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 527-7-N) 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.
Impact of In-Ovo Injection of Folic Acid and Glucose on Hatchability and Post-Hatching Performance of Broiler Chicken.

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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 Escherichia coli (E. coli) and Klebsiella pneumoniae. Different samples (i.e., wound swabs, fecal swabs, and urine samples) were collected from dogs and was measured as 0.31 mg/ml, and 0.62 mg/ml for ESBL-producing E. coli and Klebsiella pneumoniae, respectively. Consequently, the expression of antibiotic resistance genes was downregulated in both bacteria species and there was a synergistic decrease in antibiotic resistance rates.

**Keywords:** Antibiotic resistance, silver nanoparticles, in vitro, ESBL-producing bacteria.
Macroscopic sarcocysts of domestic sheep and goats in Soran City, Erbil, Iraq. has been recorded in goats. Goats and sheep can be proposed as alternative intermediate hosts for \( S. \) moulei, \( S. \) medusiformis, \( S. \) gigantea, and \( S. \) swar species. The cysts contained numerous merozoites and banana-shaped bradyzoites. The isolated species were identified molecularly by \( 18S \) rRNA gene sequence analysis. Moreover, the species were most closely related to \( S. \) medusiformis. The partially analyzed mitochondrial DNA sequences were comparable with those published in GenBank. The ultrastructure of the sarcocysts was investigated by both scanning and transmission electron microscopy. The macroscopic sarcocysts were detected in 9.1% (91/1000) of the esophagi. The bradyzoites were characterized by possessing a double-membrane pellicle and consisted of a subterminal nucleus, mitochondrial electron dense plate, and several amylopectin granules.

Keywords: Phylogeny, Molecular characterisation, Sarcozystis, 18S rRNA, Ultrastructure, 18S rRNA
Canine parvovirus (CPV) infection is a global infectious and contagious viral disease of canine, in which was 53.3%. The lowest prevalence of CPV was reported in dogs above 6 months of age. 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 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, young, unvaccinated puppies and exotic breeds were more prone to CPV infection. Regarding the season, the higher prevalence was noticed in summer (77.1%) followed by spring (55.5%), autumn (25%), and winter (16.6%). Thus, CPV is an infectious and highly contagious viral infection. Identification of the potential risk factors associated with the disease may be helpful to construct the ideal preventive measures. Abou AM, Hedia RH, Omara ST, Kandil MM, Bakry MA and Effat MM (2020). Microbiological Studies on Naturally Present Bacteria in Camel and Buffalo Milk. World Vet. J., 10 (4): 562-570. Abdou AM, Hedia RH, Omara ST, Kandil MM, Bakry MA and Effat MM. (2020). Microbiological Studies on Naturally Present Bacteria in Camel and Buffalo Milk. World Vet. J., 10 (4): 562-570. Elmadawy MA, Abdo W, Omara AA and Mahfouz NB. (2020). S-Methyl Cysteine Protective Effects in Oreochromis Niloticus Fish Contaminated by Thiobencarb Herbicide. World Vet. J., 10 (4): 571-577. Elmadawy MA, Abdo W, Omara AA and Mahfouz NB. (2020). S-Methyl Cysteine Protective Effects in Oreochromis Niloticus Fish Contaminated by Thiobencarb Herbicide. World Vet. J., 10 (4): 571-577. Sayed-Ahmed MZ, Elbaz E, Younis E and Khodier M. (2020). Canine Parvovirus Infection in Dogs: Prevalence and Associated Risk Factors in Egypt. World Vet. J., 10 (4): 571-577. Sayed-Ahmed MZ, Elbaz E, Younis E and Khodier M. (2020). Canine Parvovirus Infection in Dogs: Prevalence and Associated Risk Factors in Egypt. World Vet. J., 10 (4): 571-577.
Crossref Metadata

ABSTRACT
This extensive study must be carried out, since the parameters obtained during the study were rate, and mortality rate, respectively. It was also revealed that there was a clear temporal conclusion, CBPP was a seasonal problem in Central Tanzania. Therefore, the present research recommended the strengthening of control measures against this disease in the years. Moreover, 56, 426, and 11147 cases were reported as deaths, and the cattle at risk lower compared to the situation on-site.

Keywords:
Petrosel

Research Paper

We calculated 450 both unsexed Pekin and Sudani ducklings

Trait studies
live body weight, body weight gain, feed intake and feed conversion ratio. Relative weight of carcass quality and weight of lymphoid organs


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ABSTRACT

Vol 10:4-5

Keywords:
Ecological production, Hydroponics, Oreochromis niloticus, Recirculating water, Sustainable

Vol 10:4-5

We calculated 450 both unsexed Pekin and Sudani ducklings

L-carnitine (LC)
Concentration
300, 450 mg L\(^{-1}\)

Yeast chromium (Cr)
Concentration
400, 600 (μg Cr/kg)

Traits studies
live body weight, body weight gain, feed intake and feed conversion ratio. Relative weight of carcass quality and weight of lymphoid organs


**ABSTRACT**

Identifying the virulent factors of *Clostridium perfringens* locally isolated from different species of animals of different localities in Egypt. Samples were subjected to isolation and identification (morphologically and biochemically) for obtaining *Clostridium perfringens* isolates (n=26, 19.25%). The PCR was carried out to elucidate the virulence factors. It was indicated that all the 26 isolates had CPA gene and 34% of isolates had CPA gene and Net B gene. Only 23% of the isolates were positive for enterotoxin (CPE gene), whereas 23% of isolates of chicken and cattle intestinal samples contained CPA, Net B, and CPE genes as virulence factors. Consequently, those isolates are more virulent strains.

**Keywords:** *Clostridium perfringens*, enterotoxin, CPE gene, CPA gene, Net B gene.
ABSTRACT

Appendicular bone fractures in small animal practice constitute a major challenge facing veterinarians. The objective of the present work was to evaluate the incidence of appendicular bone fractures in dogs and cats aged one to three years. A fracture in the hindlimbs was more significant than in the forelimbs. In general, the most common fractures were the femur, tibia, and ulna. The fractures were classified into complete or incomplete, open or closed, comminuted or not comminuted, and linear or angular. From the obtained data, it could be concluded that there was a high incidence of the appendicular long bones concerning the different bone fractures with significantly higher records in dogs, and among dogs, the most common fractures were in the femur, tibia, and fibula, and the other bones), extent of tissue damage (open or closed fracture cases and this incidence correlated with some predisposing factors (including breeds, weight, age, and gender) and causative agents that resulted in different types of appendicular bone fractures.

Keywords: Incidence of Appendicular Bone Fracture in Dogs and Cats: Retrospective Study at Veterinary Hospital of Cairo University and Some Private Clinics in Egypt.


The effects of adding lysine essential amino acid to commercial feed on fatty acid contents of Pangasius fish.

ABSTRACT

The main parameters studied in the present research 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 in pangasius.

The treatment was done by adding lysine with different doses including P0 (0%), P1 (1.2%), P2 (2.2%), P3 (3.2%). Each treatment was repeated five times. The observed 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.

REFERENCES


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.