver to excrete derived from the catabolism of alimentary chlorophyll, is impaired. This case report describes a 5-year-old pregnant Holstein cattle with hepatogenous photosensitization due to liver damage caused by anaplasmosis, manifested by thickening, serum exudation and necrosis of nonpigmented skin sharply demarcated from adjacent unaffected areas of pigmented skin. Anaplasmosis and responded favorably to oxytetracycline treatment. Photodermatitis treatment included local lanolin, aloe ointments and blue methylene, antiinflammatory and anti-histamine injections and avoidance of exposure of irritated skin tissues from sunlight.

Key words: cattle, hepatogenous photosensitization, Anaplasma spp., clinical management.

# HISTOPATHOLOGICAL ASPECTS OF AGONAL THROMBUS AND ITS ROLE IN AGONAL DEATH DIAGNOSIS - PRELIMINARY STUDY

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#### Abstract

The mechanisms of blood coagulation in cases of agonal death are rarely studied in veterinary and human medicine. Agonal thrombi are considered as being formed antemortem. Nevertheless, those are misdiagnosed as cruors because of some gross common features. This preliminary study aims to highlight histopathological differences between agonal thrombi and postmortem clots. Thirteen cases were included: ten domestic carnivores and three chickens. Agonal death diagnosis was established based on the clinical history and followed by standard necropsy and histopathological special staining techniques (Mallory and Masson Trichrome Stain) to highlight the fibrin deposition and pattern. Histological findings of intraventricular and intra-atrial agonal thrombi were similar in all cases and consist of: presence of Zahn's lines, layered display of fibrin deposition, intact or altered erythrocytes and mononuclear infiltration. One case displayed similar features in subepicardial veins. Histopathological examination of clots did not reveal the presence of fibrin deposition, nor Zahn's lines. Considering that in all cases of agonal thrombi the histopathological findings were different from the clots, the agonal thrombus can be associated with agonal death, ruling out the sudden death.

Key words: agonal thrombus, agonal death, sudden death, cruors.

# CLINICAL, NEUROLOGICAL AND IMAGING DIAGNOSIS ON CANINE AND FELINE INTRACRANIAL MASSES -A CASE SERIES REPORT

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#### Abstract

Intracranial masses are a large group of malign and benign structures, that can affect any system of the body, including the nervous system. Since the incidence of this pathology is influenced by several factors, this paper aims to present the epidemiological data collected from 58 cases – 41 dogs (70.68%) and 17 cats (29.31%) diagnosed in the Clinic of the Faculty of Veterinary Medicine in Bucharest between 2018 and 2020. The reviewed factors included signalment data like species, breed, age, and sex. Also, for each case, clinical and neurological deficits were analysed and the results were used to localize the lesion within the nervous system and to establish the differential diagnoses according to "VITAMIND" acronym. The confirmation and the anatomical site of the mass were recorded based on the imagistic features obtained on MRI. This study is limited only to a provisional diagnosis, as the animals included in the database were not subjected to a post-mortem examination.

Key words: neurological examination, brain mass, intracranial mass, nervous system MRI.
# CHANGES OF METABOLIC LIVER PARAMETERS ASSOCIATED WITH GENERAL ANESTHESIA IN DOGS AND CATS - REVIEW

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#### Abstract

The aim of this review is to examine the effects of different anesthetic drugs and protocols on hepatic functions. The liver is a very important organ since it is directly involved in biotransformation of the drugs used in anesthesia. Comprehensive understanding of anesthetic drugs and their effects on hepatic functions remains fundamental to a successful anesthesia. Understanding the connections that exist between anesthetic drugs and liver function remains essential for a safe anesthesia both during the surgery and in the post-operative period. Almost all anesthetic drugs depend on hepatic biotransformation into their metabolites that can be transported and excreted by the kidneys. If the liver enzymes are altered, the biotransformation of the drugs will be decreased and the recovery from the anesthesia prolonged

Key words: anesthesia, biotransformation, enzymes, liver.

# NANOTECHNOLOGY VERSUS OVERDOSING ANTIMICROBIAL SUBSTANCES

## Emilia UNGUREANU, Sergiu Dan ZĂBLĂU, Marina SPÎNU, Diana Ioana OLAH, Adrian Valentin POTÂRNICHE, Monica Ioana SUĂTEAN, Florina MARIAN, Gheorghe Florinel BRUDAŞCĂ

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#### Abstract

In the last century, antimicrobial therapy evolved from being one of the most important achievements in the history of medicine to one of the major global health challenges. The overdosing of antimicrobial substances was held responsible for the appearance and the worsening of the antibiotic resistance phenomenon. Thus, scientists were called to design and implement new strategies surmounting the shortcomings of the antibiotic therapy. Nanotechnology has revealed promising solutions to the overdosing problem by use of tailored antibiotic administration schemes, both as dosage and administration route. The aim of this review is to highlight the role of nanotechnology in preventing and controlling antibiotic resistance, also emphasizing its advantages and limitations, for a better understanding of the current trends. The paper is based on scientific articles and systematic reviews identified on the Web of Science database, centralized and classified according to specific keywords. Due to their unique physico-chemical properties, the nano-based delivery systems described could become an important mean of avoiding irrational employment of antibiotics by usage of the minimal clinically active amount.

Key words: antimicrobial resistance, nanoparticles, drug delivery systems.

# INTERDEPENDENCE OF ORAL MICROBIOME-HABITAL MICROBIOME AND ITS ANTIBIOTIC RESISTANCE IN HEALTHY DOGS

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#### Abstract

Antibiotic resistance is a growing phenomenon which involves a pronounced zoonotic risk. Healthy dogs can acquire antibiotic-resistant bacteria in their living environment, but also on occasional clinical examinations at the veterinary clinic where they are presented for consultation. In order to follow the way in which the microbiome transfer can be performed in a veterinary clinic to regular patients, saliva samples (n = 8) were collected from healthy dogs presented at a veterinary clinic in Cluj-Napoca. The bacterial population was also tested for resistance to antibiotics. The dogs were regular patients of the veterinary clinic, originating from different districts of Cluj-Napoca. Thus, the intersection between patients is performed only in the veterinary clinic. Samples were also collected from various surfaces in the consulting and waiting rooms. The samples were processed using classical microbiological methods and identified by rapid biochemical assays. The susceptibility to certain antibiotics was evaluated using agar diffusion method. In this study, bacteria of the same species were isolated from patients with different habitats, supporting the possible interchangeability of the microflora, probably in the case of repeated visits to the same office. The presence of a large number of strains involved in the oral microbiome associated with increased resistance to antimicrobials calls for the implementation of enhanced biosecurity measures.

Key words: dogs, saliva, bacteria, veterinary clinic, antimicrobial resistance.

# **EVALUATION OF BACTERIAL INVOLVEMENT IN AN EPISODE OF NEONATAL CALF DIARRHEA**

## Aurel VASIU, Emöke PÁLL\*, Marina SPÎNU, Sergiu Dan ZĂBLĂU, Emilia UNGUREANU, Monica Ioana SUĂTEAN, Gheorghe Florinel BRUDAȘCĂ, Diana Ioana OLAH

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#### Abstract

Diarrhea and digestive disorders represent one of the leading causes of mortality in calves during the first days of life. This study aimed to establish the level of antibiotic resistance of the flora identified in calves with digestive problems and also in their environment. Bălțată Românească calves aged up to three weeks, showing an increased morbidity/mortality from a farm in Braşov county, as well as their habitat were sampled. Eight antimicrobials used in ruminants and on this specific farm (penicillin, streptomycin, amoxicillin, gentamicin, oxytetracycline, tulathromycin, cefaclor, trimethoprim/ sulfamethoxazole) were tested for their efficacy against the bacterial isolates. The samples were subjected to standard microbiological examinations; subsequently, strains such as Escherichia fergusoni, Escherichia hermannii, Shigella dysenteriae, Proteus penneri, Morganella morganii ssp. siboni, Escherichia coli, Escherichia vulneris, with potentially high pathogenicity were identified. The highest antibacterial efficacy was observed with gentamicin. The MAR (multiple antibiotic resistance) index exceeded the value of 0.2 for each of the tested strains, indicating a high level of antibiotic resistance of the isolated bacterial population, thus supporting the inducive role of isolated species in the clinical episodes.

Key words: antibiotic resistance, neonatal diarrhea, calves, E. coli.

# ASSESSMENT OF THE ANTIBIOTIC RESISTANCE PROFILE IN MASTITIC MILK OF DAIRY COWS, DEPENDENT ON THERAPY AND CLINICAL CONDITION

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#### Abstract

Mastitis remains a major challenge for the global dairy industry, despite the widespread implementation of control strategies. Escherichia coli and Streptococcus uberis are the most common agents of mastitis in cattle and a significant problem for the dairy industry. The aim of this study was to establish the prevalence of bacteria involved in mastitis of dairy cows and to establish the antibiotic resistance profile, which frequently complicates the therapy. In order to achieve these objectives, samples (n = 25) were collected from cattle diagnosed with clinical mastitis and subclinical mastitis detected by biochemical assays. The samples were processed by standard microbiological methods and the results indicated an increased prevalence of Staphylococcus spp. and of microorganisms of the Enterobacteriaceae family. Isolated bacterial strains have shown significant resistance to antibiotics, especially to amoxicillin, while ciprofloxacin has proven the most effective. Thus, the early detection and correct treatment of clinical and subclinical mastitis is an important challenge for the economy and for the public health.

Key words: mastitis, E. coli, antimicrobial resistance, dairy cows.

# INTO THE MICROBIAL LIFE OF THE CAVES. PATHOGENS AWAITING IN THE UNDERGROUND

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#### Abstract

Caves frequently visited by animals or humans present reservoirs of pathogenic or conditioned pathogenic microorganisms. In recent years, numerous bacteria, fungi and viruses have been isolated and identified from caves as pathogens for humans and animals. Furthermore, through humans and/or animals, new types of germs can be carried into the normal microflora of caves, disturbing the microbial balance, making these locations sources of pathogenic germs with zoonotic potential. The most common diseases caused by microorganisms in caves are diseases located in the respiratory system. Visits to any underground environment should no longer be seen as a simple, risk-free tourist activity, but rather as one with potential risks to human and animal health. Numerous studies have been conducted worldwide on the diversity and abundance of pathogens in caves. In order to reduce the number of diseases associated with caves, it is necessary to raise awareness and educate about the possible dangers to people or animals that come in direct contact with such environments.

Key words: cave, microbiome, pathogens.

# ASSESSMENT OF LAMENESS SCORE AND MUSCLE ATROPHY AFTER EXTRACAPSULAR STABILIZATION OF CRANIAL CRUCIATE LIGAMENT RUPTURE IN TOY BREEDS

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#### Abstract

Ten dogs of different breeds, small size, were evaluated postoperatively, after cranial cruciate ligament rupture repair by the extracapsular method. The evolution of the lameness score and the degree of muscle atrophy were estimated at one month and three months postoperatively through discussions with the owners and/or physical evaluations. There were no pre- or postoperatively, both the lameness score and the degree of atrophy underwent changes compared to the preoperative stage or one month postoperatively. Although the evolution of the patients was adequate, without intra and postoperative complications, the extracapsular method does not completely restore, at 3 months, the function of the affected limb.

Key words: cranial cruciate ligament, toy breeds, extracapsular stabilization, lameness.

# ANIMAL PRODUCTION, PUBLIC HEALTH AND FOOD QUALITY CONTROL

# FRESHNESS INDICATORS, PHOSPHORUS CONTENT AND HUMIDITY CORRELATIONS IN WILD ANGLER FISH AND WILD MONK FISH SAMPLES (*Lophius* spp.) FROM THE NORTH SEA

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#### Abstract

The paper aimed to present the correlations between the freshness indicators (pH, TVB-N) and water content, phosphorus content and humidity, protein content and TVB-N (mg %) in wild Angler fish and wild Monk fish captured from the North Sea during naval expeditions aboard the research ship Walther Herwig III. It is based on the research data obtained at Max Rubner Institute Department of Safety and Quality of Milk and Fish Products Hamburg between 2013 and 2014. The processed data were the following indicators: pH, TVB-N, phosphates content, percent of water, salt, protein, fat and ashes. Correlations were made using chi square test. In the samples of Angler fish and Monk fish (Lophius spp.) analyzed (n = 77), there was a reasonable positive correlation (R2 = 0.44) between the pH values and the percentage of water, a very weak positive correlation between TVB-N and protein (R2 = 0.1). The percentage of water was between 81.8 and 91.5%, that of salt between 0.3 and 05%, that of protein between 7.88 and 16.5%, and the amount of phosphate between 0.9 and 3.7 g P2O5 / kg. It was found here that there is a high negative correlation between the amount of phosphate and the percentage of water, in Lophius spp. samples.

*Key words*: Lophius spp., freshness indicators, proximate analysis, phosphorus content, humidity.

# A COMPARATIVE STUDY OF CONVENTIONAL AND ARTISANAL SALAMI BASED ON THEIR PHYSICO-CHEMICAL, AND HISTOLOGICAL CHARACTERISTIC

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#### Abstract

Most conventionally produced salamis are characterized by typical characteristics of preserved meat, including colour, flavour, and significant concentrations of residual nitrates. This paper compares the physical, chemical, and histological characteristics of some salamis obtained conventionally and artisanally in Romania. Based on the results of the physicochemical evaluation, the raw-dried, boiled, and smoked products salami that was analysed fall within the requirements of Order 560/2006, but there are significant differences between samples taken from different producers. In products considered premium, changes in integrity parameters correlate with significant fluctuations in quality. It is important to note that since these are commercial products, they do not have a manufacturing and storage history. Despite this, our study suggests that: there is a large variation between traditionally and artisanal processed salamis. Compared to commercially produced products that were nitrite-treated conventionally, the amount of residual nitrite in most artisanal products was lower at sampling time Thus, nitrites and nitrates are introduced into most of these products indirectly, through components of other ingredients. According to the results of the histological examination, abundant blood vessels, connective tissue, adipose tissue, and nerve fibres were present. It has been stated that these occasional findings are inevitable as a result of the industrial processes.

Key words: salami, quality, integrity, microscopic structure, artisanal.

# STUDY REGARDING THE TRIGGERING FACTORS OF *Apis mellifera carpatica* SWARMING PHENOMENON

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#### Abstract

Swarming is the natural phenomenon that involves the reproduction of the bee species. The name swarm comes from one of the phases of the multiplication process that takes place in the form of a multitude of flying bees, with one or more queens and drones, forming in the air a globular shape, "swarm", on their way from the hive to the temporary or permanent destination. The study follows the importance of the favoring and the determining factors of Apis mellifera carpatica bees swarming, in order to develop good management strategies and describes the stages of the swarming phenomenon, from the preparation for swarming to leaving the hive. The main factors that led to the swarming of the four bee families were the overcrowding in the hive, the blockage of the hive with honey and pollen and the poor management of the apiary.

Key words: apiary, favoring and determining factors, swarming.

# USE OF A CALCIUM PARTICULATE AND FEEDING TIME ALONE OR IN COMBINATION WITH 25-HYDROXYHOLECALCIFEROL TO REDUCE FRACTURE SUSCEPTIBILITY IN LAYING HENS

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#### Abstract

The aim of this article is to present the possibility of reducing sternum fractures (KBF) in laying hens by using calcium particulate 2 hours before turning off the lights (CaT), alone or in combination with 25-Hydroxyholecalciferol (HyD). For the experiment, a total of 240 birds were used that were exposed to one of four treatment combinations in a 2X2 factorial design (Factor 1: CaT+ or Control (CaT-); Factor 2: HyD vs. Control (HYD-). All birds were housed in a commercial aviary until 33 weeks of age when they were moved to a test barn and randomly assigned to one of the eight pens (30 hens/pen). After one week of habituation to the novel housing, all birds began to receive one of the four treatment combinations (n = 2 replicate pens/treatment combinations). The ability of the treatment combinations to reduce fracture susceptibility was tested using an ex vivo impact testing protocol. After 39 weeks of age the keels were removed and scored for damage using an established three-point severity scale. The likelihood of an experimental fracture occurring in the CaT-/HYD- was 3.6 times more likely compared to the CaT+/HYD+ treatment (1.1 to 5.8).

Key words: laying hens, keel bone damage, calcium timing (CaT).

# STUDY REGARDING THE INFLUENCE OF STORAGE CONDITIONS ON THE QUALITY AND FRESHNESS OF FISH

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#### Abstract

The purpose of this paper is to determine the effect that two storage conditions, namely vacuum sealing followed by refrigeration and keeping in ice have on fresh fish, by analysing and comparing the main parameters that are of importance when it comes to fish quality, which is mostly given by its freshness. In order to establish their efficacy with regard to their preservation abilities, the results obtained from batches of fish kept in both conditions will be monitored and compared. When comparing the values obtained following the sensory exam using the Quality Index Method, the pH and the easily hydrolysable nitrogen assessment, even though the differences are not particularly striking, we can observe an increased rate of spoilage when it comes to vacuum sealed fish in comparison with the fish kept in ice. To conclude, given the data gathered during the study, it is safe to say that keeping fresh fish in ice is a more efficient method of storage when it comes to hindering the spoilation, both from an organoleptic and physicochemical point of view.

Key words: fish, freshness, preservation, Quality Index Method.

# MICROBIOLOGICAL CONTROL OF CULTURE MEDIA USED IN THE DIAGNOSIS OF FOOD POISONING AND PERFORMANCE PARAMETERS ON QUANTITATIVE AND QUALITATIVE METHODS

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#### Abstract

Being in a continuous evolution since 1860, when Louis Pasteur created the first liquid culture medium, microbiology is still developing in terms of culture media. A culture medium contains basic elements (water, nutrients), to which are added various supplements capable of contributing to the growth of the bacteria of interest, and at the same time, inhibiting the association flora. This study aimed for testing and optimization of special supplemented culture media used for diagnosis of food poisoning microorganisms. For this, performance criteria (productivity, selectivity, and specificity) of ten different culture media used for the identification and characterization of most common bacteria (i.e., Listeria monocytogenes, Salmonella spp., Escherichia coli and Staphylococcus aureus) involved in food poisoning, were investigated. For the evaluation of the performance parameters, artificial contamination was performed with Reference Materials (MR) represented by reference strains, on two levels of contamination (low and high) and blank samples. On the qualitative methods (detection of L. monocytogenes and Salmonella spp.), selectivity, specificity, accuracy, concordance and evaluation of the detection limit at 50% (LOD50) were tested; while, on the quantitative methods (enumeration of E. coli and S. aureus), repeatability, reproducibility, critical difference and measurement uncertainty were assessed. For the qualitative methods (detection of L. monocytogenes and Salmonella spp.), the evaluated parameters showed values between 82-100% and 0.429-0.564 cfu/25 g for LOD50, respectively. For the quantitative methods (enumeration of E. coli and S. aureus), the values obtained had a measurement uncertainty between  $0.24-0.26 \log_{10} cfu/g$ . The performance criteria (productivity, selectivity and specificity) of the culture media investigated were successfully achieved. These findings on the benefits of the addition of supplements for the culture media used to diagnose food poisoning provide further evidence of the importance of additional components with the role of enrichment, stimulation, inhibition, selection and highlighting of metabolic and enzymatic equipment.

Key words: culture media, microbiological performance, food poisoning.

# STUDIES FOR OPTIMISING THE COST OF ANIMAL HEALTH PROGRAM FOR AVIAN INFLUENZA IN ROMANIA

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#### Abstract

In the first half of the last century, avian influenza caused great losses in the poultry farming sector, practically all over the world, especially in Europe and is still causes.

*Methods*: Risk analysis, cost-benefit analysis and cost effectivennes analysis of eradication, control and monitoring program for avian influenza

**Results**: Biosecurity measures in the poultry industry - applying the "all-in, all-out" policy - are able to protect for avian influenza. The first line of defense against avian influenza is the early detection of outbreaks, followed by a rapid response. This is closely linked to the communication between veterinarians, farmers and the performance of veterinary services. People who come into close contact with infected poultry, such as the families of poultry owners and workers in this sector, remain at risk.

**Conclusions**: The risk analysis for AI identified as a major risk the location of the poultry farm in areas with a high density of migratory birds. Sensitivity analysis shows that, if more than 15% of the poultry population, are exposed to the risk of disease, the cost of the surveillance program is justified.

Key words: avian influenza, risk analysis, cost-benefit analysis, cost-effectiveness analysis.

# EXPERIMENTAL MEDICINE

# EVALUATION OF THE OSTEOGENESIS PROCESS AFTER SHEEP DENTAL EXTRACTION WITH THE PURPOSE OF CREATING AN IMPLANT BED FOR TESTING MEDICAL DEVICES

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#### Abstract

The essential conditions for a successful osseointegration of dental implants are bone support and the bone-implant contact area. The aim of this study was to evaluate an innovative treatment in sheep periimplantitis, carried out in three stages: preparation of the implant bed, fixation of the implants and induction of periimplantitis. In phase I was verified the process of osteogenesis following the premolars extraction. Ten sheep were prepared by putting them on a diet before surgery andby giving them antibiotics. Under inhalatory anesthesia, a total of 8 premolars/animal were extracted by dislocating each one, followed by rotational movements in the perpendicular axis and straight traction to the outside. A hemostatic sponge was inserted into the tooth alveoli and the gum was sutured. After extraction, the sheep received antiinflammatory and antibiotic treatment. During the monitoring period, the local and general clinical conditions were monitored, and bone regeneration was assessed by Computer Tomography. Clinically, the evolution was favorable, with no signs of discomfort, with gum scarring in 7 days and weight gain of 24-41%. Imagistic, a degree of bone atrophy within physiological limits could be observed, and the density of the neoformation bone tissue showed an optimal regeneration. Through the approached technique we provided a favorable environment for performing the next stages of the study, the osteogenesis process being validated both clinically and paraclinical. We also propose this method for flocks of sheep with dental diseases

Key words: osteogenesis, sheep, tooth extraction.

# HISTOLOGICAL EVALUATION OF TWO EUTHANASIA METHODS IN A TOXICITY STUDY IN LABORATORY RATS

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#### Abstract

Toxicity tests are mandatory preclinical regulatory studies for the authorization of a medicinal product. The testing protocol include a complete analysis of the possible toxic action of the tested product. The most complex and defining analysis is post-mortem histological analysis. Depending on the place of action of the tested product and to avoid the interference of euthanasia methods with the results of analyzes, different euthanasia methods may be chosen. In a study of toxicity in rats for a substance with action on the nervous system, two methods of euthanasia were chosen, namely anesthetic overdose and euthanasia by decapitation with deep sedation of animals. Histological evaluation of the main organs revealed congestion in the analyzed organs regardless of the euthanasia method used in most animals. Diffuse hemorrhage, perivascular edema and pulmonary edema have also been observed. Lesions were identified in both test and control groups, male and female. Statistical analysis showed significant differences between the two methods, euthanasia by overdose of anesthetic producing more lesions than decapitation, the latter being considered more appropriate for this type of study.

Key words: euthanasia, anesthetic overdose, decapitation, histological evaluation.

## THE RAT AS AN ANIMAL MODEL FOR THE EVALUATION OF THE CUTANEOUS WOUND HEALING

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#### Abstract

The healing of cutaneous wounds is a dynamic process including overlapping phases of inflammation, proliferation, re-epithelialization and remodeling. Proper wound healing is essential for the reestablishment of structural and functional integrity of the damaged tissue. Rodents are valuable biological tools for understanding tissue repair process and for developing effective treatment strategies, despite anatomical and physiological differences between human and animal skin. The purpose of the study is to evaluate the cutaneous wound healing assessment for an excisional wound model in rats, for further testing with innovative medical devices loaded with biological active compounds. CD-SD female rats were surgically operated to excise one full - thickness circular skin patch, 20 mm diameter, in the dorsal region. Patches applied were changed every other day and samples of wounds/scars were collected on the 7th and 14th postoperative days. Macroscopic monitoring and histopathological examination assessed the wound healing process over time. Results showed that rats provide an optimal animal model for cutaneous wound healing, as data obtained can provide valuable translational information and can contribute in optimizing treatment protocols.

Key words: wound healing, excision model, animal model, rat.

# HISTOPATHOLOGICAL AND GROSS CONSIDERATIONS OF INDUCED EXPERIMENTAL PERIODONTITIS IN RATS

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#### Abstract

Ten Wistar males rats were used for the induction of experimental parodontitis by placing a 5-0 cotton thread ligature on the first superior molar on the left side in the submarginal position. This stage was preceded by tooth scaling, root planning and soft movements of the molar in order to create an accumulation of plaque, flattening and the displacement of the gingival tissue, thus provoking an inflammatory response. After 7 days the ligatures were removed in all ten rats. The results obtained showed gross aspects of periodontitis and histological lesions as well, installed in the periodontum. Microscopically, an inflammatory response, neutrophils, bone necrosis, rarefaction and alveolar bone loss was observed. In conclusion, the tested procedure is able to provide all the key biological factors present in periodontal disease, whereas representing the adequate features for biomaterial testing domain.

Key words: chronic inflammation, periodontium, alveolar bone loss, biomaterial.

# **VETERINARY EDUCATION**

# PLATFORMS AND APPLICATIONS USED IN TEACHING AND CONSOLIDATION OF VETERINARY PHARMACOLOGY

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#### Abstract

In the last three years, the economic, social and health situation of the whole world has been deeply tested and not at all predictable. The way of life imposed by Covid-19 changed the paradigm of many human activities, of which education could not be an exception. Taken by surprise, at a very low level of digitization of teaching-learning activities, Romania has suddenly switched to online education. Thus, the use of platforms such as Zoom Video Communications or Microsoft Teams for teaching and moreover, avoided the freezing of the school and university year. The use of applications in support of learning, such as books creator, random cards or random wheel, have also proved their usefulness for consolidating knowledge of veterinary pharmacology.

Key words: teaching, consolidation, platforms, applications, pharmacology.

## DIFFERENT TRAINING METHODS USED TO IMPROVE LAPAROSCOPIC SKILLS IN VETERINARY SURGERY

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#### Abstract

Laparoscopic surgery is gaining popularity among the veterinary surgical community. Training in minimal-invasive surgery is nowadays recognized as a valid instrument for learning surgeons in different laparoscopic procedures. Laparoscopic surgery requires a unique subset of surgical skills that, for the inexperienced, can significantly prolonged surgery duration. However, its role as an evaluation test and self-assessment tool to verify basic laparoscopic surgical skills are still under discussion. A multimodality intensive laparoscopic training course should become a standard requirement for veterinary surgeons, allowing them to acquire basic and advanced laparoscopic skills on a routine basis. In this study, we demonstrate the role of simulation and training as a powerful tool to improve surgical technical skills. By gradually increasing the difficulty of the exercises, the trainee's can improve their manuality, manoeuvrability and adapt to the conditions imposed by minimal-invasive surgery.

Key words: education, laparoscopy, surgical simulation, skill assessment, training.

# ETHIO-EPIDEMIOLOGICAL ANALYSIS OF AN ABORTIGENIC OUTBREAK OF SALMONELLOSIS IN SHEEP

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#### Abstract

Abortion is one of the economically important pathological implications of salmonellosis in sheep. Salmonella enterica subspecies enterica serotype abortus ovis is the sheep-specific abortive serotype. Regional endemic salmonella abortions also lead to calving of dead offspring and reduced viability, diseases in lambs from infected dams. The present study focused on the description of two outbreaks of S. abortus ovis infection, with special reference to the epidemiological situation in Northwestern Romania, in the winter of 2020-2021. Two herds in which the morbidity rate (abortion) in the last period of gestation was between 13.92% - 16.66% were studied. Fetal parenchymal organs and gastric contents were harvested and processed using classical microbiological methods. Bacterial strains were confirmed by biochemical and serological methods and were identified as S. abortus ovis serogroup B, serotype BO. Antimicrobial susceptibility was evaluated using agar diffusion method. Multidrug resistance was found in six of these strains; all were resistant to sulfatrimethoprim and doxycycline, one to erythromycin and one to ciprofloxacin. In order to avoid economic damage in regions known to have enzootic potential, immunoprophylaxis in dams is strongly recommended.

Key words: Salmonella abortus ovis, serotype, multidrug resistance, sheep abortions.

# A COMPARISON OF ANTIBIOTIC RESISTANCE AND MAR INDEX IN WILD BOARS FROM COVASNA AND CLUJ COUNTIES

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#### Abstract

Due to the global decline of bacterial antimicrobial sensitivity, international organizations such as Word Health Organization, Food and Agriculture Organization, and World Organization for Animal Health consider it necessary to implement an integrative approach to the fight against antibiotic resistance in the light of the One Health concept. The purpose of the study was to investigate the degree of interchangeability of the antibiotic resistance of the isolated microbiome from wild boars and their living environment. The samples (n = 24) were collected from two hunting funds in Covasna and Cluj counties. The identification of microorganisms was performed using the Vitek®2 System and, subsequently, their susceptibility was evaluated using the agar diffusion method. The isolated strains were identified as Pseudomonas spp., Pseudomonas aeruginosa, Pseudomonas luteola, Brevibacterium spp., Aerococcus viridans, Aeromonas sobria, Campylobacter coli, Campylobacter lari, Staphylococcus aureus, and Streptococcus suis. The highest multiple antibiotic resistance index (MAR 0.666) was identified in strains isolated from Cluj County, while the lowest (MAR 0.111) was obtained in strains isolated from Covasna County. The results of this study further acknowledge the bacterial resistance in wildlife.

Key words: multidrug resistance, wild boar, bacterial microbiome, One Health.

# MISCELLANEOUS

# RESULTS OF THEORETICAL INVESTIGATIONS OF THE OPERATION OF THE TUBE OF THE MILKING MACHINE

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#### Abstract

The results of theoretical studies of the operation of the teat tube of the milking machine are presented. The teat tube is the most important element of any milking machine, since it directly interacts with the animal's udder. It is the degree of influence of the teat tube that determines the efficiency of milk transfer and milk yield in general. In the general case, the teat tube is made of elastic materials - rubber or silicone, therefore, when considering issues related to its operation, it is necessary to take into account the basic principles of the theory of elasticity in conjunction with the mechanics of solids and gases, as well as mathematical analysis. A theoretical equation has been obtained to determine the radial deflection of the working part of the teat tube of the milking machine, allowing to determine the relationship of deformation from the mechanical characteristics of the material used, the main design and dynamic parameters. This equation allows, when designing a suction milking machine with a squeezing effect, to determine the minimum required height of the element of the working part of the teat tube with a smaller thickness to create a wave effect of squeezing from the suction cup to the outlet part in the "compression" cycle. The simulation of the operation of the teat tube of the milking machine confirms the existence of a wave effect of squeezing along the working part of the teat tube from the suction cup to the outlet part in the "compression" cycle and indicates the possibility of using the design of the teat tube of the milking machine, which contributes to an increase in the intensity and completeness of milking out.

Key words: deformation, deflection, teat tube, milking, milking machine.



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