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.

Campylobacter fetus subspecies are mostly characterized by reproduction 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
The present study aimed to explore the inhibitory effect of silver nanoparticles on Extended Spectrum Beta lactamase (ESBL) producing bacteria in vitro as well as their effect on the expression of antibiotic resistance genes. Different samples (i.e., wound swabs, fecal swabs, and urine samples) were collected from dogs and cats. Phenotypic and molecular identification, antibiotic susceptibility testing, and double-disc test with specific primers was used for antibiotic resistance genes detection. The results indicated that silver nanoparticles were able to downregulate the expression of antibiotic resistance genes in both bacteria species and there was a noticeable toxic effect of AgNPs on the structural integrity of the bacterial cells using transmission electron microscopy (TEM).

In conclusion, pigeons as carriers of antibiotic-resistant bacteria are a significant concern due to their close association with humans. Further research is needed to understand the mechanism of action of silver nanoparticles and their potential as a novel therapeutic agent.

Keywords: silver nanoparticles, antibiotic resistance, bacterial cells, TEM, phenotypic and molecular identification, antibiotic susceptibility testing.
investigating the morphological and the ultrastructural characteristics of the species of hosts for naturally infected domestic sheep and goats using the molecular method, as well as is questionable.

Keywords: species were most closely related to sarcocysts. The cysts contained numerous merozoites and banana-shaped bradyzoites. The ABSTRACT for the presence of sarcocysts. Macroscopic sarcocysts were isolated from the infected results of electron microscopy indicated the characteristic features of the macroscopic Sarcocystis conoid in one of the apices, numerous micronemes, two rhoptries, as well as a long, convoluted S. medusiformis S. medusiformis S. gigantea, S. moulei, bradyzoites were characterized by possessing a double-membrane pellicle and consisted of a To the authors' knowledge, this is the first time the 18S rRNA gene presented that all isolates produced bands of expected sizes on gel S. moulei, Ultrastructural and Molecular Characterization of Sarcocystis Species Derived from e esophagi, and

Brucellosis is a worldwide zoonotic disease which is now considered endemic in most parts of (from humans) were further analyzed by complement fixation test, enzyme-linked immunosorbent assay to compare and detect the sensitivity and specificity of RBT. The the housewives where the prevalence was 18.8 %. As a result, risk factors of the age range, locality, time of infection, contact with animals, and occupational groups could significantly affect ABSTRACT farmers (31.25%) and animal keepers (20.6%) while the lowest prevalence was demonstrated in 233 goats) and 523 human serum samples were examined for brucellosis using Rose Bengal World Vet. J. an alarming problem among residents of the New Valley Governorate. Thus, reducing the prevalence of human brucellosis in the New Valley Governorate. In conclusion, brucellosis is investigate the seroprevalence of brucellosis in humans and livestock residing in two regions Sheep and goats. prevalence in humans and animals in the region of study may include restriction of the Diab MS, Zidan ShAA, Hassan NAA, Elaadli H and Bayoumi AM.

ABSTRACT productivity. This research was conducted to detect Single Nucleotide Polymorphism in the Day-Old chick measured every seven days, DNA was isolated by Chelex 5% method, Pituitary The Single Nucleotide Polymorphism was analyzed using the Pearson correlation test between sequence was aligned using Clustal omega software to gain Single Nucleotide Polymorphism. The conclusion found on the exon 6 Pituitary Positive Transcription Factor-1 gene in the first backcross hybrid Polymorphism Association of Pituitary Positive Transcription Factor-1 Gene with Body weight of the chicken body weights of 49-days-old chickens with the polymorphism points. The conclusion Retnosari D, Kilatsih R, Maulidi IS, Trijoko and Daryono BS. chicken.
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 (20%). The maximum prevalence was noticed in non-descript dogs (48.5%) followed by German Shepherds (26.7%), Doberman (23.07%), and Griffon (16.6%). Among different risk factors, the season, the higher prevalence was noticed in summer (77.1%) followed by spring (55.5%), 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.

Identification of the potential risk factors associated with the disease may be helpful to construct the ideal preventive measures. Age and seasonal variations are risk factors in the prevalence of CPV infection of dogs. Age, breed, season, and vaccination of each dog were recorded to study the prevalence of CPV. The maximum prevalence was noticed in dogs above 6 months of age (20%). The lowest prevalence of CPV was reported in dogs above 6 months of age (16.6%). Thus, CPV is an infectious and highly contagious viral disease of dogs. The maximum prevalence was noticed in dogs above 6 months of age (20%).

Keywords: Canine parvovirus, Egypt, Epidemiology, Prevalence, Risk factors

The aim of current study was to isolate and identify naturally occurring probiotic lactobacilli which included three milk samples from buffalo, three milk samples from camel, and one urine sample from camel were collected and used in this study. The samples were cultured, and 18 isolated strains were identified by using 16S rRNA multiplex Polymerase Chain Reaction analysis, which was performed following DNA extraction from the isolated bacteria. Buffalo and camel lactobacilli isolated from buffalo milk, camel milk, and also camel urine presented variable degrees of resistance to the antibiotics. More samples to gain more information in the field of antibacterial activity of probiotic strains that were found in both camel milk and camel urine, were also found in buffalo milk, which showed that these strains are resistant to antibiotics. The resistance of these strains to antibiotics can be explained by the presence of genes that code for resistance to antibiotics in the genome. The results indicated that fish exposed to thiobencarb resulted in DNA damage, oxidative stress and histopathological changes. The genotoxic effect of thiobencarb and SMC on treated fish was investigated in erythrocytes, gills, and brain was also carried out. The results indicated that fish exposed to thiobencarb showed a significant increase in comet parameters as compared to control values. Moreover, histopathological findings were in line with other results. 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 dose of thiobencarb on Nile tilapia and ameliorating the role of the low dose of S-methyl cysteine. S-Methyl cysteine protective effects in Oreochromis niloticus fish contaminated by thiobencarb herbicide. World Vet. J., 10 (4): 562-570.

Keywords: Antibacterial, Antibiotics, Lactobacilli, Probiotics, Carbamate, Fish, Genotoxic damage, Histopathology.
A retrospective study was conducted to determine the epidemiology of Contagious Bovine Pleuropneumonia (CBPP) in Tanzania. In order to be able to assess the actual burden of the disease on-site, and to recommend the strengthening of control measures against this disease, the study recommended the use of data from different sources, including records of livestock and disease incidence.

The study found that 3.8%, 13%, and 0.5% of the population at risk were reported as CBPP prevalence, case fatality rate, and mortality rate, respectively. It was also revealed that there was a clear temporal trend in the incidence of the disease, with the highest cases reported in the central zone of Tanzania.

The study notes that, in order to control the disease, there is a need for improved awareness and education among the local population, as well as better reporting and monitoring systems. The results of this study can be used to inform the development of policies and strategies to control and prevent the spread of CBPP in Tanzania.
**ABSTRACT**

Clostridium perfringens indicated that all the 26 isolates from different animal species of different localities in Egypt. Samples were subjected to isolation and identification (morphologically and biochemically) for obtaining CPA, Net B, and CPE genes as virulence factors. Consequently, those isolates are highly recommended to be used in the preparation of enterotoxemia and necrotic enteritis enterotoxin (CPE gene), whereas 23% of isolates of chicken and cattle intestinal samples contained CPA gene and 19.25% contained CPA, Net B, and CPE genes as virulence factors. Hence, those isolates are highly recommended to be used in the preparation of enterotoxemia and necrotic enteritis enterotoxin (CPE gene).

**Keywords:** isolates (n=26, 19.25%). The PCR was carried out to elucidate the virulence factors. It was highly recommended to be used in the preparation of enterotoxemia and necrotic enteritis enterotoxin (CPE gene), whereas 23% of isolates of chicken and cattle intestinal samples contained CPA gene and 19.25% contained CPA, Net B, and CPE genes as virulence factors. Consequently, those isolates are highly recommended to be used in the preparation of enterotoxemia and necrotic enteritis enterotoxin (CPE gene).

**ABSTRACT**

Species. The factors influencing the risk of C. burnetii seropositivity in horses were studied on the activity of 28 isolates of spore-forming bacteria. Inhibitory effect of nisin (25 mg kg\(^{-1}\)) alone and in combination with lysozyme (100 mg kg\(^{-1}\)) and natamycin (40 mg kg\(^{-1}\)) combination of nisin and lysozyme (25 mg kg\(^{-1}\)) had the most significant reduction of aerobic spore-forming bacteria. 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 growth pattern of aerobic spore-forming bacteria gradually decreased in all treatments along the storage period with variable reduction percentages in comparison with control cheese which was in continuous increment. The application of a combination of protective culture and natamycin (40 mg kg\(^{-1}\)), nisin (25 mg kg\(^{-1}\)), and lysozyme (100 mg kg\(^{-1}\)) had the most significant reduction of aerobic spore-forming bacteria, compared to control and other treatments.

**ABSTRACT**

Ansel S, Benfodil K, Miroud K, Cherif AM, Abdelli A, Kaidi R, and Alt-Oudhia Kh (2020). *Coxiella Burnetii* In Horses of Algeria: Seroprevalence and Associated Risk Factors. World Vet. J., 10(4): 617-624. The objective of this study was to assess the seroprevalence of *Coxiella burnetii* in horses of Algeria, using an enzyme-linked immunosorbent assay (ELISA). A cross-sectional study was conducted from March 2017 to May 2018 on 182 horses in the three districts of Algeria: Tiaret (132/182), El-Bayadh (20/182), and Ghardaia (30/182). The univariate analysis of risk factors for *C. burnetii* infection in horses conducted via univariate and multivariate logistic regression. An overall seroprevalence of 9.9% (18/182) was obtained. The univariate analysis of risk factors for *C. burnetii* infection was significantly higher in horses that were in contact with small ruminants (RR: 15.6). The Q fever is a worldwide zoonotic disease caused by *Coxiella Burnetii*, 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* in horses. The seroprevalence demonstrated higher seropositivity in horses that had contact with small ruminants (p=0.036) and in El-Bayadh district (p=0.005). The multivariate logistic regression analysis indicated that the risk of infection was significantly higher in horses that were in contact with small ruminants (RR: 15.6). The Q fever is a worldwide zoonotic disease caused by *Coxiella Burnetii* residing in three districts of Algerian, namely Tiaret, El-Bayadh, and Ghardaia. Serum samples were collected from 182 horses and analyzed via enzyme-linked immunosorbent assay (ELISA). 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Keywords: Veterinary Hospital of Cairo University and some Private Clinics in Egypt. medicine, Cairo University, and some private pet clinics in Cairo district, Egypt to identify and cats aged one to three years. A fracture in the hindlimbs was more significant than forelimbs with the highest incidence in femoral bone among both dogs and cats. The diaphyseal radial/ulnar fractures respectively. Moreover, cats were complete transverse distal World Vet. J. to determine the prevalence of appendicular fractures arising from trauma in dogs and cats treated population (breed, age, gender, and animal size). The investigated fractures were classified fracture cases and this incidence correlated with some predisposing factors (including breeds, percentage of open fractures were more common in cats than dogs. Incomplete fractures were bones concerning the different bone fractures with significantly higher records in dogs, incidence than females. The bone fracture mostly occurred in dogs younger than one-year-old, among dogs and cats referred to the veterinary teaching hospital, Cairo University and some Research Paper obtained data, it could be concluded that there was a high incidence of the appendicular long recorded more frequently in dogs than cats. In dogs, the most common fractures in the femur, according to the specific limb (forelimbs / hind limbs), specific bone fractures (Humerus, radius / tibia/fibula, humerus, and radius/ulna were complete comminuted diaphyseal femoral, complete oblique diaphyseal tibial/fibular, complete spiral diaphyseal humoral, and structure. This method was not beneficial for the tortoise in their infancy since it would interrupt the heart. This paper aimed to examine the management of urinary calculi of a sulcata tortoise. A Lateral Plastron Osteotomy Technique. Research Paper plastron with a stone-filled bladder. This was a safe area to open plastron since it was far from calculi mass. Plastron osteotomy and cystotomy techniques were used to remove urinary calculi in the urinary bladder. Radiographic results revealed that there was a radiopaque urinary 5-year-old Sulcata tortoise (calculi. The appetite of the tortoise returned to normal in a week after the surgery. The lateral paper on the green synthesis of silver nanoparticles using lactic acid bacteria: assessment of antimicrobial activity. The biosynthesis of silver nanoparticles (Ag-NPs) is a new methodology in nanotechnology with activity of Ag-NPs was more potent against Gram-negative bacteria and Syame SM, Mansour AS, Khalaf DD, Ibrahim ES and Gaber ES. Syame SM, Mansour AS, Khalaf DD, Ibrahim ES and Gaber ES. Antimicrobial Activity. nanoparticles appeared in spherical or polyhedral form, poly-dispersed and their diameter recorded the maximum activity against Candida albicans. Using the UV-visible spectrophotometer, showed antifungal activity against than Gram-positive bacteria confirmed by the color alteration from yellow to brown. Using the UV-visible spectrophotometer, showed antifungal activity against than Gram-positive bacteria confirmed by the color alteration from yellow to brown. Using the UV-visible spectrophotometer, showed antifungal activity against than Gram-positive bacteria confirmed by the color alteration from yellow to brown. Using the UV-visible spectrophotometer, showed antifungal activity against than Gram-positive bacteria confirmed by the color alteration from yellow to brown. Using the UV-visible spectrophotometer, showed antifungal activity against than Gram-positive bacteria confirmed by the color alteration from yellow to brown.
Unsaturated Fatty Acids in Giant Prawn (Macrobrachium rosenbergii) produce healthy and high-quality fish products. One of the nutrients needed by fish is fatty acids, on the ratio of saturated and unsaturated fatty acids to the meat of giant prawn. This research focused on the effects of adding cod liver oil to commercial feed to improve growth rate. The study aimed to determine the influence of cod liver oil on the growth rate of giant prawn. The treatment was conducted experimentally with a completely randomized design. The treatment was given to the giant prawn at different doses: 0% (control), 1%, 2%, 3%, and 4%. The study used the Duncan's test to determine the effect of cod liver oil on the growth rate. Based on the results, the study notes that the administration of cod liver oil in the diet influenced the growth rate of giant prawn. The provision of cod liver oil in the diet had a significant effect on the growth rate of giant prawn. The results showed that the treatment with 3% dose addition of cod liver oil had the highest growth rate. The study concluded that the provision of cod liver oil in the diet can improve the growth rate of giant prawn.

Soliman MMH, Kandil MM, Elnemr SA and Abuelnaga ASM.


ABSTRACT

The contamination of goat milk with pathogenic fungi can cause health hazards for the consumers either they consume it raw or even in the processed form. Since there are few studies concerning yeasts in raw goat milk, the present study aimed to determine the prevalence of yeasts and isolate Candida albicans from raw goat milk samples. Also, this study determined the distribution of virulence genes and the antifungal susceptibility profile of Candida albicans isolates. A total of 30 goat milk samples (collected from free-grazing goats) were mycologically examined. The confirmed Candida albicans isolates were subjected to PCR assay to detect the virulence genes (SAP4, RAS1, ALS1, HWP1, and PLB1). Also, antifungal sensitivity testing was performed against the commercially available antifungal agents and probiotics (Lactobacillus acidophilus and Lactobacillus plantarum). The mycological examination revealed that 14 out of 30 (46.7%) goat milk samples were positive for yeasts and only 4 (13.3%) isolates were confirmed as Candida albicans. The results from the PCR assay showed that RAS1 and ALS1 were found in 4 (100%) isolates, HWP1 and SAP4 were found in 2 (50%) isolates, while PLB1 was not detected in tested Candida albicans isolates (0%). Antifungal sensitivity testing results showed that ketoconazole gave the best activity against Candida albicans isolates, followed by fluconazole, nystatin, and itraconazole. All isolates were resistant to terbinafine. Moreover, both Lactobacillus acidophilus and Lactobacillus plantarum showed antifungal effects against Candida albicans, but Lactobacillus plantarum was more effective than Lactobacillus acidophilus. Antifungal resistance is a major problem that can lead to failure of candidiasis treatment. Regular antifungal sensitivity testing and searching for an alternative bio-eco-friendly approach for proper control and treatment of candidiasis are strongly needed to prevent treatment failure and emergence of resistant isolates.

Keywords: Antifungal sensitivity testing, Candida albicans, Goat milk, Virulence genes, Probiotics.