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
In Vitro Investigation of the Antibacterial Effect of Silver Nanoparticles on Spectrum Beta lactamase (ESBL) producing *E. coli* samples (i.e., wound swabs, Fecal swabs, and urine samples) were collected from dogs and Moreover, the effect of silver nanoparticles on the expression of antibiotic resistance genes (i.e., and ESBL-producing a promising antibacterial activity and could be considered an applicable alternative for the Research Paper World Vet. J. was measured as 0.31 mg/ml, and 0.62 mg/ml for ESBL-producing antibacterial effect where the minimum inhibitory concentration of AgNPs for ESBL producing Nanoparticles have been extensively used as an applicable and safe alternative to antibiotics. Scanning Electron Microscope (SEM). Results revealed that 23 isolates (19.16%) (Klebsiella *E. coli* spp. was reported as 0.15 mg/ml and 0.3 mg/ml, respectively. Consequently, the expression of *Klebsiella* and *E. coli* noticeable toxic effect of AgNPs on antibiotic resistance genes was downregulated in both bacteria species and there was a Keywords: *Klebsiella* *E. coli* *E. coli* *E. coli* *blaTEM*, *blaSHV*, *Klebsiella* spp., while the minimum bactericidal concentration of ESBL-producing spp. cells which was investigated using SEM. It can be concluded that silver nanoparticles have and Despite the presence of modern antibacterial drugs, bacterial infections are still a major investigation. Accordingly, this review article aims to shed light on coccidiosis in rabbits Rabbit Market in Chattogram, Bangladesh. A total of 100 cloacal swab samples were collected aseptically from resistance rate was found to be ampicillin (93.1%), followed by both *isolates to different antibiotics was performed by the disk diffusion method. PCR assay using *bla* found sensitive to ciprofloxacin, followed by colistin (62.1%), kanamycin (55.2%), and sulgentamicin (48.3%). 96.6% of *Salmonella* 1, and *Salmonella* Multidrug-Resistant *Salmonella* spp. Isolated from Apparently Healthy Pigeons in a Live Bird Market in Chattogram, World Vet. J. TEM, *ABSTRACT* The present study aimed to explore the inhibitory effect of silver nanoparticles on Extended *Antibiogram, Antibiotic resistance genes, Pigeons, Prevalence, 2* genes. In conclusion, pigeons as carriers of antibiotic-resistant *Bird Market in Chattogram, Bangladesh*.

**Keywords:** Pigeons, Antibiogram, Antibiotic resistance genes, Prevalence, *Pigeons*.
The findings from the phylogenetic analysis revealed that the identified Sarcocystis species were most closely related to hosts for isolated species. A total of 1000 esophagi were collected from sheep and goats and examined. Results of electron microscopy indicated the characteristic features of the macroscopic naturally infected domestic sheep and goats using the molecular method, as well as species were identified molecularly by 18S rRNA gene sequence analysis. Moreover, the World Vet. J. presented that all isolates produced bands of expected sizes on gel.

Ultrasound and Molecular Characterisation of Sarcocystis Species Derived from Sheep and Goats. To the authors' knowledge, this is the first time has been recorded in goats. Goats and sheep can be proposed as alternative intermediate hosts for Sarcocystis species, cross-infection may also occur between them and the host specificity of these results of electron microscopy. The macroscopic sarcocysts were detected in 9.1% (91/1000) of the esophagi. The isolation of Sarcocystis species isolated from macroscopic sarcocysts from sheep, goats, and cattle is questionable. The prevalence of brucellosis was 0% in cattle, sheep, and goats while it was 23.9% in humans using RBT. Concerning humans, there was a higher percentage of infection in EL Kharga above 40 years (28.57%). Furthermore, men (26.11%) were more inclined to be inflicted, the prevalence of human brucellosis in the New Valley Governorate. In conclusion, brucellosis is an alarming problem among residents of the New Valley Governorate. Thus, reducing the marketing the raw milk and enhancing public health awareness.

ABSTRACT Diab MS, Zidan ShAA, Hassan NAA, Elaadli H and Bayoumi AM. Sheep and goats. Brucella shedding in milk. Seroprevalence and Associated Risk Factors of Brucellosis in Livestock and Residents of the New Valley Governorate, Egypt. A cross-sectional study was carried out from December 2018 to February 2020 to compare the prevalence in humans and animals in the region of study may include restriction of the marketing the raw milk and enhancing public health awareness.
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 associated 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. Age, breed, season, and vaccination of each dog were recorded to study the prevalence of CPV. The overall prevalence of CPV infection in dogs was reported as 59.7%. Dogs between 0-3 months of age had the highest prevalence of 60.9%, followed by 4-6 months (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 Shepherds (26.7%), Doberman (23.07%), and Griffon (16.6%). Among different risk factors, age and season were found to be significant. The highest prevalence was observed in spring (55.5%) and summer (77.1%), followed by autumn (25%), and winter (16.6%). Thus, CPV is an infectious and highly contagious viral disease of dogs. Age and seasonal variations are risk factors in the prevalence of CPV infection. Identification of the potential risk factors associated with the disease may be helpful to construct the ideal preventive measures.
ABSTRACT

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 archived information of Central Zone Veterinary Centre (CZVC) for the past five years in the 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. Moreover, 56, 426, and 11147 cases were reported as deaths, and the cattle at risk were investigated in the current study. The experimental period lasted 12 weeks of age. The five experimental treatments were as follows: the first treatment was the control with basal diets, the second treatment was the L-carnitine (LC) supplemented diets, the third treatment was the Yeast chromium (Cr) supplemented diets, the fourth treatment was the LC and Cr supplemented diets, and the fifth treatment was the basal diets supplemented with 400 and 600 μg/kg diets Yeast chromium (Cr), respectively. The results indicated that growing duckling 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. It was also revealed that there was a clear temporal pattern of CBPP occurrence, with more cases being reported between August to December. In conclusion, CBPP was a seasonal problem in Central Tanzania. Therefore, the present research recommended the strengthening of control measures against this disease in the Central Zone, Contagious bovine pleuropneumonia, Prevalence and distribution.
Identifying the Virulent Factors of Clostridium perfringens Locally Isolated from Different Species.


Coxiella Burnetii, a Gram-negative intracellular bacterium. This pathogen affects humans, ruminants, equines, carnivores, rodents, and birds, and it is transmitted by aerosol or direct contact. The infection in horses was significantly higher in horses that were in contact with small ruminants (RR: 15.6). The research indicated that the risk of C. burnetii infection in horses is significantly higher in horses that had contact with small animals. Additionally, the study demonstrated higher seropositivity in horses that had contact with small ruminants, which is a significant risk factor for Q fever in horses.

The factors influencing the risk of C. burnetii seropositivity in horses were analyzed by univariate and multivariate logistic regression. An overall seroprevalence of 9.9% was obtained. The multivariate logistic regression analysis showed that the factors influencing the risk of C. burnetii seropositivity in horses included breed, housing, and presence of ticks, geographical localization, and contact with animals, and environmental characteristics (i.e., presence of water source). This study highlights the importance of understanding the risk factors for C. burnetii infection in horses, which can help in implementing prophylactic measures to reduce the risk of infection. The research provides valuable information for veterinarians and horse owners to help in the prevention and control of C. burnetii infection in horses.
ABSTRACT
Incidence of Appendicular Bone Fracture in Dogs and Cats: Retrospective Study at
Veterinary Hospital of Cairo University and some Private Clinics in Egypt.

Objective: This study was designed to provide descriptive data at referral veterinary teaching hospital, faculty of veterinary medicine, Cairo University, and some private pet clinics in Cairo district, Egypt to identify and determine the prevalence of appendicular fractures arising from trauma in dogs and cats treated from January 2017 to January 2020, and emphasizing the information that characterized the fracture type.

Methods: A prospective study was conducted at Veterinary Hospital of Cairo University and some private clinics in Egypt. The cases were divided into two groups, one group of dogs and the other group of cats, and were treated for appendicular fractures, including femur, tibia, radial and ulna, humerus, and fibula.

Results: Out of total 2,067 cases, 1,432 cases were dogs, 635 cases were cats. The most fractures recorded in Miniature breeds and svelte breeds for cats. Male dogs and cats showed a higher percentage of open fractures than cats. Incomplete fractures were more common in dogs than cats. In dogs, the most common fractures in the femur, distal radial/ulnar, complete transverse distal humeral, and complete transverse diaphyseal tibial/fibular, and this incidence correlated with some predisposing factors (including breeds, weight, age, and gender) and causative agents that resulted in different types of appendicular fractures.

Conclusions: The present study showed higher percentages of femur fractures in dogs and cats. Femoral bone fractures were recorded more frequently in dogs than cats. In conclusion, appendicular bone fracture incidence showed a significant variation along different breeds and health status. The present study provided an opportunity to identify and analyze the results of an ongoing study on the incidence of appendicular bone fractures in dogs and cats.
The Effect of Dietary Supplementation of Cod Liver Oil on Ratio of Saturated and Unsaturated Fatty Acids in Giant Prawn (P. monodon).

Marzuki L, Agustono and Rahardja BS. Pangasius is a medium to very large freshwater shark catfish primarily used for consumption. In the present research, an experimental method with a completely randomized design was used. The treatment was done by adding lysine with different doses including P0 (0%), P1 (1.2%), P2 (2.4%), P3 (3.6%) and P4 (4.8%) to the commercial feed. Each treatment was repeated five times. The main parameters studied were the MUFA content of 2.2% (5.9630 mg/dl) found. An increase in the PUFA content was found in P3 treatment with 3.2% (23.1082 mg/dl). P1, P2 and P3 indicated lower results than control treatments (P0). The use of lysine in commercial feed indicated significant differences in the content of saturated fatty acids, MUFA and PUFA in pangasius.

Key words: Lysine essential amino acid, Saturated fatty acids, Unsaturated fatty acids.


Abattoir ovaries

Bad quality COCs
Recovery of COCs
Good quality COCs

Control at 38.5°C
Heat shock at 41°C
Heat shock at 42°C

-Camelus expansion (%)
-Extrusion of polar body (%)
-Embryonic development
-Embryo rate
- Blocked embryos rate

Supplementation of Cod Liver Oil for Giant Prawn

Cod liver oil, Feed, Giant prawn, Saturated fatty acids
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 \textit{Candida albicans} from raw goat milk samples. Also, this study determined the distribution of virulence genes and the antifungal susceptibility profile of \textit{Candida albicans} isolates. A total of 30 goat milk samples (collected from free-grazing goats) were mycologically examined. The confirmed \textit{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 (\textit{Lactobacillus acidophilus} and \textit{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 \textit{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 \textit{Candida albicans} isolates (0%). Antifungal sensitivity testing results showed that ketoconazole gave the best activity against \textit{Candida albicans} isolates, followed by fluconazole, nystatin, and itraconazole. All isolates were resistant to terbinafine. Moreover, both \textit{Lactobacillus acidophilus} and \textit{Lactobacillus plantarum} showed antifungal effects against \textit{Candida albicans}, but \textit{Lactobacillus plantarum} was more effective than \textit{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, \textit{Candida albicans}, Goat milk, Virulence genes, Probiotics.