Review

Surgical Treatment of Canine Femoral Fractures – a Review.

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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.
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.
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 arachnoentomosis 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.


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

Yudhana A, Praja RN, Yunita MN and Wardhana DK.


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**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 *Spirometra* infections in humans and animals.

**Key words:** Asian wild frog, *Rana rugulosa*, Sparganosis, *Spirometra erinaceieuropaei*. 

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Refaie AM, Salama WA, Shams El-deen AE, Beshara MM, Khalil FS, and Alazab AM.


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ABSTRACT

Two experiments were performed to evaluate Panicum maximum (Pm) and its effect on rabbits’
growth performance. 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
g clover hay for 3 days, and then the digestible energy was recorded 1959 kcal/kg. In second
experiment, a total of 64 rabbits of V-line, 6 weeks old with average weight of 702 g, were
divided into 4 groups, each in 4 replicates (4 rabbits/replicate), the first fed basic diet; control
(T1), the 3 groups fed on the diet contained Pm to replace clover hay as a percentage of 15%,
30% and 45%, which corresponds to 4.5%, 9% and 13.5% of the total diet; which represent T2,
T3, and T4, respectively. Rabbits were fed ad libitum with pellet feed until the end of growth
attempt (14 weeks). The results indicated that the proximate analysis of Pm was 11.65% crude
protein, 2.67% crude fat, and 30.66% crude fiber. Rabbits in T4 group significantly had the best
final weight, daily weight gain, and Feed Conversion Ratio FCR. All groups had high crude
protein digestibility except the group fed T3 diet. The total number of cecum bacterial count was
improved in all tested groups. In conclusion, feeding growing rabbits with Pm up to 45% instead
of clover hay achieved higher growth performance and lower cecum coliform bacteria.
**Key words:** Cecum bacteria, Growth performance, Panicum maximum, Rabbits.

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

A total of 150 Laboratory mice divided into four age groups consisted of 4, 6, 8 and 10 weeks old were used in this study by placing each animal individually in a special cage within the period between October 2019 to the end of February 2020 at the Research and Graduate Studies Laboratory University of Mosul, Iraq. This study aimed to investigate intestinal parasitic infections in laboratory mice, stool samples were collected for 150 laboratory mice and periodically to perform laboratory tests that included direct slide examination and using the 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 infection was diagnosed in 136 (90.66%) mice while the rest 14 (9.33%) mice did not record any parasitic infection (clean). The higher rate of infection 58% was reported for \( Trichomonas muris \) followed by \( Entamoeba muris \) and \( Giardia muris \) which found in 22%, 15.3% respectively. In the other hand the infection with \( Hymenolepis diminuta \) was recorded in 16% from infected cases by identifying the eggs of this worm in stool samples. 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.

**Key words:** \( Entamoeba muris \), \( Giardia muris \), Laboratory mice, \( Trichomonas muris \)
Stepanova IA, Arisov MV and Arisova GB. Toxicity Assessment of a Multicomponent Antiparasitic Drug in Animals. on white mice and white rats and subchronic toxicity was observed after repeated oral administration of encapsulated bromelain at different time points. According to the results, LD₅₀ values were calculated as follows: 14,800 mg/kg (Karber's method), 13,800 mg/kg (Miller and Tatener's method). It was established that the drug did not possess embryotoxic and teratogenic properties in pregnant animals. The doses of 1691 mg/kg, 846 mg/kg and 338 mg/kg were threshold in a subchronic experiment on the rats. Moreover, it was found that the drug did not possess embryotoxic and teratogenic properties in pregnant animals. The important aspect of the high quality new pharmaceuticals is safety assessment in animals in practical conditions. Toxicity assessment of the new antiparasitic multicomponent drug was carried out. The parameters of acute oral toxicity were determined at the University of Veterinary Medicine and Biotechnology. The obtained results are as follows: LD₅₀ = 14,800 mg/kg (Karber's method), 13,800 mg/kg (Miller and Tatener's method); to the white rats were established which were equal to the following: LD₅₀ = 14,800 mg/kg (Karber's method), 13,800 mg/kg (Miller and Tatener's method); to the 60 white mice were established which were equal to the following: LD₅₀ = 14,800 mg/kg (Karber's method), 13,800 mg/kg (Miller and Tatener's method). The results of the study confirmed the high safety of the new drug for animals.

### Table: Enzyme Activity after Drug Administration (Units/ml)

<table>
<thead>
<tr>
<th>Organ</th>
<th>Enzyme activity</th>
<th>4 h</th>
<th>6 h</th>
<th>12 h</th>
<th>16 h</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intestinal</td>
<td>0.124 ± 0.002</td>
<td>0.11 ± 0.002</td>
<td>0.109 ± 0.008</td>
<td>0.108 ± 0.008</td>
<td>0.828</td>
<td></td>
</tr>
<tr>
<td>Kidney</td>
<td>0.085 ± 0.003</td>
<td>0.10 ± 0.002</td>
<td>0.096 ± 0.004</td>
<td>0.095 ± 0.004</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>0.061 ± 0.001</td>
<td>0.111 ± 0.004</td>
<td>0.108 ± 0.003</td>
<td>0.107 ± 0.003</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>0.085 ± 0.002</td>
<td>0.10 ± 0.002</td>
<td>0.096 ± 0.004</td>
<td>0.095 ± 0.004</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>1.54 ± 0.55</td>
<td>0.10 ± 0.003</td>
<td>0.10 ± 0.004</td>
<td>0.10 ± 0.004</td>
<td>0.004</td>
<td></td>
</tr>
</tbody>
</table>

### References

study, it was found that moxidectin was well absorbed into the systemic circulation and reached small breed dogs and cats were investigated. Twelve outbred dogs and cats of different ages.

**ABSTRACT**

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 strange, it was found that moxidectin was well absorbed into the systemic circulation and reached.

significant concentrations of moxidectin in the blood serum of animals and weights were involved in present study. All the animals were weighed to determine the exact dosage 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 trifluoroacetic anhydride followed by fluorescence detection. According to the results of the studies, moxidectin was determined in the blood serum of animals after 12 hours at a concentration of 2 ng/ml. Significant concentrations of moxidectin in the blood serum of animals remained for 28 days after topical application (spot-on). Moxidectin was detected in the blood 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.


**ABSTRACT**

The labial and zygomatic salivary glands in mixed breed dogs. This study was performed on five heads of adult mixed breed dogs. The glands were dissected and examined grossly. Samples of the glands were taken, processed and stained using hematoxylin and eosin and Masson's Trichrome for histological examination as well as Periodic Acid-Schiff, Alcian Blue (pH 2.5 and 1.0) and a stain for sulphated mucins. The duct system of the glands was intralobular (intercalated and striated ducts) and interlobular ducts. The anatomical location as well as histological and histochemical structures of the labial and zygomatic salivary glands were important to classify the glands and their secretion as well as to give veterinarians knowledge during clinical examination of the oral cavity.
Butanol fraction, Brilliant cresyl-blue staining, Cumulus-oocyte complex, Morula, Preimplantation.

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