HEMATOLOGICAL, BIOCHEMICAL AND PATHOLOGICAL STUDIES ON COLIBACILLOSIS IN RABBITS

ABSTRACT
The present investigation was carried out on naturally infected rabbits which obtained from 3 rabbit farms in Ismailia Governorate. Rectal swabs from 90 rabbits (0.5-0.75 kg body weight) showing diarrhoea, off food, ruffled fur, were bacteriologically examined. E. Coli sero type (O103) was isolated in a mixed culture from internal organs (liver, lung, heart, kidney, spleen, small and large intestine) of the infected rabbits. Whole blood and serum samples were taken for haematological, and biochemical analysis respectively. A total of 50 white New Zealand rabbits apparently healthy, 0.50 -0.75 kg body weight and two month of age were used. The Rabbits were divided into 3 groups, (group A, B and C). Group A (10) were kept as control and dosed orally 5 ml saline. Group B and C each (20) were dosed orally with dose 6X 10^8 and 3X 10^8 CFU/ml of E. Coli O103 respectively. Whole blood and serum samples were collected on the 1st, 3rd and 5th day of appearance of the disease (after 2 days from infection in group B), while in group C the samples were collected on the 1st, 3rd , 5th , 7th , 14th and 21st day of appearance of the disease (after 5 days from infection). Tissues specimens from heart, liver, kidneys, and intestine were taken from sacrificed or freshly experimental died rabbits for histopathological examination.

Clinical examination of these naturally and experimental infected rabbits revealed depression, dullness, off food rough fur and watery diarrhoea. Haematological examination of experimental infected rabbits with (3 X10^8 and 6X 10^8 ) CFU/ml of E. Coli revealed non significant change in all the erythrocytic parameters beside neutrophilic leucocytosis on 1st day followed by leucopenia with neutropenia on 3rd and 5th day. Biochemical analysis of the same group revealed increase in AST, ALT, total bileubin, urea and creatinine while decrease in glucose and sodium level. The total protein, albumin ,globulin and potassium showed non significant change.

It was concluded that colibacillosis occurs in acute form with high mortality rate and destructive lesions in the organs and bad effect on the health condition. Therefore it was recommended that, to employ the haematological and biochemical parameters for the early diagnosis and control of the disease.
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2- Hypocalcaemia Associated with Feeding on Beet Tops (Beta vulgaris) in Ossimi Sheep.

Abstract: Hypocalcemia was diagnosed in 48 Ossimi ewes in a flock of 125 sheep. Clinical signs, feed analysis, biochemical findings, and response to treatment were used for diagnosis. Lactating ewes were more frequently affected (56.25%) than pregnant (33.33%) and dry non-pregnant (10.41%) ewes. Teeth grinding, voiding soft pellets, absence of recumbency, non-tympanic rumen, dry mouth, and thin body condition were atypical findings. Ruminal fluid analysis showed significant increases of potassium and ammonia (P < 0.05), and a significant decrease of magnesium (P < 0.05) in diseased ewes, as compared with clinically normal ewes. Serum calcium, magnesium, and glucose in the diseased ewes were significantly lower (P < 0.001), (P < 0.01), (P < 0.05) than in clinically normal and control ewes, respectively; however, there was a significant increase of acetone (P < 0.01).

In all, 2 ewes were slaughtered due to the failure to respond to treatment and only the kidneys had gross abnormality. Histopathological examination showed degenerative changes in the renal tubules, with deposition of calcium oxalate crystals. The results of this study indicate that the clinical syndrome of hypocalcemia and renal failure occurred in Ossimi sheep that feed on beet tops. The observed atypical signs of hypocalcemia highlight the importance of examining serum and ruminal fluid to determine the proper intervention
Cytokine response and clinicopathological findings in Brucella infected camels (Camelus dromedarius)

ABSTRACT: The present study had the aim of assessing the cytokine response and selected clinicopathological findings associated with brucellosis in camels (Camelus dromedarius). 340 dromedary camels were examined for brucellosis using agglutination and Complement Fixation tests (CFT). Twenty-five camels (7.35%) were positive by both tests; 14 (4.12%) for B. abortus and 11 (3.23%) for B. melitensis. IL-1? and IL-10 interleukin levels in both B. abortus and B. melitensis infected camels showed significant elevations (P < 0.05) compared with controls. Moreover, there was significantly larger increase in IL-1? interleukins in camels infected with B. abortus compared with B. melitensis. TNF-?, IFN-? and IL-1? levels showed significant decreases (P < 0.05) in Brucella infected camels compared with non-infected ones; however, there was non-significant changes in IL-6 levels in Brucella infected camels compared with controls. Lymphopenia was recorded in infected camels but not in controls. However, normocytic normochromic anemia, hypoproteinemia, hypoalbuminemia and hypoglycemia were recorded in the B. abortus group only. Sorbitol dehydrogenase (SD), aspartate aminotransferase (AST) and alanine aminotransferase (ALT) showed significant increases (P < 0.05) in infected camels compared with controls, and in B. abortus infected camels compared with B. melitensis infected animals. This is the first report that describes changes in selected cytokines and various haematological and biochemical parameters associated with brucellosis in dromedary camels. Emphasis should be placed on multidisciplinary research to elucidate the immunomodulatory features of camel brucellosis.

Immunomodulatory effect of dietary Saccharomyces cerevisiae, b-glucan and laminaran in mercuric chloride treated Nile tilapia (Oreochromis niloticus) and experimentally infected with Aeromonas hydrophila

Between (November 2008–March 2009) a number of 48 Ossimi sheep age (6-12 months) have nervous manifestation and investigated for suspect listeriosis. The diseases sheep were treated with Ampicilline and blood sample were collected from all diseases sheep before start the treatment. Diagnosis was achieved by physical examinations, clinical findings, isolation and identification of microorganism, laboratory investigations The selected sheep were categorized into survived group and non survived group in addition to the control group.
Oxidative stress parameters, our results show that SOD, and NO were significant elevated in both responsive and non responsive treatment groups while MDA is significant increased only in non responsive treatment group in compare with control group. Total protein, CK, uric acid, urea and creatinine result show significant elevated in blood level in non-survived group in compare with control one. Regarding to the leukogram there is leukocytosis, neutrophilia in responsive treatment group and lymphopenia in non-responsive group.

In conclusion the oxidative stress, and antioxidant blood parameters are valuable in prognosis the listeriosis in Ossimi sheep.

5-

Studies on antibacterial activity of Withania somnifera extract in Guinea pigs experimental infected with E coli.

In the present study, we evaluated and tested the antibacterial activity both aqueous and ethanolic extracts of Withania somnifera (root and leaves), against pathogenic E coli in vitro and in vivo. One hundred Guinea pigs of 1-2 month old were divided into 5 equal groups each (20). Control (Gp.1) did receive neither viable bacteria nor treatment. Each animal from the other groups (Gp2-5) was challenged with (1-2108—l) viable E coli in 200 £µL normal saline (0.9%) through IP route. GP-2 infected group treated with 200-£µL saline IP and kept as positive control group. (Gp.3-4) are infected treated with Withania somnifera (ethanol root extract) with a dose 50 and 100mg/400gm BW respectively.Gp-5 infected treated group with cephoperazone antibiotic at dose 35mg/400gm BW. The treatment by drug or the extracted medicinal plant was started 72h post-infection for 7 successive days. Serum and whole blood sample were collected from all groups 7th and 14th days post treatment to evaluate some hematological and biochemical changes as well as immunomodulatory cytokines TNF-±

Oral treatment of the plant extract caused significant benefit results in infected guinea pig appeared in the correction of some hematological and biochemical parameters also try to suppressed inflammatory cytokine response represent in TNF-±.

From the present work, it could be concluded that W somnifera extract has potent antibacterial activity, this appear in the correction with hematological, biochemical and immunological results.

6-

Clinicopathological studies on diagnosis of listeriosis in Ossimi sheep.

Between (November2008â€“March 2009) a number of 48 Ossimi sheep age (6-12 months) have nervous manifestation and investigated for suspect listeriosis. The diseases sheep were treated with Ampicilline and blood sample were collected from all diseases sheep before start the treatment. Diagnosis was achieved by physical examinations, clinical findings, isolation and identification of microorganism, laboratory investigations. The selected sheep were categorized into survived group and non survived group in addition to the control group.

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7-
**Ultrasonographic evaluation to diagnose hepatic lipidosis in Egyptian Zaraibi goats with vitamin B12 deficiency**

As little is known about the ultrasonographic features of hepatic lipidosis (white liver disease) in goats, this study was undertaken to evaluate the use of ultrasound for the diagnosis of hepatic lipidosis associated with vitamin B12 (cyanocobalamin) deficiency in Egyptian Zaraibi goats. A total of 38 goats (28 with weight loss, diarrhoea and anaemia and 10 clinically healthy) were studied. Twenty-one goats were demonstrated to have cobalt and cyanocobalamin deficiency (0.33 0.12±1 lmol/l and 0.17 0.10 ±1 lg/l, respectively). Goats were examined with a real-time ultrasound system using a 5-MHz convex transducer. Ultrasound-guided liver biopsies and blood samples were obtained from each animal at examination. Based on the histopathological findings, diseased goats were classified as having mild (n= 6), moderate (n= 6) or severe lipidosis (n=9).

Ultrasonographic-hepatic changes were recorded in 19 (90.4%) out of 21 goats. Severe lipidosis showed diffuse hyper-echogenicity of hepatic parenchyma. However, focal hyper-echoic lesions with various shapes, sizes and positions were visualized in mild and moderate lipidosis. Liver size increased significantly (P < 0.05) in severely affected goats compared with the controls. Histopathologically, macrovacuolations, congestion of hepatic sinusoids and infiltration of the portal area with inflammatory cells and connective tissues were evident in moderate and severely affected cases.

8-
**Effects of mercuric chloride on the immune system and diseases resistance of Nile tilapia challenged with Aeromnas hydrophila**

Mercuric and its compounds have been parts of widespread pollutant of water environment. In view of the possible hazards of mercuric salts, the present study was designed to assess the effect of mercuric on immunomodulation system, hematological picture, some serum chemistry profile and pathological changes in catfish Clarias garapinus. Equal groups (10 fish) of catfish Clarias garapinus were exposed to 0.125 mg/L mercuric for three weeks with proper control. Exposure fish showed non-regenerative normocytic normochromic anemia and lymphopenia that appeared earlier at
Clinicopathological studies on the effect of growth promoter of Pomegranate and Echinacea extracts in rabbits.

This study was conducted to evaluate the effects of Punica granatum (P. granatum) peel and Echinacea purpurea (E. purpurea) extracts on rabbits through evaluation of growth performance and some biochemical, antioxidant and immunological parameters. Fifty rabbits (900-1200g) were divided into five equal groups. First, control group was administrated 1ml distilled water, 2nd and 3rd groups were administrated P. granatum (PGE), at levels of 50 and 100mg/kg respectively. The 4th and 5th groups were received Echinacea, at levels of 24.5 and 49mg/kg respectively. They were administrated orally daily for 4 weeks. Body weight, weight gain and FCR (feed conversion rate) were recorded weekly. Serum samples were collected at 2nd and 4th week.

The final weight, total weight gain and daily weight gain are significantly increased on high dose of PGE between weeks 2-4 and 0-4. The total and daily weight gains and FCR are significantly improved in low and high doses Echinacea at between weeks 2-4 and 0-4 respectively. In addition, FCR of high dose Echinacea is significantly decreased between weeks 0-2. Glucose and cholesterol levels are significantly decreased at 2nd and 4th week respectively in PGE groups. Total protein and globulin are elevated in low dose Echinacea at 4th week. While no significant changes were occurred in albumin and A/G ratio, urea, creatinine and malondialdehyde (MDA) in all groups. There were increasing of NO (nitric oxide), bactericidal activity, catalase with Echinacea and increasing of lysozyme activity, catalase with PGE. The reduced glutathione (GSH) is elevated in all groups except low dose Echinacea at 2nd weeks.

In a word, the notably findings help to ensure the success of using dietary PGE and E. purpurea as traditional plants and suggested improving the growth performance, humeral immunological and antioxidant effects in rabbits.

Clinicopathological studies on dietary Saccharomyces cerevisiae supplementation in broilers experimentally infected with E coli

Two hundred and forty, one day old, chicks were divided into 6 groups and reared for 6 weeks. Group I: control group fed on balanced commercial ration. Group II and III: treated groups fed on balanced commercial ration supplied with 0.5% and 2% S. cerevisiae for 6 weeks respectively. Group IV and V infected at one week age with Escherichia coli strain O78 and fed on balanced commercial ration supplied with 0.5% and 2% S. cerevisiae respectively for 6 weeks. Group VI infected with E. coli at one week age and fed on balanced commercial ration. Growth performance were studied allover the experiment. Some biochemical and immunological parameters were
investigated at 4th and 6th week. Also, parts from the heart, liver, kidney, intestine, spleen, thymus and bursa were obtained for histopathological examination. Our results revealed that elevation AST, creatinine and uric acid, while total protein and albumin decreased in infected non treated group when compared with the control one. Dietary S. cerevisiae supplementation revealed significant improved in all investigated parameters. The immunological parameters, lysozyme, bactericidal activity and HI titer were enhanced in the treated groups fed S. cerevisiae in the infected treated groups compared with the infected non treated group one. We could conclude that Saccharomyces cerevisiae has prospective effect on the growth performance, non specific and specific immune response in broilers.

A comparative Clinicopathological Study on the Effect of Fucoidan and Levamisole on Some Hematological and Biochemical Parameters in Both Normal and Heat Stress Rabbits

This study was planned to investigate the effect of fucoidan and levamisole on some hematological and biochemical parameters in growing rabbits, in both normal and heat stress conditions. One month aged rabbits were orally treated with fucoidan at a dose of 100 and 200 mg/kg body weight daily for 4 weeks and levamisole with 8 mg/kg as a single dose every 2 weeks. This study was conducted at winter and summer. Fucoidan and levamisole treated groups returned the increased RBCs count and Stress leukogram picture to normal at the end of the study. Biochemical profile showed significant decrease in ALT, AST, glucose, urea and creatinine with increased level of total protein and globulin. We concluded that fucoidan express good immunomodulating, hepatoprotective and renoprotective effect against stress induced by high temperature.

Clinicopathological Studies on Hepatoprotective Effect of Fucoidan on CCl4 Induced Liver Fibrosis in Guinea pigs.

In this study, we investigate the protective and therapeutic effect of fucoidan extract from Laminaria species against liver damage induced by CCl4 in Guinea pigs by monitoring the hepatic m-RNA expression of TGF1-α, some serum biochemical parameters and some oxidative stress biomarker. The CCl4 was orally administrated at dose 1 ml/kg bw twice a week for 8 weeks. Fucoidan orally administrated at a dose rate 200 mg/kg bw/day. We found that fucoidan treatment improved elevated m-RNA expression of TGF1-α, T.Bil, D.Bil, Ind.Bil. MDA and SOD serum levels induced by CCl4 at 8th week post treatment. Meanwhile ALT, AST and AP are not improved by fucoidan treatment. Finally, we concluded that crud fucoidan is less effective as hepatoprotective agent, and had a mild effect in the protective treatment at 8th week post treatment.

Effects of Mercuric Chloride on the Immunological, Hematological, Biochemical Parameters and Diseases Resistance of Nile Tilapia Challenged with Aeromnas hydrophila

Abstract: Mercuric and its compounds have been parts of widespread pollutant of water environment. In view of the possible hazards of mercuric salts, the present study was designed to assess the effect
of mercuric on immunomodulation system, as well as hematological and serum biochemical changes, in Nile tilapia (Oreochromis niloticus). The experimental fish were randomly divided into eight equal groups, each containing 80 fish. The first group (Gp.1) acted as a control. Gps.(2-4) were subjected throughout the experiment, 21 days to sublethal concentration of mercuric chloride 0.01, 0.05 and 0.1 ppm. Throughout the experiment, daily water mercuric concentration was estimated. At the end of experiment the non-specific defense mechanisms, cellular and humoral immunity, beside the total and differential leukocytic count were determined. Some selective biochemical parameters were estimated (ALT, AST, creatinine, urea, uric acid, total protein, albumine and glucose). Also fish were challenged with A. hydrophila (0.4 X 10^8 cells ml^{-1}) via intra-peritoneal injection and the mortality rate was recorded up to 10 day post-challenge. Lymphocyte transformation index, phagocytic activity percent, phagocytic index, total lymphocyte count, serum bactericidal activity and nitric oxide were significantly decreased after 21 day in all mercuric treatment groups when compared with control. Normocytic normochromic anemia and significant decreases of total plasma protein and albumin in dose depended manner in mercuric chloride exposed group. On the other hand, the mortality rate, total leukocytes and neutrophils count, liver transaminase enzymes, crearinine and uric acid, were significantly increased. Serum lysozyme and neutrophils adhesion cells were significantly decrease in higher dose exposed group (Gp.4) when compared with control group. It could be concluded that from this study the water born mercury pollution is highly toxic to Nile tilapia (Oreochromis niloticus) as well as has immune suppression and subsequently decrease diseases resistance in fresh water fishes.

Clinico-pathological studies of the relationship between methionine and thyroid disorders in broiler

This study was carried out on 140 one day old chicks for 6 weeks to study the effect of dietary supplementation of 1, 0.3 and 0.2% methionine on the growth performance and the thyroid function in broilers. Chickens were divided into 4 equal groups. Group I: control group fed on balanced commercial ration free from antimicrobial agents. Group II: treated group fed on ration containing 1% methionine. Group III: treated group fed on ration containing 0.3% methionine. Group IV: treated group fed on ration containing 0.2% methionine. Five random samples of whole blood and serum were taken from all experimental groups at 2nd, 4th and 6th weeks for investigation of some biochemical parameters.
Our results revealed significant increase in the body weight and body weight gain, significant decrease in total feed intake in the treated group fed 1% methionine. But, there was significant decrease in the body weight, body weight gain and feed intake, but, there was significant increase in FCR of treated groups fed 0.3 and 0.2% methionine. Biochemical investigation revealed that the levels ALT, AST and albumin were non significantly changed in all groups when compared with the control. Total proteins, globulin and glucose were significantly decreased while cholesterol was significantly increased in the treated groups fed 0.3 and 0.2% met. The results of renal function tests revealed significant increase in the level of uric acid in the treated groups fed 0.3 and 0.2% met at 4 weeks. There were significant decrease in the catalase, SOD, GSH, NO, T3 and T4 in the groups fed 0.3 and 0.2% met.

From this present study, we can conclude that: methionine at level 1% has a growth promoter effect in broilers. While, methionine less than the normal requirements (0.5%) according to the NRC depressed the growth performance of broilers and also caused thyroid hormone levels depression.

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Studies on dietary supplementation of triiodothyronine in runtling and stunting syndrome chicks

One hundred and five (105) one day old chicks Sasso broiler divided into equal 7 groups. Three groups experimental infected with 1 ml field strain reoviruses suspension containing 104.5 TCID50 (Tissues Culture Infected Dose). The broiler chicks were feed with balanced starter diet, with out any hormonal supplements till the end of the 2nd week old age. Chickens in all groups inspected daily for sings of disease. The thyroxin hormonal treatment was supplemented at a dose of 0.1, 0.5 &1PPM in diet at the first day of the 3rd week old age.

Growth performance was determined at the 4th, 6th and 8th weekâ€™s old age. Random blood samples were collected from six chicken at the end of the 6th and 8th weeks old age for complete blood picture and some biochemical parameters investigation. The present study showed that the addition of the thyroid hormones with low doses is better to improve the feed conversion rate and the weight gain than higher doses. The erythrogram results appeared to normocytic normochromic anemia in either infected or non-infected high doses hormonal treated groups in comparison to control. Low doses non-infected treated groups showed higher hemoglobin concentrations and total leukocyte count in comparison with control and high doses hormonal treated ones. Slight elevation in the LDH, AST &CK levels, meanwhile hypoproteinemia, hypoalbuminemia, hypcholesterolemia as well as hypotriglyceridemia was observed in infected high hormonal doses was observed in allover the experiment in comparison with control and low dose hormonal treated one.

In conclusion the dietary supplementation with low dose of triiodothyronine enhanced growth performance in runting and stunting syndrome chicken.

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Prognostic Significance of Oxidative Stress Markers in Colitis associated with Phenylbutazone Administration in Draft Horses

The present study was carried out to assess the prognostic significance of oxidative stress markers in draft horses with colitis associated with phenylbutazone administration
under field condition. For this purpose, a total of 40 native breed draft horses were studied. Based on case history, physical examination, and postmortem findings, diagnosis was made. According to the clinical outcome, horses were categorized into survivors and nonsurvivors. Clinically, there was significant association between nonsurvivors and anorexia (P < .01), stasis of intestinal motility (P < .01), melena (P < .01), and diarrhea (P < .05) in nonsurvivors compared with survivors, whereas activities of superoxide dismutase showed a significant decrease (P < .05). Analysis of receiver operating characteristic curve indicated a high sensitivity and specificity of malondialdehyde, nitric oxide, and superoxide dismutase levels (P < .001) to predict the clinical outcome of colitis. Additionally, total protein and albumin showed a significant decrease in nonsurvivors compared with survivors; however, aspartate aminotransferase, sorbitol dehydrogenase, urea, and creatinine showed an increase (P < .05). The present results suggest that estimation of oxidative stress markers and antioxidant parameters may be useful predictors of the clinical outcomes of colitis associated with phenylbutazone administration in draft horses.