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 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 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
Moreover, the effect of silver nanoparticles on the expression of antibiotic resistance genes (i.e., E. coli, Klebsiella) was assessed as well as their effect on the structural integrity of the bacterial cells using TEM, sul test of Mueller-Hinton agar plates. The present study aimed to explore the inhibitory effect of silver nanoparticles on Extended Spectrum Beta lactamase (ESBL) producing E. coli, K. pneumoniae, and S. Typhimurium. The minimum bactericidal concentration of silver nanoparticles was measured as 0.31 mg/ml, and 0.62 mg/ml for ESBL-producing E. coli and S. Typhimurium, respectively. It can be concluded that silver nanoparticles have a noticeable toxic effect on bacterial growth.

**Keywords:** Silver nanoparticles, Antimicrobial activity, In vitro, Bacterial resistance, TEM.
Phylogeny

S. medusiformis, Sarcocystis esophagi, and Sarcocystis sarcocysts. The cysts contained numerous merozoites and banana-shaped bradyzoites. The 

S. moulei, S. gigantea, S. moulei, 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 mitochondrion, subterminal nucleus, and several amylopectin granules. The partial analysis of mitochondrion, subterminal nucleus, and several amylopectin granules. The partial analysis of

Ultrastructural and Molecular Characterization of Sarcocystis Species Derived from Domestic Sheep and Goats in Soran City, Erbil, Iraq.

ABSTRACT

To the authors' knowledge, this is the first time isolated species. A total of 1000 esophagi were collected from sheep and goats and examined respectively, cross-infection may also occur between them and the host specificity of these microorganisms. The prevalence in humans and animals in the region of study may include restriction of the

Keywords: Brucellosis, Cattle, Complement fixation test, ELISA, Human, Rose Bengal test,

Brucellosis is a worldwide zoonotic disease which is now considered endemic in most parts of the world. A cross-sectional study was carried out from December 2018 to February 2020 to determine 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 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 prevalence and seroprevalence and associated risk factors of brucellosis in livestock and residents located in New Valley Governorate, Egypt. A total of 1254 animals (673 cattle, 348 sheep, and an alarming problem among residents of the New Valley Governorate. Thus, reducing the prevalence and seroprevalence and associated risk factors of brucellosis in livestock and residents located in New Valley Governorate, Egypt. A total of 1254 animals (673 cattle, 348 sheep, and

Brucellosis, cattle, sheep, and Shnawa BH.

Brucellosis, Cattle, Complement fixation test, ELISA, Human, Rose Bengal test,
Canine Parvovirus Infection in Dogs: Prevalence and Associated Risk Factors in Egypt.

A total of 122 dogs suffering from vomiting and diarrhea were screened by antigen rapid CPV/Canine parvovirus (CPV) test. The highest prevalence of CPV 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, 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, 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 disease 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.

Keywords: Canine parvovirus, Prevalence, Risk factors, Dogs, Egypt.
A retrospective study was conducted to determine the epidemiology of Contagious Bovine Pleuropneumonia (CBPP) in the Central Zone of Tanzania. In order to be able to assess the actual burden of the disease on-site, the pattern of CBPP occurrence, with more cases being reported between August to December. In research recommended the strengthening of control measures against this disease in the lower compared to the situation on-site.

Government Authorities (LGAs) in the Central Zone, reported the disease in the past five years. Moreover, 56, 426, and 11147 cases were reported as deaths, and the cattle at risk 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 conclusion, CBPP was a seasonal problem in Central Tanzania. Therefore, the present study must be carried out, since the parameters obtained during the study were not representative.
Clostridium perfringens


There is an increasing interest in the application of natural antimicrobials instead of chemical preservatives, retarding microbial spoilage in low-salt soft cheese. The objective of this study was to assess the effect of some natural antimicrobial additives and protective culture for reducing the aerobic spore-forming bacteria, compared to control and other treatments.

The Q fever is a worldwide zoonotic disease caused by Coxiella burnetii. This intracellular bacterium 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 C. burnetii infection in horses. Serum samples (18/182) was obtained. The univariate analysis of risk factors for C. burnetii seropositivity demonstrated higher seropositivity in horses that had contact with small ruminants (RR: 15.6).

Identifying the Virulent Factors of Clostridium perfringens Locally Isolated from Different Species

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Appendicular bone fractures in small animal practice constitute a major challenge facing medicine, and some private pet clinics in Cairo district, Egypt to identify and record the prevalence of appendicular fractures arising from trauma in dogs and cats treated at referral veterinary teaching hospital, faculty of veterinary medicine, Cairo University, and emphasizing the information that characterized 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, compared to cats. The highest records of fracture were in mongrel dogs, and cats as rescued animals. Excluding mongrel dogs and cats, the highest incidence of fracture-cases in dogs was from January 2017 to January 2020, and cats aged one to three years. A fracture in the hindlimbs was more significant than forelimbs. Femoral, complete spiral femoral, complete oblique diaphyseal tibial/fibular, complete spiral diaphyseal humoral, and radial/ulnar fractures respectively. Moreover, cats were complete transverse distal radial/ulnar fractures. In conclusion, appendicular bone 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 fractures, (e.g. closed, comminuted, and incomplete or complete), site (proximal, diaphyseal or distal zones), number (single or multiple fractures), and causative agents that resulted in different types of appendicular fractures with significantly higher records in dogs, compared to cats. It was shown that the bone fracture mostly occurred in dogs younger than one-year-old, and the same fractures, with significantly higher records in dogs, compared to cats. The bone fracture mostly occurred in dogs younger than one-year-old, and in dogs aged one to three years, it was shown that the bone fracture mostly occurred in dogs younger than one-year-old, and in dogs aged one to three years. It was shown that the bone fracture mostly occurred in dogs younger than one-year-old, and in dogs aged one to three years.
Cod liver oil, Feed, Giant prawn, Saturated fatty acids

Camel, Embryo development, Heat stress, Oocyte

ABSTRACT

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

The administration of cod liver oil in commercial feed does not affect the decreasing content of saturated fatty acids in giant prawn. As well as, the best ratio of saturated and unsaturated fatty acids was 1.21:1 with cholesterol content of 88.34 mg/dl and this racion resulted by the greatest growth rate in present study.

Marzuki L, Agustono and Rahardja BS.


Supplementation of Cod Liver Oil for Giant Prawn

Camelus dromedaries with different qualities.


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

-Cameline expansion (%)
-Extrusion of polar body (%)
-Embryonic development
- Cleavage rate
- Blocked embryo rate

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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.