Isolation and identification of *Bartonella henselae* from domestic cats in Shahrekord-Iran

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Abstract

The objective of this study was to determine the carrier state of cats in Shahrekord harbor *Bartonella henselae*, the agent of Cat Scratch Disease, in their blood and thus cats can play a significant role as the reservoir of this organism. We studied evidence of *Bartonella henselae* infection in 40 domestic cats (10 pet, 30 stray) living in Shahrekord, Iran. We investigated cultures of blood and sterile swabs taken from the vestibular area of the teeth and paws over a 9-month period. Blood culture, polymerase chain reaction (PCR) and sequencing of the amplified DNA were used for identification of *Bartonella henselae*. All blood samples from cats were cultured on fresh sheep blood agar for four weeks. In this study, *Bartonella henselae* was not isolated from cat’s paw and mouth specimens. *Bartonella henselae* was isolated from 5 (12.5%) of the 40 cats’ blood specimens based on PCR and sequencing of the amplified DNA fragments. Of these 5 specimens, two were positive inculfiyve for *Bartonella henselae* according to *Bartonella*-like colonies; gram staining and biochemical characteristics, and the others were negative but eventually DNA of *Bartonella henselae* was amplified by PCR using two primers; CAT1 and CAT2 (to amplify a 414-bp fragment of *htrA* gene) in all of five specimens. Positive cats for *Bartonella henselae* bacteremia were stray and young (24 months of age or younger) and three were female and two were male cats. This is the second study on *Bartonella henselae* infection isolated from the Iranian pet cats. This is also the first report about *Bartonella henselae* bacteremia in cats from Iran.

Key words: *Bartonella henselae*, CSD, Cat, PCR

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Effect of different doses of estradiol benzoate in association with constant dose of progesterone on ovarian Structure of Holstein heifers

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Abstract

The objective of this study was to evaluate the effect of different doses of estradiol benzoate in the presence of constant dose of progesterone injected at early luteal phase, on ovarian structure of Holstein heifers. Estrous cycle of cyclic Holstein heifers were synchronized using CIDR, for 14 days, in association with GnRH and PGF$_2$α analogues on Day 6 and 13 after CIDR insertion, respectively. On day 5-7 of the ensuing cycle (Day 0 of experiment), heifers were assigned into 4 experimental groups. Heifers in groups 1, 2 and 3 received respective dose of 2, 5, 10 mg estradiol benzoate concurrent with 100 mg progesterone intramuscularly. Heifers in control group received distilled water intramuscularly. Ultrasound examination of the ovary and blood sampling were conducted daily to detect plasma progesterone concentrations, from Day 0 to 16. On Day 0, there was a functional CL and a growing dominant follicle on the ovary of all heifers. Plasma progesterone concentrations were not showed significant differences among treated groups on the day of steroid injection. After injection of steroids, plasma progesterone concentrations raised significantly in the steroid treated groups compared with control group (P<0.05). In treatment groups (2, 5 and 10 mg), the interval from steroid injection to dominant follicle regression was shorter than that of control group (P<0.05). Interval from steroid injection to the decline in plasma progesterone concentration to basal level was shorter in 5 mg (7.7 ± 1.10 day) compared with control group (13.3 ± 1.20 day; P<0.01). In conclusion, estradiol benzoate injected in early luteal phase, may induce corpus luteum regression in a dose dependent manner and ovarian follicle regression independent of the doses (2, 5 and 10 mg), in Holstein heifers.

Key words: Estradiol benzoate, Corpus luteum, Progesterone, Ovarian follicle, Holstein

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The comparison of the number of neurons expressing Agouti-related peptide (AgRP) of the ewe hypothalamic arcuate nucleus in the estrus and diestrus phases

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Abstract

Agouti-related peptide (AgRP) and neuropeptide Y (NPY) are orexigenic peptides localized in arcuate nucleus (ARN) of the hypothalamus in ewe. Effects of NPY in stimulation of luteinizing hormone (LH) secretion are stated in some mammals. The objective of the present study was to investigate level of AgRP expression in ARN of the hypothalamus in the estrus and diestrus phases in ewe. Six ewes were divided into estrous and diestrous groups (n=3) and the number of neurons that expressing the AgRP in the ARN of each group was estimated by using immunohistochemistry method. Without considering the different parts of ARN (rostral, middle, and caudal), the number of AgRP immunoreactive neurons in the estrus phase (63.55±14.37) was more than diestrus phase (31.22±6.34) (P=0.05). This finding indirectly showed that AgRP, may have an important stimulator role in the expression of LH and is reproductive axis in ewe.

Key words: Agouti-related peptide, Arcuate nucleus, Estrus, Diestrus, Ewe

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The survey on concentration of lead and zinc in liver and muscle tissues in two species of the farmed fishes *Cyprinus carpio* and *Oncorhynchus mykiss*

Askary Sary A.1* and Velayatzadeh M.2*

**Abstract**

The heavy metals are the pollutants that create too much problems in aquatic ecosystems for aquatics and human. In this study, the concentration of heavy metals Lead and Zinc in muscle and liver tissues of in *Cyprinus carpio* and *Oncorhynchus mykiss* was calculated in 2008. Thirty-six fish samples was randomly collected from Sarcheshmeh market in Tehran. Heavy metals were extracted from tissues using wet Digestion method and concentration were measured by Atomic Absorption Spectrophotometer Philips PU 9400X. The highest concentration of Pb and Zn in the muscle and liver of *Oncorhynchus mykiss* were 0.66±0.06 and 67±8.18 mg/Kg. The lowest concentration of Pb and Zn in the liver of *Oncorhynchus mykiss* (0.17±0.01) and in the muscle of *Cyprinus carpio* (0.15±0.02) mg/Kg was determined. Lead concentration in the muscle of two fishes were more than those in liver. However, zinc concentration in liver was more than muscle (P≤0.05). Lead and zinc concentration were lower than WHO’s standard.

**Key words**: *Cyprinus carpio*, *Oncorhynchus mykiss*, Lead, Zinc, Liver, Muscle

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Toxicity of silver nanoparticles in four fish species

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Abstract
Usage of silver nanoparticles progressively expand in various industries. Regarding to probable upcoming use of these materials in aquaculture, in this study the toxicity effects (Lc50) and Maximum Allowable Concentration (MAC) of silver nanoparticles in four fish species, *Cyprinus carpio* (cultured fish), *Barbus barbus* (wild fish), *Poecilia reticulata* and *Herotilapia multispinosa* (ornamental fish) were calculated. The toxicity was calculated based on static OECD standard method. Each species was challenged with 8 serial dilutions of nanoparticles and daily mortality recorded for 96 hours. LC50 and MAC was calculated using Probit software. Results showed that LC50 96 h of Nanosilver in *Cyprinus carpio, Barbus barbus, Poecilia reticulata* and *Herotilapia multispinosa* were 1.12, 0.77, 5.7 and 7.35 µg/ml, respectively. However, the MAC of Nanosilver in these species were 0.11, 0.08, 0.57 and 0.74 µg/ml. There was significant difference among toxicity rate of silver nanoparticles among fish species(\(P<0.05\)). Although no significant differences were seen between *Cyprinus carpio* and *Barbus barbus* as well as *Poecilia reticulata* and *Herotilapia multispinosa* in Nanosilver toxicity, significant difference observed between these groups (\(P<0.05\)). According to the results of this study it can be concluded that the reared and wild fish are more susceptible to silver nanoparticles than ornamental fish.

Key word: Nanosilver, *Cyprinus carpio, Barbus barbus, Poecilia reticulata, Herotilapia multispinosa*, LC50, Toxicity

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Survey of microbial load and total volatile nitrogen changes in the ice-stored grass carp (*Ctenopharyngodon idella*)

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Abstract

This study evaluated the total volatile nitrogen (TVN) and microbial load changes (Psychrophilic and mesophilic) as the quality characteristics of grass carp (*Ctenopharyngodon idella*) that had been preserved in ice for 27 days at times 0, 3, 6, 9, 12, 15, 18, 21, 24 and 27 days. The TVN was measured using autokjeldal method, and microbial load was measured by reference method. The TVN with the initial value of average 20.44 mg/100g showed irregular fluctuation and at the last day of the preservation was higher than standard levels (30.33 mg/100g). The primary Psychrophilic and mesophilic bacterial loads were 2.42 log cfu/g and 2.22 log cfu/g, respectively and increased during the preservation time. Psychrophilic and mesophilic bacterial load reached to 6.47 log cfu/g on day 21 and 6.05 log cfu/g on day 24 respectively. The correlation coefficient of psychrophilic and mesophilic bacterial load with time were 0.972 and 0.960 respectively. In this research, conquering of psychrophilic bacteria and the high growth of them showed that Psychrophilic bacteria have a great role in spoilage of grass carp. Results of this study indicated that TVN is not a good indicator for measuring the quality of this kind of fish. Also, the shelf life of ice stored grass carp was determined to be 18-21 days.

Key words: Microbial load, TVN, Grass carp, Storage time

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Comparison effect of mentofin and bromhexine on the immune response against the killed Influenza vaccine subtype H9N2 in broiler chicks

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Abstract

Mentofin and bromhexine are respectively herbal and synthetic bronchodilator medicines, which are utilized in the management of respiratory disease problems. The objective of the present study was to evaluate the effect of mentofin and bromhexine on antibody production against influenza A subtype H9N2 killed Vaccine. For this purpose, 140-day old broiler chicks randomly were divided into 4 equal groups A, B, C and D (35 of each). The birds of group A and B were treated respectively with 0.5 and 1 ml/lit of mentofin and bromhexine in drinking water for the first two days of every week up to the end of the experiment (44 days). Groups C and D were kept as untreated control groups. The birds of groups A, B and C were vaccinated subcutaneously with Influenza A subtype H9N2 killed vaccine at the lower back of neck on day 9. Blood samples were collected from wing vein of 10 chicks from each group on days 0, 7, 21, 28 and 35 post vaccination and specific influenza antibody titers were determined by the hemagglutination inhibition test. The results of the present study, showed that the administration of bromhexine and mentofin significantly increased specific antibody titers of Influenza killed vaccine on days 21, 28 and 35 days post vaccination (p<0.05). It was concluded that bromhexine and mentofin have positive effect on humoral response of birds against influenza killed vaccine.

Key words: Bromhexine, Mentofin, Broiler chick, Immune response, Killed influenza vaccine

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The study of infestation to *Neospora caninum* using the standardized domestic ELISA in dairy cows in suburb of Tabriz

Nematollahi A. 1*, Jafari R. 2* and Moghaddam Gh. 3*

Abstract

Neosporosis is a disease that is caused by *Neospora caninum* and is recognized by abortion in cow and neuro-muscular paralysis in hind organs in dogs. At the first, this disease was diagnosed in Norway in 1984. Different serological methods such as ELISA are common for diagnosis of disease. The aim of this study was the evaluation of a domestic ELISA for diagnosis of neosporosis in the aborted cows around Tabriz and its comparison with commercial ELISA. In this regard, tachyzoites of *Neospora caninum* were lysed and coated in the wells using different dilution of coating buffer. Different dilutions of positive control sera were applied in checker board manner for designing of ELISA. The secondary conjugated antibody was diluted as manufacturer’s instruction. The results showed that using 1.5 µg antigen per well and the dilution of 1:100 sera can provide the best condition. To calculate the relative sensitivity and specificity of domestic ELISA, a commercial ELISA was performed as a reference test and the cut off value was estimated via ROC curve. The best relative sensitivity and specificity obtained in cut off value of 0.30 OD. In this survey, the rate of infestation in the to *Neospora caninum* aborted cows in Tabriz were calculated 17.1% and 18.4% by using domestic and commercial ELISA, respectively.

Key words: Standardizing, Indirect ELISA, Neosporosis, Commercial kit

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Study on *Echinococcus granulosus* genotype diversity in domestic cycle using nucleotide sequence of *nda-1* gene

Yakhchali M.\(^1\)* and Mardani K.\(^2\)*

**Abstract**

The present investigation was undertaken to determine the presence of *Echinococcus granulosus* genotypes in livestock animals in West Azerbaijan province, Iran. The infected liver, lung, heart, kidney and spleen samples from 270 sheeps, 185 goats, 197 cattle and 129 water buffalos were obtained from different parts of the region. The number and the fertility of hydatid cysts were determined. A number of 114 samples of animals with fertile hydatid cysts and eight samples of dogs were detected and DNA from protoscolexs were extracted. For parasite strain identification, mitochondrial NADH subunit 1 (*nad-1*) gene was amplified by polymerase chain reaction (PCR) and the PCR products were subjected to restriction fragment length polymorphism (RFLP) using *HaeIII* enzyme. All animals and dogs investigated based on *nad-1* gene showed the same RFLP pattern for this gene that belonged to G1 genotype (common sheep strain). Results confirmed the high prevalence of *E. granulosus* infection in animals in north-west of Iran and also revealed the presence of at least one parasite genotype in this region.

**Key words:** *Echinococcus granulosus*, Strain, *nda-1*, PCR-RFLP

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Effect of gonadectomy and chronic testosterone administration on histological structure of the parotid salivary gland in male rabbit

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Abstract
The aim of this study was to evaluate the effect of gonadectomy and chronic testosterone propionate administration on the histomorphometric structure of parotid salivary gland in male rabbits. Fifteen adult male New Zealand rabbits were divided into; the control group (SO), gonadectomy group (Orx) and gonadectomy group treated with testosterone propionate (Orx TP). The results showed that in gonadectomy group, the volume of acini per cubic millimeter of tissue was significantly decreased, in comparison with control group whereas the volume of the interacinar and interlobular connective tissue per cubic millimeter of parotid tissue were significantly increased (P<0.05). After gonadectomy, the length of the intralobular ducts per cubic millimeter of parotid tissue was decreased while the interlobular ducts were increased, but the differences were not statistically significant. There was also a reduction in the height of epithelial cells and in their luminar radius in the both intercalated and striated duct that indicating a reduction of gland activity. Also the results showed that chronic TP treatment of Orx rats reversed these changes to the pre-gonadectomy state, so that none of the morphometric values of the Orx TP group showed statistically significant differences in comparison with the SO group (P>0.05).

Key words: Gonadectomy, Rabbit, Parotid salivary gland, Testosterone propionate

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Swallowing of a fruit knife by a cow and its entrance into the intestine

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Abstract
A 3 year old native cow was referred to surgical division in teaching hospital of veterinary faculty in Shahid Chamran University on March 18, 2004. The general condition of the cow was normal. The owner complained that a large bulge was seen on the right side of his cow from two days ago. The blade of knife had perforated the skin between 10th and 11th ribs. The right flank exploratory laparotomy was performed using inverted L local anesthesia by lidocaine 1%. After incision of the skin and muscles, exploration could not be completed because of sever adhesion and profuse bleeding due to blunt dissection of adhesion tissues surrounded the knife. It was confirmed that the knife located in the small intestine. The knife was removed from the entotomy incision. The wall of intestine sutured in two inverting layers and penicillin and streptomycin were administrated 2 times daily for 5 days. The follow-up of the case was not possible because the village of the owner was very far from the hospital and we could not get in touch with him by phone.

Key words: Cow, Swallowing, knife, Intestine