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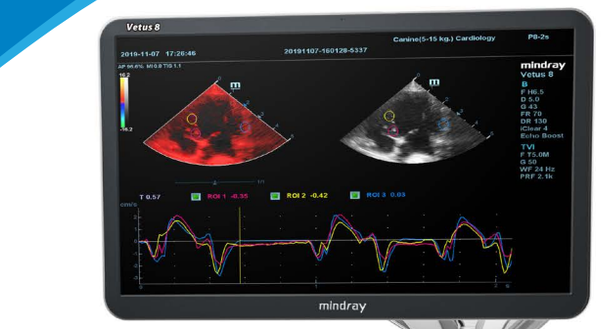

NEW
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CONTENT

PLENARY REPORTS

PLENARY REPORT

SARS-COV-2 AND COVID-19 – ARE WE WRONG SOMEWHERE?

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ABSTRACT

Human coronavirus diseases are of animal origin and COVID-19 is no exception. It is caused by SARS-CoV-2, which shares 96% genome identity with bat coronavirus RaTG13. However, the immediate ancestor virus, the equivalent of >99% sequence identity, remains elusive. More than a year after SARS-CoV-2 has entered human population, disease control, containment and treatment are still a challenge. Several major failures have combined to hinder the progress. First, mankind allowed undetected virus spread, thus maintaining consistently large pools of infected individuals. Second, the virus was allowed to maximize its population size and diversity. Third, a selection pressure is applied, facilitating antibody resistance mutations. Last, but not least, mankind started a rumor-mill, making full use of social media and scientific ignorance. Today, the time for laying the solid science of the new disease has come, in order not only to try running away from the complicated pandemic situation, but to steadily steer and control it.

SESSION
MORPHOLOGY, ECOLOGY AND LIVESTOCK BREEDING

O1MELB1

MOLECULAR ANALYSIS OF OVINE CALPASTATIN (CAST) AND MYOSTATIN (MSTN) GENES IN LAMBS FROM THREE BULGARIAN SHEEP BREEDS

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ABSTRACT

The aim of present study was to investigate the polymorphism of calpastatin and myostatin genes in sixty lambs from three Bulgarian sheep breeds – 34 lambs from Synthetic Population Bulgarian Milk (SPBM) breed, 13 lambs from Cooper-Red Shumen and 13 lambs from Karakachan sheep breed. CAST and MSTN genes are considered as candidate genes for meat and growth traits. Blood samples were collected and genomic DNA was extracted using commercial purification kit. Genotypes were determined by PCR amplification followed by restriction fragment length polymorphism (RFLP) method. Based on results, calpastatin gene was found to be polymorphic in lambs from SPBM breed but in the other two breeds it was monomorphic. Myostatin gene was monomorphic in all tested animals. The allelic frequencies in CAST gene were 0,91 for allele M and 0,09 for N. Genotype frequencies were 0,82 and 0,18 for MM and MN, respectively. Observed and expected heterozygosity for this locus were 0,163 and 0,176, respectively. Established polymorphism of CAST gene in SPBM lambs could be used in future research for detection of possible association between genotype and meat tenderness.

Keywords: sheep, calpastatin gene, myostatin gene, polymorphism, PCR-RFLP

O1MELB2

POLYMORPHISM OF ABCG2 GENE AND ITS EFFECTS ON LITTER SIZE AND MILK PRODUCTION OF SYNTHETIC POPULATION BULGARIAN MILK EWES

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ABSTRACT

The aim of present study was to investigate polymorphism of ABCG2 (ATP-binding cassette sub-family G member 2) gene and its effect on litter size and milk production. The experiment included 30 ewes of Synthetic Population Bulgarian Milk breed from Institute of Animal Science - Kostinbrod. For genotyping of ABCG2 locus it was used only PCR amplification using specific set of primers. As a result two alleles (D and I) and genotypes (ID

and DD) were established. The frequency of allele D was 0.68 and the frequency of allele I was 0.32. The genotype ID was with frequency 0.63 and genotype DD – with 0.3. In this experiment was studied the relationship between different genotype variants of the tested locus and litter size and milk yield. The comparative analysis was performed using the statistical method ANOVA but no statistically significant differences were observed.

Keywords: SPBM sheep breed, ABCG2 gene, polymorphism, milk producon, litter size

O1MELB3

STUDIES ON THE GASTROINTESTINAL PARASITES AND LUNG WORMS IN RED DEER (*Cervus elaphus* / Linnaeus, 1758) AND FALLOW DEER (*Dama dama* / Linnaeus, 1758) FROM SOUTH-WEST BULGARIA

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ABSTRACT

The fallow deer and the red deer are a valuable hunting object in our country. In order to obtain up-to-date data on the parasitological status, 47 fallow deer *Dama dama* (Linnaeus, 1758) and 15 red deer *Cervus elaphus* Linnaeus, 1758, after regular hunting were studied. The investigated red deer were from Regional Forest Directorate, Blagoevgrad (n=5), State Hunting Farm "Vitoshko-Studena" (n=2), SHF "Krichim" (n=3) and SHF "Iskar" (n=5). The fallow deer investigated were from RFD "Mesta" (n=2), SHF "Dikchan" (n=29), SHF "Vitoshko-Studena" (n=2), and SHF "Iskar" (n=14). Invasions with representatives of 3 classes of helminths-Trematoda, Cestoda and Nematoda, as well as with protozoa of the Coccidia subclass after parasitological examinations were found. Trematodes as members of the genera *Dicrocoelium* and *Paramphistomum*, cestodes as members of the genus *Moniezia* were determined. The obtained gastrointestinal nematodes as members of the families Trichostrongylidae Leiper, 1912, Molineidae Durette-Desset and Chabaud, 1977 (*Nematodirus*), Ascarididae Baird, 1853 (*Toxocara*), Trichuridae Railliet, 1915 and lung worms as members of the families Dictyocaulidae Skrjabin, 1941 and Protostrongylidae Leiper, 1926 were defined.

Keywords: *Cervus elaphus*, *Dama dama*, endoparasites

O1MELB4

ON THE GASTROINTESTINAL PARASITES AND LUNG WORMS IN MOUFLON (*Ovis aries musimon* / Pallas, 1811) FROM SOUTH-WEST BULGARIA

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ABSTRACT

A parasitological examination of fecal samples, liver, intestine and lungs from 36 mouflons were done. The materials were obtained after regular hunting in South-West Bulgaria. The materials are from Regional Forest Directorate, "Blagoevgrad" (n=1), State

Hunting Farm (SHF) "Mesta" (n=3), SHF "Dikchan" (n=31), and SHF "Iskar" (n=1). In partial helminthological autopsy of the lungs and examination of fecal samples with Baerman's method, invasion with lung nematodes of the family Protostrongylidae and their larvae were found. In partial helminthological autopsy of the liver and intestine, trematodes of the genus *Dicrocoelium*, cestode larvae (*Cysticercus tenuicollis*) and nematodes of the genus *Haemonchus* were isolated. After examination of fecal samples by method of Fulleborn, eggs of nematodes of genera *Nematodirus*, *Trichuris* and eimerial oocysts were found. After morphological examination of cultured larvae, invasions with representatives of the families Trichostrongylidae Leiper, 1912 and Chabertiidae Lichtenfels, 1980 were found. Ovoscopically examined fecal samples, after sedimentation showed the presence of eggs belonging to parasites from genera *Dicrocoelium* and *Paramphistomum*.

Keywords: *Ovis aries musimon*, endoparasites

O1MELB5

PREVALENCE OF ANTIBIOTIC-RESISTANT *ESCHERICHIA COLI* ISOLATED FROM SWINE FAECES AND LAGOONS

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ABSTRACT

The prevalence of antibiotic-resistant *Escherichia coli* isolatesa from three swine faeces and lagoons, according to ISO 16654:2001/Amd1:2017 was evaluated. The biochemical characterization and antibiotic sensitivity were investigated by Phoenix M50 and disc diffusion method, according to CLSI and EUCAST. Eight colonies from faeces and 8 from lagoons from a total 28 were confirmed by 16S rDNA PCR and evaluated to form biofilms. Some isolates showed phenotypic resistance to ampicillin, trimethoprim, trimethoprim/sulfamethoxazole, amoxicillin, tetracycline, chloramphenicol, etc. Their pathogenicity was determined by conventional and multiplex PCR. We investigated the prevalence of antibiotic-resistance genes to quinolones (*qnr*A and *qnr*B), aminoglycosides (*aac(3)*-IV), erythromycin (*erm*B) and *β*-lactam antibiotics (*amp*C, *bla*SHV, *bla*CMY and *bla*TEM) and proved the presence of *amp*C in 7, *bla*SHV/*bla*CMY/*bla*TEM in 1 and *erm*B in 1 isolates. All strains were negative for the virulence genes (ETEC (LT, STa and F4), EPEC (*eae*) and STEC/VTEC (*stx* and *stx*2all).

ACKNOWLEDGEMENTS: This study was supported by Grant: KP-06-N36/7 from 13 December 2019 (National Fund for Scientific Research, Republic of Bulgaria). We are greatfull to Grant: Clean&Circle BG05M2OP001-1.002-00 (Ministry of Education and Science, Republic of Bulgaria and European union, European structural and investment funds) for the provided equipment.

Keywords: ***Escherichia coli,*** **pig faeces, lagoons, antibiotic resistance, PCR methods, biofilms**

O1MELB6

DOUBLE VENA CAVA CRANIALIS IN THE PUG DOG – A CASE REPORT

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ABSTRACT

Extremely rare variation has been observed in a pug dog. The right cranial vena cava is normally represented, while the left cranial vein is described as an exception and very rarely in most domestic mammals except the rabbit, where the double hollow vein is normal. The different end in the right atrium of this extra vein can be misinterpreted as a pathology of the heart, which is visualized by imaging methods. The left cranial vena cava was first described in a pug by us, which is important in a radiological examination by a veterinary cardiologist.

Keywords: dog, left cranial vena cava, right cranial vena cava, pug.

O1MELB7

MORPHOLOGICAL STUDY ON THE MUSCULOSKELETAL SYSTEM OF THE FOREARM AND FORETIGHT OF THE BROWN BEAR (*Ursos arctos*)

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ABSTRACT

The purpose of this study is to investigate the bones and the muscles of the brown bear's (Ursos Arctos) forearm and foretight, regarding the functional significance related to their ability to climb and upright posture. Subsequent comparison with the dog, cat and human is performed. The target muscles were macroanatomically dissected on three bear's, one dog's and one cat's cadavers. The required data for the human musculoskeletal anatomy was collected from scientific literature sources. The differences of the bear's bones and muscular structures with the compared species were established and documented.

Keywords: brown bear, forearm, foretight, muscles, bones

O1MELB8

MACROANATOMICAL STUDIES ON THE BLOOD SUPPLY OF THE SPLEEN IN THE DOG

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ABSTRACT

The aim of the present study is to examine the arterial and venous vessels responsible for the blood supply to the dog's spleen. The vessels were visualized by corrosion and X-ray examination on five carcasses of mixed breed dogs. For the preparation of the corrosion casts, the polymer Biodur (Biodur Products GmbH, Germany) or Duracril-Plus® (SpofaDental, Kerr Corporation, USA)were introduced through *a.lienalis* and *v.lienalis*, colored red and blue, respectively. Barium sulphate introduced through the common carotid artery, and subsequently through splenic artery, was used for contrast radiographic examination. The main vessels and their branches of the dog's spleen were identified.

Keywords: spleen, dog, a.lienalis, v.lienalis, corrosion, radiography

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O1MELB9

COMPARATIVE MORPHOLOGICAL STUDY OF THE SUPPORTING MOTORCYCLE OF THE CHEST AND PELVIS BETWEEN BUFFALO (*Bos bubalus*) AND BOVINE (*Bos taurus*)

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ABSTRACT

In the present morphological study a comparison in the structure of the muscles and bones of the thoracic and pelvic limbs between buffalo and cattle has been made. Differences in the structure, presence or absence of certain muscles and bones of the limbs are described. *M. tibialis cranialis*, and the absence of *os sesamoideum metatarsale* has been observed in buffalo. The differences in the structurec of *m. peroneus tertius* on the hind limb and *m. flexor digitalis superficialis* on forelimb are noted.

Keywords: buffalo, cattle, muscles, limbs

O1MELB10

BASIC BIOLOGICAL AND TECHNOLOGICAL CHARACTERISTICS OF THE AQUAPONIC SYSTEM

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ABSTRACT

Aquaponics is a single ecosystem in which aquaculture and plants are in symbiosis. The technology is gaining popularity as a sustainable method of food production. This review

analyzes over 190 scientific publications, dissertations, theses and books on aquaponics, from 1974 to 2021. The analysis of the biological characteristics includes: the peculiarities of the species; their relationship with nutrition and environmental conditions; optimizing symbiosis; nutrient content, effect on productivity and improving their availability. The analysis of the technological indicators characterizes: structural and functional elements; operations and procedures to transform the given into the necessary; environmental management methods; the means to achieve maximum applied results and the economic feasibility of the system. Based on the study of the relationship between the biological and technological characteristics, conclusions and recommendations can be made concerning both the scientists and other stakeholders about the advantages and challenges of the aquaponic system.

Keywords: aquaponics, aquaculture, plants, beneficial bacteria, sustainability

O1MELB11

AMPLITUDE-FREQUENCY MODULATION - A CHARACTERISTIC OF CANINE SOUNDGRAMS

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ABSTRACT

The present research aims to discover the amplitude-frequency characteristic of 102 recorded and prepared soundgrams of 6 canines associated with different and concrete behavioral reactions.We summarized the results as follows: average frequency value 979.48 Hz, lowest registered frequency 81 Hz, highest frequency 2912 Hz, average value for the highest intensity 88.22 dB, average value for the lowest intensity fractions 7.513 dB, lowest marked amplitude 10.4 dB and highest amplitude from the recorded sound signals 62.9 dB.The applied method allows reading the sound signals in dynamics and thereby an accurate and precise visual idea of the modulated syllable encoded in the signal is achieved. Such methodology successfully decodes even the tiniest pattern in canine communication signals in different and concrete behavioral reactions. The data collected through the soundgram analysis can serve as a baseline in the classification of bioacoustic vocalizations.

Keywords: saundgram, computer analysis, amplitude and frequency modulation

O1MELB12

LEAD MICROPARTICLES IN GAME MEAT PRODUCTS – POTENTIAL RISKS FOR INGESTED EXPOSURE

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ABSTRACT

The present research describes a study of homemade meat products of wild boar shot with lead ammunition. Initially, X-ray radiography of the entire batch of sausages was performed to ascertainment the presence of larger lead fragments. Afterwards, visibly

uncontaminated parts of sausages were examined using 3D scanning microtomography and the presence of lead microscopic particles was found. The results of quantitative analysis reported a high mean lead concentration than the maximum permitted levels according EU Regulation 1881/2006.

Keywords: lead ammunition, row meat products, radiography, scanning microtomography, quantitative analyzes

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P1MELB1

ASSOCIATION OF BETA-LACTOGLOBULIN (LGB) GENOTYPES WITH QUALITY COMPOSITION OF MILK AND COAGULATION PROPERTIES IN BULGARIAN BLACK-AND-WHITE CATTLE

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ABSTRACT

The aim of the present study was to establish the relationship of LGB genotypes with the traits characterizing the qualitative composition of milk and its coagulation ability in cows of the BBW cattle. Milk proteins' polymorphism was evaluation in 132 tissue samples from cows reared at 4 farms by PCR-RFLP analysis. During the study, the following parameters were studied: daily milk yield (kg), fat and protein contents (%), rennet coagulation time, curd firmness and curd firming time. The presence of 2 alleles of LGB - A, B, which determine three genotypes - AA, AB, BB. Homozygous animals carrying the BB genotype of LGB are characterized by the highest average daily milk yield - 31.00 kg. It was found that animals with genotype AA produce milk with the highest fat content - 3.90%, the fastest rennet coagulation time - 19.82 min and the hardest coagulum - 25.99 mm.

Keyswords: LGB, genotypes, BBW cattle, coagulation, milk.

P1MELB2

ETIOLOGY OF ACUTE RHINITIS IN DOGS, REARED UNDER DIFFERENT FARM TECHNOLOGICAL SOLUTIONS

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ABSTRACT

An investigation out about the influence of rearing conditions to acute rhinitis in 83 German Shepherd dogs at 8-10 months of age was carried out. The animals were reared in farms with two different technological solutions: individual boxes or double box with central corridor. The premises were built by materials with different thermal conductivity coefficients. The purpose of the study was to analyze the leading cause of acute rhinitis occurrence: rearing technology or thermal conductivity properties of premises. It was shown that the main cause for the development of rhinitis in dogs was the high thermal conductivity

coefficient ($\lambda \geq 5,0$) of construction materials used in farm facilities where animals were housed.

Keywords: rhinitis, dogs, rearing condition, etiology, thermal conductivity

P1MELB3

FUSARIOTOXINS CONTAMINATION IN CEREALS FOR FEED PRODUCTION IN THE PERIOD 2018-2019

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ABSTRACT

The occurrence and concentrations of zearalenone and deoxinivalenol in feed materials are presented in this survey for the period 2018-2019 crops. A total number of 177 representative samples of wheat (n=70), barley (n=65) and maize (n=42) collected from differerent regions of Bulgaria were analyzed by Enzyme-Linked Immunosorbent Assay method. Favorable substrates for the accumulation of fusariotoxins are maize, wheat and barley. The highest zearalenone concentration of 168 µg/kg was detected in maize samples followed by barley of 156,78 µg/kg and 143 µg/kg in wheat samples. The results obtained in this survey revealed that mycotoxins produced by *Fusarium spp.* are frequent contaminants of feed grains in Bulgaria. The highest detected concentration of deoxinivalenol was 2,86 mg/kg in maize samples, 2,29 mg/kg in barley, and 0,782 mg/kg in wheat samples. The reported pollution levels are lower than those referenced in the European regulations. Despite the low levels, the results show the need for more comprehensive research on these two mycotoxins in feed materials.

Keywords: mycotoxins, wheat, barley, maize, ELISA

P1MELB4

LACTATION CURVE OF THE SHEEP FROM BULGARIAN DAIRY SYNTHETIC POPULATION

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ABSTRACT

The aim of the study was to analyze the lactation curve of sheep from Bulgarian Dairy Synthetic Population depending on milk-yield test day and parity. The analyzed data included 7,920 test-day records of 628 ewes from the herd of Agricultural Institute – Shumen, during the period 2009-2019. A mixed linear model was used and the analytical hypothesis included the factors: year and month of lactation, parity, type of lambing, test day (related to the lactation curve), suckling period, permanent effect of environmental changes, genetic value of the animal, random residual effects. The study established typical, relatively flat lactation curve varying in dependane on test day and parity. Test-day milk yield is above or equal to

the overall average in the primiparous ewes, close or slightly lower at 2nd to 5th lactation and substantially lower from at 6th to 8th lactation.

Keywords: sheep, Bulgarian Dairy Synthetic Population, milk productivity, lactation curve, Test-day model

P1MELB5

INFLUENCE OF MILK PROTEIN GENOTYPES ON MILK YIELD FOR THE CONTROL DAY IN BROWN CATTLE

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ABSTRACT

The aim of the present study was to determine the influence of milk protein genotypes on milk yield for a control day in Brown cattle. The analysis included 155 animals kept in 4 herds in different regions of the country, regardless of their parity and lactation days. The analyzes were based on the hypothesis that the variation in milk yield for the control day was caused by genetic and environmental factors. The factors of parity and herd - year - season, as well as the genetic factors CSN_3 and LGB, have a highly reliable influence on the average daily milk yield for a control day. The animals with the BH genotype of CSN_3 have the highest average daily milk yield - 24.30 kg, followed by those with AB - 18.87 kg. Heterozygous animals with different genotypes of milk proteins are characterized by close values of daily milk yield for the control day.

Keywords: milk yield, factors, genotype, Brown cattle

P1MELB6

COMPARATIVE STUDY OF THE HEAVY METAL LEVELS IN THE GREY MULLET (*Mugil cephalus*) FROM THE NORTHERN AND SOUTHERN BULGARIAN BLACK SEA COAST

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ABSTRACT

The heavy metals pollution of aquatic ecosystems is a serious environmental threat that affects aquatic biomes and organisms. In this regard, various fish species which can accumulate heavy metals are valuable bioindicators of water pollution. The aim of the present study was to determine the levels of As, Pb, Cd, Hg, Mn, Zn, and Al in Gray Mullet (*Mugil cephalus, Linnaeus, 1758*). The samples were collected during the fishing season between June and September 2020 from Varna and Burgas regions. The concentrations of lead, cadmium, and mercury were below the maximum allowable values, and this trend was observed for both studied areas. The element with the highest concentration for the Varna region was manganese and for Burgas - zinc.

Keywords: heavy metals, Grey Mullet, *Mugil cephalus*, Black Sea

P1MELB7

HEAVY METAL CONCENTRATIONS IN TURBOT (*Scophthalmus maximus)* FROM BULGARIAN BLACK SEA COAST

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ABSTRACT

Turbot (*Scophthalmus maximus, Linnaeus 1758)* is a marine bottom fish and is considered to be one of the most commercialy valuable species in Black Sea. The aim of this survey was to determine the heavy metal concentrations in turbot tissue from the Bulgarian part of the sea. Samples were collected during the fishing season between June and September in 2020 from Varna and Burgas regions. Metals were determined using ICP-MS (Inductively Coupled Plasma - Mass Spectrometry). The order of the levels of the heavy metals in the fish samples was Zn > Al > Mn > As > Hg > Pb = Cd from Varna and Zn > Al > As >Mn > Hg > Pb = Cd from Burgas. The current data has demonstrated higher concentrations of Mn and Zn from Varna. According to the obtained results Pb, Cd, Hg levels in the tested turbot samples were within the limits set by the EC regulations.

Keywords: heavy metals, *Scophthalmus maximus*, turbot, Black Sea

P1MELB8

STUDY OF THE EFFECT OF ELECTROACTIVATED WATER – CATHOLYTE ON THE INDICES PRODUCTIVITY OF DUCKS

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ABSTRACT

The effect of catholyte taken per os, *ad libitum* (for 1 month) on the productivity of ducks (*White Pekingese duck*) at 8 weeks of age was studied. The indices live weight, length of the tarso-metotarsal bone, length of the beak were measured periodically - at the beginning of the experiment, on the 15th day of watering with catholyte and on the 30th day. The same measurements were made on animals in the control group, had been watering *ad libitum* with tap drinking water. The following indices productivity are determined: weight development and growth, fodder consumption, energy and crude protein - accepted fodder and nutrients; accepted feed, energy and protein per day per bird; utilization of energy and protein; weight development and average daily gain per bird for the ducks in the experimental and control groups. The analysis of the results shows higher values of the productivity indices of the ducks from the experimental group (drinking catholyte) compared to those from the control group (watered with tap water).

Keywords: *White Pekingese duck, indexes productivity, electro activated water catholyte*

P1MELB9

HEAVY METAL LEVELS IN MEAT OF SPINY DOGFISH (*Squalus acanthias)* FROM BULGARIAN BLACK SEA

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ABSTRACT

Environmental pollution with heavy metals and other toxic elements can serve as a predisposing factor for a various types of human diseases. Their accumulation in aquatic organisms used for human consumption increases the risk for daily intake of low doses of heavy metals. The Black Sea spiny dog (*Squalus acanthias, Linnaeus 1758*) is a cartilaginous fish predator belonging to the spiny shark family. This demersal fish belongs to the common monitoring species in Bulgaria and Romania in terms of pollution of the Black Sea. In this regard, the aim of the present study was to determine the concentrations of As, Pb, Cd, Hg, Mn, Zn and Al in shark meat samples, caught from our northern Black Sea coast (Varna region). The element with the highest concentration was arsenic. Mercury levels have been found to be above the permissible levels set out in European and national legislation, which poses a potential health hazard risk for the consumers.

Keywords: heavy metals, spiny dogfish, *Squalus acanthias*, Black Sea

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P1MELB10

EUROPEAN AND BULGARIAN LEGISLATION RELATED TO FOOD PROCESSING AND APPLICATION OF HPP (HIGH PRESSURE PROCESSING)

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ABSTRACT

The subject of the present study is to analyze the European and Bulgarian legislation related to high-pressure processing. Regulation (EC) (178/2002) lays down the general principles governing food and feed in general. The food business operators must keep those rules to ensuring that the requirements of food laws are met within the food business under their control. The main requirement is set out in Article 14 (1) which states: "Food shall not be placed on the market if it is unsafe." All operators carry out the applicable processes in their manufacture described in Annex I and obey the general hygiene requirements in Annex II to Regulation 852/2004. The specific requirements for food production are represented in Regulation 853/2004. In the studied legislation, High-pressure technology is not described as a method of food processing, despite its indisputable positive qualities regarding the hygiene and safety of food products.

Keywords: European and Bulgarian legislation, High pressure processing, food industry, shelf life

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SESSION
NON-INFECTIOUS PATHOLOGY

O2NIP1

RECURRENT LARINGEAL NEUROPATHY IN HORSES - CLINICAL FEATURES AND DIAGNOSTIC APPROACH

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ABSTRACT

The present study included 18 horses with respiratory problems expressed in breathless and stridors (wheezing, snoring). Endoscopy of the upper respiratory tract confirmed a different grade of left sided laryngeal paresis. In majority of cases (12 horses), the mildest (second degree) hemiplegia was detected. In four animals grade 3 hemiplegia was confirmed. Two horses were diagnosed with complete (fourth degree) paralysis of the left arytenoid cartilage. Ten horses were diagnosed with the following concomitant abnormalities: dorsal displacement of the soft palate (three horses), entrapment of the epiglottis (two horses), rostral dislocation of the palatopharyngeal arch, the presence of blood in the trachea (three horses). No significant deviations in clinical parameters, incl. internal body temperature, heart and respiratory rate, color of visible mucous membranes, capillary time, were documented. The blood parameters (erythrocytes, hemoglobin, hematocrit, platelets, leukocytes, DBC, erythrocyte indices, total protein, albumin, total and direct bilirubin, creatinine, urea, GGT, Alkaline Phosphatase) showed no deviations from physiological range.

Keywords: horses, larynx, neuropathy, endoscopy

O2NIP2

ULTRASOUND AND HEMATOLOGICAL EXAMINATIONS IN A MARE WITH PERITONITIS AND PERICARDIAL EFFUSIONS

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ABSTRACT

In the present study, a spontaneous clinical case of concomitant peritonitis and pericarditis in a mare is reported. The main reason for the patient's admission to the clinic were moderate signs of colic for 3 days. Auscultation of the heart area revealed muffled heart sounds and palpation a presence of pericardial friction. The clinical examination established an elevated body temperature, hemorrhagic mucous membranes, accelerated heartbeat and tachypnea. Blood tests revealed a leukocytosis, neutrophilia, and thrombocytopenia with decreased hematocrit. Chemistry analize of blood established a hyperglycemia and increased activity of CK, LDH, ASAT and AP enzymes. The ultrasound examination of the chest and abdomen confirmed the presence of echoic fluid in pericardial and abdominal cavities. The

aspirated liquid mass after abdominal puncture was hemorrhagic with high number of leukocytes (185 G/l) and protein content (42 g/l) (exudate).

Keywords: horse, pericarditis, peritonitis, ultrasound, hematology

O2NIP3

LABORATORY DIAGNOSIS OF THE PANCREATIC INFLAMMATION IN DOGS - REVIEW

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ABSTRACT

The goals of laboratory tests are reduced to non-invasive diagnosis, the cause of its occurrence, and determination of the prognosis. The laboratory diagnosis of pancreatitis is based mainly on elevated levels of pancreatic enzymes. Serum amylase and lipase have "traditionally" been used to diagnose acute pancreatitis in animals and humans. When interpreting the results, it should be borne in mind that a large number of factors affect their values. The levels of some pancreatic enzymes are a sum of tissue production and their clearance. Pancreatic enzymes are also produced by non-pancreatic structures, a fact that further limits the specificity of the enzyme assay. In general, higher enzyme levels give a better chance in the diagnosis of acute pancreatitis. On the other hand, low or normal concentrations of these enzymes do not rule out the possibility of acute pancreatitis.Due to the described limitations, neither amylase nor lipase could be recommended as an unconditional diagnostic test, and their interpretation must be combined with other laboratory findings.

Keywords: pancreatitis, dog, ALT, AST, laboratory diagnosis

O2NIP4

DEVELOPMENT AND OUTCOME OF FELINE INJECTION - SITE SARCOMA (FISS) IN AN ADULT MALE CAT - CASE REPORT

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ABSTRACT

Feline injection - site sarcomas (FISS) are aggressively behaving fibrosarcomas with rate of metastasis ranging from 10 to 28%. The main treatment of soft tissue sarcomas is surgical excision with subsequent radiotherapy and systemic chemotherapy. We present a case of an adult male cat with recurrent fibrosarcoma, which anamnesis and aggressive tumor development pointed to FISS. Fine needle biopsy first suggested and then histopathology proved this diagnose. Two months after the surgery a new tumor mass appeared on the site of excision, rapidly penetrated the abdomen wall, occupying almost entire abdomen, affecting internal organs and the right lumbar region muscles. X-ray examination showed strong infiltration of adjacent tissues. Appeared central necrosis provoked fistulation and formation of a large ulcerative wound in the state of a constant inflammation and tissue disintegration.

The local treatment failure and the progressing poor general condition leaded to carry out a humane euthanasia of the animal.

Keywords: FISS, recurrent fibrosarcoma, metastasis, histopathology

O2NIP5

INFLUENCE OF THE IMMUNOMODULATOR "AVIGEN" ON THE NATURAL RESISTANCE OF ROSS HYBRID BROILERS

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ABSTRACT

Some basic indicators of nonspecific immunity in ROSS 308 hybrid broilers receiving a polybacterial immunomodulator were studied by enzyme-linked immunosorbent assay and spectrophotometric methods. The experiments were performed in flocks of broiler breeders and broilers under production conditions. In the control herds - under the same breeding conditions and in compliance with the prophylactic programs in the farms, including the accepted antibiotic therapy. The birds from the experimental flocks were raised without the use of antibiotics. As a result of the performed studies, we found higher concentrations of lysozyme, IFN γ, IL-2; IL-6 in experimental herds receiving the immunomodulator compared to controls. For example, in the experimental broiler herd, we found twice as high levels of serum lysozyme relative to controls: 6.17 ± 0.49 mg / L and 2.99 ± 0.27 mg / L, respectively. The activity of complement (CH50) in the blood serum of broilers treated with "AVIGEN" - 549.00 ± 19.69, also significantly exceeded the values in the control herd - 377.40 ± 9.58. We received similar results from broiler breeders. Serum IgY concentrations showed a significant difference in adolescent broiler breeders but not in broilers. We tracked the changes in bursa Fabricii by histological methods. Under the influence of the immunomodulator «AVIGEN» in the bursae of experimental birds, we observed delayed involution and good functional activity, while in the controls, involution processes were advanced and accompanied by follicle death and connective tissue growth. The morphological and functional activity of the bursa Fabricii contributes to the increased natural resistance in the birds treated with the immunomodulator, which enabled their breeding without the use of antibiotics in production conditions.

ACNOWLEDGEMENT: The scientific research in this publication has been carried out by the author team under project № КП-06-ПН36/9, funded by The Bulgarian National Science Fund (BNSF), Bulgaria

Keywords: lysozyme, complement, IFN γ, IL-2; IL-6, IgY, bursa Fabricii, immunomodulators, biotechnology

O2NIP6

ERYTHROPOIETIN STIMULATED BONE REGENERATION

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ABSTRACT

Bone defect occur as a result of infection, fracture, tumor extirpation, congenital malformation or periodontal diseases. Over the years autogenic bone graft is the gold standard in treating them, whereas today natural or synthetic bone substitutes could be applied in the defect. The main disadvantage of using bone grafts or substitutes is the insufficient blood supply, which means that those materials should be combined with angiogenic factors, stimulating the formation of new blood vessels. Numerous authors suggest that erythropoietin has not only a physiological role in the erythropoiesis, but also has few additional functions, e.g. pleiotropic functions. Important for the skeletal regeneration are it's angiogenic and osteogenic potential. The aim of this study is to evaluate the effect of the complex application of local erythropoietin and cancellous bone granules on the bone healing process. For this purpose experimental calvaria bone model was used in rats. The experiment was performed with 12 Wistar male rats, six months old. In each rat two standardized calvaria defects with critical size of 5 mm were created. On the right one was applied the xenograft and collagen membrane, soaked with saline, whereas on the left one – xenograft and collagen membrane, soaked with erythropoietin. Bone regeneration process was evaluated on the 30th and 90th day after the surgical procedure by performing radiographic, computed tomographic and histological examinations. In the same periods to assess the systemic effect of the erythropoietin blood samples were collected and erythrocytes, hematocrit and hemoglobin were measured.

Keywords: erythropoietin, calvaria, bone healing, rats

O2NIP7

ALPHA LIPOIC ACID - EFFECTS AND APPLICATIONS

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ABSTRACT

Alpha-lipoic acid is one of the most powerful antioxidants used in humans and animals. Many of its effects have been proven: antioxidant, antidiabetic, anti-inflammatory, immunomodulatory, analgesic, as growth promoter. Numerous clinical studies have been shown the effectiveness of alpha-lipoic acid in diseases in which the antioxidant balance is disturbed. Alpha-lipoic acid reduces the complications of diabetes such as neuropathy, nephropathy, retinopathy and vascular damage, it improves insulin resistance. In veterinary practice, alpha-lipoic acid is used as a component in supplements for dogs, cats, pigs and birds. The aim of this review is to present new data about its therapeutic application.

Keywords: alpha-lipoic acid, antioxidant, diabetes, immunomodulatory properties

O2NIP8

HABERLEA RHODOPENSIS - EFFECTS AND POTENTIAL APPLICATIONS

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ABSTRACT

In recent years, interest in plant, natural products as an alternative to conventional ones has increased. Since ancient times the plant Rhodope silivryak (*Haberlea rhodopensis* Friv.) has been known for the treatment of humans and animals. The plant is also called Orpheus' flower refers to the "resurrecting" plants and it is spread in the Rhodopes Mountains. A number of properties have been studied and described: antioxidant, radioprotective, antimicrobial, antimutagenic, anticancer, immunostimulatory, chemoprotective, cytotoxic and anti-aging of Haberlea rhodopensis. Its essential components are quercetin, ferulic acid, caffeic acid, myconoside, syringic acid, hesperidin, luteolin, sinapic acid. H. rhodopensis extracts did not show any cytotoxic activity. The aim is to review the properties of *Haberlea rhodopensis* and the possibilities for its use in phytotherapy, human and veterinary medicine and cosmetics.

Keywords: Haberlea rhodopensis, effects, components, application

O2NIP9

MICROBIOLOGICAL STATUS OF THE MAMMARY GLAND IN LACTATING SHEEPS

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ABSTRACT

The aim of the present study was to determine the microbiological status of the mammary gland in lactating sheeps of the Lacon breed. For this purpose, milk samples from purebred animals, raised in sheep farm located in central region of Bulgaria, were collected. The results show that in 46.6% of the tested milk samples from the farm, were not isolated any pathogenic microorganisms. From the positive samples, *S. xylosus* was most often found, in most cases in combination with the non-pathogenic streptococcus *L. lactis ssp. lactis*. Only in one of the samples a combination of two staphylococcal species was found - S. epidermidis and *S. xylosus*, with the presence of *L. lactis ssp. lactis*. The number of samples with isolated bacteria with pathogenic potential was 16 (53.3%). Only in seven of them (23.3% of all examined) the amount of detected staphylococci is over 10^4 CFU/ml. No Gram-negative bacteria were isolated from any of the milk samples. The sensitivity of the isolated bacteria from milk samples to antibiotics from different groups is significant. Resistance has only been established to Colistin, Kanamycin, Amikacin and Gentamicin. The mean values of somatic cells in infected and uninfected halves were 1361058 ± 361307.34 and 171000 ± 36586.04, respectively.

Keywords: sheep, mastitis, microorganisms, antibioticogram

O2NIP10

COMPARATIVE ECHOCARDIOGRAPHIC EXAMINATION OF DOGS WITH MYXOMATOUS MITRAL VALVE DISEASE DEPENDING ON THE PRESENCE OR ABSENCE OF PULMONARY HYPERTENSION

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ABSTRACT

We found no significant differences in the echocardiographic sizes LA / Ao, LVID-d / Aow and LVID-s / Aow in the examined dogs with myxomatous mitral valve disease (MMVD) after their separation depending on the presence or absence of pulmonary hypertension. For the same echocardiographic dimensions we found a high degree of correlation with Mitral Valve E (m / sec). This in our opinion shows that the time of impact of the increased left atrial pressure is crucial for the progression of pulmonary hypertension.

Keywords: dogs, correlation, echocardiographic, size, pulmonary, hypertension

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O2NIP11

NANOPARTICLES, CAPPED WITH NON-NATURAL AMINO ACIDS, FOR AN APPLICATION IN TARGET DRUG DELIVERY

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ABSTRACT

Some non-natural or non-proteinogenic amino acids have a physiological role as drugs or neurotransmitters. Due to this reason, they offer an attractive potential as capping agents of nanoparticles as drug delivery nanosystems for a wide application in the nanomedicine. The purpose of this report is to present a systematic examination of the non-proteinogenic derivatives of indene and dione containing aminoacids and peptides as capping agents of metal nanoparticles and nano-scale liposomes. The liposomes might encapsulate small drugs like molecules and future developed as alternate drug delivery vehicles. Our interest is particularly focuses also on the relationship between structure, preparation and the induced physiological response. The conjugation of non-natural aminoacids or peptides to nanoparticle delivery systems open a great promise for development of novel platforms and new therapeutic formulations for transportation of various bioactive cargoes.

Keywords: drug delivery nanosystems, non-natural amino acids, indene and dione derivatives

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O2NIP12

CHANGES IN THE HEMATOLOGIC RESULTS AFTER EXPERIMENTAL APPLICATION OF BONE MARROW, PLATELET RICH PLASMA AND HYDROXYAPATITE IN CRITICAL-SIZED BONE DEFECTS IN RABBITS

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ABSTRACT

In the perioperative period, surgical patients are subjected to stress of various natures, which can affect some of the blood parameters. The assessment of the impact of surgical intervention and anesthesia on these indicators is essential for regeneration and therapy in the postoperative period. The studies were performed on 32 rabbits, previously dewormed and adapted to living conditions. Blood was obtained from *v. cephalica antebrachii* 24 hours before and 24 hours after surgery, on the 7th, 30th, 60th and 90th day. A total of 18 morphological and 12 biochemical parameters were studied. The results were processed statistically. The main changes in the parameters were found at 24 hours after surgery, due to changes in metabolism during the intra- and early postoperative period.

Keywords: rabbit, fracture, bone marrow, PRP, anesthesia

O2NIP13

ANALYSIS OF DAIRY COWS AND THEIR CALVES' BLOOD BIOCHEMICAL PROFILES FROM BULGARIAN BROWN CATTLE BREED

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ABSTRACT

Present study was conducted to analyze the blood biochemical parameters of a total 271 Bulgarian Brown Cattle Breed and their calves. We evaluated the activities of aspartate aminotransferase (ASAT), alanine aminotrans-ferase (ALAT), alkaline phosphatase (ALP), acid phosphatase (ACP), albumin (Alb), total protein (TP), creatin-phosphokinase (CPK), total lipid (TL), calcium (Ca), ceruloplasmin (CP) in their serum. The cows was 2–12 years old, mean body weight 600 kg and the calves 1–9 months old. The cows were held in an intensive farm breeding premises. Their meal consisted of ordinary alfalfa, silage, hay and concentrates with energy and protein supplements. The Student t-test showed a significant difference ($P < 0.05$) in mean of the ASAT, ALAT, ALP, ACP, Alb, TP, TL, Ca, Cp between cows and calves of the breed. Mean values of the Alb, TP, CPK, Cp and Ca was higher in cow group than in calves group ($P < 0.05$), while ASAT, ALAT, ALP, ACP, TL was lower in cow in comparison to the calves group ($P < 0.05$).

Keywords: blood, biochemical parameters, ASAT, ALAT, ALP, Cp, calves

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O2NIP14

HEMIPENECTOMY IN IN A VEILED CHAMELEON (*Chamaeleo calyptratus*) AND A LEOPARD GECKO (*Eublepharis macularius*)

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ABSTRACT

Two clinical cases of home-grown reptiles with hemipenile eversion are presented – a leopard gecko with a unilateral prolapse of two days duration, and a veiled chameleon with bilateral prolapse of several weeks duration. After an unsuccessful attempt to manually reposition the everted hemipenes, surgical amputation was performed to avoid necrosis and infection. The patients were anesthetized using the combination of ketamine hydrochloride and butorphanol tartrate; also, lidocaine hydrochloride was administered for a local block. Hemipenectomy, as a surgical procedure with rare complications, is an appropriate solution in such cases as it preserves the patient's fertility in unilateral prolapse. The presented study has described the predispositions of this condition in some lizards from families Chamaeleonidae and Gekkonidae.

Keywords: hemipenile prolapse, hemipenectomy, hemipenis amputation, reptile, anesthesia

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O2NIP15

BLOOD BIOCHEMICAL PROFILE OF FREE-LIVING EUROPEAN BROWN HARE *(Lepus europaeus* / Pallas*)* FROM BULGARIA

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ABSTRACT

Estimation of blood biochemical profile in free-living hares may serve to determine their health status and metabolic state as an element of conservation strategies. The objective of the current study was to determine blood biochemistry values for a population of free-living European brown hares. Blood samples from 34 adult hares shot during regular hunting season in south-eastern Bulgaria, Europe (Kameno, Burgas region) were collected. The level and enzyme activities of alanine aminotransferase (ALAT), aspartate aminotransferase (ASAT), alkaline phosphatase (ALP), total protein (TP), albumin (ALB), glucose (GLUC), cholesterol (CHOL), triglycerides (TG), creatinin (CREAT), Urea (BUN), calcium (Ca), phosphorus (P) and magnesium (Mg) in serum were measured. All evaluated serum biochemistry values were within the physiological range with relatively low differences compared to references. Based on this we can conclude that there was an optimal health and nutritional status of the tested hare population.

Keywords: Biochemical parameters, brown hare, Lepus europaeus

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P2NIP1

INFLUENCE OF ELECTROCHEMICALLY ACTIVATED WATER ON THE BLOOD BIOCHEMICAL PROFILES OF WHITE PEKINGESE DUCK

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ABSTRACT

The aim of the current study was to determine the influence of electrochemically activated water (catholyte) on the blood biochemical parameters of domestic duck (*Anas platyrhynchos domesticus*). Blood samples from 20 ducks divided in two groups (experimental, n=10 and control group, n=10) were taken twice in order to estimate the dynamics of the potential alterations. The activities of alanine aminotransferase (ALAT), aspartate aminotransferase (ASAT), alkaline phosphatase (ALP), total protein (TP), albumin (ALB), creatinine (CREAT), urea, calcium (Ca), phosphorus (P) and potassium (K) in serum were measured. Results showed serum biochemistry values within the physiological range. Differences between groups were insignificant. It can be therefore concluded that treatment with electrochemically activated had neutral effect on blood biochemical profiles of the tested animals.

Keywords: electrochemically activated water, catholyte, domestic duck, biochemical parameters

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P2NIP2

TISSUE-PROTECTIVE ACTIVITY OF COTINUS COGGYGRIA ETHYL ACETATE EXTRACT IN A MOUSE MODEL OF BREAST CARCINOMA

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ABSTRACT

Smoketree is widely used as antiseptic, anti-inflammatory and hepatoprotective remedy. Our preliminary studies showed that the ethyl acetate extract has safety doses for oral application in mice. The aim of the present study was to evaluate tissue-protective effects of the above extract in a mouse model of Erlich's carcinoma. Mice, treated daily per os with 30mg/kg/d extract for 10 days, were inoculated with EhrlichвЂ™s tumor cells i.p. (ascite form of the tumor) or sub-cutaneously (solid form). Some of the animals were treated with extract during the whole experiment, while others were not. Controls were not inoculated. After 10 days, smears of the ascite and tissue sections from solid tumors and internal organs were stained with H&E and examined microscopically. Results: The organs of the animals with tumors had different pathological changes, less severely pronounced in the groups, treated with C. coggygria. Conclusion: The herb extract mitigates the pathological changes in the organs studied.

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Keywords: *Cotinus coggygria*, extract, Erlich's breast cancer, mouse model, pathomorphology

P2NIP3

ASSESSMENT OF THE EFFECTS OF NINE HEMOCYANINS ISOLATED FROM MOLLUSKS IN AN EXPERIMENTAL GRAFFI TUMOR MODEL

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ABSTRACT:

The present study examined the immunostimulatory and antitumor activity of hemocyanins and their subunits isolated from Helix aspersa, Helix lucorum and Rapana venosa after triple immunization in hamsters with a one-week interval: healthy and with Graffi transplanted myeloid tumor. Their effects on biometric tumor parameters, hematological parameters, some hematological biomarkers and serum antibody titers were evaluated. The histopathological changes in the organs were also analyzed. The obtained results showed a protective antitumor effect expressed by a reduced tumor incidence rate, inhibition of tumor growth, reduced mortality and prolonged mean and individual survival. The changes in peripheral blood parameters and hematological indices demonstrated immunomodulatory effect of hemocyanins. The immune status of experimental animals was evaluated on day 7 after the last immunization by analysis of the peripheral blood count (RBC, HGB, HCT, MCV, MCH, MCHC, RDW, WBC, Lymph%, Gran%, Mon%, PLT, MPV, PCT, PDW) and by the serum antibody titer determined via ELISA.

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Keywords: hemocyanins, immunostimulatory and antitumor activity, Graffi transplanted myeloid tumor

P2NIP4

IMMUNOTOXIC EFFECTS OF LEAD ON MALLARDS (*Anas platyrhynchos,* L) EXPERIMENTALLY EXPOSED TO SHOT PELLETS

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ABSTRACT

Our research work focuses on the influence of different total lead content after ingesting lead shots on the mechanisms of non-specific immunity. The impact of lead on the

phagocytic activity of neutrophils is discussed. Dose-dependent inhibition of this function has been demonstrated as well as a suppressed assay of phagocytic oxidase activity in the NBT test. The clinical signs and the loss of body weight are proportional to the toxic exposition. The knowledge about the innate immune response in mallards *(Anas platyrhynchos, L)* is important to gain insight into protective immune mechanisms and open questions for future research.

Keywords: mallards, lead pellets, phagocytosis, NBT-test, immune response

SESSION
INFECTIOUS PATHOLOGY

O3IP1

SCIENTIFIC ASSESSMENT ON DETERMINATION OF THE MOST APPROPRIATE PERIOD FOR PERFORMANCE OF TOTAL VACCINATION OF RUMINANTS AGAINST BLUE TONGUE DISEASE ON THE TERRITORY OF THE REPUBLIC OF BULGARIA IN 2021

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ABSTRACT

Bluetongue (BT) is an acute, viral, vector-borne, non-contagious disease of ruminants caused by the Bluetongue virus (BTV). It is transmitted by insects of the genus *Culicoides*. It is characterized by a strong seasonal dynamics in the countries of temperate latitudes mid-latitude climates, associated with the period of active flight of vectors. With this study we set a goal to make a scientific assessment of the appropriate period for general vaccination against bluetongue in ruminants in the territory of the Republic of Bulgaria in 2021. Taking into account the life cycle of the vectors, the temperatures at which they begin to become active and the time to build active immunity in cattle and sheep, we recommend that vaccination in 2021 may begin in the first half of February 2021 at the earliest. It is more likely for Southern Bulgaria to start in the first half of March, and for Northern Bulgaria - in the second half of March 2021.

Keywords: blue tongue, vectors, vaccination, suitable climatic conditions

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O3IP2

SCIENTIFIC EVALUATION OF THE EFFECTIVENESS OF VACCINATION OF TARGET ANIMALS (CATTLE, SHEEP AND GOATS) AS A MEASURE TO CONTROL AND ERADICATE Q-FEVER DISEASE

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ABSTRACT

Q-fever is a natural focal disease (ticks are one of the main reservoirs of *C. burnetii* in nature and play an important role in maintaining outbreaks in farm animals), which belongs to the group of zooanthroponoses, i.e. affects not only animals but also humans. The causative agent is the obligatory intracellular bacterium *Coxiella burnetii*, which has significant resistance in the external environment and high temperatures. Carriage of *Coxiella* has been demonstrated in 62 species of ticks of the families *Ixodidae*, *Argasidae* and *Gamasidae*. Among the most common vectors of *C. burnetii* are *Rh. sanguineus, H. plumbeum, Rh.*

turanicum, I. ricinus, H. marginatum, H. punctata, etc.). From the public health point of view and economic consequences, Q-fever is a zoonotic disease of high public importance, the etiological agent of which, *Coxiella burnetii*, is included in Group B of the OIE list of potential weapons. After the scientific assessment of the possibilities for application of vaccine against *Coxiella burnetii* for control and eradication of Q-fever, found in a number of areas of Bulgaria in humans (among which farm owners, veterinarians and staff) and established positive herds of large and small ruminants, it can be concluded that the most effective strategy for controlling Q-fever is considered to be the long-term vaccination strategy and vaccination of the whole herd - vaccination in already infected herds of ruminants or in healthy herds.

Keywords: Q-fever, vaccination of target animals, eradication

O3IP3

ANTIMICROBIAL RESISTANCE OF *LISTERIA MONOCYTOGENES* ISOLATES FROM FOOD, RAW MATERIALS FOR THEIR PRODUCTION AND FARMS

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ABSTRACT

The antimicrobial resistance of 22 strains of *Listeria monocytogenes* collected in Bulgaria and the Republic of Northern Macedonia was studied. The strains are isolated from meat, fish, meat and fish products, sheep brains, the environment and those isolated from mixed foods. Biochemical and serological typing of all 22 isolates was performed. Antimicrobial resistance was determined by the method of minimum inhibitory concentrations (MIC), according to CLSI standard M100-S18 (2008). Antibiotic plates Sensititre™ Gram Positive CMV3AGPF AST and *Staphylococci* plate - EUST, manufactured by Thermo Scientific ™ were used. Resistance of individual isolates of *L. monocytogenes* to tetracycline, daptomycin and one isolate to erythromycin was established. Thresholds for the interpretation of EUCAST resistance for L. monocytogenes are limited and are available for Ampicillin, Benzylpenicillin, Daptomycin, Erythromycin, Linezolid, Tetracycline and Trimethoprim / Sulfamethoxazole.

Keywords: *Listeria monocytogenes*., antimicrobial resistance, food, farms, antibiotics

O3IP4

OPTIMIZATION OF MOLECULAR DIAGNOSTIC APPLICATION. MULTIPLEX RT PCR IDENTIFICATION OF TROUT VIRUSES

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ABSTRACT

Viral infections in salmonids with some viruses cause high mortality in the young fish. After a salmonid "smolt" stage more of the viral infections become asymptomatic and identification of the carrier becomes important part of the survailance in aquaculture. The chance to find viral pathogen in the samples of laboratory diagnostic assay growing with using of multiplex RT PCR. This study presents introducing and optimization of multiplex RT PCR techniques for detecting VHSV, IHNV and IPNV. The method is suitable for virus detection from fish tissue homogenate and harvest from infected cell culture.

Keywords: viral infections, RT PCR/qRT PCR, multiplex RT PCR/qRT PCR

O3IP5

STUDIES ON THE ETIOLOGY OF MASTITIS AND THE SENSITIVITY TO ANTIMICROBIALS IN TWO FARMS IN NORTHEASTERN BULGARIA

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ABSTRACT

The prevalence of clinical and subclinical mastitis in two dairy farms with 500 and 114 cows each was studied. The causative agents have been identified and their antimicrobial susceptibility has been determined. In farm A were found 44 cows (8.8%) with mastitis - 3 with clinical and 41 with subclinical. Pathogenic microflora was isolated from 35 cows (79.5%). Identified with 64 strains: 30 (46.9%) *Streptococcus spp*. and 34 (53.1%) *Staphylococcus spp*. All staphylococci and streptococci showed sensitivity to Amoxicillin / Clav.acid. All staphylococci also showed sensitivity to Cephalothin, Gentamicin and Rifampicin. In farm B were found 26 cows (22.8%) with mastitis - 10 with clinical and 16 with subclinical. Pathogenic microflora was isolated from 19 cows (73.1%). Were identified 24 strains: 8 (33.3%) *Streptococcus spp*. and 16 (66.7%) *Staphylococcus spp*. All streptococci showed sensitivity to Amoxicillin, Amoxicillin / Clav.acid, Cephalothin, Erythromycin, Gentamicin, Tetracycline, Rifampicin and Enrofloxacin. Susceptibility to Amoxicillin / Clav.acid, Cefoxitin, Cephalothin, Lincomycin, Gentamicin, Tetracycline, Rifampicin and Enrofloxacin was found in all staphylococci.

Keywords: cows, mastitis, etiology, antibiotics, resistance

O3IP6

STUDIES ON THE PREVALENCE OF CERTAIN GENETIC FACTORS DETERMINING ANTIMICROBIAL RESISTANCE IN RESIDENT *ESCHERICHIA COLI* ISOLATED FROM BROILERS AND LAYING HENS

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ABSTRACT

Our study covering the period from January to December 2020 included 175 strains, 99 of which were isolated from broilers and 76 from laying hens. ESBL phenotype isolates

were tested for the presence of *bla*$_{CTX-M-1}$. The distribution of genes *qnrS*, *qnrA* and *qnrB1* that determine resistance to quinolones was studied and the gene *tetA* that determine resistance to tetracycline. A higher percentage of resistance towards tetracycline and ciprofloxacin was observed in resident *Escherichia coli* strains isolated from broilers (65.6%, 70.7%), respectively, a high percentage of resistance to ciprofloxacin (75.0%) was determined in isolates from laying hens. Five of the cephalosporins – resistant *E. coli* isolates from broilers (5.0%) were identified as producers of ESBL, possessing a gene *bla*$_{CTX-M-1}$. Sixty-five strains from broilers (65.6%), retrospectively fifty strains from laying hens (65.8%) possessed the genes *qnrS*. Sixty-five strains from broilers (65.6%), retrospectively thirty-three strains from laying hens (33.0%) possessed the gene *tetA*.

Keywords: resident *Escherichia coli*, resistance to antimicrobial agents, poultry

O3IP7

IMPACT OF THE COVID-19 PANDEMIC ON THE MANAGEMENT OF A DOG SHELTER IN BULGARIA

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ABSTRACT

Shelter medicine refers to veterinary care in specialized facilities for homeless animals. It is characterized by some specificities that makes it different from general clinical practice. Many risk factors exist for medical and supportive personnel that should be recognized and prevented by strict control measures. One additional hazard that emerged for collectives working closely together presents the COVID-19 outbreak that spread widely for a short period and lead to alteration of social models and everyday lifestyle. This article tries to answer how the crisis reflected the work span of a dog shelter in Bulgaria as an example of a tendency that may prove to remain constant at least for several years ahead. Consequences from the pandemic and measures to reduce the negative impact on the working environment are discussed.

Keywords: Covid, SARS-CoV-2, dog shelter, Bulgaria

O3IP8

CONTROL OF VECTOR-BORNE DISEASES IN A DOG SHELTER EXPERIENCE FROM BULGARIA

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ABSTRACT

Vector-borne diseases present a constant concern in both veterinary and human medicine especially in the context of climate change. Prophylaxis is the one most important prerequisite for effective management and the role of animal care units should be recognized. The paper describes clinical experience and protocols from a dog shelter in Sofia, Bulgaria. It

deals with some commonly identified pathogens namely *Dirofilaria immitis, Dirofilaria repens, Ehrlichia canis, Anaplasma phagocytophilum, Anaplasma platys, Borrelia burgdorferi, Leishmania infantum* that can be accessed by rapid inclinic test kits. Treatment and prevention strategies are further discussed.

Keywords: dog, shelter, vector-borne, control

O3IP9

INFLUENCE OF CATHOLYTE ON SLAUGHTER TRAITS IN DUCKS

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ABSTRACT

Electro-activated (dissociated) water (EAW) has been growing in popularity in recent years in many countries. It is used as a cleaning agent and disinfectant in the food industry, as well as a disinfectant of river water used as drinking water for animals. Catolyte has a beneficial effect on productivity and some physiological parameters, and is a cheap, safe, non-toxic and effective option for improving the overall production parameters in mammals and birds. In the present study, the effect of catholyte on some carcass traits in White Pekin duck was examined. Live weight, weight of fresh eviscerated carcass, weight of feathers and blood, head, feet, intestines, gizzard, heart, spleen and liver were measured. The results show an increase in the carcass weight of the experimental group of ducks, watered with catholyte, compared to the control group - watered with tap water. There was also an increase in the weight of the head, feet, feathers and blood, and all the internal organs of the experimental group of ducks, compared to the control group, except for the gizzards. The use of catholyte does not affect significantly the yield of the carcass.

Keywords: Electro-activated (dissociated) water, catholyte, slaughter traits, yield, ducks

O3IP10

HYGIENE INDICATORS OF RAW-DRIED COMMINUTED MEAT PRODUCTS PRODUCED IN COMPANIES WITH DIFFERENT CAPACITY AND TECHNOLOGIES

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ABSTRACT

Conducting microbiological testing in the various stages of food production is essential for detecting and analyzing the characteristic trends in the spread of microbial contamination. Among the variety of foods, meat products deserve special attention because they are a major source of microorganisms that threaten the health of the consumer. In the present study, some microbiological indicators and their change in dynamics were identified during the production of two types of raw-dried comminuted meat products ("sudzhuk" and

"lukanka") in three meat processing companies with different capacity and technologies. No pathogenic *Salmonella spp.* and *L. monocytogenes* was found in the raw materials and final products from all of the investigated companies. In meat raw materials TPC was found in the range from 10^4 to 10^5 CFU/g. During ripening, an increase of TPC in range from 10^6 to 10^8 CFU/g was found, and in the final product the TPC values decreased and reached range from 10^5 to 10^7 CFU/g. The content of enterobacteria in the meat raw materials was in range from 10^1 to 10^2 CFU/g. Only in one of the companies the amount of enterobacteria in the raw material reached values up to 10^8 CFU/g.

Keywords: hygiene indicators, TPC, Salmonella spp., L. monocytogenes, Enterobacteriaceae, raw-dried comminuted meat products, sausage, "sudzhuk", "lukanka"

O3IP11

HYGIENE STATUS OF THE WORKING ENVIRONMENT AND THE WORKERS DURING THE PRODUCTION OF RAW-DRIED COMMINUTED MEAT PRODUCTS IN COMPANIES WITH DIFFERENT CAPACITY AND TECHNOLOGIES

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ABSTRACT

The main point in any production of raw-dried comminuted meat products is the hygiene condition of the contact surfaces and the hygiene status of the workers. European legislation sets out specific requirements for the hygiene of the working environment and rules that must be followed by animal origin food processing companies at all stages of the food chain. In the present study, the hygiene status of the working environment and the workers was established during the production of two types of raw-dried comminuted meat products ("sudzhuk" and "lukanka") in three meat processing companies with different production capacity and technologies. Contamination of the contact surfaces in all investigated companies is within the permissible limits. No contamination with *L. monocytogenes* was detected. In one company there was a very good hygiene of the contact surfaces during the processing of the raw materials. In the other one - there were problems with contamination of these surfaces, but there was good hygiene of the surfaces in the dryer. In the third one - the hygiene of the contact surfaces is at an average level in both phases of production. The results on the hygiene of the workers in all investigated companies showed absence of *Staphylococcus spp.* and *L. monocytogenes*. The highest degree of bacterial contamination of the working aprons was found in the processing of the raw materials for the production of "sudzhuk" in one of the companies and in the dryer for the production of "lukanka" in one of the other two companies.

Keywords: hygiene status, working environment, workers, raw-dried comminuted meat products, sausage, "sudzhuk", "lukanka"

O3IP12

MOLECULAR INVESTIGATION FOR PATHOGENS OF CANINE INFECTIOUS

RESPIRATORY DISEASE COMPLEX (CIRDC) IN CLINICAL SAMPLES FROM DOGS WITH RESPIRATORY SIGNS IN BULGARIA (2017- 2018)

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ABSTRACT

Canine Infectious Respiratory Disease Complex (CIRDC) is a respiratory syndrome of dogs, caused by different etiological agents. CIRDC clinical presentation varies from asymptomatic or paucisymptomatic infections to acute outbreaks with a more severe outcome. A total of 74 nasal swabs from Bulgarian dogs with respiratory signs were tested by polymerase chain reaction (PCR) for 6 pathogens associated with CIRDC, namely canine distemper virus (CDV), canine influenza virus (CIV), canine pneumovirus (CnPnV), canine respiratory coronavirus (CRCoV), *Mycoplasma canis (M. canis)*, *Mycoplasma cynos (M. cynos)*. Part of the samples (n = 52) were tested additionally for canine adenoviruses 1 and 2 (CAV-1 and CAV-2). The specimens were collected in a 12-month period (October 2017-September 2018) from 13 veterinary practices in 7 cities and from two shelters in two cities of Bulgaria. Eighteen samples tested positive for CDV: for 5 of these samples, the discrete viral titres allowed for a genotype prediction using a nested-PCR approach and all were typed as Arctic lineage**.** Eleven swabs were found to be positive for *M . canis* and nine for *M. cynos*, with one sample testing positive for both mycoplasma species. The negative results in the remaining specimens suggest the possible involvement of other pathogens less commonly associated with CIRDC or of non-infectious causes.

Keywords: nasal swabs, CIRDC, respiratory signs, dogs, molecular investigation, Bulgaria

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O3IP13

SEROLOGICAL SURVEY OF CANINE PARVOVIRUS - 2 ANTIBODY TITERS FROM A DOG SHELTER IN BULGARIA

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ABSTRACT

Canine parvovirosis represents one of the most communicable and fatal gastrointestinal infections. The rapid spread and the extreme contagiousness of the canine parvovirus-2 (CPV-2) makes this disease a serious challenge especially in dog shelters and kennels. Disease control is based on vaccination of the most susceptible age groups. The aim of the current study was to determine the CPV-2 post vaccination antibody titers in a shelter population of young dogs. Anti CPV humoral immunity was demonstrated in 90% (288/320) of vaccinated animals while 10% (32/320) showed low to no antibody titer. The results confirmed that the approved shelter vaccination protocol can provide a successful post

vaccination protection. However, the relatively high vaccination failure rate indicates possible gaps in the development of sustainable herd immunity.

Keywords: canine parvovirus, antibodies, shelter dogs

P3IP1

ANTIMICROBIAL RESISTANCE OF NON-PATHOGENIC *LISTERIA* SPP. STRAINS ISOLATED FROM FOOD

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ABSTRACT

The antimicrobial resistance of 24 non-pathogenic strains of Listeria spp. isolated from various foods produced in Bulgaria and the Republic of Northern Macedonia was tested. The studies were performed according to the disk diffusion method described in CLSI M02-A10 (2009) and CLSI M31-A3 (2008). The strains of *Listeria* spp. were identified as *Listeria innocua* - 12, *L.welshimeri* –7 and *L. seeligeri* - 5. One strain of *Listeria innocua* isolated from duck liver was resistant to tetracycline and 2 strains isolated from smoked salmon were resistant to penicillin, amoxiclav, chloramphenicol, tetracycline and vancomycin. All strains of *L. welshimeri* and *L. seeligeri* were sensitive to all tested antibiotics. All 24 strains of *Listeria* spp. were sensitive to gentamicin, ciprofloxacin and cefotaxime. A low level of resistance has been proven to the tested antibiotics. Three strains of L. innocua isolated from smoked salmon and fattened ducks demonstrated resistance to tetracycline, penicillin, amoxiclav, chloramphenical and vancomycin. Fish and ducks come from farms where antimicrobials have been used.

Keywords: *Listeria* spp., antimicrobial resistance, food, antibiotics

P3IP2

ANALYSIS OF THE TRENDS FOR SALE AND USE OF ANTIMICROBIAL VETERINARY PRODUCTS IN BULGARIA DURING THE PERIOD 2011-2018

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ABSTRACT

Antimicrobial veterinary products (VMPs) are used to treat animal diseases caused by bacteria, viruses, fungi and parasites. Excessive use or improper application (sub or overdose, impaired frequency and duration of treatment, non-treatment, etc.) of antimicrobial agents leads to mutations and selection of resistant bacteria in food-producing animals. There is a direct relationship between the amounts of antibiotics used and the microbial resistance found.

The scientific work analyzes the sales and use of different classes of antibiotics for a period of 8 years (2011-2018), ie. from the beginning, when the EC and the EP declared antimicrobial resistance as one of their priorities for combating and finding a solution to the problem. Data on sold VMPs by species and ages of animals are presented and analyzed. A comparative analysis of our data on the amounts of antibiotics used with those of other EU member states through the prism of the established microbial resistance in the respective countries and Bulgaria.

Key words: antimicrobials, animals, proper use, microbial resistance

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P3IP3

PREVALENCE OF ANTIBODIES TO HEPATITIS E VIRUS IN VETERINARIANS

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ABSTRACT

Hepatitis E virus (HEV) is an emerging zoonotic pathogen causing acute viral hepatitis in human. The virus is endemic in many developing countries and recognized "hot spots" in developed countries. It is hypothesized that animals are the main reservoir for human infection which emerged the occupational risk of infection among veterinarians and animal keepers. Different routes of zoonotic HEV transmission have been recognized, including contact with infected animals and their environment. The aim of the present study is to evaluate HEV seroprevalence among freelance veterinarians from different administrative districts of Bulgaria. Seventy five blood serum samples from freelance veterinarians were screened by ELISA for the presence of IgG and IgM antibodies against HEV (anti-HEV) in the NRL Hepatitis viruses, National Center of Infectious and Parasitic Diseases. The mean age of the tested veterinarians was 49.45 ± 9.76 years; 83% were male, and 17% – females. Of all tested patients 10 (15%) were positive for anti-HEV antibodies, from whom 7 (70%) were anti-HEV IgG positive and 6 (60%) – anti-HEV IgM positive. From the positive samples 3 (30%) were simultaneously positive for both antibody classes. A more in-depth study of the prevalence of HEV markers among veterinarians is needed

ACKNOWLEDGMENTS: this study is supported by Bulgarian National Science Fund, Grant No КП-06-Н-33/2

Keywords: Hepatitis E virus, freelance veterinarians, seroprevalence, anti-HEV

P3IP4

TRACE METALS IN A HOST – PARASITE SYSTEM /*Rattus* spp. – *Hymenolepis spp.*/ IN THE AREA OF A COAL MINE COMPLEX MARITZA IZTOK IN BULGARIA

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ABSTRACT

Trace metals (Al, Fe, Mn, Zn, Cu, Pb, Ni) accumulation and their dynamics in the system *soil-rodents-cestodes* from natural site located around complex *Maritza Iztok* were tracked. Accumulation factors (ratio of metals contents in rats to these in soil) and as well bioaccumulation factors in the *host - parasite system* (ratio of content of metals in cestodes to this in the rats) were calculated. Metal conten was determined in the soil, the liver of rats (infected and non-infected) and in the tapeworms. The accumulation factor was the highest for Zn followed of Cu and Pb. Cestodes *Hymenolepis spp.* have higher bioaccumulation capacity for toxic metals, than their infected host, especially for Ni. Data demonstrated an increase in pollution due to a coal industry in a region of Maritsa Iztok coal complex.

Keywords: rats, helminth, contamination, trace metals

P3IP5

SEROLOGICAL SURVEY OF TWO PATHOGENS OF EUROPEAN BROWN HARES (*Lepus europeus*) IN BULGARIA

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ABSTRACT

Despite the declining trend in the number of European brown hares (*Lepus europaeus*) in Bulgaria, they remain one of the main local hunting species. The detailed epidemiological studies of bacterial and viral diseases will make it possible to assess the risk of their spread and their role in reducing the stock in hunting areas. The aim of the serological survey was to estimate the prevalence of two disease agents within the populations of European brown hares (*Lepus europaeus*). A total 53 serum blood samples were examinated. The european brown hares (*Lepus europaeus*) is an important reservoir of *Brucella spp* and of *Leptospira interrogans sv*. The micro-agglutination lysis with four *Leptospira interrogans* serovars (Grippotyphosa Icterohaemorrhagiae Canicola and Pomona)was performed. Only 6 samples (11,6%) were positive (titre 1:100 and more). Brucellosis was identified in the CFT in 2 animals (3,8%). The *scientific research* into new reservoirs in the wild will be essential to prevent infectious diseases.

Key words: European brown hare, *Lepus europaeus*, brucellosis, leptospirosis

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P3IP6

CHANGES IN ACID-BASE STATUS OF CALVES AFTER IMMUNIZATION WITH STRAIN OF BOVINE RESPIRATORY SYNCYTIAL VIRUS AND INFECTED WITH BOVINE HERPESVIRUS-1

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ABSTRACT

Bovine respiratory syncytial virus (BRSV), a pneumovirus in the family Paramyxoviridae, is highly prevalent in cattle, with a significant economic impact as the most important viral cause of bovine respiratory disease (BRD) worldwide. BRSV vaccines reduced the prevalence of RSV infection, but their efficacy and safety need improvement. Comparative studies of the acid-base status were performed in 12 calves injected intratracheally with a vaccine strain of BRSV at a dose of $10^{5.5}$ TKID and in calves, injected with a virulent strain of bovine herpesvirus-1. The values of pH, pO2, pCO2, O2 ct, HCO3, ABE and TCO2, monitored in dynamics, indicate the harmless of the vaccine strain "An-87".

Keywords: Key words: calves, acid-base state, respiratory syncytial virus, bovine, herpesvirus-1, bovine respiratory disease (BRD)

P3IP7

PATHOMORPHOLOGICAL CHANGES IN DOGS WITH SPONTANEOUS HEARTWORM DISEASE

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ABSTRACT

The present research examined the pathomorphological changes of 6 dogs, 3 males and 3 females, diagnosed with heartworm disease. The necropsies revealed a total of number of 144 imaginary forms (74 male and 70 female) of the nematode *Dirofilaria immitis*, located in *a. pulmonalis*, right ventricle and atrium and *sulcus vena cavae*. The gross changes included right-sided enlargement of the heart, dilated pulmonary arteries, and single petechial hemorrhages in the lungs. Histopathologically, degenerative changes in the pulmonary arteries, thickening of the pulmonary valves, interstitial reactions in the lungs and protein precipitates in the kidneys were found.

Keywords: *Dirofilaria immitis,* dogs, gross and histopathological changes

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P3IP8

COMPARATIVE STUDY OF THE EFFECT OF ANOLYTE AND ORDINARY LIQUID SOAP IN DECONTAMINATION OF MANURE FLOOR GRILLS FROM BIRD CAGES

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ABSTRACT

The antimicrobial action of electroactivated water - anolyte was tested, compared with the effect of ordinary liquid soap (50% aqueous solution) in disinfection of floor grills with poultry manure. The research was performed in field conditions, in cell-bred ducks of the White Pekingese breed. Samples were taken with sterile swabs after: immediate mechanical

cleaning; at the 15th and 30th minute of the action of 100% anolyte and 50% liquid soap solution, respectively. Cultures were made on ordinary and selective nutrient media, and after culturing in a thermostat at 37 ^{0} C for 24 -48 h, the results were reported, which show that the anolyte has better bactericidal effect than that of commonly used liquid soap, although it does not contain any chemical components. The effect of the anolyte is due to its low Ph (3.36) and positive ORP (+212) and its good oxidizing properties, respectively.

Keywords: **antibacterial activity, duck feces, anolyte, soup solutin**

P3IP9

ANTIMICROBIAL ACTION OF ELECTROACTIVATED WATER - ANOLYTE IN DECONTAMINATION OF POULTRY MANURE, COMPARED WITH THE EFFECT OF VIRCON S

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ABSTRACT

The antimicrobial action of electroactivated water - anolyte for disinfection of poultry manure - 1 g of aggregate sample with 10 ml of 100% anolyte was compared with the action of the broad-spectrum disinfectant Vircon S 1% - 10 ml added to 1 g of aggregate faecal sample. Their antimicrobial effect was tested after 15, 30, 45 and 60 minutes of action and cultures were made on various ordinary and selective nutrient media, and after culturing in a thermostat at 37 ^{0} C for 24 h, the results were reported. The results obtained from two different studies unequivocally show that the effect of electroactivated water in the form of Anolyte acidic solution is similar to that of the commercial broad-spectrum antibacterial and antiviral disinfectant Vircon S. With a 15-minute action of both anolyte and Vircon S, the number of microorganisms decreases to hundreds, and over time they do not lose their antimicrobial action, and at the 60th minute the number of living microorganisms remains within units and tens cells.

Keywords: **anolyte, Virkon S, antibacterial activity, fecal samples**

P3IP10

EFFECT OF ELECTROACTIVATED WATER – CATHOLYTE, TAKEN *PER OS*, IN DECREESING THE AMOUNT OF MICROORGANISMS IN CLOACAL DUCKS SAMPLES

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ABSTRACT

Cloacal samples of ducks at the 2nd, 3rd and 4th week of the period of taking

catholyte (only), were tnvestigated in compare with the same of ducks, taken pure tap water and the two groups of samples were examined for microbial findings *in vitro*. Cultures were made on ordinary and selective nutrient media and the number of living cells (CFU) was recorded. The data were processed statistically (by the method of Student-Fisher) and the results showed that the total number of microorganisms, as well as those of the genus *Escherichiae*, *Staphylococcus*, *Pseudomonas*, and pathogenic fungi *(Candida spp.)* is lower in birds of the experimental group, in compared with those from the control (mean values from individual cloacal samples of each bird of the respective group).

Keywords: **electroactewated water, catholyte, ducks, cloacal samples, microorganisms, antimicrobial activity**

P3IP11

CELL CULTURES AS MODEL SYSTEMS IN HEPATITIS E VIRUS RESEARCH

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ABSTRACT

The hepatitis E virus (HEV) infections are serious global health problem, but the virus still remains poorly understood. That is why suitable cell culture systems are needed to study HEV biology and pathogenesis at the molecular level, as well as to develop new antiviral agents. HEV infects various permanent cell lines, including cultures established from colon, kidney, liver, lung, neuronal and placental tissue of human and non-human origin. These model systems have been limited by slow viral replication and low viral titer as well as distinct phenotypic characteristics. On the other hand immortalized cell lines often do not fully represent what is occurring in vivo. Thus, primary cells or stem cell-derived cellular systems are a more authentic system for studying HEV. The passaging of primary patients isolates in cell lines and the development of cDNA clones has been recognized as a promising strategy to improved molecular studies and reproduction of HEV.

Keywords: hepatitis E virus, cell model systems, viral biology and pathogenesis

P3IP12

APPROPRIATE PRACTICAL APPROACHES FOR DIAGNOSIS, TREATMENT AND PREVENTION OF ENDOPARASITOSIS IN PETS (DOGS AND CATS), EXOTIC SMALL MAMMALS (RABBITS, FERRETS, CHINCHILLAS, GUINEA PIGS, AND HEDGEHOGS) AND REPTILES (SNAKES, LIZARDS, AND CHELONIANS) – A REVIEW

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ABSTRACT

Companion animals, small mammals and reptiles are gaining more and more social importance among the human population. Although contact between pets and the environment is declining due to the way the animals are kept, they can still be infested due to the adaptability of the parasites to the protective mechanisms of the hosts and their ecological connections with them. This makes the parasites extremely stable, creating a lasting relationship between micro- and macroorganisms. Nowadays, one of the main goals of pharmaceutical companies is to develop new and effective means to treat parasitosis, taking into account the growing resistance to commonly used products. Currently there is a relatively large variety of prophylactic and curative drugs on the market that provide protection and prevention against helminths and protozoa. The most important aspect of controlling endoparasitosis is the correct and in-time diagnosis, effective combination of active substances and well-performed prevention.

Keywords: prophylaxis, parasites, pets, exotic animals, reptiles

SESSION
STUDENT RESEARCH

O4S1

KEEPING WILD ANIMALS IN CAPTIVITY – TRADITIONAL ENTERTAINMENT OR MODERN CONSERVATION APPROACH?

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ABSTRACT

Growing global populations are increasingly dependent on natural resources, such as food, water and land to supply their demands. At the same time, urban environment has made its population curious of their surrounding nature, including wildlife. Zoos appear to be an appropriate tool to introduce wild animals to people in a safe and interesting way, providing new experiences and even education to several generations. With the development of animal ethics and nature protection, zoos started to play another important role as centres for wildlife conservation. International regulations were set in order to ensure standards for proper treatment of zoo animals. However, there are still places where wild animal welfare is in question. This paper aims to discuss the arguments for and against keeping wild animals in captivity and to emphasize the impact zoo conservation programmes could have on both animals and humans.

Keywords: zoo animals; biodiversity conservation; ethics of animal use

O4S2

NON-HUMAN ANIMAL ALTERNATIVES IN VETERINARY EDUCATION

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ABSTRACT

Historically, veterinary medicine had originated from direct human-animal interaction and attempts to heal and restore animal afflictions. Later studies performed on live animals and cadavers had contributed and driven the progress for all biomedical sciences. With the more recent understanding of animal sentience along with contemporary scientific validation, today, the use of live animals in research and education is in question. International principles have been developed and adopted by many countries for replacement of animals with alternatives, including for veterinary studies. As hands-on-practice is essential for the veterinary surgeon, this paper argues the perspective of inclusion within the veterinary curricula of some training modalities without direct interventions on animals. Overview is made on successfully implemented techniques, models, simulators and computer programs which replace the living animal for student`s training at several veterinary faculties. It is

concluded that non-animal alternatives in veterinary education could benefit both graduates and their patients.

Keywords: veterinary training; animal use; simulators; animal alternatives

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O4S3

EFFECT OF THE BREED ON THE ACTIVITY OF THE ANTIOXIDANT ENZYMES - SOD AND CAT IN RAM SPERM, BEFORE AND AFTER CRYOPRESERVATION

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ABSTRACT

The aim of the study was to determine the activity of the antioxidant enzymes - SOD and CAT in ram sperm, before and after cryopreservation. For this purpose, 12 ejaculates of different breeds were examined - Ile de France, Lacaune, SPBM and Sofia (EP) during their breeding season. Enzyme activity was determined spectrophotometrically by Spekol 11 (CarlZeiss, Jena) before freezing and after thawing of ejaculates. It was found that after cryopreservation the activity of both enzymes decreased, as higher values were found in the Ile de France (SOD - 380.15 U/ml; CAT - 2.72 U/1x10^6sp), and the lowest values in SPBM (SOD - 119.06 U/ml; CAT - 1.06 U/1x10^6sp). In the examination of the SOD enzyme were established significant differences between breeds before freezing, which persisted after thawing. In the study of CAT enzyme, significant differences between breeds were found after cryopreservation.

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Keywords: cryopreservation, SOD, CAT, sperm, ram

O4S4

THE EFFECT OF THE DEGREE OF DILUTION ON THE MOTILITY AND VELOCITY PARAMETERS OF SPERM IN RAMS

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ABSTRACT

The aim of the present study was to determine the influence of the degree of dilution on the motility and velocity parameters of ram sperm. For this purpose, 12 ejaculates of 6 rams, Northeast Bulgarian fine- fleece breed, were examined during their breeding season. Sperm motility and velocity parameters were analyzed by computer sperm analyzer (SCA, Microptic, Spain). Samples were diluted 1: 3, 1: 6, 1: 9, 1:12; 1:24 with extender 6 A. It was found that the total motility at dilutions from 1: 3 to 1:12 decreased by 2% ($P \leq 0.001$), while at 1:24 by 25% ($P \leq 0.001$). At dilutions from 1: 3 to 1:12 the progressive motility is preserved from 95.71% to 68.24%. While at dilution 1:24 progressively motile sperm are significantly decreased to 39.08%. The degree of dilution also affects the velocity parameters of sperm.

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Keywords: dilution, motility, velocity parameters, sperm, rams

P4S1

MORPHOMETRIC PARAMETERS OF DIGESTIVE SYSTEM ORGANS IN MALE AND FEMALE REPRESENTATIVES OF THE SPECIES (*Pica pica pica* / Linnaeus, 1758) - A CLINICAL CASE

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ABSTRACT

In this clinical case, we compare the morphometric parameters of the organs of the digestive system in male (n = 1) and female (n = 1) representatives of the species European magpie (*Pica p. pica*, Linnaeus 1758). Morphometry of tongue, esophagus, glandular and muscular stomach and intestines was measured for each animal, after which a comparison was made between the two sexes. The obtained data show differences in the size of the organs of the digestive tract in the male and female representatives of the avian species.

Keywords: *Pica pica*, digestive system, morphometry, morphology