

# ICA ST

5TH INTERNATIONAL CONGRESS ON ADVANCES  
IN VETERINARY SCIENCES & TECHNICS

## BOOK OF ABSTRACTS

October 03, 2020

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5<sup>th</sup> International Congress on Advances in Veterinary  
Science and Technics (ICAVST), October 3, 2020  
ONLINE – Sarajevo – Bosnia-Herzegovina

## ICAVST Abstract Book 2020

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### **Editors**

Ilker Camkerten  
Güzin Camkerten

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Dear Scientist,

The 5th International Congress on Advances of Veterinary Sciences and Techniques (**ICAVST**) organized by the Journal of Advances in VetBio Science and Techniques held ONLINE, in coordination from the Sarajevo / Bosnia and Herzegovina headquarters of the organization team on **October 03, 2020**.

We wanted to make this conference a little bit special by bringing scientists together from different disciplines of the veterinary area and also to open new research and cooperation fields for them. In this sense, we desired to bring the distinguished scientist together to get to know each other and to develop and implement new joint projects.

The scientists joined the congress was from a different country. The 48 total numbers of abstracts submission evaluated double-blind & peer-review. After a careful evaluation, 23 submissions were accepted by our scientific committee and 3 of them were accepted as poster presentations and 20 of them were accepted as oral presentations and all those presentations was taken place in the conference booklet. One (1/20) of the oral presentations was removed from the congress because it was not presented during the congress.

We would like to send our special thanks to Mr. Musa Köse and Mr. İsmet Uzun, ZENITH Group workers for their special efforts. And finally the most importantly I would like to thank all the participants individually who came from far away to join this conference.

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Prof Dr. İlker Camkerten





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Abbreviation

FVM: Faculty of Veterinary Medicine

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**ORAL PRESENTATIONS**

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## Hypothyroidism in dogs as a baseline of different clinical signs and laboratory results

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### Abstract

**Introduction:** Hypothyroidism is the most common endocrinopathy in dogs. It is clinical condition with decrease serum level concentration of thyroid hormones, resulting with different clinical signs. As a common subclinical and clinical condition, hypothyroidism can be congenital and acquired, as well as primary, secondary and tertiary (the last mentioned is very rare). This clinical condition is sometimes hard for diagnosis, but it is very easy for treatment.

**Aims:** The main purpose of this clinical study is interpretation of serum concentration of fT4 in correlation with other laboratory findings (hematology and biochemistry) and clinical manifestation. For that purposes 5 clinical cases will be describe with history data, clinical manifestation and laboratory findings such as clinical condition after treatment protocol.

**Material and methods:** Clinical research was performed in 5 clinical cases admitted in the University clinic. According anamnestic data from the owners, dogs presented different clinical signs, reported at the personal files of the patients. Hematology was performed immediately after sampling on veterinary hematology analyzer Exigo (Sweden), as well as biochemistry status: enzyme serum concentration (ALT, AST, ALKP), degradation profile (urea and creatinine), protein status (albumin, total protein), lipid parameters (cholesterol, triglycerides), according manufacture instruction (Human, Germany) with colorimetric procedure on automatized analyzer Chem Well 2910 (USA). Cytology (Diff Quick staining) was performed only in cases with dermatological lesions. ELISA laboratory method was used for measurement serum concentration of free thyroxin (fT4), on BDL5 ELISA reader.

**Results and Discussion:** First case was 6 year female mix breed neutered dog, with progressive skin lesion with hyperpigmentation and episodes of epileptiformic seizures. Hematology presented mild normocytic, normochromic anemia (5.09 10<sup>12</sup>/L), and biochemistry results presented only mild increase of ALT (69 U/L) and mild hyperlipidemia (cholesterol 6.89 mmol/l and triglycerides 2.05 mmol/l). Anticonvulsive therapy protocol (phenobarbital 1mg/kg) was not responsive, epileptiformic seizures continue with the same frequency. Cytology finding show non-pruritic non-inflammatory alopecia, with low cellularity of superficial cornified epithelial cells. Serum level concentration fT4 presented

**Oral Presentation**

severe hypothyroidism of 0.29 ng/dl. Initial treatment with levothyroxine started with 10 µg/kg BID and after one month the treatment dose was increased of 22 µg/kg BID. Clinical signs of epileptiformic seizures disappeared and laboratory findings corrected within reference ranges. Skin lesions recurrence in irregular intervals. After 5 years of treatment the patient developed hepatic fibrosis. Second case was 5 year male Samoyed, with no specific clinical signs only with polyphagia and increased body condition score. Laboratory finding presented only moderate elevation of degradation profile (urea 18.24 mmol/l and creatinine 174.54 µmol/l). Renal supportive and protective protocol combined with intravenous fluid crystalloid therapy did not give satisfactory results. Serum concentration of fT4 (0.51 ng/dl) show moderate decrease level. Initial treatment with levothyroxine 15 µg/kg BID give satisfactory results with correction of degradation profile, regular appetite and normal body condition score. Third case was 10 year female Maltese, with history of chronic caught, collapse trachea, intolerance of physical exercise and congestive heart failure with mitral dysplasia. Cardiotoxic (0.25 mg/kg pimobendan BID) and diuretic (2 mg/kg furosemide and spironolactone 1 mg/kg SID) treatment was not completely effective protocol, didn't give satisfactory results. There were intermittent remission of subcutaneous myxedema. Serum concentration of fT4 (0.34 ng/dl) presented marked hypothyroidism. There is no evident dermatology lesions or alterations in laboratory results. Initial treatment of levotiroxine in dose of 22 µg/kg BID give satisfactory results. Fourth case is a 4 year male cocker spaniel presented marked dermatology clinical signs with symmetric bilateral alopecia, "rat tail" and superficial exfoliate dermatitis. Cytology findings present low cellularity of epithelial cells, intact inflammatory cells predominant neutrophils, less small lymphocytes and telogen defluxion of hair. Dermatology cosmetically products, topically used, was not effective treatment. Biochemistry lipid parameters (hypercholesterolemia 7.15 mmol/l and hypertriglyceridemia 2.84 mmol/l) were indicators for measurement of fT4. Moderate serum concentration of 0.54 ng/dl indicate hypothyroidism. Treatment protocol of levothyroxine 15 µg/kg BID together with dermal supportive supplements give better condition of the skin and normal values of the lipid parameters. Fifth case: 5 year male Labrador retriever, with bradycardia, myxedema, seborrhea sicca, obtain laboratory results have shown increase serum level of ALT (105.3 U/L). Unclear clinical symptoms and elevated ALT were suspected indicators for hypothyroidism. Serum concentration of fT4 of 0.61 ng/dl confirm diagnosis. Treatment with levothyroxine 20 µg/kg BID improve better condition of the patient.

Conclusion: Decreased serum concentration of fT4 can be used as baseline of many different clinical conditions, non-responsive of regular conventional protocols. Clinical and subclinical hypothyroidism correlated with the degree of clinical manifestation and altered laboratory results.

**Keywords:** Hypothyroidism, dogs, laboratory results, clinical sings



## Detection of sheep lice (*Bovicola ovis*) using a lamp method

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### Abstract

**Introduction:** Hypothyroidism is the most common endocrinopathy in dogs. It is clinical condition with decrease serum level concentration of thyroid hormones, resulting with different clinical signs. As a common subclinical and clinical condition, hypothyroidism can be congenital and acquired, as well as primary, secondary and tertiary (the last mentioned is very rare). This clinical condition is sometimes hard for diagnosis, but it is very easy for treatment.

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**Material and methods:** Clinical research was performed in 5 clinical cases admitted in the University clinic. According anamnestic data from the owners, dogs presented different clinical signs, reported at the personal files of the patients. Hematology was performed immediately after sampling on veterinary hematology analyzer Exigo (Sweden), as well as biochemistry status: enzyme serum concentration (ALT, AST, ALKP), degradation profile (urea and creatinine), protein status (albumin, total protein), lipid parameters

**Keywords:** Hypothyroidism, dogs, laboratory results, clinical sings



## Seasonal changes on oxidative stress parameters and lipid profile biomarkers in cows

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### Abstract

In domestic animals, oxygen radicals are produced more in particular periods. Maintaining a balance between ROS production and neutralization is essential to maintain homeostasis. Oxidative stress is caused by excessive oxidant exposure and can be monitored by various biomarkers. In recent years, markers of free radical damage have been used as a complement to metabolic status assessment in cattle. Plasma total thiols, which play an important role in defense against reactive oxygen species, constitute the majority of total body antioxidants and are used as a marker of oxidative protein damage. Decreased total thiol levels have been reported in many conditions.

This study aims to evaluate the seasonal changes on thiol N. Thiol, Disulfide, TAS, TOS, OSI, PON1, HDL, LDL, TG, Cholesterol levels in clinically healthy cows in spring and autumn seasons. Blood samples were collected from Simental (9) and Montofon (9) cows in May and November.

Serum values of T. Thiol ( $p < 0.05$ ), Disulfide levels ( $p < 0.001$ ), TOS ( $p < 0.05$ ), OSI ( $p < 0.05$ ), HDL ( $P < 0.001$ ) tended to be higher in Simental breed in autumn compare to spring season. Disulfide levels ( $p < 0.05$ ), OSI ( $p < 0.05$ ) HDL ( $p < 0.001$ ), LDL ( $p < 0.05$ ) and Cholesterol levels ( $p < 0.05$ ) increased in Montofon cows in autumn compare to spring season. Serum levels of TAS ( $p < 0.001$ ) and Triglyceride ( $p < 0.05$ ) levels in both breeds showed decreased from spring to autumn period.

Changes in serum antioxidant levels and lipid profile shows that although both breeds are effected by seasonal changes, Simental cows are more vulnerable to the seasonal changes in terms of oxidative stress parameters.

**Keywords:** Total Thiol, Native Thiol, Disulfide, Oxidative Stress, Lipid Profile, Cows.



## Cutaneous Papillomatosis in a Dog

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### Abstract

Papillomatosis is a tumor originating from the skin, cutaneous mucosa and transitional epithelial tissue that can be seen in many animals. Generally, the causative agent is the papova virus group, the oncogenic DNA viruses.

In this study, a 6-months-old, female, malaklı shepherd dog was brought to Aksaray University Veterinary Faculty clinics with the complaint of skin wound and swelling. It was learned that the complaint of the patient had continued for 3 months. 4 doses of Theranekron were administered to the patient for 5 days and Theranekron was administered again before coming to our clinic. As a result of the clinical examination, it was observed that there were growths in the size of a tennis ball and in the form of cauliflower on shoulder area. Also infection-related discharge was present. Antibiotics and topical pomad were used for a week. At the end of a week, the masses were surgically removed. General anesthesia was provided to the patient by Xylazine (2.2mg / kg, IM) and Ketamine (11mg / kg IM). 10ml / kg / hour CRI was administered for intra-operative analgesia. After providing routine asepsis and antisepsis, the mass was extracted. The mass on the left was sessile, overflowing from the surface, the mass on the right was stalked and more superficial. Pathological examination revealed cutaneous papillomatosis. Antibiotics were used post-operatively for a week. Sutures were removed at the end of the second week. Hair loss and redness were detected in the caudal part of the operation area. Zylexis and VMP tablets were used post-operatively. No complaints were found in the routine check.

Cutaneous papillomatosis is rarely seen in dogs and cats. Some of these papillomas tend to be persistent. In this study, it was emphasized that strengthening the immune system and surgical intervention have an important place in the treatment of papillomatosis in cases where the immune response is low.

**Keywords:** Cutaneous papillomatosis, dog, surgery



## Evaluation of dog sperm frozen with trolox and resveratrol

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### Abstract

Cryopreservation results in the destabilization of the sperm plasma membrane and decreased spermatological parameters. The aim of the study was to investigate the effect of additives on dog semen after thawing. Freeze-thawed sperm samples were examined for motility, acrosome and membrane integrity.

Four dogs were used for semen collection. Sperm samples were collected from dogs by digital manipulation. After collection, the ejaculates were immersed in a water bath and pooled. The pooled semen was divided into 3 equal parts and diluted at 37°C with a tris-based diluent containing 1 mM trolox, 0.5 mM resveratrol, and no additive groups. The semen samples filled into straws then cooled to 5 °C and frozen in nitrogen vapor (-110~-120). Samples were thawed in a 37 °C water bath for 25 seconds then evaluated. Sperm motility was evaluated using phase-contrast microscopy. Membrane and acrosome integrity were performed by fluorescence staining.

Supplementation of the extender with trolox increased the post-thawed subjective motility (45±4.1%) and membrane integrity (57.30±2.2%) but there is no statistically differences with control group (42.50±2.8; 54.08±2.1%) (P>0.05). Trolox group showed the best results in acrosome integrity (64.66±2.4%) and it is statistically significant compared to the control group (60.59±1.6%) (P<0.05).

It was established that trolox protects in acrosome integrity (%) compared to the control group (P<0.05). Trolox supplementation in semen extenders provided benefits for dog sperm.

**Keywords:** Dog sperm, cryopreservation, additives, fluorescent staining.



## Determination of Aflatoxin B1 and Total Aflatoxin Values In Various Food Sources

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### Abstract

Mycotoxins are carcinogenic, mutagenic, teratogenic, cytotoxic, neurotoxic, and immunosuppressant secondary metabolites of filamentous fungi. Under this group there are more than 300 mycotoxins are discovered nonetheless aflatoxins (AFs), ochratoxin A (OTA) and patulin (PAT) are the major foodborne contaminants for public health. The aim of this study to determine the amount of aflatoxin in various foods that are widely consumed.

A total of 217 food samples (47 wheat flour, 29 rice, 21 cracked wheat, 4 farina, 46 filo dough, 5 bread, 21 pasta, 8 tahini-molasses, 12 biscuit, and 24 red pepper) were collected from Ankara province in 2019. All samples were transported to the laboratory in cold chain (4 °C) and analyzed immediately.

Toxin specific ELISA kits (RIDASCREEN Aflatoxin Total, Aflatoxin B1 30/15) were used for determination of aflatoxins. Afterwards, for calculation of the aflatoxin B1 and total aflatoxin values of samples, the RIDA SOFT WIN software which is recommended in the manual was used.

In the study, a total of 217 food samples were analyzed using the method mentioned above and the results were compared with the limits set in the Turkish Food Codex, Regulation of Contaminants. Aflatoxin B1 and Total Aflatoxin was detected 69 (%25,4), 71 (%26,1) of 271 samples, respectively. However, the aflatoxin level in any of the samples was not determined above the limits in the Turkish Food Codex Contaminants Regulation.

**Keywords:** Aflatoxin B1, Total Aflatoxin





## Evaluation of Tumor Necrosis Factor-alpha, Interferon Gamma, Procalcitonin and Neopterin Levels of in Brucella Seropositive Cattle

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### Abstract

Brucellosis is a zoonotic disease that affects a large number of people, causing physical inadequacy and loss of labor, as well as significant economic losses in the livestock industry. The cause of brucellosis is bacteria from *Brucella* spp, which are intracellular bacteria. The interaction among the T cell subgroups, macrophages, and cytokines released from these cells plays an important role in the immunity against these intracellular pathogens.

The material of this study consisted of a total of 48 blood serum samples collected from 3 main experimental groups, each consisting of 16 animals. The disease group (1st group) was divided into two subgroups of 8 animals, including 21st-day post-abort and 7-month pregnant seropositive animals, the vaccinated animals (2nd group), and the control (3rd group) group which had 21st day postpartum or 7-month pregnant animals.

Interferon-gamma (IFN- $\gamma$ ) and procalcitonin (PCT) levels from blood serums were determined using the sandwich enzyme immunoassay, and tumor necrosis factor-alpha (TNF- $\alpha$ ) and neopterin levels by competitive inhibition enzyme immunoassay method using ELISA device. In this study, the brucella seropositive, the vaccinated and the unvaccinated control group animals had similar levels of TNF- $\alpha$ , procalcitonin, and neopterin measured in the blood serums of subgroups within each group ( $P > 0.05$ ), while there were significant differences among the main groups ( $P < 0.01$ ). IFN- $\gamma$  levels did not differ among the subgroups of the vaccinated and control groups while the statistically significant difference between the subgroups of brucella seropositive was determined ( $P < 0.01$ ). Similarly, IFN- $\gamma$  levels were different among the main groups ( $P < 0.01$ ).

In conclusion, this study reports TNF- $\alpha$ , IFN- $\gamma$ , procalcitonin, and neopterin levels in the serum of cows with brucellosis or vaccinated against brucellosis.

**Keywords:** Brucellosis, TNF- $\alpha$ , IFN- $\gamma$ , procalcitonin, and neopterin



## Pharmacokinetics and bioavailability of tolfenamic acid in geese

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### Abstract

The aim of the present study was to determine the pharmacokinetics and bioavailability of tolfenamic acid in geese following intravenous (IV), intramuscular (IM), subcutaneous (SC), and oral (PO) administrations at a dose of 2 mg/kg. A total of eight clinically healthy geese were used for the investigation. The study was performed in a crossover design with a 15-day washout period between two administrations in four periods. Blood samples were collected at time 0 (pretreatment), and at 5, 15, 30, and 45 min and 1, 2, 3, 4, 6, 8, 10, 12, and 24 h after drug administration. The plasma concentrations of tolfenamic acid were determined using reversed-phase high-performance liquid chromatography (HPLC-UV), and pharmacokinetic parameters were assigned by noncompartmental analysis. No local or systemic adverse drug effects were observed in any of the geese. Following IV administration terminal elimination half-life ( $t_{1/2\lambda z}$ ), area under the concentration-versus time curve, volume of distribution at steady state and total clearance were 1.73 h, 12.91 h\* $\mu\text{g}/\text{mL}$ , 0.25 L/kg and 0.16 L/h/kg, respectively. For the IM, SC and PO routes, the peak plasma concentration was 4.95, 2.98 and 2.93  $\mu\text{g}/\text{ml}$ , respectively. The bioavailability was 89.08, 79.42 and 76.95% for the IM, SC and PO routes, respectively. The  $t_{1/2\lambda z}$  after extravascular administrations were significantly different than IV administration. This information may help in the use of tolfenamic acid in geese, but there is a need for future work.

**Keywords:** Tolfenamic acid, pharmacokinetics, geese

**Acknowledgement:** Supported by the Coordination of Scientific Research Projects, University of Hatay Mustafa Kemal, Turkey (Project No. 19.M.056)



## Investigation of the Effect of Oral Clinoptilolite on the Treatment Process in Acute Diarrhea Calves

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### Abstract

Calf diarrhea is one of the most important problems encountered in the first 3-4 weeks of life, which is called the neonatal period. Diarrhea caused by infectious and non-infectious causes progresses with high morbidity and mortality and causes significant economic losses. 20 calves with acute diarrhea and 10 healthy calves as a control group were included in the study to investigate the effect of oral clinoptilolite on the treatment process in calves with acute diarrhea. Calves with diarrhea were randomly divided into two groups, with n=10 in each group. To correct the dehydration and acidosis of the calves, both groups were properly treated with fluid within the first 24 hours. Then, 1g/kg oral clinoptilolite and drug treatment (Baytril® 10% 3 mg/kg intramuscularly at 12-hour intervals, Maxicam® 0.5 mg/kg IV single dose) were administered to the 1st group, in the second group, only drug treatment (Baytril® 10% 3 mg/kg intramuscularly at 12-hour intervals, Maxicam® 0.5 mg/kg IV single dose) was applied. Blood was drawn into a blood gas injector from the V. Jugularis once from the control group and three times on the 1st, 3rd and 5th days of the study from both groups and pH, bicarbonate (HCO<sub>3</sub>), sodium (Na<sup>++</sup>), chlorine (Cl<sup>-</sup>), potassium (K<sup>+</sup>), base deficit (BE) measurements were made on the blood gas device (Alere Epop, Germany). A statistically significant difference (P<0.001) was found in all values between the 1st, 3rd and 5th days in the 1st group in which drug + clinoptilolite was used. In the second group using only drugs, pH, HCO<sub>3</sub> and BE values were 1st, 3rd and 5th days was a statistically significant difference (P<0.001) and Na<sup>+</sup>, Cl<sup>-</sup>, K<sup>+</sup> values statistically significant difference (P <0.001) was detected only between in 3rd and 5th days. As a result, it has been observed that the use of drug+clinoptilolite provides faster recovery than the use of drug alone. It is concluded that the use of clinoptilolite, which is used in many different areas, in calf diarrhea will shorten the treatment period.

**Keywords:** Calf, acute diarrhea, clinoptilolite



## Enzyme Histochemistry of Peripheral Blood Leukocytes in Kivircik Sheep

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### Abstract

The aim of the present study was to determine the presence and percentages of ANAE and ACP-positivity in leukocytes, and the proportion of peripheral blood lymphocytes, monocytes, neutrophils, eosinophils and basophils in Kivircik sheep. Blood samples were taken from the jugular vein of 40 (rams = 20; ewes= 20) healthy 1-year-old sheep. Mean percentages of ANAE-positive PBL were defined as  $74.16 \pm 11.94\%$  in ewes and  $70.33 \pm 8.39\%$  in rams. It was not determined any significant changes according to sex. On the other hand, the percentages of ACP were determined as  $67.12 \pm 6.54\%$  in ewes and  $66.71 \pm 6.58\%$  in rams. It was not found any significant differences according to sex. For ANAE enzyme activity, lymphocytes, monocytes, neutrophils, and eosinophilic granulocytes showed a positive reaction. For ACP enzyme activity, although lymphocytes displayed a positive reaction, monocytes, neutrophils, eosinophils were negative. The ratio of PBL was  $64.35 \pm 5.74\%$  in ewes and  $60.64 \pm 8.85\%$  in rams. The proportion of monocytes was  $3.41 \pm 1.27\%$  in ewes and  $3.82 \pm 1.42\%$  in rams. The proportion of neutrophils was  $27.58 \pm 5.46\%$  in ewes and  $30.94 \pm 8.71\%$  in rams. The proportion of eosinophils was  $2.41 \pm 0.93\%$  in ewes and  $2.88 \pm 1.45\%$  in rams. The proportion of basophils was  $1.76 \pm 0.75\%$  in ewes and  $1.29 \pm 0.58\%$  in rams. The difference between mean values were not found significant according to sex ( $p > 0.05$ ). The present study showed that enzyme histochemical methods can be used for identifying peripheral blood cells, and can provide facilitates for early diagnosis of immune system-related diseases in sheep.

**Keywords:** ANAE, ACP-ase, Leukocytes, Kivircik, Sheep.

**Acknowledgement:** This study was financed under a project supported by the Balikesir University Scientific Research Coordinatorship (2019/060).



## The Determination of the Effects of in ovo Administrated Monosodium Glutamate on the Embryonic Development of Cerebellum in Chicken Embryos

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### Abstract

Monosodium glutamate (MSG) is a popular flavor enhancer largely used in the food industry. Many studies showed the adverse effect of MSG in animals particularly on the early developmental stage. The aim of this study is to the determination of effects of MSG on embryonic development of cerebellum by means of histological and histometrical methods. For this purpose, 410 fertile eggs of Babcock white parent stock were used. The eggs were divided into five groups, as follows; control group, distilled water group (DW), 0.12, 0.6 and 1.2 mg/g egg of MSG groups. MSG were dissolved in distilled water. Test solution (100 µl/egg) was injected into the egg yolk before incubation. Incubations were carried out in an incubator under optimal conditions (37.7 C temperature and 65% relative humidity). On the 15th, 18th and 21st days of the incubation, eggs were randomly opened from each group until 10 live embryos were obtained. The embryos were sacrificed by decapitation and cerebellum tissue samples taken from embryos were fixed in a 10% buffered formol-saline solution (pH 7.4), and then dehydrated, cleared and embedded in paraffin blocks. The 6 µm-thick serial sections were stained with Crossmon's trichrome, H&E, Periodic Acid Schiff (PAS), Toluidine Blue and Kluver-Barrera staining methods. All specimens were examined under the light microscope and were photographed by digital camera. The thickness of total cortex and outer granular cell layer, molecular cell layer and inner granular cell layer at both the summit and fissure of the cerebellar folia were measured from 20 different areas of the sections from each animal. Additionally, the number of Purkinje cells determined by counting the number per millimeter line length in five different fields per section. In the present study, there was a significant reduction in Purkinje cell numbers of the MSG-treated groups compared to the control and distilled water-treated groups ( $p < 0.05$ ). Also, it was seen that the organization of Purkinje cells in the MSG-treated groups was irregular. Necrosis and degeneration were seen in Purkinje cells in MSG-treated groups. Histometric measurements in the 15<sup>th</sup> and 21<sup>st</sup> days of incubation, the thickness of the outer and inner granular layers significantly reduced at both the summit and fissure of the folium in the

MSG-treated groups. While molecular layer thickness increased in both summit and fissure measurements on the 15<sup>th</sup> day and only in summit measurements on the 21<sup>st</sup> day. On the 18<sup>th</sup> day of incubation, the thickness of the outer granular layer in the MSG-treated groups decreased in both summit and fissure of the folium and the molecular layer thickness only increased at the summit of the folium. It was concluded that MSG might negatively affect the embryonic development of cerebellum in the chicken embryos and cause neurotoxicity and neurodegeneration.

**Keywords:** Monosodium Glutamate, Chicken Embryos, Cerebellum, Embryotoxicity

**Acknowledgement:** Supported by the Coordination of Scientific Research Projects, University of Selcuk, Turkey (Project No. 17202007)



## The Effects of Herbal Mixture Tea on Hematological and Biochemical Parameters in Post-Traumatic Osteoarthritis Induced Rats

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### Abstract

Post-traumatic osteoarthritis (PTOA) is occurred acute or chronically after joint trauma. Individually or mixed forms of herbal remedies are using for the alleviate PTOA related inflammation and pain. Herein, the herbal mixture tea (Arthrocon, 0.1g/100g), usually used to equine medicine after exercise to protect joint health, was used in rats. Forty, healthy, female, 280-300g weight, Wistar rats were divided into 5 groups (n=8); control (C), PTOA (P), herbal (H), concurrent usage of H with PTOA during 3 weeks (3P+H) and use the H after PTOA induction (6P+H). The PTOA was induced by a non-invasive method which is based on cyclic loading to the knee joint (articulatio genus) 3 times per week throughout 3 weeks. At the end of the experimental period, the blood and serum samples were collected. The hematological and biochemical analyses were evaluated by auto analyzers. The statistical inference was calculated by SPSS (V19.0). The red blood cell (RBC), hemoglobin (HGB), eosinophil (EOS), and percentage of eosinophils (EOS%) levels were increased in the herbal group (p<0.05). Mean corpuscular concentration (MCH) and mean corpuscular hemoglobin concentration (MCHC) were higher in the P group than the 6P+H group (p<0.05). Red cell distribution (RDW) levels were higher than C and 3P+H groups (p<0.05). Mean platelet volume (MPV) were decreased between all groups compared with C (p<0.05). Percentage of lymphocytes (Lym%) were decreased in H, 3P+H, and 6P+H groups compared with C (p<0.05). The percentage of monocytes (Mono%) were higher in the 6P+H group than C and P groups (p<0.05). Blood urea nitrogen (BUN) levels were increased in P and 3P+H groups compared with H (p<0.05). Creatine (CRE) levels were higher in the P group than H (p<0.05). Calcium (Ca) and total Ca levels were highest in 6P+H between groups (p<0.05). Aspartate aminotransferase (AST) levels were decreased in 6P+H compared with the P group (p<0.05). Urea was decreased in the H group compared with P and 3P+H groups (p<0.05). C-reactive protein (CRP) levels were lower in H and 3P+H groups than C (p<0.05). In conclusion, the alteration in the hematological and biochemical parameters through that usage of herbal tea may alleviate the inflammatory response of PTOA.

**Keywords:** Hematology, Herbal Therapy, Osteoarthritis, Rat, Trauma

**Acknowledgement:** This study was supported by Cukurova University Scientific Research Projects Coordination Unit (Project No: 12998)



## Effects of Chitosan Oligosaccharide (COS) on Some Serum Cytokine Levels in Rats Exposed to Cadmium (Cd)

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### Abstract

In the present study, we aimed to investigate the influence of chitosan oligosaccharide (COS) treatment on some serum immunoregulatory cytokine levels in rats exposed to chronic cadmium (Cd) toxicity. For this aim, animals (n = 32) were divided randomly into four equal groups as untreated control (C; n=8), cadmium (Cd; n=8), chitosan oligosaccharide (COS; n=8), and Cd + COS (CdCOS; n=8). The animals in Cd and CdCOS groups received cadmium chloride (CdCl<sub>2</sub>) (2 mg/kg/day) orally by gastric gavage three (3) times a week for 4 weeks. On the other hand, COS (200 mg/kg/day) was also orally administrated to COS and CdCOS groups five (5) times a week for 4 weeks. Rats in the control group did not receive any treatment. At the end of the administration period, the animals were sacrificed and blood samples were collected to without anti-coagulant tubes. Then, serum IL-1 $\beta$ , IL-2, IL-6, TNF- $\alpha$ , and INF $\gamma$  levels were measured. It was not found any significant change among the experimental groups according to IL1 $\beta$ , IL-2, IL-6, and INF $\gamma$  levels in our study (p>0,05). Besides, the levels of TNF- $\alpha$  were detected the highest in Cd group compared to other groups (p<0,05). On the other hand, the administration of COS ameliorated the TNF- $\alpha$  levels in CdCOS group compared to Cd (p<0,05). In conclusion, COS treatment caused a significant change only in TNF- $\alpha$  levels in rats exposed to Cd. Also, COS showed a partially protective effect on some cytokine levels in cases of chronic Cd toxicity.

**Keywords:** Cadmium, Chitosan Oligosaccharide, Cytokine, Rat, Serum, Toxicity





## Investigation of the Effects Some Decontaminant Substances on Psychrophilic microorganisms and *Pseudomonas* spp. in Poultry Meat

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### Abstract

The aim of the study was to investigate the effects of decontaminate substances such as electrolyzed water, chlorine dioxide, calcium oxide, and nisin on psychrophilic microorganisms such as *Pseudomonas* spp. that have been caused deterioration in poultry meat during the cold storage period. For this purpose, chicken meat samples were obtained from different markets in Balikesir at the production date. Decontaminates were applied separately to the chicken meat samples by spraying method (5ml / sec). Microbiological analyzes were performed before spraying (control group) and on Day 0 (2 hours later), 1, 3, and 6 days after the decontaminate application. ISO 17410: 2001 method was used for determining the total number of aerobic psychrophilic microorganisms. Also, *Pseudomonas* spp. counting was performed according to the TS ISO 13720:2010 method. There was no statistically significant difference among the experimental groups (control, electrolyzed water, chlorine dioxide, calcium oxide, and nisin) in terms of number of aerobic psychrophilic microorganisms and *Pseudomonas* spp. ( $P > 0.05$ ). After the spray applications, the total number of aerobic psychrophilic microorganisms decreased (1 log) in the nisin group, however, a 1.83 log decrease was detected in the number of *Pseudomonas* spp. in the chlorine dioxide group. In conclusion, Psychrophilic microorganism and *Pseudomonas* spp. types showed resistance against four different decontaminate substances (Electrolyzed water, Chlorine dioxide, Calcium oxide, Nisin) in our study. More studies are needed on decontamination to control microbial growth in cold storage of the poultry meat.

**Keywords:** Psychrophilic microorganism, decontaminate substances, *Pseudomonas* spp., cold storage, poultry meat



## Radical Mastectomy for Gangrenous Mastitis Pretreated with Antibiotic in Ewes

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### Abstract

**Background:** Mastitis is considered one of the most important diseases of small ruminants. Besides, special attention is needed in diagnosis and treatment of mastitis due to the potential to cause gangrenous mastitis. The present report describes bilateral mastectomy of gangrenous mastitis that was attempted to treat with conservative treatment in four Kivircik ewes.

**Case:** Ewes were referred to the clinic with the complaint of discolored blue-blackish udder. According to anamnesis, all ewes had only a loss of appetite and bloody milk in the early stage. Antimicrobial (Amoxicillin-clavulanic acid; 20 mg/kg) and anti-inflammatory drugs (Flunixin meglumine; 4mg/kg) were performed to treat mastitis by patient owner for three days. Clinical examination revealed the diagnosis of gangrenous mastitis with the blue-blackish cold udder, necrosis of the udder, extensive lesions, fever and anorexia. The decision of mastectomy was mandatory for ewes which could not be sent to slaughter due to the use of both drugs. Surgery was performed under mild sedation using xylazine (0.08 mg/kg) and local infiltration with 2% Lidocaine HCl. An elliptical skin incision was made around the base of the udder. The skin was dissected from the glandular tissue and body wall. Superficial caudal epigastric, external pudendal blood vessels were ligated. The skin was sutured following udder and lymph nodes were removed. Postoperative care of all ewes included Amoxicillin-clavulanic acid (20 mg/kg) and Meloxicam (0.2 mg/kg) for 5 days. There was no complication after mastectomy and all ewes sent to slaughter after the withdrawal period was completed.

**Conclusion:** The success of conservative treatment may be inadequate for gangrenous mastitis. As a result of the failure of medical treatment of gangrenous mastitis, the ewes being sent to slaughter endangers public health. A successful mastectomy operation in these situations allows being completed withdrawal period of drugs and ewes to be safely slaughtered.

**Keywords:** Gangrenous Mastitis, Mastectomy, Ewe



## Spatial Distribution of Foot-and-mouth disease (FMD) Cases between Years 2014 and 2017 in Turkey

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### Abstract

Foot-and-mouth disease (FMD) negatively affects livestock in Turkey and the world. The disease is characterized by vesicles in the mouth, on the udder and teats, between the two toes of the feet, which is caused by the agent that is located in the Aphthovirus genus of the Picornaviridae family and has seven different serotypes. Despite the disease shows low mortality, significant losses occur in meat and milk production. Monitoring and control of infectious diseases is possible by both evaluating annual data and examining the spatial distribution of these diseases in detail. That accurate and sufficient data on the spatial distribution of the disease epidemic is available, allows the disease to be monitored and controlled effectively. For this purpose, nowadays, Geographical Information Systems and spatial statistics methods are used effectively in epidemiology. In the present study, in order to research the spatial distribution characteristics of FMD, spatial autocorrelation, hot and cold areas, Kruskal Wallis and Bonferoni test analysis were conducted using the disease data (2163 A serotype and 606 O serotype disease outbreak) reported to the World Organization for Animal Health (OIE) by the Ministry of Agriculture and Forestry between years 2014 and 2017. According to the analysis results, it was determined that the serotype A disease cases of 2016 formed an aggregation and were statistically significant (Global Moran's I: 0.41, Z: 6.00,  $p < 0.05$ ). It was observed that there was a random distribution with no aggregation in other variables. Again, in our research, cities covering hot spot areas were determined. When the border provinces of these provinces are grouped as eastern and western provinces, it was determined that there was a statistically significant difference ( $p < 0.05$ ) between the groups of the disease cases, between the east-west part and for Serotype A and also, there was a statistically significant difference between the groups of disease outbreaks ( $p < 0.05$ ) However, no statistically significant difference was determined in terms of serotypes. In conclusion, the pattern formed by the spatial tissue distribution of the disease was revealed. Problems encountered in disease reporting may affect the spatial distribution of the disease. Determining the spatial distribution in epidemiology is important in terms of developing strategies of disease control and taking measures that will allow on-time implementation of control precautions.

**Keywords:** FMD, Spatial Epidemiology, Spatial Autocorrelation

**Oral Presentation**



## Effects of Hoof Trimming on Feed Consumption, Milk Yield, Oxidant and Antioxidant System in Dairy Cows with Claw Disorders

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### Abstract

In this study is aimed to reveal importance of hoof trimming (HT) in cows by determining the changes in feed consumption, milk yield, oxidant and antioxidant parameters in the days before and after HT in cows with claw disorder. This research was conducted on 12 female Brown Swiss dairy cows aged 3 - 6 years with the mean body weight of  $550 \pm 600$  that was in the mid to late lactation period that had healthy hooves showing symptoms lameness due to claw disorder. To determine the daily feed consumption of the cows during the study, the animals in the study group were kept in separate compartments each cow on the farm. The animals were subjected to individual feeding. Daily total feed consumption, morning and evening before feeding was determined by weighing the increased feed in front of the animals. Daily feed consumption findings on days the 1,7 (before HT), 13 (on the day of HT), 19,25, and 31 (after HT) of the study were recorded. The milk yield of 12 cows was recorded twice a day (at 6:00 a.m and 6:00 p.m) on days 1, 7, 13, 19, 25, 31st of the study using a milk line device. Total oxidant capacity (TOC) and total antioxidant capacity (TAC) tests for determination of oxidative stress index in serum in blood samples taken on the day of the experiment, from antioxidant enzymes for the evaluation of antioxidant potential; glutathione peroxidase (GSH-Px), glutathione (GSH), superoxide dismutase (SOD) enzyme levels were measured by ELISA using a commercial kit. The results showed that after HT increased feed consumption and milk yield in dairy cows. Also, after HT, the oxidant system was suppressed and the antioxidant system was supported in dairy cows.

**Keywords:** Hoof trimming, animal welfare, cow



## Comparison of Slaughter and Carcass Characteristics of Limousin, Charolais, Angus, and Hereford Breed Male Cattle Imported to Turkey

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### Abstract

In this study, it was aimed to compare Limousin (LI), Charolais (CH), Angus (AN) and Hereford (HE) breed male cattle in terms of slaughter and carcass characteristics. A total of 36 animals were used, including 9 heads from each breed. The animals were weighed before slaughter and the slaughter weights as well as some body measurements of the animals were determined. After slaughtering, the dismemberment process was performed after the carcasses were rested at +4 °C for 24 hours. Some measurements of carcasses were also made in the study. As a result of measurements of live body measurements and carcasses, it was observed that there were some morphological similarities between LI with CH and AN with HE and these were reflected in the carcass characteristics. The highest carcass dressing percentages were obtained in LI and CH. Although the HE breed reached the heaviest slaughter weight, it had the lowest carcass dressing percentages. Cold carcass dressing percentages were calculated as 59.89, 58.75, 56.71, 55.33%, respectively. LI with CH and AN with HE were similar in terms of Musculus longissimus dorsi areas and carcass yields. A similarity was observed in LI and CH in terms of the total meat obtained from carcasses and the lowest meat rate was in HE. Valuable meat and bone rates differed in all breeds. LIs had the highest rate of valuable meat and also the lowest bone rate. Differences were also significant in terms of subcutaneous fat thickness (SFT) and fatness. The breed with the highest SFT and fat ratio were HEs. According to the results, it can be said that the breeds that provide advantage in terms of slaughter and carcass characteristics are CH and LI. Since there is more fat in AN and HE breeds, it may be recommended to keep the fattening periods shorter in these breeds.

**Keywords:** Carcass characteristics, Limousin, Charolais, Angus, Hereford

**Acknowledgement:** This study was supported by the Scientific Research Projects Coordination Unit of Selcuk University



## Estimation of External Quality Characteristics of Goose Eggs

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### Abstract

In this study; it was investigated whether the mathematical formulas that generally estimate the external quality characteristics of eggs, based on the breadth and length of the eggs, give correct results in goose eggs. For this purpose, 300 eggs collected from local geese grown in Aksaray province were studied. Breadths and lengths of each egg were measured with using digital calliper ( $\pm 0.01$  mm). Shape index, egg volume, surface area, egg weight, egg specific gravity, shell thickness, shell weight, shell volume, shell specific gravity and shell ratio were calculated by mathematical formulas. Egg breadth and length averages were measured as 5.45 and 8.14 cm, respectively, and the calculated averages of external quality characteristics were shape index 67.14 cm, egg volume 144.5 cm<sup>3</sup>, egg surface area 138.0 cm<sup>2</sup>, egg weight 160.9 g, egg specific weight 1.113 g / cm<sup>3</sup>, shell thickness It is 0.512 mm, shell weight 14.98 g, shell volume 7.09 cm<sup>3</sup>, shell specific gravity 2.11 g / cm<sup>3</sup> and shell ratio 9.30. Although the formulas used give compatible results, there is a need for formulas that calculate closer to reality instead of formulas that calculate egg weight and egg shell weight.

**Keywords:** Goose, egg quality, egg characteristics, shape index.



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POSTER PRESENTATIONS

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## Reviving of Farriery; Disappearing Profession

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### Abstract

Current Erasmus+ project is titled as “Reviving of Farriery; Disappearing Profession” under “Erasmus+ Vocational Education”, Key Action 2: Cooperation for Innovation and Exchange of Good Practices program. The project coordinator association is Afyon Kocatepe University-Turkey. Ss. Cyril and Methodius University in Skopje and Latvia University of Life Sciences and Technologies, Veterinary faculties are partner institutions. The project has been planned for completion in three years.

The main objective of the project is to improve working equine welfare using EU farriery practices and mutual exchange of experience between partners through strengthening the contacts. Specific objective is to encourage horse related professionals, students and people working with horse and donkeys, via organizing farriery training activities, seminars and conferences in partner countries. Planned activities were to determine education activity program, to arrange visual materials such as brochures and leaflets in order to deliver the trainees, produce short basic farriery techniques films, arrange tours to stud farms and achieve farriery trainings as “Short-term joint farriery training event” in Latvia and Macedonia with participation of Veterinarians. In this scope; two farriery courses were organized under organization of partner countries. Practical sessions were about “Basic trimming procedures in cattle and horses; horse foot anatomy, horseshoeing, foot preventive measures, main foot medicaments, hoof trimming techniques in cattle; horse and cattle handling, safety for hoof trimmer and farrier”. Photo exhibition about the history of farriery in Turkey and Latvia has been organized in order to raise awareness on the disappearing profession 'farriery'. Furthermore, online international farriery conference will be held in Turkey with the participation of local and foreign partners. Historical farriery museum establishment under organization of Afyonkarahisar Governorship (<http://www.afyonkarahisar.gov.tr>) has been started in Turkey. The museum includes formerly used antique farriery tools and agricultural equipments which were collected from older farriers and farmers.

**Keywords:** EU Project, Erasmus +, Farriery





## Assessment of the Effectiveness of Ultrasonographic Imaging of the Carpal Ligaments in Dogs

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### Abstract

Ultrasound examination is one of the primary diagnostic imaging tests in veterinary medicine. This method is widely used to evaluate soft tissue structures in small animals. Ligaments and tendons are composed of many closely spaced and parallel fibers, and therefore structural abnormalities can be identified as high or low signal areas present in a uniform structure. The ligaments stabilizing the carpal joint in a dog are the lateral collateral ligament, the medial collateral ligament, the deep wrist ligament, and the distal ligaments of the accessory carpal bone.

The research group consisted of 10 healthy hybrid dogs, including 7 males and 3 females, with an average weight of 24.6 kg (the weight range was 18-31 kg) and an average age of 8 years. Each animal was placed in a lateral position, and the left carpal joint was examined in each dog in a neutral position and flexed. The hair around each test joint was trimmed before testing. The ultrasound examination was performed with a linear probe using the frequency of 7.5-12 MHz (MyLabTMFive, Esaote). The probe was placed on the lateral and palmar surfaces of the joint between the two rows of carpal bones.

The lateral and medial ligaments and distal ligaments of the accessory carpal bone were visualized on the sagittal and transverse sections of the ultrasound image during the examination of each carpal joint. The sagittal ultrasound image of the ligaments shows a thread-like structure composed of hyperechoic homogeneous linear bands. The cross-sectional images proved more difficult to assess and identify the ligaments of the canine carpal joint. The collateral ligaments were visualized by placing the ultrasound probe on the medial and lateral surfaces of the carpus, respectively, in the neutral position. In contrast, on the palmar side of the carpus, under the accessory carpal bone, other ligaments of the accessory carpal bone were visualized, the joint was also in the neutral position. The results of the study show that ultrasound examination of the carpal joint in dogs is a good and non-invasive method that allows to visualize some ligaments of this joint. The obtained images suggest that ultrasonography may prove to be a good technique for diagnosing damage and other diseases of these ligaments.

**Keywords:** Ultrasound, carpal joint, dog, ligament apparatus

**Poster Presentation**



## Ectoparasites Epidemiology and Association of Risk Factors in Small Ruminant Population of Faisalabad District, Punjab, Pakistan

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### Abstract

The concern of ecto-parasites and associated diseases transmitted is on the rise. Ecto-parasites have potential to cause severe economic losses due to nuisance, damage in skin/hide quality, associated secondary and vectored pathogens, drop in weight gains and performance of the hosts. A comprehensive study was planned to estimate the fauna of external parasites and associated risk factors for devising better eradication and prevention regimes. Small ruminants including domesticated sheep (n=95) and goat (n=95) were sampled for prevalence of ectoparasitic fauna from Faisalabad district, Punjab, Pakistan. Presumed risk factors were also determined based on an on-spot filling of pre-designed questionnaire. A total ecto-parasitic prevalence of 34.7% and 36.8% was recorded from goats and sheep, respectively. Following random type of sampling, ticks (48.2%), myiasis causing flies/ larvae (41.5%), lice (29.1%), sheep keds (14.3%), flea (2.7%) were collected and identified from the ruminants. Host animal attributes including breed, age, physiological stage and body condition score were found to be significantly associated with the ecto-parasite prevalence ( $p < 0.05$ ). Housing management practices like biosecurity measures, grazing routine, frequency of anti-parasitological use, type of floor/infrastructure and frequency of grooming were also found to be significantly related to ecto-parasites prevalence ( $p < 0.05$ ). This study provides a base-line data of ecto-parasitic prevalence from sheep and goats of the study area which may be utilized to map out more effective prevention and control programs.

**Keywords:** Small ruminants, epidemiology, control, ecto-parasites



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