



*UNIVERSITY OF FORESTRY*  
*FACULTY OF VETERINARY MEDICINE*

# BOOK OF ABSTRACTS

*2022*  
*Sofia,*  
*Bulgaria*

INTERNATIONAL  
SCIENTIFIC CONFERENCE  
“TRADITION AND  
MODERNITY IN  
VETERINARY MEDICINE”

# BOOK OF ABSTRACTS

INTERNATIONAL SCIENTIFIC  
CONFERENCE:  
“TRADITION AND MODERNITY IN  
VETERINARY MEDICINE”

2022

Sofia Bulgaria

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## ***PLENARY REPORTS***

### ***PLENARY REPORT***

#### **SARS-CO2 AND COVID-19: FOR (UN)LEARNED LESSONS, CHALLENGES AND HOPE**

**Radostina Aleksandorva**

*Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria*

\**Corresponding author:* [rialexandrova@hotmail.com](mailto:rialexandrova@hotmail.com)

#### **ABSTRACT**

Which is the virus that caused the biggest health and social challenge in our recent history - the COVID-19 pandemic. What do we know about the origin and evolution of SARS-CoV-2 so far, what surprised us with its variants and can we predict its further development. Why vaccines came so fast and drugs are delayed. What have we found about the immunity and why it is important to be protected also against disinformation. We shall speak about communication and fears, about the mistakes we made and the successes we achieved. Will we learn to live with COVID-19 and what about long COVID-19. How does science respond to the attack and are we able to prepare for the next coronavirus / viral invaders.

**Keywords:** SARS-Co2, COVID-19, immunity, vaccines, antiviral drugs

## SESSION MORPHOLOGY, ECOLOGY AND LIVESTOCK BREEDING

### ***OIMELB1***

#### **THE RELATIONSHIP BETWEEN THE PRESENCE AND ABSENCE OF CORPUS LUTEUM IN PORCINE OVARIES AND THE QUALITY OF THE CUMULUS OOCYTE COMPLEX**

**Hristina Blagova\*, Nadia Petrova, Rossen Stefanov**

*Institute of Biology and Immunology of Reproduction, Bulgarian Academy of Sciences*

\*Corresponding author: [blagovahristina@gmail.com](mailto:blagovahristina@gmail.com)

#### **ABSTRACT**

The development of an affective protocol for oocyte quality is of great importance for their further in-depth study as well as a reliable method for predicting the success of In Vitro Maturation (IVM). The aim of our study was to trace the relationship between the presence and absence of corpus luteum in porcine ovaries and the quality of the cumulus oocyte complex (COC) by activation with a calcium ionophore. The oocytes were divided into 2 groups - with corpus luteum and without corpus luteum and 3 oocytes from each group were examined - a total of 6 porcine oocytes of the *Sus Scrofa* species. Both groups were cultured in vitro. The dependence was analyzed using a stereomicroscope. We did not find a significant difference in the relationship between the presence or absence of corpus luteum with the quality of the cumulus oocyte complex after morphological evaluation. However, after culturing for 24h in  $Ca^{2+}$  ionophore, the cumulus oocyte complex (COC) of oocytes with corpus luteum was affected and visibly more compact, as we observed and evaluated the expansion of both the cumulus and the crown separately. These studies confirm the conclusions obtained by other authors, namely that the quality of eggs is better when they are surrounded by more layers of cumulus cells.

**Keywords: oocytes, cumulus cells, corpus luteum**

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### ***OIMELB2***

#### **STUDY OF THE EFFECT OF THE FOOD SUPPLEMENT API HERB ON THE INDICATOR FOOD CONSUMPTION AND QUANTITY OF BEES IN BEE FAMILIES (*APIS MELLIFERA* L)**

**Tsvetan Tsvetanov**

*Institute of Animal Science, Kostinbrod, Bulgaria*

Corresponding author: [tsvetan28@abv.bg](mailto:tsvetan28@abv.bg)

#### **ABSTRACT**

A study of the effect of the food supplement Api Herb on the consumption of food in bee families during the business season was conducted 2018- autumn - 2019 spring. The bee colonies are located in the experimental apiary of IAS-Kostinbrod. They are divided into three groups: two experimental and one control group. Each group consists of 6 bee families. The first group received Api Herb. From the food supplement take 40 g which are mixed in 500 ml of sugar solution (1: 1). 15 ml of the solution is dropped on each frame. The bee colonies

were fed for 3 weeks, and the solution was applied once a week by dripping on the upper part of the frame (fruit frame). The second group received only a sugar solution in a sugar-water ratio of 1: 1 for 3 weeks in an amount of 350 ml once a week per family. The third group (control) received nothing. At the beginning of the study (main autumn survey) the groups were equalized in the amount of bees, food and pollen stocks. In order to reduce the genetic differences in the families, the queen bees are sisters of the gray local breed of bees (*Apis mellifera macedonica*). In the autumn the feeding was repeated, at an average daily air temperature of not less than 10 ° C. The bee colonies were fed from the beginning of April - for spring feeding, in September - autumn feeding for 3 weeks. The statistical processing of the results was performed with the ANOVA software package. One-way analysis of variance was used to assess the impact of food consumption on each type of nutrition during the two periods, and in the presence of a significant effect, the differences between the groups were assessed by Tukey-test ( $p < 0.05$ ). Differences in the cost of food per family and the number of bees between the two periods in different types of feeding were assessed by t-test. There was a statistically lower food consumption ( $p < 0.001$ ) in the families receiving Api Herb compared to the families fed with sugar solution as well as in the families from the control group. There was a statistically higher number of bees in the autumn ( $p < 0.001$ ) in the families fed with Api Herb compared to the families receiving only sugar solution as well as the families from the control group.

**Keywords:** Nutritional supplement Api Herb, honey bee (*Apis mellifera macedonica*), food consumption, number of bees (kg.)

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### **OIMELB3**

#### **MONITORING THE CONSUMPTION OF FOOD AND STRENGTH OF BEES WHEN FEEDING BEE COLONIES (*APIS MELLIFERA* L.) WITH THE VITAMIN COMPLEX PROMOTOR L**

**Tsvetan Tsvetanov**

*Institute of Animal Science, Kostinbrod, Bulgaria*

**Corresponding author:** [tsvetan28@abv.bg](mailto:tsvetan28@abv.bg)

### **ABSTRACT**

A study of the effect of the vitamin complex Promotor L on food consumption and the strength of bees in bee colonies during the economic season 2018 autumn-2019 spring was conducted. The bee families are located in the experimental apiary of IAS -Kostinbrod. They are divided into three groups: two experimental and one control group. Each group consists of 6 bee families. At the beginning of the study, the groups were equalized in the amount of bees, food and pollen stocks. In order to reduce the genetic differences in the families, the queen bees are sisters of the grey local breed of bees (*Apis mellifera macedonica*). The first group was fed with the vitamin complex Promotor L, 5 ml. Of which were dissolved in sugar solution 1: 1 in an amount of 250 ml. twice a week until the beginning of the first main nectar flow. The second group was fed only 1: 1 sugar solution. The third control group was not fed anything. Statistical processing of the results was performed with the software package ANOVA. One-way analysis of variance was used to assess the impact of food consumption on each type of nutrition during the two periods, and in the presence of a significant effect, the differences between the groups were assessed by Tukey-test ( $p < 0.05$ ). Differences in the food consumption per family and the strength of bees between the two periods in different types of feeding were assessed by t-test.

It was found that feeding with Promotor L statistically reduces the food consumption for bee families ( $p < 0.001$ ), as well as the positive effect of the vitamin complex on the number of bees ( $p < 0.001$ ).

**Keywords:** food consumption, strength of bee colonies (*Apis mellifera macedonica*), vitamin complex with hydrolysed yeast and dextrose Promotor L

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#### ***OIMELB4***

### **HISTOLOGICAL STUDY ON THE SPLEEN OF THE DOG**

**Iliyan Georgiev\***, Georgi I. Georgiev, Iliana Ruzhanova-Gospodinova, Lubomir Hristakiev, Vasil Manov, Georgi Popov

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [i.georgiev@ltu.bg](mailto:i.georgiev@ltu.bg)

#### **ABSTRACT**

The aim of the present study was to examine the histological structure of the dog's spleen in relation to the closed type of blood circulation. The spleens of 4 mixed breed dogs, 1 French bulldog, and 1 Yorkshire Terrier with an unfavorable diagnosis and with no splenic pathology were examined. The different medications and anesthetics, used for the euthanasia, have different effect on the constriction and relaxation of the venous sinuses located in the dog's spleen. Conventional histological examination on the spleen and blood circulation in the was conducted. Relaxation of the splenic sinuses and blood overflow with precipitates of erythrocyte masses. *Lien accessorius* was established in the French bulldog.

**Keywords:** spleen, dog, histology, *sinus lienalis*, closed type of blood circulation

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#### ***OIMELB5***

### **INFLUENCE OF THYME (*THYMUS VULGARIS* L.) SUPPLEMENTATION IN FEED ON FATTENING RABBIT'S PERFORMANCE**

\*Mariya Todorova<sup>1</sup>, Maya Ignatova<sup>1</sup>, Krasimir Velikov<sup>2</sup>

<sup>1</sup>*Institut of animal science, Kostinbrod, Bulgaria*

<sup>2</sup>*Agricultural Institute, Stara Zagora, Bulgaria*

\*Corresponding author: [mariq\\_todorova\\_1@abv.bg](mailto:mariq_todorova_1@abv.bg)

#### **ABSTRACT**

The aim of this experiment was to investigate the effect of thyme leaves powder inclusion in rabbit's diets on growth performance. 30 rabbits from New Zealand breed, on 55 days of age ( $\pm 2$ ) were randomly allocated to three experimental groups for 47 days (until reach 2100g of body weight). The experimental design consisted of three dietary treatments: 1) control group received standard compound feed - unsupplemented; 2) the first experimental group (M3) received diet supplemented with 3% thyme leaves powder; 3) the second experimental group (M5) received diet supplemented with 5% thyme leaves powder instead of alfalfa hay. Individual rabbits' body weights were recorded weekly. Feed intake and feed conversion rate were determined weekly per group. Carcass characteristics were determinate at the end of the trail. The results of this study have shown that thyme inclusion at level up to 3 or 5% did not adversely affect rabbit's performance.

**Keywords:** Thyme, rabbits, nutrition, performance

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**OIMELB6**

**DEVELOPMENT OF VETERINARY BUSINESS IN BULGARIA AFTER 1878**

**Valery Baimatov<sup>1</sup>, Stoyan Stoyanov<sup>2\*</sup>**

<sup>1</sup>*Moscow State Academy of Veterinary Medicine and Biotechnology named after K.I.Skryabin, Moscow, Russia*

<sup>2</sup>*National Diagnostic and Research Veterinary Medical Institute, Prof.Dr G.Pavlov, Sofia, Bulgaria*

\*Corresponding author: [bsapp@abv.bg](mailto:bsapp@abv.bg)

**ABSTRACT**

This paper examines the development of veterinary medicine in Bulgaria after 1878. The beginning of a professional approach to solving the veterinary problem in Bulgaria, the development of education was also noted. It is shown that the civil veterinary service has turned out to be a tenacious, efficient and functionally vital structure to this day.

**Keywords: History of veterinary medicine, Bulgaria**

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**PIMELB1**

**RETROVIRUS TRANSFORMED RAT SARCOMA CELLS IN THE SEARCHING FOR POTENTIAL ANTITUMOR AGENTS**

**Hristo Hristov<sup>1\*</sup>, Abedulkadir Abudalleh<sup>1</sup>, Desislav Dinev<sup>1</sup>, Lora Dyakova<sup>2</sup>, Tanya Zhivkova<sup>1</sup>, Awad Said<sup>3</sup>, Monika Dimcheva<sup>1,4</sup>, Daniela-Cristina Culita<sup>5</sup>, Gabriela Marinescu<sup>5</sup>, Ivo Grabchev<sup>6</sup>, Radostina Alexandrova<sup>1</sup>**

<sup>1</sup>*Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria*

<sup>2</sup>*Institute of Neurobiology, Bulgarian Academy of Sciences, Sofia, Bulgaria*

<sup>3</sup>*Faculty of Science, Assiut University, Assiut, Egypt*

<sup>4</sup>*Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria*

<sup>5</sup>*Institute of Physical Chemistry “Ilie Murgulescu”, Romanian Academy, Bucharest, Romania*

<sup>6</sup>*Faculty of Medicine, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria*

\*Corresponding author: [kanchev.hr@gmail.com](mailto:kanchev.hr@gmail.com)

**ABSTRACT**

The Rous sarcoma virus (RSV, Retroviridae) is the first virus with proved oncogenic properties that can induce solid tumors in various birds and mammals. The cellular analogues of its viral oncogene (v-src) is associated (when dysregulated) with neoplasia in humans and animals. Searching for improved agents with high antitumor activity and less side effects continues. The aim of our study was to evaluate the influence of newly synthesized metal complexes with Schiff bases as well as glucosamine and its derivatives on viability and proliferation of RSV-transformed rat sarcoma cells (the cell line LSR-SF-SR). The experiments were performed by MTT test, double staining with acridine orange and propidium iodide and 3D colony forming method. The results obtained revealed that applied at concentrations from 10 to 600 µg/ml these compounds decrease to different extent viability and 2D/3D growth of the treated cells.

**ACKNOWLEDGEMENTS:** This study was supported by a bilateral project between Romanian Academy and Bulgarian Academy of Sciences; Grant KII-06-KOCT/16 from 16.12.2020, National Science Fund, Bulgarian Ministry of Education and Science.

**Keywords:** **Rous sarcoma virus, sarcoma cells, cytotoxic activity, metal complexes, Schiff bases**

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## **SESSION** **NON-INFECTIOUS PATHOLOGY**

### **O2NIP1**

#### **RESPONSE OF BROILERS TO DIFFERENT DIETARY CONCENTRATION OF ORGANIC AND INORGANIC IRON IN RELATION TO GENERAL IMMUNITY CONDITION**

**Krasimira Genova\*, Tandzhu Mehmedov, Anna Arnaudova-Mate**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [kgenova@ltu.bg](mailto:kgenova@ltu.bg)

#### **ABSTRACT**

The trace elements Fe, Cu, Mn and Zn are essential for the growth of broiler chicks as they take part in a number of immunological reactions in the body. Iron is a nutrient element of great importance, especially for rapidly growing organisms. The purpose of this study was to investigate the effects of organic and inorganic iron on certain specific and nonspecific immune reactions in broiler chickens. For a period of 35 days the birds received feed with different doses (60 ppm and 300 ppm) of iron sulphate and iron methional. The effect of these minerals on the bactericidal activity of lysozyme, and serum and on the migration of lymphocytes. The analysis of the obtained data allow to optimize the immunological reactivity in broiler chickens.

**Keywords: broilers, bactericidal activity, lysozyme, lymphocyte migration, immunity**

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### **O2NIP2**

#### **OXIDATIVE STRESS IN BLACK-NECKED PHEASANTS WITH SIGNS OF CANNIBALISM - THE USE OF TRYPTOPHAN AND SILYMARIN AS ANTIOXIDANTS**

**Slavko Nikolov<sup>1\*</sup>, Dian Kanakov<sup>1</sup>, Veselin Ivanov<sup>2</sup>, Galina Nikolova<sup>2</sup>, Yanka Karamalakova<sup>2</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

<sup>2</sup>*Faculty of Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [slavko92@outlook.com](mailto:slavko92@outlook.com)

#### **ABSTRACT**

The oxidative stress indicators were studied - Malondialdehyde (MDA,  $\mu\text{mol/l}$ ), Protein carbonyl content (PCC,  $\text{nmol/mg}$ ) and the antioxidant enzymes – Superoxide dismutase (SOD,  $\text{U/ml}$ ) and Catalase (CAT,  $\text{ng/ml}$ ) in Black-necked pheasants. In the study, 48 blood samples were taken from pheasants, divided into 4 groups ( $n=12$ ): I (negative control) group - clinically healthy; II experimental group - birds treated with tryptophan; III experimental group - birds treated with silymarin; IV (positive control) group - pheasants with signs of cannibalism. The levels of lipid peroxidation were expressed in accumulation of MDA, and the disturbance in protein metabolism with increased PCC. This was found in the positive control of pheasants with value for MDA ( $5.16\pm 0.39$ ) and PCC ( $7.70\pm 0.45$ ), respectively the negative control ( $2.35\pm 0.19$ ) and ( $1.46\pm 0.25$ ). The tendency for SOD was



opposite with very high activity in the negative control ( $2.99 \pm 0.10$ ), and in the positive control was ( $1.64 \pm 0.20$ ). Compensatory, the activity of CAT levels in the negative control ( $1.33 \pm 0.24$ ) was higher in comparison to the positive control ( $6.65 \pm 0.73$ ). The silymarin had pronounced antioxidant effect on each of the observed indicators, while the effects of tryptophan were in lower rate.

**Keywords:** Black-necked pheasants, cannibalism, malondialdehyde, protein carbonyl content, superoxide dismutase, catalase

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### **O2NIP3**

## **CLINICAL MANIFESTATIONS OF ACUTE PANCREATITIS IN DOGS - DIAGNOSTIC AND PROGNOSIS VALUE**

**Lazarin Lazarov**

*Trakia University, Faculty of Veterinary Medicine, Stara Zagora, Bulgaria*

*Corresponding author:* [lazarin.lazarov@trakia-uni.bg](mailto:lazarin.lazarov@trakia-uni.bg).

### **ABSTRACT**

The clinical signs of acute pancreatitis depend largely on the severity of the disease, which can range from subclinical to life-threatening. The more common clinical signs are a direct result of inflammation of the pancreas or of the systemic effects of inflammation. The present study was performed in 83 dogs with spontaneous acute pancreatitis and 12 dogs with experimentally induced acute pancreatitis. The indicators general condition, appetite, vomiting, defecation, pain, mobility and reactivity were assessed. Both the frequency and the degree of manifestation of the individual clinical signs were taken into account. The most common symptoms were lethargy, anorexia, vomiting, diarrhea, and abdominal pain. There was a statistically significant difference between the experimental groups in the degree of manifestation of some of the signs, but not in the frequency of their manifestation.

**Keywords:** pancreatitis, dog, clinical signs, prognosis value

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### **O2NIP4**

## **VASCULAR ENDOTHELIAL GROWTH FACTOR IN BLOOD PLASMA IN DOGS WITH MAMMARY GLAND CARCINOMA**

**Tsanko Hristov, Lazarin Lazarov\***

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

*\*Corresponding author:* [lazarin.lazarov@trakia-uni.bg](mailto:lazarin.lazarov@trakia-uni.bg)

### **ABSTRACT**

Vascular endothelial growth factor (VEGF) is a key angiogenic growth factor with an important role in many physiological and pathological processes. It initiates angiogenesis, increases vascular permeability, inhibits cell apoptosis and is a mitogenic activator of vascular endothelial cells. In this study, VEGF concentrations were assayed in blood plasma of 19 dogs with mammary gland carcinoma and in 10 healthy dogs (control group) by means of ELISA. Average blood plasma VEGF in control dogs was  $36.79 \pm 5.72$  pg / ml, while in dogs with mammary carcinoma  $115.64 \pm 12.26$  pg / ml ( $p < 0.01$ ). In 52.6% of cancer dogs ( $n = 10$ ), VEGF levels above 97.4 pg / ml (median) were reported.

**Keywords:** VEGF, dog, mammary gland carcinoma

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**O2NIP5****SERTOLI CELL TUMOR OF THE TESTICLE WITH FEMINIZING SYNDROME  
IN A DOG – CASE REPORT****Tsveta Georgieva\*, Kalin Hristov, Georgi Popov***Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria***\*Corresponding author:** [c.georgieva@ltu.bg](mailto:c.georgieva@ltu.bg)**ABSTRACT**

Sertoli cell testicular tumors are usually rare in horses and more common in dogs. These are neoplasms that develop from sertoli cells in the testicle, and the feminizing clinical effect is due to the high levels of estrogen in the blood. Visible manifestations of estrogenism are reduced sexual attraction to female animals, accumulation of adipose tissue in the lumbar region and the acquisition of a female constitution of the body, at a later stage there is atrophy of the testicles and stimulation of the mammary gland. In this clinical case is described condition of a male dog of the breed Giant German Spitz, 10 years old, uncastrated. Apparently both testicles are asymmetric, the left one being twice the size of the right one. Palpation reveals pain and discomfort.

**Keywords:** sertoli cell tumor, sertoli cells, testicle, feminization, reduced sexual attraction

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**O2NIP6****AFLATOXIN M1 IN RAW MILK: IMPORTANCE ON HUMAN HEALTH AND  
RUMINANTS****Majd Abi Haidar<sup>1\*</sup>, Mona Abboud<sup>1</sup>, Toni Todorov<sup>2</sup>**<sup>1</sup>*Faculty of Agronomy and Veterinary Medicine, Lebanese University, Beirut, Lebanon*<sup>2</sup>*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria***\*Corresponding author:** [majdabihaidar@gmail.com](mailto:majdabihaidar@gmail.com)**ABSTRACT**

Aflatoxin is both acutely and chronically toxic for animals and humans and can cause potentially dangerous diseases including acute toxic hepatitis, liver cirrhosis and hepatocarcinoma. AFM1 contamination in dairy products or raw milk is a global problem threatening public health in all areas of the world. Despite high consumption of dairy products in Lebanon, a few credible data are available on their contamination levels with AFM1. *A. flavus* and *A. parasiticus* were identified as the organisms responsible for the elaboration of the toxin in the feed. The term aflatoxin now refers to group of bisfuranocoumarin metabolites isolated from strains of *A. flavus* group of fungi. The toxic material derived from the fungus *A. flavus* was given the name "aflatoxin". The contamination of feedstuffs with mycotoxin is of increasing concern as changes on agricultural practice and probably climatic changes seem to have increased the prevalence of mycotoxin contamination. Contamination of feeds with mycotoxins accounts for significant loss in animal husbandry, as well as undesirable trade barriers for raw materials and dairy consumable products. The aim of the present review is to outline the importance of raw milk contamination with AFM1 and its effects on human health and ruminants.

**Keywords:** Aflatoxins, AFM1, mycotoxin, raw milk, dairy products

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**O2NIP7**

**COMPARATIVE ECHOCARDIOGRAPHIC STUDY BETWEEN MALE AND FEMALE DOGS WITH MYXOMATOUS MITRAL VALVE DISEASE – STAGE B (B1+B2)**

**Atanas Pankov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

**Corresponding author:** [pannkov@abv.bg](mailto:pannkov@abv.bg)

**ABSTRACT**

Female and male dogs respond differently to cardiac volume overload as a result of stage B (B1+B2) MMVD. The differences are more strongly related to the characteristics of the heart walls in systole and diastole and less to the left ventricular inner diameter. They are similar to the differences found between women and men in people with low-grade mitral regurgitation.

**Keywords:** echocardiographic, mitral, sex, dogs

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**O2NIP8**

**“EQUINE ASTHMA” SYNDROME – CLINICAL, ENDOSCOPIC AND BACTERIOLOGIC INVESTIGATIONS IN EIGHT TINKER HORSES**

**Sasho Sabev\*, Mariyana Nikolova**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

**\*Corresponding author:** [s\\_sab@gbg.bg](mailto:s_sab@gbg.bg)

**ABSTRACT**

The present study was performed with eight Tinker mares, showing signs of difficulty and rapid breathing, cough, reduced physical condition accompanied by rapid fatigue. Internal body temperature and heart rate were within physiological limits. Morphological parameters of the blood (erythrocytes, erythrocyte indices, hemoglobin, hematocrit, platelets, leukocytes and DCC) did not show deviations from the reference values. Endoscopic examination of the trachea showed an increased amount of mucus (3rd to 5th degree) in the thoracic inlet area, edema of the carina and a well-defined spasm of the main bronchi. After microbiological examination of tracheal lavage samples, the following microflora was isolated: *Streptococcus equi*, subsp. *zooepidemicus* (2 horses), *Streptococcus pneumoniae* (1 horse), *Pasteurella* spp. (1 horse), *Klebsiella pneumoniae* (1 horse) and *Pseudomonas aeruginosa* (1 horse). No microorganisms were detected in two animals. Cytological examination of slides prepared from tracheal secretion revealed a predominance of neutrophil leukocytes, accounting for  $81 \pm 7\%$  of all inflammatory cells. The remaining cells were macrophages ( $12 \pm 4\%$ ) and lymphocytes ( $9 \pm 3\%$ ).

**Keywords:** horse, asthma, endoscopy, TW, cytology, microbiology

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### **O2NIP9**

## **PROTOCOL FOR DIAGNOSIS, TREATMENT AND SUBSEQUENT CARE OF PRIMARY SECRETORY OTITIS MEDIA IN CAVALIER KING CHARLES SPANIELS**

**Ivelina Vacheva**

*Multidisciplinary Veterinary Clinic Bulgaria*

*Corresponding author:* [clinic@mvcbulgaria.com](mailto:clinic@mvcbulgaria.com)

### **ABSTRACT**

Primary Secretory Otitis Media in the Cavalier King Charles Spaniel is a rare and complex disorder. However, using a well established protocol, including well established procedures, modern day imaging technology, precise treatment and adequate post-treatment care can lead to a high rate of successfully dissipated symptoms and long-term well-being our the patients. The suggested protocol is based on 14 examined patients in a 1 year time period. It includes otoscopic examination, cytology, culture and sensitivity testing, magnetic resonance imaging, videootoscopy, deep ear cleaning, myringotomy, educating the owners, owners' feedback, subsequent therapy and long-term follow up. The study concludes that MRI and educating the owners are two extremely important tools that should not be overlooked. Additionally, further research with the addition of DNA analysis is needed.

**Keywords:** primary secretory otitis media (PSOM), videootoscopy, myringotomy, magnetic resonance imaging (MRI), Cavalier king charles spaniel

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### **O2NIP10**

## **APPLICATION OF REGENERATIVE THERAPIES OF AUTOLOGOUS BLOOD PRODUCTS IN VETERINARY OPHTHALMOLOGY IN THE RECOVERY OF DEEP CORNEAL DEFECTS**

**Seven Mustafa\*, Nadya Zlateva-Panayotova**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author:* [seven.r.mustafa@gmail.com](mailto:seven.r.mustafa@gmail.com)

### **ABSTRACT**

Damage to the cornea causes a cascade of chemically mediated processes that lead to the restoration of the functional integrity of tissues. By regulating proliferation, differentiation, apoptosis and other functions, the growth factors found in the tear film and the layers of the cornea play an important role in the healing of its wounds. In some situations, their release may be impaired or treatment may be delayed. Known surgical and non-surgical methods for the treatment of corneal defects are insufficiently effective in terms of duration and complete recovery. In recent years, regenerative therapies using autologous blood products have shown great potential in terms of cell stimulation and defect repair. Blood products, such as autologous serum and platelet-rich plasma, are a source of growth factors that have the natural potential to stimulate the recovery and specific healing of corneal ulcers. Corneal damage in animals, especially when it affects the deep layers, is a serious pathological process that can lead to visual impairment and in some cases to loss of the eye.

Regenerative therapies can be used in veterinary ophthalmology as a source of natural resources and a catalyst for recovery processes.

**Keywords: corneal healing, corneal ulcer, growth factors, platelets, regenerative medicine**

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### **P2NIP1**

#### **INFLUENCE OF SUB-CLINICAL MASTITIS ON MILK QUALITY IN COWS**

**Sergey Fedotov\*, N. Belozertseva**

*Moscow State Academy of Veterinary Medicine and Biotechnology-MBA by K.I. Scriabin,  
Russia*

\*Corresponding author: [serfv@mail.ru](mailto:serfv@mail.ru)

#### **ABSTRACT**

The aim of this work is to determine the quality of milk on questionable and weakly positive reaction of the Mastitis-Test and comparison of these parameters with acceptable levels of somatic cells in the technical regulations for milk and dairy products. All animals underwent express-diagnosis of udder health with the California Mastitis-Test and based on the result obtained was formed two groups of animals to 15 animals in each group. Animals of the first group had the dubious reaction to California express method, and the second animal – weakly positive. Studies included quality control of raw milk according to GOST R 52054-2003 and technical regulations on milk and dairy products from July 22, 2010 № 163 – FL (Federal law). Organoleptic, physico-chemical, sanitary indicators of milk by conventional methods. The total protein content in the I-th group was 3,23%, while the II-nd group changed slightly and was 3,21%, but decreased the content of casein in the II-nd group by 6,7% and amounted to 2,50%. In turn, increased elk serum proteins in the II-nd group and was 0,65 % albumin and 0,06 % new globulins. Density of milk cows first group also conform to the standards as provided by the guests, and the cows from second group slightly below normal and reached 1026,5 kg/m<sup>3</sup>. Somatic cells per 534 tys./sm<sup>3</sup> higher in animals II-nd group compared with the first group, which indicates the presence of inflammation in the udder.

**Keywords: mastitis, fat, protein, casein, lactose, somatic cells, acidity, density, acidity, thermal stability, rennet-fermentation trial, technological properties**

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### **P2NIP2**

#### **HISTOPATHOLOGICAL AND BIOCHEMICAL CHANGES IN LACAUNE EWES WITH KETOSIS**

**Vania Marutsova, Radostin Simeonov**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [vaniamarutsova@abv.bg](mailto:vaniamarutsova@abv.bg)

#### **ABSTRACT**

The aim of the present study was to establish the histopathological and biochemical changes in ewes from the Laucane breed with subclinical and clinical ketosis. A total of 106 dairy ewes with yearly milk yield of 200 l were included in the study. Blood samples were obtained from all animals for determination of  $\beta$ -hydroxybutyrate (BHBA, mmol/l), non-

esterified fatty acids (NEFA, mmol/l), glucose (Gl, mmol/l), aspartate aminotransferase (ASAT, U/l), alanine aminotransferase (ALAT, U/l) and total bilirubin (Tb, mmol/l). The ewes were divided in three groups depending on their physiological condition: pregnant, recently lambled and lactating. Target ewes from the three groups were classified as healthy (control, BHBA < 0.8 mmol/L), affected with subclinical ketosis (SCK, BHBA from 0.8 to 1.6 mmol/l) and with clinical ketosis (CK, BHBA >1.6 mmol/l) depending on their blood BHBA levels. The histopathological investigations were done after autopsy of ewes diagnosed with ketosis. The quantities of NEFA in sheep of the three groups with SCK were statistically significantly elevated vs control groups, while in sheep with CK - decreased, vs both controls and SCK. The levels of glucose decreased, while the activities of ASAT, ALAT and Tb levels were increased in ewes with SCK and CK ketosis vs controls. Histological preparation revealed cellular vacuolation in hepatocytes, caryolysis, karyorrhexis, necrotic changes and high-grade fatty dystrophy of liver and kidneys in ewes with ketosis.

**Keywords:** ketosis,  $\beta$ -hydroxybutyrate, enzymes, histological, ewes

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### **P2NIP3**

#### **CURRENT ASPECTS OF ZEARALENONE MYCOTOXICOSIS IN PIGS (REVIEW)**

**Nikolay Nikolov\*, Rumen Binev**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [nikolay-t-nikolov@abv.bg](mailto:nikolay-t-nikolov@abv.bg)

#### **ABSTRACT**

Global contamination of feed and food with mycotoxins is a global environmental and socially significant health problem. The effect of molds infecting feed and mycotoxins produced by them is characterized by the fact that even in minimal concentrations, especially with potentiated synergy effect between them and prolonged use can lead to significant changes in health status, expressed in immunosuppressive effect, reproductive disorders in productive animals. The most important mycotoxins, the subject of profound analysis and economically important in modern animal husbandry, in special pig breeding are: deoxynivalenol (DON), zearalenone (ZEA), T-2 toxin (T-2), fumonisin B1 (FB1), ochratoxin A (OTA) and aflatoxin B1 (AFB1). This article describes the mycotoxin Zearalenone (ZEA) as one of the main contaminants in pig feed, its distribution, toxicokinetics, toxicodynamics, clinical signs.

**Keywords:** Zearalenone (ZEA), prevalence, toxicity, metabolism, pigs

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### **P2NIP4**

#### **SYNCHRONIZATION OF ESTRUS AND FERTILITY IN SHEEP OF THE NORTHEASTERN BULGARIAN FINE-WOOLEN BREED - SHUMEN TYPE BY DIFFERENT PROGESTOGEN TREATMENTS AND DIFFERENT DOSES OF PMSG**

**Nikola Metodiev<sup>1\*</sup>, Todor Tsonev<sup>2</sup>, Georgi Anev<sup>2</sup>**

<sup>1</sup>*Institute of Animal Science, Kostinbrod, Bulgaria*

<sup>2</sup>*Scientific Center for Agriculture, Targovishte, Bulgaria*

\*Corresponding author: [n\\_metodiev@abv.bg](mailto:n_metodiev@abv.bg)

## ABSTRACT

The aim of the present study was to test three protocols for synchronization of estrus and fertility in merino sheep. 3 experimental groups were formed, depending on the duration of progestagen treatment (FGA sponges) and PMSG dose: Group 1 (n = 12) - 12 days + 500 UI. Group 2 (n = 12) - 12 days + 250 UI. Group 3 (n = 11) - 5 days (at the time of sponge placement, sheep were treated with a synthetic analogue of PGF2 $\alpha$ ) + 500 UI. On the three groups, PMSG was injected at the time of sponge removal. At the 48th hour of sponge removal, the highest number of ewes in the estrus was in the Group 2 - 12 sheep, while in the others it was 9 (Group 1) and 6 (Group 3). The highest values for fertility and fecundity were obtained in sheep from Group 1 - 41.66% and 160.0%.

**Keywords:** sheep, estrus, progestagens, PMSG

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## P2NIP5

### EFFECT OF “AVIGEN-DUCK” IMMUNOMODULATOR ON BETA-LYSINE ACTIVITY IN WHITE PEKIN DUCKS

**Rumen Karakolev<sup>1\*</sup>, Preslava Petrova-Tsenin<sup>1</sup>, Reneta Petrova<sup>1</sup>, Tsvetoslav Koinarski<sup>2</sup>**

<sup>1</sup>*National Diagnostic Science-and-Research Veterinary Medical Institute "Prof. Dr. G. Pavlov", Sofia, Bulgaria*

<sup>2</sup>*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [rumenkarakolev@abv.bg](mailto:rumenkarakolev@abv.bg)

## ABSTRACT

The beta-lysine activity of blood serum and egg white in White Pekin ducks reared in industrial conditions was studied using a spectrophotometric method. The birds from the experimental groups were treated with polybacterial immunomodulator "AVIGEN-DUCK", the anti-stress preparation "ASPIVIT C" and the preparation "BIOXAN", which helps to increase the resorption surface of the intestinal mucosa. The birds from the control flock received the last two preparations, but without the immunomodulator. We found increased activity of beta-lysine in the blood serum in immunomodulator-treated ducks, from the 10th day after taking the immunomodulator and up to the 28th day of the bird's life. Then, the concentration of beta-lysine in the blood serum of fattened ducks approaches that of the untreated control flock. We also registered an increase in this indicator in the egg white of the parent experimental flock from the 5th to the 12th day after laying. The higher levels of beta-lysine in the blood serum and egg white of the experimental flocks are probably due to the stimulation on the mucous membranes with the polybacterial immunomodulator “AVIGEN-DUCK” and shows opportunities to influence this little-studied indicator of nonspecific immunity.

**Keywords:** beta-lysine, immunomodulators, natural humoral immunity

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## **SESSION INFECTIOUS PATHOLOGY**

### **O3IP1**

#### **FIRST IDENTIFICATION OF DIROFILARIA IMMITIS IN MOSQUITOES IN BULGARIA BY REAL TIME PCR**

**Radoslav Rafailov<sup>1\*</sup>, Simona Tchakarova<sup>2</sup>, Kostadin Kanchev<sup>1</sup>**

<sup>1</sup> *Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

<sup>2</sup> *National diagnostic and research veterinary medical institute „prof. Georgi Pavlov”, Sofia, Bulgaria*

\*Corresponding author: [radoslavrafailov@abv.bg](mailto:radoslavrafailov@abv.bg)

#### **ABSTRACT**

The heartworm disease caused by the nematode *Dirofilaria immitis* (Filarioidea: Onchocercidae) is one of the most serious parasitic diseases affecting dogs. Since Kanev et al. (1996) first identified the Nematodosis in the country it has been an object of continuous investigations by a number of scientists. Most of the studies are related to its prevalence in the country (Kirkova et al., 2007; Panayotova-Pencheva et al. 2016; Radev et al. 2016; Iliev et al. 2017, Borisov et al., 2017; Manev, 2020, Rafailov, 2020; Marincheva, 2021) and the occurrence of pathohistological changes (Rafailov et al., 2022). So far in Bulgaria there is no information about what is the typology of the intermediate hosts. The aim of the present research was to collect mosquitoes from different parts of the country, determine their typology and recognize which one of them transmit the disease. The molecular biological method Real time PCR was used in order to detect the microfilariae in them. The research's results proved the existence of nematode microfilariae: *Culex pipiens* and *Anopheles maculipennis complex* in the examined mosquitos.

**Keywords:** *Dirofilaria immitis*, mosquitos, Real time PCR, Bulgaria

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### **O3IP2**

#### **BLOOD ACID-BASE BALANCE PARAMETERS AND SERUM ELECTROLYTE CONCENTRATIONS IN CALVES, INFECTED WITH BOVINE DIARRHEA/MUCOSAL DISEASE**

**Krasimira Genova\*, Tandzhu Mehmedov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [kgenova@ltu.bg](mailto:kgenova@ltu.bg)

#### **ABSTRACT**

Bovine viral diarrhea/mucosal disease (BVDV) is a pestivirus infection of cattle and results in major economic losses. Acid base and electrolytic disorders are frequent findings in sick cattle. The purpose of this study was an assessment of the effects of bovine diarrhea/mucosal disease virus on acid-base balance and serum electrolyte concentrations in calves. We included in the study 11 calves, 2-5 months of age with clinical signs of disease. Pathology in calves was expressed by diarrhea, weakness, gingivitis, dehydration. The samples were analysed for blood pH, the partial pressure of carbon dioxide – pCO<sub>2</sub> (kPa),

partial pressure of oxygen – pO<sub>2</sub> (kPa), actual bicarbonate – HCO<sub>3</sub> – (mmol/l), base excess – BE (mmol/l), saturation of haemoglobin with oxygen – O<sub>2</sub>-sat (%). Sodium ions, K<sup>+</sup>, Ca<sup>++</sup>, Cl<sup>-</sup>, Hb and Hct were determined. Changes indicate the state of uncompensated metabolic acidosis. The balance of mineral substances concentration in calves’ blood serum was disturbed, Major sodium and chloride losses were occurred.

**Keywords:** calves, acid-base disturbance

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### **03IP3**

#### **ANTIMICROBIAL RESISTANCE AND PATHOGENIC FACTORS OF *VIBRIO PARAHAEMOLYTICUS* ISOLATED FROM SEAFOOD**

**Rumyana Fasulkova**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [rumyana.fasulkova@trakia-uni.bg](mailto:rumyana.fasulkova@trakia-uni.bg).

#### **ABSTRACT**

The aim of the present study was to determine the presence of *Vibrio parahaemolyticus* in seafood, as well as to determine its microbial resistance and some pathogenic factors. From May to September 2021, 65 seafood samples were analysed, which included mussels (*Mytilus galloprovincialis*) (n=20), veined rapa whelks (*Rapana venosa*) (n=10), bluefish (*Pomatomus saltatrix*) (n=10), horse mackerel (*Trachurus mediterraneus*) (n=10), gilthead seabream (*Sparus aurata*) (n=9), sea bass (*Dicentrarchus labrax*) (n=6). MALDI-TOF mass spectrometry and toxR-based PCR assay were used to identify isolates. A total of 25 (38.5%) samples were *V. parahaemolyticus*-positive. *V. parahaemolyticus* was not isolated from sea bass samples. None of these isolates showed hemolytic activity on blood agar and no *trh* gene encoding thermostable-related hemolysin was detected in any of the isolates. All isolates were susceptible to Cotrimoxazole, Tetracyclin, Gentamicin, Amoxicillin + clavulanic acid and Ciprofloxacin. 20% of the isolates showed resistance to Cefepime, while 16% and 4% of the isolates were resistant to Ampicillin and Ceftazidime, respectively. Intermediate resistance to Cefepime was found in 44% of isolates, followed by Ampicillin (32%) and Amikacin (4%). Only one veined rapa whelks isolate showed multiple antibiotic resistance to Ceftazidime, Cefepime and Ampicillin. The MAR index of the isolates ranged from 0.11 to 0.33. The analysis of the obtained results shows that *V. parahaemolyticus* presents in a relatively high number of samples, which could increase the risk of foodborne infections.

**Keywords:** *Vibrio parahaemolyticus*, seafood, pathogenic factors, antimicrobial resistance

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### **03IP4**

#### **COMBINATION BETWEEN ROYAL JELLY AND BEE HONEY - NEW PERSPECTIVE FOR ANTIBACTERIAL THERAPY OF SKIN AND INTESTINAL INFECTIONS**

**Velina Dinkova, Dinko Dinkov\***

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [dinkodinkov@abv.bg](mailto:dinkodinkov@abv.bg)



## ABSTRACT

In the study were presented a new data for specific antibacterial activity in mixes between royal jelly and bee honey against resistant for antibacterial substances microorganisms. This could be important for future development of effective drugs for therapy of skin and intestinal infections.

**Keywords:** royal jelly, bee honey, antibacterial

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### O3IP5

#### MORE INSIGHT INTO REQUIREMENTS OF ORGANIC BEE POLLEN PROCESSING, STORAGE AND SHELF LIFE

**Dinko Dinkov<sup>1\*</sup>, Ivan Genchev<sup>2</sup>, Deyan Stratev<sup>1</sup>, Parvan Parvanov<sup>1</sup>, Ralitsa Balkanska<sup>3</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

<sup>2</sup>*Bulgarian food safety agency, Sofia, Bulgaria*

<sup>3</sup>*Institute of Animal Science, Kostinbrod, Bulgaria*

\*Corresponding author: [dinkodinkov@abv.bg](mailto:dinkodinkov@abv.bg)

## ABSTRACT

Organically produced bee pollen should be of high quality with respect to quality parameters, free of contaminants and to possess traits close to natural indices. The aim of the present work based on our surveys and available literature data to sum up the factors influencing the physico-chemical composition, organoleptic and antibacterial properties of organic bee pollen, and to suggest some definite requirements to its processing, storage and shelf life.

**Key words:** bee pollen, organic, processing, storage

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### O3IP6

#### SEAFOOD LABELLING AT NATIONAL LEVEL: STRENGTH AND WEAKNESSES OF THE NEW OFFICIAL BULGARIAN LIST OF SEAFOOD TRADE NAMES

**Deyan Stratev<sup>1\*</sup>, Lara Tinacci<sup>2</sup>, Georgi Zhelyazkov<sup>3</sup>, Ralica Kyuchukova<sup>1</sup>, Mariyana Strateva<sup>1</sup>, Andrea Armani<sup>2</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

<sup>2</sup>*FishLab, Department of Veterinary Sciences, University of Pisa, Pisa, Italy*

<sup>3</sup>*Faculty of Agriculture, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [deyan.stratev@trakia-uni.bg](mailto:deyan.stratev@trakia-uni.bg)

## ABSTRACT

The EU seafood labelling system Reg.EU No. 1379/2013 imposes a products' codified trade name consisting of a commercial designation (CD) and the associated scientific name (SN) and delegates Member States to the draw up and update official lists of trade names accepted in their territory. The first Bulgarian official list (Ordinance No. 4 of 13.01.2006) has been recently abrogated and a new list (Ordinance No. 13 30.11.2021) is currently in force. In the study the correctness and compliance of the new list against the Bulgarian market's trend are presented. The SNs records validity was checked against FAO's reference official information systems. The list's evolution was assessed through a comparison with the

repealed list and data available on the National market (Tinacci et al 2018-2020). *List description*: 81 records are identifiable against the 61 included in the original list with an apparent total increase in the number of species considered, although still below the number of species listed by other EU Member States. Fish category contributes for 86.4% (N=70). A relevant percentage of records (9.9%) still appear obsolete and not valid. *List's compliance to market demand*: the analysis highlights the will of the national Legislator to enhance local caught and cultured species largely represented by freshwater species. Nevertheless, the list revision led to the disappearance of 30 SN mainly belonging to imported marine fish species extensively demanded and available at retail. Major issues related to the SN validity and the non-adherence to the market demand highlight the need of a second urgent list revision by merging the two lists produced so far, and including an additional number of species already widely spread and consumed.

**ACKNOWLEDGEMENTS:** Study funded by National Scientific Program “Healthy Foods for a Strong Bio-Economy and Quality of Life”, funded by Bulgarian Ministry of Education and Science.

**Keywords:** EU Seafood labelling, official trade names list, commercial name, scientific name, market demand

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### 03IP7

## HAEMATOLOGY AND SERUM BIOCHEMISTRY PARAMETERS AS INDICATORS OF THE MOST COMMON CANINE VECTOR BORNE DISEASES IN RN MACEDONIA

**Elena Atanaskova Petrov\*, Todor Novakov, Irena Celeska**

*Faculty of Veterinary Medicine- Skopje, Ss. Cyril and Methodius University in Skopje, RN Macedonia*

\*Corresponding author: [eatanaskova@fvm.ukim.edu.mk](mailto:eatanaskova@fvm.ukim.edu.mk)

### ABSTRACT

Canine vector borne diseases (CVBD) are one of the major health issues in Macedonia, with potentially fatal outcome if not treated in time. The diseases are caused by different pathogenic organisms (e.g. bacteria, protozoa, helminths), transmitted by various blood sucking arthropod vectors. Most commonly present CVBD in Macedonia are ehrlichiosis (caused by Ehrlichia canis), heartworm disease (Diroffilaria immitis), anaplasmosis (Anaplasma platys and phagocytophilum) and leishmaniasis (Leishmania infantum). Infected dogs can present variety of clinical signs, depending of the stage of the disease and the affected organs. The aim of this study was to present most commonly found haematology and serum biochemistry alterations in dogs with ehrlichiosis, anaplasmosis, heartworm or leishmaniasis. For that purpose, we analysed 40 dogs, divided in 4 groups (each group contained 10 dogs), depending of the disease. Haematology (RBC, PCV, HGB, WBC, and PLT) and serum biochemistry analyses (ALT, AST, ALKP, albumin, total protein, globulin, urea and creatinine) were analysed for each dog. The results revealed moderate normocytic normochromic anaemia (PCV 17.82%,  $\pm 4.5$ , HGB 8.3 g/dl  $\pm 2.29$ ) with elevated kidney parameters (Urea 30.7 mmol/l  $\pm 20.41$  and creatinine 352.62  $\mu\text{mol/l} \pm 274.12$ ) as well as hypoalbuminemia (18.48 mmol/l  $\pm 6.96$ ) and hyperglobulinemia (37.13 mmol/l  $\pm 7.16$ ) in patients with leishmaniasis. Thrombocytopenia (PLT  $95.4 \cdot 10^9/l \pm 97.39$ ) was marked haematology parameter for patients with ehrlichiosis, while elevated ALKP (302.57 U/l  $\pm 73.15$ ) was present in dogs with heartworm disease. These laboratory parameters can be used

in conjunction with the clinical findings as indicators for further necessary diagnostic tests for CVBD in dogs.

**Keywords: canine vector borne disease, hematology, serum biochemistry**

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### **O3IP8**

## **SUPERFICIAL AND INTERNAL BACTERIAL MICROFLORA OF LICE AND FLEAS IN GOATS**

**Nikola Nizamov**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

**\*Corresponding author:** [nikola\\_nizamov@abv.bg](mailto:nikola_nizamov@abv.bg)

### **ABSTRACT**

Lice and fleas can play the role of vectors for different infectious agents. They can carry different pathogens to sensitive hosts. The conduction of in depth research on microbiological insemination of lice and fleas meets serious setbacks because of lack of information about their normal microflora. The objective of this study was to determine in parallel superficial and internal bacterial insemination of the goat infesting species: *Bovicola caprae*, *Linognathus stenopsis*, *Pullex irritans* collected from naturally infested goats. The parasites that were collected with sterilized forceps were divided into 6 groups and examined according to the classic microbiological methods. The results received from our study showed that the bacterial composition of the surface of the insects which were examined, that is presented by *Streptococcus* spp, *Staphylococcus epidermidis*, *Staphylococcus aureus*, *Corynebacterium* spp, *Escherichia coli*, *Bacillus* spp and *Clostridium perfringens* is richer than the one from the inside – *Streptococcus* spp, *Staphylococcus epidermidis*, *Staphylococcus aureus* and *Bacillus* spp. There are certain differences between the microflora of the separate species of insects.

**Keywords: goats, ectoparasites, lice, fleas, microflora**

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### **O3IP9**

## **SLAUGHTER ANALYSIS IN DUCKS WATERED WITH CATHOLYTE**

**Stanislav Radanski\*, Svetlin Ivanov, Toshka Petrova**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

**\*Corresponding author:** [sradanski@ltu.bg](mailto:sradanski@ltu.bg)

### **ABSTRACT**

Electro-activated (dissociated) water (EAW) has been growing in popularity in recent years in many countries. It is applied in the form of anolyte and catholyte. Catholyte 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. Ten indicators were measured: weight of fresh eviscerated carcass, weight of chilled eviscerated carcass, weight of breast, legs, wings, back, abdominal fat, neck, skin of the neck and trachea. The results show an increase in the weight of fresh and chilled eviscerated carcass of the experimental group of ducks, watered with catholyte, compared to

the control group - watered with tap water. Smaller carcass weight losses after cooling were also observed, again in favor of the experimental group. There is also an increase in the weight of all cuts (breast, legs, wings, back, abdominal fat, neck, skin of the neck and trachea) of the experimental group of ducks compared to the control.

**Keywords: Electro-activated (dissociated) water, catholyte, slaughter analysis, ducks**

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### ***O3IP10***

#### **ANTELMINTHIC RESISTANCE IN COMPANION ANIMALS**

**Kostadin Kanchev\*, Radoslav Rafailov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [dr\\_kanchev@abv.bg](mailto:dr_kanchev@abv.bg)*

#### **ABSTRACT**

Anthelmintic resistance is an inherited reduced susceptibility of a parasitic worms population to the action of various anthelmintic drugs. This is a widespread phenomenon found in different animal groups, but insufficient information is currently available to presented problem in companion animals. The present paperwork illuminates in literature attitude about the anthelmintic resistance in domestic animals for the company. Information on the species composition of resistant helminths and types of anthelmintics was collected and analyzed.

**Keywords: anthelmintic resistance, companion animals, helminths**

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### ***O3IP11***

#### **PHYSICO-CHEMICAL INDICATORS AND ORGANOLEPTIC CHARACTERISTICS OF RAW-DRIED UNCOMMINUTED MEAT PRODUCTS**

**Stanislav Radanski\*, Valentin Nikolov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [sradanski@ltu.bg](mailto:sradanski@ltu.bg)*

#### **ABSTRACT**

In the present study a comparison between physico-chemical parameters and organoleptic characteristics of raw-dried uncomminuted meat products, produced in three meat processing companies with different capacity and technologies was made. A total amount of 20 samples of two types of raw-dried meat products (fillet “Elena” and beef jerky/pastrami) intended for consumption were tested. The organoleptic analyses of the final products were performed on a five-point evaluation system. Seven indicators were tested: appearance, color, texture, odor, taste, cut surface and overall quality evaluation. The physico-chemical examination included 6 indicators: water content, fat content, nitrites, table salt, pH and Aw. A relation between certain physico-chemical indicators and technological parameters of the final raw-dried uncomminuted products and some organoleptic characteristics of the same products was made.

**Keywords: physico-chemical parameters, organoleptic characteristics, raw-dried uncomminuted meat products**

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## **SESSION STUDENT RESEARCH**

### **O4S1**

#### **ATTITUDES OF PRODUCTIVE ANIMAL OWNERS TO USE THE FUNCTIONALITIES OF THE VETIS INTEGRATED INFORMATION SYSTEM**

**Dimitar Tanchev, Gergana Nikolova Balieva**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [d.tanchev@bfsa.bg](mailto:d.tanchev@bfsa.bg)

#### **ABSTRACT**

The provision of information on the control of communicable diseases and food safety is directly linked to the identification of productive animals for traceability. The effective use of this information can be ensured through a specialized database, maintained by the integrated information system of the BFSA - VetIS. We analyzed the farmers` perceptions about the envisaged new functionalities of the system, which allow them active access. Based on an anonymous survey, we found that more than half of farmers currently say they are familiar with the way VetIS works. There is a positive correlation between the farmers` age and their position on increasing the timeliness of data and reducing errors in entries in the system. Nearly one-third believe that their access to VetIS will facilitate documentary work on the farm by allowing the owner to track the data entered and correct inconsistencies regarding their animals (birth, movement, death, slaughter).

**Keywords: animal identification, VetIS, productive animals, farmers**

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### **O4S2**

#### **EFFECT OF CRYOPRESERVATION ON THE ACTIVITY OF ANTIOXIDANTS AND LEVELS OF LIPID PEROXIDATION IN RAM SEMEN**

**Georgi Petrov<sup>1\*</sup>, Hristiana Kanzova<sup>2</sup>, Georgi Pramatarov<sup>2</sup>, Bogdan Cekić<sup>3</sup>,  
Albena Alexandrova<sup>2,4</sup>, Madlena Andreeva<sup>2</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

<sup>2</sup>*Laboratory of Free Radical Processes, Institute of Neurobiology, Bulgarian Academy of Sciences, Sofia, Bulgaria*

<sup>3</sup>*Institute for Animal Husbandry, Belgrade – Zemun, Serbia*

<sup>4</sup>*Department of Physiology and Biochemistry, National Sports Academy, Sofia, Bulgaria*

\*Corresponding author: [georgipetrov5566@gmail.com](mailto:georgipetrov5566@gmail.com)

#### **ABSTRACT**

Cryopreservation causes oxidative stress (OS) - an imbalance between prooxidants and antioxidants (AO), after the production of reactive oxygen species (ROS), which leads to ultrastructural, biochemical and functional changes in sperm. The aim of this study was to determine the effect of cryopreservation on the activity of antioxidants - glutathione peroxidase (GPx), glutathione reductase (GR), glutathione (GSH), as well as of lipid peroxidation (LPO) levels. The studies included 14 ejaculations of rams of the Lacaune breed during their insemination season. The ejaculations were diluted 1:12 with a 6 A-G extender.

We found that cryopreservation decreased GSH activity from  $0.41 \pm 0.17$  to  $0.32 \pm 0.11$  ng GSH U/mL, and LPO levels increased from  $1.45 \pm 0.39$  to  $2.38 \pm 0.35$  nmol MDA/ $10 \times 10^6$  sp. In conclusion, we confirm the importance of GSH and LPO as markers for ejaculate quality in cryopreservation and do not confirm the same for GPx and GR in the studied animal species.

**Keywords: GSH, GR, GPx, LPO, sperm, ram**

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### **04S3**

#### **EFFECT OF THE CRYOPRESERVATION PROCESS ON THE ACTIVITY OF ALP, ASAT AND ALAT IN RAM SPERM**

**Georgi Petrov<sup>1\*</sup>, Hristiana Kanzova<sup>2</sup>, Georgi Pramatarov<sup>2</sup>, Veronika Karadjova<sup>3</sup>, Nikola Metodiev<sup>4</sup>, Albena Alexandrova<sup>2,5</sup>, Madlena Andreeva<sup>2</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

<sup>2</sup>*Laboratory of Free Radical Processes, Institute of Neurobiology, Bulgarian Academy of Sciences, Sofia, Bulgaria*

<sup>3</sup>*University of Chemical Technology and Metallurgy, Sofia, Bulgaria*

<sup>4</sup>*Institute of Animal Science, Kostinbrod, Bulgaria*

<sup>5</sup>*Department of Physiology and Biochemistry, National Sports Academy, Sofia, Bulgaria*

**\*Corresponding author:** [georgipetrov5566@gmail.com](mailto:georgipetrov5566@gmail.com)

#### **ABSTRACT**

The aim of this study is to determine the enzyme activities of alkaline phosphatase (ALP), aspartate aminotransferase (ASAT), and alanine aminotransferase (ALAT) before and after cryopreservation of ejaculations from rams of the Ile-de-France breed. For this purpose, 12 ejaculations from 6 rams were examined during their breeding season. The enzyme activity was determined spectrophotometrically in seminal plasma (i.e., extracellular activity) and in sperm (i.e., intracellular activity) before and after cryopreservation. We found higher intracellular enzyme activity before freezing. After thawing, the intracellular activity of ASAT increased, while that of ALAT decreased significantly ( $P \leq 0.001$ ). The intracellular activity of the ALP enzyme was twice as high as its extracellular activity. After cryopreservation, the intracellular activity increased, while its extracellular activity decreased insignificantly. In conclusion, the three enzymes are not a reliable indicator of freeze-thawing damage of the sperm membrane.

**Keywords: ALP, ASAT, ALAT, sperm, ram**

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### **04S4**

#### **PHARMACEUTICAL INDUSTRY AND LABORATORY ANIMALS**

**Denis Velinov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

**Corresponding author:** [deni.velinov1@gmail.com](mailto:deni.velinov1@gmail.com)

#### **ABSTRACT**

The report analyzes the many benefits of pharmacy as a science and introduces the two main points of view, regarding the pharmaceutical industry and the role of laboratory animals in the tests, associated with it. The first part presents the important role of the pharmaceutical



industry in the life of the ordinary man. The main generally accepted positives of the industry presented are regarding the researches, leading to new innovations in the field of pharmacy, the increase in life expectancy in the last decades, because of the better and advanced understanding of the pathogenesis of the diseases as well as the eradication of potentially fatal illnesses. The main downside, that is pointed out is animal testing. The second part of the report, focuses on the arguments „for“ and „against“ the testing, done on laboratory animals. The analysis concludes with a summary, which is a prerequisite for forming personal opinions on the matter.

**Keywords: pharmacy, laboratory animals, tests, researches**

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#### **O4S5**

### **INVESTIGATION ON THE MICROBIAL CONTENT OF CERTAIN BRANDS BULGARIAN YOGHOURT**

**Vanya Parvanova\*, Preslav Georgiev, Teodora Popova**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

**\*Corresponding author:** [vparvanova87@dmil.com](mailto:vparvanova87@dmil.com)

#### **ABSTRACT**

Bulgarian yogurt is an extremely useful food product, valuable not only in our country. The main bacterial species used for the production of Bulgarian yogurt is *Lactobacillus bulgaricus*, which was discovered in 1905 by the Bulgarian veterinarian Stamen Grigorov. This bacterium contained in our yogurt is a natural probiotic. In the present study we used 6 brands of Bulgarian yogurt, which we tested for the content of *Lactobacillus bulgaricus* and *Lactococcus* spp., as well as for the presence of starch. We described the research conducted and their results.

**Keywords: Bulgarian yogurt, probiotic, *Lactobacillus bulgaricus*, *Lactococcus* spp.**

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#### **O4S6**

### **INFLUENCE OF VARIOUS FACTORS ON CALCULUS FORMATION IN THE RABBIT URINARY LADDER**

**Tsvetelina Angelova, Nikolai Ivanov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

**\*Corresponding author:** [cvetelina8606@gmail.com](mailto:cvetelina8606@gmail.com)

#### **ABSTRACT**

The increasing prevalence of rabbits as pets obliges veterinary practice to turn its attention to this species in order to adequate and professional assistance corresponding to the established pathology. The purpose of this communication is to analyze the factors contributing to the formation of uroliths in the bladder in rabbits. A detailed study has been carried out on breeding, behavior and most common diseases of the urinary system in rabbits. Nutrition, breeding methods, physical activity and the health of the rabbit are extremely important. Prevention, treatment and surgery in these diseases of rabbits are described and followed.

**Keywords: rabbit, urinary bladder calculi**

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**04S7**

## **SECONDARY BONE HEALING OF WILD SWINE SHOULDERBLADE AFTER A GUNSHOT**

**Silvi Vladova\*, Martin Georgiev, Ilian Georgiev, Iliana Ruzhanova-Gospodinova,  
Lyubomir Hristakiev, Georgi I. Georgiev**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [fn42018@ltu.bg](mailto:fn42018@ltu.bg)

### **ABSTRACT**

The aim of the present study was to describe a secondary healed gunshot wound to the shoulder blade and shoulder joint in a wild boar. The bones of the limbs of a 30 kg female wild boar are prepared by a standard method. The secondary healed scapula was photo-documented, the callus formation was measured and compared to the unaffected limb. An X-ray examination of the shot limb was also performed.

**Keywords: wild boar, gunshot wound, secondary bone healing, scapula**

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**04S8**

## **VIVISECTION - HISTORY AND DEVELOPMENT**

**Dimyana Angelova, Vasil Kadiev, Monika Nikolaeva**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [angelovav2002@abv.bg](mailto:angelovav2002@abv.bg)

### **ABSTRACT**

In the past years humanity makes decisive steps to realization of the value of life and their place in the universe. The human isn't the center in nature but rather a part of it and its harmony in the modern world can be saved if we respect the right of existence of all living beings. The vivisection is surgery over an alive animal made with experimental purpose, a method widely used in biology and medicine in the 19th century. In the current report in historical plan we give an answer to the question if the experiments with animals are needed or unhuman.

**Keywords: vivisection, animal experiments, welfare**

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**04S9**

## **POISONING OF GRIFFON VULTURES (*GYPS FULVUS*, HABLITZ, 1783) WITH CARBOFURAN - A CLINICAL CASE**

**Yoana Kirilova<sup>1\*</sup>, Mihail Chervenkov<sup>1</sup>, Georgi Stoyanov<sup>2</sup>, Metodi Petrichev<sup>1</sup>**

<sup>1</sup>*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

<sup>2</sup>*Birds of Prey Protection Society, Sofia, Bulgaria*

\*Corresponding author: [yoni0650@gmail.com](mailto:yoni0650@gmail.com)

### **ABSTRACT**

Griffon vulture (*Gyps fulvus*, Hablitz, 1783), is a bird of prey, placed among the endangered species in the Red Book of Bulgaria. In the past 20 years, active measures have



been taken to reintroduce and protect the population of these birds in the Bulgaria, which, however, is accompanied by great difficulties. Among the main problems are food shortages, deliberate poisoning, poaching and incident collisions with the electrical transmission lines. In the present work we present a case of poisoning of 8 griffon vultures after feeding on a calf carcass. The toxicological analyzes revealed high levels of the carbamate insecticide carbofuran, both in the carcass of the calf and in the tissues taken by the dead vultures.

**Keywords: carbamate insecticides, poisoning, birds of prey**

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**04S10**

### GENETIC DIAGNOSTICS AND THERAPY

**Polina Petrova\*, Aleksandra Ruseva, Nikoleta Charitaki**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [ppetrova312@gmail.com](mailto:ppetrova312@gmail.com)

#### ABSTRACT

The present research aims to describe what genetic diagnostic and therapy is. It shows what is genetics and what are genetic diseases, the different types of genetic diagnosis and types of gene therapy and methods of application. It focuses on a particular disease, which is hip dysplasia in dogs, it analyzes what are the symptoms, the diagnosis and the possible treatments. What breed of dog is prone to getting hip dysplasia and why is important to look for early signs of this disease.

**Keywords: genetic diagnostic, genetic therapy, hip dysplasia, dog, symptoms, treatment**

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**04S11**

### CLONING

**Konstantina Ivanova, Mina Samsieva, Dimitar Ganev, Plamen Petrov**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [dimitarganev99@gmail.com](mailto:dimitarganev99@gmail.com)

#### ABSTRACT

The present study summarizes the history, goals, tasks and perspectives about cloning, and the essence of what cloning is. Discusses where cloning can take part and be helpful.

**Keywords: cloning, cloning history, perspectives**

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**P4S1**

### MODEL OF ADULT CHONDROGENESIS IN SQUALUS ACANTHIAS

**Martin Krustev<sup>1</sup>, Desislava Abadjieva<sup>2\*</sup>**

<sup>1</sup>*Faculty of Biology, Sofia University St. Kl. Ohridski, Sofia, Bulgaria*

<sup>2</sup>*Institute of Biology and Immunology of reproduction “Acad. K. Bratanov”, Bulgarian Academy of Sciences*

\*Corresponding author: [dessi\\_1@abv.bg](mailto:dessi_1@abv.bg)

## ABSTRACT

Existing members of the Chondrichthyes class have a predominantly cartilaginous skeleton. The aim was to histologically analyze the vertebra of *Squalus acanthias*. Tissue sections were fixed in 10% buffered formalin, treated and embedded in paraffin for histological analysis. Tissue sections 5 µm thick were stained with hematoxylin and eosin. Microscopic observations showed a clear region composed of dense irregular collagenous connective tissue - the perichondrium, rich in immature chondroblasts. Growing mineralized plates are observed tesserae forming a surface layer of calcified cartilage. Chondroblasts move to the center of the cartilage, where they invade the matrix and differentiate into mature chondrocytes located in lacunae. However, this area is not subject to endochondral ossification and is probably responsible for interstitial cartilage growth. In conclusion, the skeletal tissues of *Squalus acanthias* have a constant pool of chondroprogenitor cells to support the growth of their cartilaginous endoskeleton throughout adulthood.

**ACKNOWLEDGEMENT:** The research leading to these results has received funding from the project DSD-5/2021.

**Keywords:** shark cartilage, chondrocyte, histology

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P4S2

## MODEL ORGANISMS

Mira Ivanova

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*Corresponding author:* [mirav.ivanova@gmail.com](mailto:mirav.ivanova@gmail.com)

## ABSTRACT

Model organisms are non-human species that are widely used to understand certain biological phenomena. They are easy to genetically manipulate and due to their short lifespan and high reproducibility they are the most common choices in the laboratory. The species *Saccharomyces cerevisiae*, *Chlamydomonas reinhardtii*, *Caenorhabditis elegans*, *Xenopus tropicalis*, *Danio rerio*, *Drosophila melanogaster*, their features and why they are used as model organisms are considered. These organisms make it possible to understand the individual processes (physiological and pathological) occurring in organisms. Using them for various studies, experiments with laboratory animals, and more specifically with mammals, are limited.

**Keywords:** model organism, *Saccharomyces cerevisiae*, *Chlamydomonas reinhardtii*, *Caenorhabditis elegans*, *Xenopus tropicalis*, *Danio rerio*, *Drosophila melanogaster*

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P4S3

## OXIDATIVE STRESS AND ANTIOXIDANTS/NUTRACEUTICALS IN DOMESTIC (COMPANION AND FARM) ANIMALS: AN OVERVIEW OF CURRENT KNOWLEDGE

Mira Ivanova<sup>1\*</sup>, Silvia Angelova<sup>2</sup>

<sup>1</sup>*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

<sup>2</sup>*Institute of Optical Materials and Technologies, Bulgarian Academy of Sciences, Sofia, Bulgaria*

*\*Corresponding author:* [mirav.ivanova@gmail.com](mailto:mirav.ivanova@gmail.com)

## ABSTRACT

Oxidative stress (OS) is a phenomenon related to an imbalance between production and accumulation of reactive oxygen species (ROS) in cells and tissues and the inherent ability of a biological system to detoxify these dangerous reactive products. Thus, OS constitutes an important mechanism that leads to biological damage, and is regarded as one of the causes of pathologies that affect the animal health. The animal nutrition industry has been constantly evolving. Antioxidants are widely used in the diet to prevent oxidation of the animal feed and the consequences of the intake of free radicals by the animals. Supplementation with known nutrients required for antioxidant defense in adequate and balanced amounts is found beneficial: dietary antioxidants can alleviate oxidative stress in farm animals and even improve the quality of animal products (meat, milk, egg). In farming the low-molecular-weight antioxidants are commonly used for semen cryopreservation: the addition of antioxidants during the freezing process improves post-thaw sperm quality.

**Keywords: Oxidative stress, animals, antioxidants, diet, nutrition**

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### P4S4

## EFFECT OF EQUILIBRATION PROCESS ON CANINE SPERMATOZOA AFTER VITRIFICATION WITH NONPERMEABLE CRYOPROTECTANTS AND COCONUT WATER EXTENDER

**Anton Antonov, Boyana Ivanova\***

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [iboyana@ymail.com](mailto:iboyana@ymail.com)

## ABSTRACT

The aim of the present study was to evaluate the effect of equilibration time on canine sperms after vitrification using nonpermeable cryoprotectants and coconut water extender. Twelve ejaculates were collected separately by digital manipulation from 12 adult dogs. Only the second fraction of the ejaculate was used in this study, which was evaluated about volume, concentration, viability, total and progressive motility, kinetic parameters and morphology. After evaluation, semen was diluted with a coconut water extender (50% coconut water (v/v), 25% (v/v) distilled water and 25% (v/v) 5% anhydrous monosodium citrate solution) with addition of soy lecithin and fructose at 1% and 0.25 M sucrose until final concentration of  $100 \times 10^6$  spermatozoa/ml. Samples were divided into three aliquots and each of them was processed at different regimens: without equilibration, 5°C for 30 minutes and 5°C for 60 minutes and then vitrified by dropping 30  $\mu$ l of sperm suspension directly into liquid nitrogen. Sperm pellets were devitrified at least one week later as three of them were dropped into 0.5 mL of CaniPlus AI (Minitüb, Germany), which was previously warmed in a water bath at 37°C for 2 minutes. Sperm motility parameters were assayed using a computer-aided [sperm analysis](#) (CASA) system, viability-by supravital staining technique and morphology parameters were evaluated in Haemacolor<sup>®</sup> stained semen samples. In conclusion, our results demonstrate that when vitrification and coconut water extender with addition of 1% soy lecithin and 0.25 M sucrose as cryoprotectants were used, presence of equilibration time of 60 minutes returned the best canine sperm quality results.

**Keywords: equilibration, vitrification, coconut water, dog, semen**

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**P4S5**

**CANINE SPERM VITRIFICATION WITH EGG YOLK AND COCONUT WATER  
EXTENDER**

**Boyana Ivanova\*, Anton Antonov**

*Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria*

\*Corresponding author: [iboyana@ymail.com](mailto:iboyana@ymail.com)

**ABSTRACT**

Vitrification is an ultra-rapid freezing method for solidifying liquid into glassy state by direct immersion into liquid nitrogen (LN<sub>2</sub>) without ice crystal formation in fast and inexpensive manner. It is widely used for embryo, oocyte or tissue storage and in last few years it has been successfully developed in different mammalian species and, recently in dogs as an option for sperm cryopreservation. As a novel method, sperm vitrification protocols still require improvement and standardization for increasing post warm sperm survival. Our study was aimed to evaluate the efficiency of coconut water extender with addition of egg yolk for canine semen vitrification, using a simple method that yields a high survival rate of spermatozoa for routine clinical use. Semen collection was done manually, separately for the three fractions from twelve healthy adult dogs in the presence of a teaser bitch in order to provide stimulation by the same operator. Only the second fraction of the ejaculate was used in this study, which was evaluated about volume, concentration, vitality, total and progressive motility, kinetic parameters and morphology and diluted with a coconut water extender (50% (v/v) coconut water, 25% (v/v) distilled water and 25% (v/v) 5% anhydrous monosodium citrate solution) with addition of 20% (v/v) egg yolk and fructose at 1% until final concentration of 100 x 10<sup>6</sup> spermatozoa/ml. After equilibration at 5°C for 60 minutes, semen was vitrified by “direct dropping method” into liquid nitrogen in spheres with a volume of 30 µl. After a week of storage spheres were warmed as three of them were dropped into 0.5 mL of CaniPlus AI (Minitüb, Germany) at 42°C for 2 minutes and evaluated about the same parameters. The results showed that vitrification produced a statistically lower percentage of vital sperms, normal morphology and total motility (p < 0.05), but progressive motility and most of kinetic parameters (VCL, VSL, VAP, LIN, ALH and BCF) did not differ (p > 0.05) compared to fresh semen samples. In conclusion, our results demonstrate that vitrification with coconut water extender with addition of 20% egg yolk as a cryoprotectant, may be useful for canine sperm cryopreservation. Further research on spermatozoa vitrification technique on enhancement in cooling and warming should be conducted and investigated.

**Keywords: vitrification, dog, semen, egg yolk, coconut water**

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**P4S6**

**ANIMAL WELFARE IN SPACE**

**Eleni Lytra, Loizos Ioannidis, Ioannis Sideris, Kritolaos Tzortzakakis\***

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

\*Corresponding author: [fn48437@itu.bg](mailto:fn48437@itu.bg)

## **ABSTRACT**

Conquering space was one of the major aims of humanity in the beginning of 20th century. The lack of knowledge combined with the fear of death led them into sending animals in space in order to test survivability of the space flight for human beings and the effects of microgravity in their bodies. The scientists relied on the fact that human physiological and biochemical processes are similar to those of various animal species.

**Keywords: animals, welfare, space**

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*P4S7*

## **CLONING - HISTORY, GOALS, TASKS, PERSPECTIVES**

**Vanya Parvanova\*, Tsvetelina Kostova-Petrova**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [yparvanova87@gmail.com](mailto:yparvanova87@gmail.com)*

## **ABSTRACT**

Cloning is a method of creating animals by nucleic transfer of a nucleus from a somatic cell into a denuclearized egg. From the egg thus obtained, an organism (clone) develops, genetically identical to the organism from whose somatic cell the nucleus has been taken. The current development (presentation) examines the history of cloning, describes the objectives and tasks, provides an overview of the prospects and opportunities that cloning can give to the human medicine in the field of therapies (treatments) of various diseases and organ transplants, as well as the role of laboratory animals in this process, the legislative and ethical norms.

**Keywords: cloning, clone, Dolly the sheep, laboratory animals**

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*P4S8*

## **DOG FARMS**

**Apostolia-Foteini Potsaki\*, Pangiotis Kotsiopoulos**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [apostoliapoki@gmail.com](mailto:apostoliapoki@gmail.com)*

## **ABSTRACT**

In this work, we will present about "dog farms", especially in Asia. We will refer to countries where the consumption and breeding of dogs for their meat is legal as well as for the welfare of these animals in normal and in the conditions on the farms. We will also see through the eyes of a reporter the harsh truth in festivals. Last but not least we will take a breath of positivity about the whole situation.

**Keywords: dog farms, Asia, dog meat, animals, welfare, dog, student research, China, Korea, Korean dog farms, dog meat festival**

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**P4S9**

## **ANIMAL WELFARE AND PETS**

**Mihaela Mihailova, Velyana Vasileva\***

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [villi\\_v2002@abv.bg](mailto:villi_v2002@abv.bg)*

### **ABSTRACT**

Animal welfare is one of the indicators of the civilization of society. And since we often claim that pets reduce stress, help with depression, strengthen the immune system, it means that they "serve" humans as laboratory and productive animals. Their rights must also be respected. Our view on this issue is presented in your message.

**Keywords: welfare, pets, regulations**

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**P4S10**

## **GOOD DEATH, EUTHANASIA**

**Eleni Faidra\*, Tzinevraki, Dionysia Besi, Ioannis Patiniotis**

*Faculty of Veterinary Medicine, University of Forestry, Sofia, Bulgaria*

*\*Corresponding author: [feddraki@gmail.com](mailto:feddraki@gmail.com)*

### **ABSTRACT**

In the present study we summarized the topic of euthanasia in animals. The advantages and disadvantages of euthanasia, the alternatives, the law in the topic and the perspective of the veterinarian. Lastly, we are going to discuss the method of performance, the criteria to confirm the death and the problem of euthanasia in animal shelters.

**Keywords: euthanasia, animal shelter, regulations**

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