Surgical Treatment of Canine Femoral Fractures – a Review.

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DOI: [https://dx.doi.org/10.36380/scil.2020.wvj18](https://dx.doi.org/10.36380/scil.2020.wvj18)
Femoral fractures in dogs and cats account for 20-25% of all fractures for which surgical treatment is a method of choice. Surgical treatment is based upon biological principle of open anatomic reduction and osteosynthesis. Arbeitsgemeinschaft für Osteosynthesefragen (AO) classification of fractures has a widespread use in general. Present study discusses different methods of osteosynthesis and healing process based on special cases managed in a certain small animal clinic in Hollabrunn, Austria, in 2016. The level of femoral fracture and the chosen method of osteosynthesis are shown respectively. According to available literature and author’s personal observations during externship period, the best results have been achieved using minimally invasive surgery. The surgical method choice depends on type, level and complexity of fracture, surgical skills and equipment of the team providing care respectively.

**Key words:** Dog, Femur, Fracture, Osteosynthesis.

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**Research Paper**

**Effects of Curcumin Supplementation on Viability and Antioxidant Capacity of Buffalo Granulosa Cells under *In Vitro* Culture Conditions.**

The current study was conducted to investigate the possible protective effect of curcumin supplementation on buffalo granulosa cells (GCs) under *in vitro* culture condition. Buffalo ovaries were collected from local abattoir in physiological saline solution and transported directly to laboratory. Follicular fluid containing GCs and cumulus-oocyte-complexes were aspirated from antral follicles with diameter 2-8 mm. The collected GCs were seeded (Approximately 375,000 viable cells) in an 8-well culture plate containing tissue culture medium-199 (TCM-199) and kept at 37 °C in a humidified atmosphere of 5% CO₂. The curcumin was supplemented to TCM media at levels of 1, 2.5, 5 and 10 μM for 24 and 48 h at 37 °C or kept without treatment as control group. The viability of cells was determined using the trypan blue test. Intracellular reactive oxygen species (ROS) level was assessed by measuring the fluorescent intensity of 6-carboxy-2′,7′-dichlorodihydro fluorescein diacetate (H₂DCFDA). In addition, mitochondrial activity of GCs was determined. The results of the present study indicated that the viability of GCs under culture conditions was significantly decreased in groups treated with 1, 2.5, 5 and 10 μM curcumin (86.0%, 86.26%, 83.0% and 74.0%, respectively) compared to control group (93.60 %). The two groups of granulosa cells cultured with 2.5 and 5 μM curcumin recorded greater level of mitochondrial activity than the groups cultured with 1 μM and 10 μM curcumin. Moreover, there was a significant increase in ROS level in group cultured with 10 μM curcumin, compared to control and other experimental groups. The enzyme activity of catalase (CAT), superoxide dismutase (SOD), glutathione (GSH) and 1, 1-diphenyl-2-picrylhydrazyl (DPPH) was increased after treating...
in vitro cultured granulosa cells with 5 µM of curcumin. However, the enzymatic activity of CAT, SOD, GSH and DPPH was declined significantly 48 h post-curcumin treatment. In conclusion, supplementation of curcumin at low concentration (2.5 µM) for 24 h to in vitro cultured GCs improved intracellular metabolic activity and antioxidant protective system, whereas it could not sustain this action for 48 h. Moreover, supplementation of curcumin at high concentration and for long duration may negatively affect viability of GCs under in vitro culture condition via induction of oxidative stress.

Key words: Antioxidant, Buffalo, Granulosa cells, Oxidative stress, Viability.

[Full text- PDF ] [ XML ] [ Google Scholar ] [ Crossref Metadata ]

Research Paper

Efficacy of Ivermectin-Based Drugs against Ectoparasites in Broiler Chickens.

Arisova GB.
ABSTRACT

This research aimed to study the efficacy of two different ivermectin-based drugs against ectoparasites of chickens. In total 1200 Highsex brown chickens aged 1-1.5 years were examined to determine the prevalence of ectoparasites among chickens. The diagnosis of ectoparasites in chickens was established using clinical and entomological methods. For studying drug efficacy, 20 chickens were selected and divided into two groups (experimental and control) of 10 birds each according to the principle of analogs. A prepared ivermectin-based drug consisting of active substance ivermectin and the auxiliary substances including jojoba Resplanta, diethylene glycol monoethyl ether, Tween-80, benzyl alcohol, and purified water, was administered to the experimental group at a dose of 0.4 ml/L of drinking water (400 μg ivermectin per 1 kg of body weight) twice with a 24-hour interval. The treatment was repeated after 14 days. The control group was administered another drug based on ivermectin in the same dose and manner as the drug given in the experimental group. The efficacy of the drugs was determined by counting the number of ectoparasites per chicken before and after treatment. The clinical condition of the birds was monitored from day 1 to day 28 of the experiment. To evaluate the physiological state of chickens, blood and biochemical tests were performed on day 28 of the experiment. The results revealed that the prevalence of infection with *Menacanthus stramineus*, *Menopon gallinae*, and *Dermanyssus gallinae* in chickens was 34.5%, 21.5%, and 12%, respectively. The number of parasites/chicken after treatment between the experimental and the control group was significantly different. The efficacy of the drugs against ectoparasites in the experimental and control group was 95.6-99.0% and 85.1-91.1%, respectively. The blood tests showed that hematological and biochemical parameters were within physiological norms for both groups. Also, a pharmacokinetic study was performed on 18 ISA cross, 40-day-old chickens administered orally with the test drug at the same dose. The results revealed that ivermectin reached maximum concentration at 30-60 minutes after administration to the bird. After 1 hour, the concentration of the active substance of the drug in the blood serum of chickens decreased sharply and reached the limit of quantification by 12-24 hours. In conclusion, this drug can be recommended for use in poultry as an effective and safe drug for the treatment of arachnoidemontosis in birds.

**Key words:** Chickens, Ectoparasites, Ivermectin.
Sensitivity of Lateral Flow technique for Evaluation of Inactivated Rift Valley Fever Virus Vaccine in Comparison with Serum Neutralization Test.

Abousenna MS, Sayed RH, Darwish DM and Saad MA.


DOI: https://dx.doi.org/10.36380/scil.20209.wvj21

ABSTRACT
Rift Valley Fever (RVF) is a zoonotic mosquito-borne bunyaviral disease associated with high abortion rate, neonatal death, fetal malformations in ruminants, and mild to severe disease in human. The vaccination has significantly reduced the abortion of ewes and mortality of newborn lambs during an outbreak, and induced immunity in cattle. The evaluation of inactivated RVF vaccine required in vivo and in vitro techniques. The present research aimed to evaluate the sensitivity of the Lateral Flow Device (LFD) in comparison with Serum Neutralization Test (SNT) by reference sera to determine the humoral immune response of the sheep vaccinated with an inactivated RVF vaccine. Three batches of inactivated RVF vaccine were inoculated in three sheep groups. Then samples of their sera were collected weekly, and tested by SNT and LFD. It was found that the sensitivity of LFD at a serum dilution of 1:128 was 95%, while SNT carried out at the fourth week after the vaccination showed that antibody titers was 32, 64 and 32. On the other hand, LFD had positive results at dilutions of 1:32, 1:128 and 1:64 for the vaccine batches 1, 2 and 3 respectively. These findings suggest the possibility of using LFD for detection of the immune response of vaccinated sheep to the inactivated Rift Valley Fever Virus vaccine, and it could be improved to be more quantitative in future. 

**Key words:** Lateral flow device, Rift valley fever virus, RVFV inactivated vaccine, Vaccine evaluation

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**Research Paper**

Molecular Evidence of *Spirometra erinaceieuropaei* in Asian Wild Frogs (*Rana rugulosa*) from Banyuwangi City, Indonesia.
ABSTRACT

The tapeworm *Spirometra erinaceieuropaei* is the most frequently species which found in wild frog and causing a serious parasitic zoonosis known as sparganosis. This study aimed to provide molecular evidences of spargana collected from wild frogs which used as food and contribute to provide important implication for prevention and control of sparganosis. A total of 185 Asian wild frog (*Rana rugulosa*) samples were selected from food markets in Banyuwangi City, Indonesia. Molecular identification based on spargana that were collected and coding gene of mitochondrial cytochrome c oxidase 1 (*cox1*) using Polymerase Chain Reaction (PCR) method. Spargana were found in 9.1% (17/185) of the frogs and PCR analysis results identified all specimens belonging to the species *S. erinaceieuropaei*, therefore indicated that *S. erinaceieuropaei* is the major causative agent of sparganosis from frogs which sold as food in markets. These findings can be useful to the molecular diagnosis and control of *Sporostra* infections in humans and animals.

**Key words:** Asian wild frog, *Rana rugulosa*, sparganosis, *Spirometra erinaceieuropaei*.
Toxicity, Anthelmintic Efficacy and Proteolytic Activity of Chitosan-Encapsulated bromelain.


ABSTRACT

The development of resistance to anthelmintic drugs has prompted researches into alternative methods for controlling intestinal nematodes in ruminants. This study aimed to evaluate the toxicity, anthelmintic efficacy, proteolytic activity, and toxicity of bromelain encapsulated in chitosan. Indigenous male goats were divided into four groups contained three goats in each groups. Treatment groups included: G1, chitosan-encapsulated bromelain (90 mg/kg); G2, chitosan-encapsulated bromelain (270 mg/kg); G3, positive control (albendazole 7.5 mg/kg); G4, negative control (distilled water). The administration of encapsulated bromelain was not associated with any clinical sign and mortality. The reduction in fecal egg count in G1 and G2 at post-treatment was 9.5% and 22.6%, respectively. The encapsulated bromelain concentration method to detect eggs of worms and cysts of protozoa parasites, the culture of parasites also was used by prepared manufactured culture media to develop parasites. The negative effects on the result of previous scientific researches, in addition to wasting effort, time, and materials.

Key words: Entamoeba muris, Bromelain, Chitosan, Efficacy, Goats, Nanoencapsulation, Proteolytic activity.


ABSTRACT

A total of 150 Laboratory mice divided into four age groups consisted of 4, 6, 8 and 10 weeks. This study shows the high rate of parasites infection in laboratory mice which might have negative effects on the result of previous scientific researches, in addition to wasting effort, time, and materials. The total number of fecal parasites per animal was 16% from infected cases by identifying the eggs of this worm in stool samples. Infections in laboratory mice, stool samples were collected for 150 laboratory mice and analyzed by direct microscope for the presence of parasitic eggs or cysts. Microscopic view of intestinal parasites in laboratory mice follows by a quantitative analysis of the protozoa and helminth sp effectiveness.

Key words: Giardia muris, Laboratory mice, Trichomonas muris, Hemidolepis diminuta


ABSTRACT

In the first experiment, six adult V-line male rabbits were used to determine the digestible energy in Pm by continuously feeding these 120 gram (g) Pm and 120 gram (g) clover hay achieved higher growth performance and lower cecum coliform bacteria. Rabbits in T4 group significantly had the best growth performance and FCR. The proximate analysis of Pm was 11.65% crude protein, 2.67% crude fat, and 30.66% crude fiber. Feeding growing rabbits with Pm up to 45% instead of clover hay achieved higher growth performance. The total number of cecum bacterial count was decreased in all tested groups. In conclusion, feeding growing rabbits with Pm up to 45% improved in all tested groups. Crude protein digestibility except the group fed T3 diet.
ABSTRACT

The African four-toed hedgehog is a small nocturnal mammal, characterized by a short-grooved snout, short fur, and a band of whitish fur running across their forehead. Little is known about the reproductive biology of this animal. The present study aimed to evaluating the validity of immunohistochemistry in the differential labelling of α-SMA and S-100 proteins in the testis of the African four-toed hedgehog. The testicular sections were stained by conventional histological technique using ten male African four-toed hedgehogs. Immunoreactivities to α-SMA and S-100 Proteins in the Testis of the African Four-toed Hedgehog

Keywords: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.

Research Paper

DOI: https://dx.doi.org/10.36380/scil.2020.wvj27


Key words: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.

Research Paper

DOI: https://dx.doi.org/10.36380/scil.2020.wvj28


Key words: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.

Research Paper

DOI: https://dx.doi.org/10.36380/scil.2020.wvj28


Key words: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.

Research Paper

DOI: https://dx.doi.org/10.36380/scil.2020.wvj28


Key words: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.

Research Paper

DOI: https://dx.doi.org/10.36380/scil.2020.wvj28


Key words: testicular sections, conventional histological technique, ten male African four-toed hedgehogs, immunoreactivities to α-SMA and S-100 proteins in the testis, African four-toed hedgehogs.
and Nanochitosan Coating during Refrigerated Storage. For bacteriological parameters (Total bacterial count, Proteolytic bacterial count, Lipolytic nitrogen (TVB-N), and thiobarbituric acid reactive substances, TBARS) and sensory features. Using natural preservatives has a probability to improve the quality and integrity of fish products. Key words: Walaa ME, Shereen AY and Mohamed NS. Quality Evaluation of Nile Tilapia Fish (Oreochromis niloticus) Fillets by Using Chitosan refrigerated storage. In the present investigation solutions of chitosan (1 and 2%) and World Vet. J. [Full text- preservative can be utilized for the conservation of quality properties and expanding the shelf life of tilapia fish slices through chilled storage. oxidation, accepted pH values and delay in declining of sensory score more than 2% chitosan Research Paper bacterial count, and Staphylococcus aureus count), quality parameters (pH, total volatile basic higher antimicrobial activity, strong ability in preventing protein degradation, retarding lipid DOI: 4°C for 15 days. Uncoated (control) and coated fish fillets pieces were examined intermittently Such research investigated the antimicrobial and antioxidant effects of chitosan and chitosan nanoparticles casing on the quality of tilapia (Oreochromis niloticus) fish fillets through nanochitosan (1 and 2%) were applied for the casing of tilapia fish slices thereafter stored at nanochitosan (1 and 2%) and concentrations of 2 ng/ml. Significant concentrations of moxidectin in the blood serum of animals Pharmacokinetic Characteristics of the Drug Based on Moxidectin for Young Stock and Small Breed of Domestic Animals. DOI: small breed dogs and cats were investigated. Twelve outbred dogs and cats of different ages with the drug, moxidectin was determined in the blood serum of animals after 12 hours at exact dosage of the drug. The determination of moxidectin in blood serum was carried out by serum of animals at the end of the experiment (after 30 days) which indicates its therapeutic effect for at least one month after the application of the drug. The pharmacokinetic characteristics of moxidectin in the blood serum of dogs and cats after a single cutaneous (spot-on) application of drug for veterinary use "Inspector Mini" to prevent and treat arachnoses, entomoses and intestinal nematodes in kittens and puppies as well as in Key words: Belykh IP. [Full text- exact number of the drug. The determination of moxidectin in blood serum was carried out by high performance liquid chromatography with pre-column modification of N-methylimidazole and Research Paper weights were involved in present study. All the animals were weighed to determine the experimental design and orbital regions, and to recognize normal and pathological conditions. Research Paper of both sexes. The heads were dissected to detect in situ position of the labial and zygomatic ABSTRACT structures of the labial and zygomatic salivary glands were important to classify the glands and glands in mixed breed dogs. This study was performed on five heads of adult mixed breed dogs taken, processed and stained using hematoxylin and eosin and Masson's Trichrome for collagen fibers. They were minor, compound, mixed tubuloalveolar glands. They composed of lip and in the orbit respectively and they were surrounded by fibrous capsules containing sulphated mucins. The duct system of the glands was intralobular (intercalated and striated mucous acini, mucous acini with serous demilunes and isolated serous acini. The secretion of histological examination as well as Periodic Acid-Schiff, Alcian Blue (pH 2.5 and 1.0) and a histological features and histochemical characteristics of the labial and zygomatic salivary glands. Mohamed R. [Full text- gland (chiefly mucous) consisted of neutral mucins, acid carboxylated mucins and acid
ABSTRACT

The aim of this investigation was to follow up in vitro preimplantation development of buffalo cumulus-oocyte complexes (COCs) after BCB test and followed by in vitro maturation under two different levels of oxygen tension. Cumulus-oocyte complexes (n=1045) were selected with BCB staining (oocytes with any degree of blue color in cytoplasm was defined as BCB+, oocytes without any degree of blue color in cytoplasm was defined as BCB-) in addition to a third control group. The previous experimental groups (BCB+, BCB-, control) were matured in vitro under low (5%) and high oxygen tension (20%), followed by in vitro fertilization and in vitro culture of presumptive zygotes. There were no differences (P ≤ 0.05) in cleavage, morula and transferable embryos rates among BCB+, BCB- and control group. However, blastocyst rate was greater significantly in control group (14.4 ± 2.0) than BCB- COCs (8.4 ± 1.9). According to the oxygen tension effect, the rate of morula and transferable embryos was increased (P ≤ 0.05) in buffalo COCs developed under low oxygen tension (11.6 ± 1.4 and 23.8 ± 1.9) compared to high oxygen tension group (7.4 ± 1.4 and 17.9 ± 2.1). In addition, cleavage, morula, blastocyst and transferable embryos rates were greater in BCB+ under low (43.6 ± 3.9, 14.9 ± 2.5, 14.1 ± 2.9 and 28.4 ± 3.6) than high oxygen tension group (33.5 ± 3.9, 7.1 ± 2.5, 11.6 ± 2.9 and 18.8 ± 3.6) which may reflect enhanced biological processes controlling early development. Moreover, blastocyst rate was significantly higher in control group cultured under high (12.0 ± 2.9) and low (16.9 ± 2.8) oxygen level than their counterparts of BCB- group (9.3 ± 2.9 and 7.6 ± 2.6, respectively). In conclusion, there was no differences in embryo development between BCB+ and BCB- COCs; therefore, oocyte selection based on BCB staining is not an effective tool to select developmental competent buffalo COCs. Buffalo morula and transferable embryos prefer low oxygen tension for early development, which should be applied during in vitro embryo production of this species.

Keywords: Brilliant cresyl-blue staining, Cumulus-oocyte complex, Morula, Preimplantation.