Research Paper

Genome Analysis of Antimicrobial Resistance Genes and Virulence Factors in Multidrug-Resistant Campylobacter fetus Subspecies Isolated from Sheath Wash.

Tshipamba ME, Lubanza N and Mwanza M.

ABSTRACT

Campylobacter fetus subspecies are mostly characterized by reproductions problems in cattle and sheep. This study aimed to study the genetic profile and assess the genes mechanism of resistance and their virulence factors using genome sequence analysis. A total of 59 confirmed Campylobacter fetus subspecies based on molecular assays and DNA sequencing were subjected to antimicrobial susceptibility test against 14 antibiotic agents representing the five classes of antibiotics using the disc diffusion method. In addition, sequencing the genome of all strains induced complete resistance against all tested antibiotics. The results of the antimicrobial test indicated that 54.4% had a resistance profile, 26.3% were intermediate, while 19.3% were observed to be susceptible. The Whole Genome Sequencing (WGS) result revealed the presence of different genes, such as Broad-specificity multidrug efflux pump and 16S rRNA (guanine 527 -N 7 )-methyltransferase (gidB), efflux pump conferring antibiotic resistance (MacA and MacB), protein-altering cell wall charge conferring antibiotic resistance (PgsA), which have never been reported in Campylobacter fetus subspecies. The WGS also revealed the presence of genes that involved in colonization, adhesion, motility, and invasion, such as type IV secretion system protein (VirD4), S-Layer, cytolethal distending toxin (A, B, and C), Campylobacter invasion antigen (CiaB), and fic domain protein (fic) were among important CDS. The presence of these uncommon genes explains the resistance of Campylobacter fetus subspecies against different tested antibiotics. The results of this study can be used to implement molecular surveillance of Campylobacter fetus subspecies and conduct further studies on the resistance mechanism in these subspecies.

Keywords: Broad-specificity multidrug efflux pump, Campylobacter fetus subspecies, Genome analysis, Methyltransferase gidB, Multidrug resistance.
Research Paper

Impact of In-Ovo Injection of Folic Acid and Glucose on Hatchability and Post-Hatching Performance of Broiler Chicken.

Abdel-Halim A, Mohamed FR, Elmenawey MA, Gharib HB.

ABSTRACT

The present study was designed to investigate the impact of in-ovo injection of folic acid and glucose on hatching eggs from 55 weeks old broiler breeders. A total number of 900 hatching eggs were collected from Arbor Acres broiler breeders, then, eggs were divided into 6 groups including 1) Negative Control (non-injected, NC), 2) Dry Punch Control (pricked without injecting any solution, DPC), 3) Positive Control (eggs were injected with 0.5 mL normal saline, PC), 4) Folic Acid group (eggs were injected with 0.2 mg/egg folic acid, FA), 5) Glucose group (eggs were injected with 125 mg/egg glucose, Glu), and 6) Folic Acid with Glucose group (eggs were injected with 0.2 mg folic acid with 125 mg/egg glucose, FA+Glu). Each treatment was divided into five replicates of 30 eggs each. Eggs were injected into the albumen under the air sac. After in-ovo injection, the eggs were stored for four days before hatching. After hatching, the chickens were reared in groups according to the treatments. All treatments were divided into 10 replications of 9 chickens in each. In-ovo injection with folic acid decreased the albumen pH significantly to 9.19 after 4 days of injection, while the negative control was 9.43. Hatching quality was severely affected by all in-ovo injection treatments, but no significant differences were found between the treatment groups concerning the hatchability of fertile eggs. Injection treatments had no significant effect on the growth rate or the production number in any of the weeks. Injection of folic acid and (FA+Glu) significantly increased chickens’ body weight at two and four weeks of age. Also, the dressing percentage when using folic acid and (FA+Glu) was significantly increased to 72.1% and 72.5%, respectively, compared to the positive control group (68.3%). In conclusion, our data suggested that in-ovo injection with a mixture of folic acid and glucose (0.2 mg folic acid+ 125 mg/egg glucose) could be used to enhance carcass characteristics. Further studies should be conducted to find the effects of in-ovo injection folic acid and glucose on different incubation days and at different sites of injection.

Keywords: Broilers, Folic Acid, Glucose, Hatchability, In- Ovo injection, Old breeders, Post-hatch
ABSTRACT

Keywords:

- Antibiotic resistance
- AgNPs
- Nanoparticles
- E. coli
- Klebsiella

Nanoparticles have been extensively used as an applicable and safe alternative to antibiotics. Moreover, the effect of silver nanoparticles on the expression of antibiotic resistance genes (i.e., antibiotic resistance genes in E. coli and Klebsiella spp., while the minimum bactericidal concentration of ESBL-producing Klebsiella spp. was measured as 0.31 mg/ml, and 0.62 mg/ml for ESBL-producing Klebsiella spp. cells which was investigated using SEM. It can be concluded that silver nanoparticles have a noticeable toxic effect on these species and there was a downregulation in both bacteria species and there was a synergistic effect of silver nanoparticles on the expression of antibiotic resistance genes.

DOI:

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**References**:


**Keywords**:

- Anticoccidial Alternatives
- Prevention & Treatment
- Anthelmintics

**Presentation**:

- Anticoccidial Alternatives
- Prevention & Treatment
- Anthelmintics
This study aimed to identify Sarcocystis hosts for investigating the morphological and the ultrastructural characteristics of the species. A total of 1000 esophagi were collected from sheep and goats and examined for the presence of sarcocysts. Macroscopic sarcocysts were isolated from the infected naturally infected domestic sheep and goats using the molecular method, as well as the 18S rRNA gene sequence analysis. Moreover, the results of electron microscopy indicated the characteristic features of the macroscopic Sarcocystis of domestic sheep and goats in Soran City, Erbil, Iraq. Isolated species were identified molecularly by 18S rRNA gene sequence analysis. Furthermore, the partial analysis of the mtDNA COI gene revealed that the identified isolates produced bands of expected sizes on gel electrophoresis. The findings from the phylogenetic analysis revealed that the identified species were Sarcocystis S. medusiformis and S. gigantea. As a result, risk factors of the age range, gender, and breed of goats were detected. The prevalence of brucellosis was 0% in cattle, sheep, and goats while it was 23.9% in humans. The prevalence of this infection was also at a higher level among individuals aged 20-39 and individuals aged 40-59 years old. In conclusion, brucellosis is an alarming problem among residents of the New Valley Governorate. Thus, reducing the prevalence in humans and animals in the region of study may include restriction of the consumption of milk and meat products.
Canine Parvovirus Infection in Dogs: Prevalence and Associated Risk Factors in Egypt.

Sayed-Ahmed MZ, Elbaz E, Younis E and Khodier M.

The prevalence of parvovirus infection in dogs was studied in Egypt. 

Research Paper

Age, breed, season, and vaccination of each dog were recorded to study the prevalence of parvovirus infection. 

Sayed-Ahmed MZ, Elbaz E, Younis E and Khodier M.

ABSTRACT

Canine parvovirus (CPV) infection is a global infectious and contagious viral disease of canine, especially in dogs infected by three variants of CPV type. This study aimed to investigate the prevalence and potential risk factors of parvovirus infection in dogs residing in Egypt. A total of 122 dogs suffering from vomiting and diarrhea were screened by antigen rapid CPV/Canine coronavirus Ag test kit for the diagnosis of CPV infection from March 2012 to February 2013. 

Keywords:
- CPV
- Egypt
- Epidemiology
- Prevalence
- Risk factors

Coronavirus Ag test kit for the diagnosis of CPV infection from March 2012 to February 2013.

The overall prevalence of CPV infection in dogs was reported as 59.7%. Dogs between 0 and 3 months of age indicated the highest prevalence of 68% followed by 4-6 months of age (53.3%). The lowest prevalence of CPV was reported in dogs above 6 months of age (20%). The maximum prevalence was noticed in non-descript dogs (48.5%) followed by German shepherd dogs (42.8%), and Rottweiler (34.8%). The prevalence was 77.1% in summer, followed by autumn (55.5%) and winter (45.8%). The prevalence of CPV infection was highest in non-descript dogs (50%), followed by German shepherd (42.8%), and Rottweiler (34.8%). The prevalence of CPV was 25% in spring and 34.8% in autumn. 

ABSTRACT

Keywords:
- Antibacterial
- Antibiotics
- Lactobacilli
- Microbiological Studies

The aim of current study was to isolate and identify naturally occurring probiotic 

Lactobacilli species in buffalo milk, camel milk, and camel urine to investigate their susceptibility to antibiotics. 

Research Paper

A total number of seven samples of buffalo milk, camel milk, and camel urine were cultured, and 18 strains were isolated from each category. 

ABSTRACT

Keywords:
- Carbamate
- Fish
- Genotoxic damage
- Histopathology

Thiobencarb which is a carbamate herbicide is used for managing undesirable weeds during rice cultivation in Egypt. This study was designed to investigate the adverse effects of a field course (two months) and sampling was carried out. Catalase, Glutathione S-Transferase activities, Glutathione reduced, and Malondialdhyde levels were assayed. 


Elmadawy MA, Abdo W, Omar AA and Mahfouz NB.


Elmadawy MA, Abdo W, Omar AA and Mahfouz NB.

Thiobencarb resulted in DNA damage, oxidative stress and histopathological changes. Fish exposed to thiobencarb were sacrificed at the end of the experimental course (two months) and sampling was carried out. Catalase, Glutathione S-Transferase activities, Glutathione reduced, and Malondialdhyde levels were assayed. 


Elmadawy MA, Abdo W, Omar AA and Mahfouz NB.

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Elmadawy MA, Abdo W, Omar AA and Mahfouz NB.
A retrospective study was conducted to determine the epidemiology of Contagious Bovine Pleuropneumonia (CBPP) in the Central Zone of Tanzania. The present study used data from various forms of weekly, monthly, and slaughterhouse reports, as well as Event Mobile Application (EMA-i) reports submitted to the zone. The present study found that out of 14 Local Government Authorities (LGAs) in the Central Zone, 10 reported the disease in the past five years. Archived information of Central Zone Veterinary Centre (CZVC) for the past five years in the central zone of Tanzania was analyzed to determine the prevalence and distribution of CBPP. This extensive study must be carried out, since the parameters obtained during the study were significant for understanding the burden of the disease in the Central Zone of Tanzania.

**Keywords:** Central zone, Contagious bovine pleuropneumonia, Prevalence and distribution

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**ABSTRACT**

Experimental ducklings were randomly divided into the 5 equal treatments with 90 ducklings (45 Pekin and 45 Sudani). The present study aimed to evaluate the effect of L-carnitine and Yeast chromium supplementation on the productive performance of Pekin and Sudani duckling breeds. A total number of 450 both unsexed Pekin and Sudani ducklings (225 per each breed) one-day-old were investigated in the current study. The experimental period lasted 12 weeks of age. All the ducklings were divided randomly into 3 equal replicates of 30 ducklings (15 ducklings in each breed). The five treatments 1 received basal diets supplemented with 100 mg/kg diet L-carnitine (LC), while treatments 2 and 3 received basal diets supplemented with 300 and 450 mg/kg diet L-carnitine, respectively. Therefore, 3.8%, 13%, and 0.5% were reported as CBPP prevalence, case fatality rate, and mortality rate, respectively. It was also revealed that there was a clear temporal pattern of CBPP occurrence, with more cases being reported between August to December. In order to be able to assess the actual burden of the disease on-site, research recommended the strengthening of control measures against this disease in the central zone of Tanzania. In the present study, all the ducklings had a history of vaccination with Pekin ducklings followed by Pekin/crossbreeds, while for Sudani ducklings, the crossbreeds were used. Suitable breed combinations were compared to the pure breeds. The Aichi-type L-carnitine and Yeast chromium were used to evaluate the effect on live body weight, body weight gain, feed intake and feed conversion ratio. The relative weight of carcass quality and economic efficiency was also assessed. Both the number of birds slaughtered and the carcass yield were significant. The results revealed that all treatments did not differ significantly from the control.

**Keywords:** L-carnitine, Pekin ducks, Productive Performance, Sudani ducks, Yeast chromium.

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**ABSTRACT**

Survival and Productivity of Culinary Herb Species in a Nutrient Film Technique-type Aquaponic System

Aquaponics is an evolving technology for producing plants and fish (or other aquatic organisms) in an integrated water recirculating system. However, the survival rate, growth, and biomass production of terrestrial herbs in aquaponic systems have not been evaluated for most plant species. The present study aimed to analyze the survival rate, growth, and biomass production of eight culinary herbs, commonly used in Guatemala, in a Nutrient Film Technique-type (NFT) aquaponic system with Nile tilapia (Oreochromis niloticus). In an integrated water recirculating system, the survival rate, growth, and biomass production were measured for 5 aquaponic modules. The survival rate, growth, and biomass production were measured for 5 aquaponic modules. The investigation was done in the Central Zone of Tanzania, and the Aichi-type L-carnitine and Yeast chromium were used to evaluate the effect on live body weight, body weight gain, feed intake and feed conversion ratio. The relative weight of carcass quality and economic efficiency was also assessed. Both the number of birds slaughtered and the carcass yield were significant. The results revealed that all treatments did not differ significantly from the control.

**Keywords:** Aquaponics, Ecological production, Hydroponics, Oreochromis niloticus, Recirculating water, Sustainable, Thymus vulgaris, Ocimum basilicum, Oregano, Plectranthus amboinicus, Thyme, Dill, Coriander, Basil, Eryngium foetidum, Peppermint, Peperomia, Samat, Coriandrum sativum, Ocimum basilicum, Thymus vulgaris, Plectranthus amboinicus, Thyme, Dill, Coriander, Basil.
ABSTRACT
Identifying the Virulent Factors of Clostridium perfringens Locally Isolated from Different Species.


Clostridium perfringens

Species.

There is an increasing interest in the application of natural antimicrobials instead of chemical agents (Riyadi PH, Suprayitno E, Aulanni'am A and Sulistiyati TD. Spore Forming Bacteria in Low Salt Soft Cheese. World Vet. J. 10(4): 609-616. DOI: 10.29252/scil.2020.wvj72)

The antimicrobial agents (Lactobacillus plantarum, Lactobacillus rhamnosus) in low-salt soft cheese during the storage period (30 days) at 4±1°C were studied on the growth effect of aerobic spore-forming bacteria. The growth pattern of aerobic spore-forming bacteria gradually decreased in all treatments along the storage period with variable reduction percentages in compared to control and other treatments.

The results revealed that the addition of different natural antibacterial additives with various concentrations had a significant effect on aerobic spore-forming bacteria, compared to other treatments and control. The application of a combination of nisin and lysozyme had the most significant reduction of aerobic spore-forming bacteria, compared to control cheese which was in continuous increment.

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The factors influencing the risk of C. burnetii seropositivity in horses in Algeria, (an obligate intracellular bacterium). This pathogen affects humans, ruminants, equines, carnivores, rodents, and birds. A cross-sectional study was carried out from March 2017 to May 2018 to assess the seroprevalence and identify the risk factors of Coxiella Burnetii infection in horses of Algeria. Overall, 182 horses were included in the study and sera were analyzed by univariate and multivariate logistic regression. An overall seroprevalence of 9.9% (18/182) was obtained. The univariate analysis of risk factors for Coxiella Burnetii infection in horses indicated that the risk of seropositivity demonstrated higher seropositivity in horses that had contact with small ruminants (p=0.004) and dromedaries (p=0.002) as well as in those living near a water source (p=0.036) and in El-Bayadh district (p=0.005). The multivariate logistic regression analysis indicated that the risk of Coxiella Burnetii infection in horses in Algeria is endemic for Q fever in horses and prophylactic measures must be taken to reduce its transmission to animals and humans.

Coxiella Burnetii, Equus Caballus, Q fever, Seroprevalence
Incidence of Appendicular Bone Fracture in Dogs and Cats: Retrospective Study at Veterinary Hospital of Cairo University and some Private Clinics in Egypt.

Keywords: Cat, Dog, Femur, Fracture, Orthopedic Research Paper

Veterinary Hospital of Cairo University and some Private Clinics in Egypt showed high incidence (87% in dogs and 71.8% in cats) out of total population (breed, age, gender, and animal size). The investigated fractures were classified among dogs and cats referred to the veterinary teaching hospital, Cairo University and some private clinics in Egypt.

The fractures were classified concerning the different bone fractures with significantly higher records in dogs, and ulna, femur, tibia and fibula, and the other bones), extent of tissue damage (open or closed fractures).

In conclusion, appendicular bone fracture incidence of appendicular bone fracture cases and this incidence correlated with some predisposing factors (including breeds, completeness of fracture line, site (proximal, diaphyseal or distal zones), number (single or multiple fractures respectively. Moreover, cats were complete transverse distal radial/ulnar fractures. In conclusion, appendicular bone fracture determination of appendicular fractures arising from trauma in dogs and cats treated in private clinics in Egypt.

Keywords: Urinary calculi, Cystotomy, Plastron osteotomy, Sulcata tortoise

This paper aimed to examine the management of urinary calculi of a sulcata tortoise. A 10-year-old female sulcata tortoise presented with loss of appetite, and lameness. Clinical signs and radiographic examination indicated urinary calculi mass. Plastron osteotomy and cystotomy techniques were used to remove urinary calculi. The appetite of the tortoise returned to normal in a week after the surgery.

Keywords: Antimicrobial activity, Lactobacillus plantarum

The production of Ag-NPs was assessed for their antimicrobial efficiency using the agar well diffusion method. The antibacterial activity of Ag-NPs was more potent against Gram-negative bacteria. Ag-NPs synthesized from Lactobacillus brevis showed antifungal activity against Candida albicans.

Green Synthesis of Silver Nanoparticles Using Lactic Acid Bacteria: Assessment of Antimicrobial Activity.

The antibacterial activity of Ag-NPs was more potent against Gram-negative bacteria. Ag-NPs synthesized from Lactobacillus brevis and Lactobacillus plantarum showed antifungal activity against Candida albicans.
The deleterious effect of heat stress on cumulus-oocytes complexes (COCs) competence is well established. In the present study, we measured the developmental competence of in vitro matured COCs of Camelus dromedaries with different qualities. A total of 1548 COCs were divided into six groups: K1, K2, K3, K4, K5, and K6. The COCs were incubated at 38.5°C for 24 hours of IVM. The COCs were then exposed to heat stress at 41°C and 42°C for 30 hours. While K3 and K4 represent good and low-quality COCs exposed to 41°C during maturation, K5 and K6 represent the groups of good and low-quality COCs exposed to 42°C for the first 6 hours of IVM. After exposure of COCs to heat stress at 41°C and 42°C during maturation, the COCs were incubated at 38.5°C for 30 hours. While K3 and K4 represent good and low-quality COCs exposed to 41°C during maturation, K5 and K6 represent the groups of good and low-quality COCs exposed to 42°C for the first 6 hours of IVM. Finally, K5 and K6 represent the groups of good and low-quality COCs exposed to 42°C for the first 6 hours of IVM. The results of this study indicated that heat stress at 42°C significantly decreased the Pb (polar body) extrusion rate in K4 and K6, compared to other groups. Additionally, the embryo cleavage rate was significantly lower for good and low-quality COCs exposed to heat stress at 41°C and 42°C during maturation. The blastocyst rate was also lower for K2, K3, K4, K5, and K6 than K1. The effect of heat stress on the developmental competence of in vitro matured COCs of Camelus dromedaries with different qualities was also determined. The present results indicated the use of lysine in commercial feed to significantly influence the developmental competence of in vitro matured COCs of Camelus dromedaries with different qualities.

**Keywords:** Embryo development, Heat stress, Oocyte


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The effects of dietary supplementation of cod liver oil on ratio of saturated and unsaturated fatty acids in pangasius. A total of 1548 COCs were divided into six groups: K1, K2, K3, K4, K5, and K6. The main parameters studied were the content of saturated and unsaturated fatty acids in pangasius fish meat. The observed differences in the content of saturated fatty acids, MUFA and PUFA were caused by the use of cod liver oil in commercial feed. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA.

**Keywords:** Lysine essential amino acid, Saturated fatty acids, Unsaturated fatty acids.


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The effect of heat stress on the developmental competence of in vitro matured oocytes of Camelus dromedaries with different qualities. A total of 1548 COCs were divided into six groups: K1, K2, K3, K4, K5, and K6. The main parameters studied were the content of saturated and unsaturated fatty acids in pangasius fish meat. The observed differences in the content of saturated fatty acids, MUFA and PUFA were caused by the use of cod liver oil in commercial feed. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA. The use of cod liver oil in commercial feed was found to cause significant differences in the content of saturated fatty acids, MUFA and PUFA.

**Keywords:** Embryo development, Heat stress, Oocyte

Virulence Genes Detection and Antifungal Sensitivity Testing of Candida albicans Isolated from Raw Goat Milk