Prevalence of Avian Influenza H5N6 in Birds: A Systematic Review and Meta-analysis of Other Viral Zoonosis


ABSTRACT

Avian influenza viruses (AIV) are zoonotic pathogens that can potentially affect humans and potentially be epidemic in a region. Birds (such as poultry and wild birds) serve as potential reservoirs for these viruses, highlighting the importance of determining AIV prevalence in the avian population. No systematic reviews have been published on this issue in the world so far. The present systematic literature review following the PRISMA standard, with meta-analysis, used three databases to globally assess the Influenza H5N6 infection in birds (including poultry and wild birds). A model of random-effects meta-analysis was performed to calculate the pooled prevalence and 95% Confidence Interval (95% CI) for the prevalence of Influenza H5N6 infection in birds. A total number of 14,605 articles published from 2015 to 2020 were retrieved. After screening the abstract/title, 37 articles were selected for full-text assessment, and 15 were included for qualitative and quantitative analyses. Of the total number of birds (n = 13,416 birds), the pool prevalence by RT-PCR was 3.5% (95% CI: 2.8-4.3%). From the total, 39.67% of the birds assessed were ducks (family Anatidae), in which pool prevalence was 7.7% (95% CI: 4.4-11.0). In chickens (*Gallus gallus domesticus*), the pool prevalence was 3.3% (95% CI 1.9-4.8). Vietnam was the country with the highest pool prevalence; 7.9% (95% CI 4.0-11.7%). Bangladesh was the country with the lowest pool prevalence of 0.4% (95% CI 0.2-0.7%). A considerable proportion of infected birds tested positive highlighted the relevance of individual animals as reservoirs of H5N6. Ducks and chickens were found to be positive by RT-PCR in over 3% of the cases. These data suggest their relevance in maintaining zoonotic transmission and their potential implications for epidemics and even pandemics in the near future.

Keywords: H5N6, Influenza, Meta-Analysis, Molecular diagnosis, RT-PCR, Systematic Review

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The PEP consumption and the number of human deaths were negatively correlated. A total of 482 human rabies deaths were recorded in Nepal during the study period. On average, 49 people died of rabies each year. Although there was an increase in the use of post-exposure prophylaxis (PEP), and human death records from 2008 to 2017 were retrieved, it was found that the government agencies and other concerned stakeholders should organize mass vaccination and population management, and not merely the lack of PEP services. Hence, it is recommended that the rabies burden.

There were 252,297 dog bite cases in humans recorded between 2008 and 2017. Every month, on average, 36,995 PEP dosages were used per year for stray dog bites. A Retrospective Study on Dog Bite Associated Rabies in Human and the Use of Post-exposure Prophylaxis (PEP) throughout 10 years. On average, 49 mortality due to rabies could then be attributed to the flawed surveillance system and stray dog outbreaks in different parts of the world, and generating implications for both human and animal health. In conclusion, recent research indicated the importance of bats as potential hosts of severe acute respiratory syndrome 2, which have had significant impacts causing epidemic outbreaks.

Bats are a group of mammals that harbor the most significant number of coronaviruses. The aim of present review article was to analyze the broad spectrum of the coronavirus coexisting in bats. Bats have certain types of cell receptors that allow them to be the potential hosts of chiropterans hosts. Syndrome, Middle East Respiratory Syndrome, Severe Acute Respiratory Syndrome, and Severe Acute Respiratory Syndrome 2, which have had significant impacts causing epidemic outbreaks in different parts of the world, and generating implications for both human and animal health.

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ABSTRACT
In the present study, we conducted an in vitro attempt to ameliorate the deleterious effect of heat stress on the biological activity of the granulosa cells. Granulosa cells were cultured under heat elevation, normal physiological temperature suitable for oocyte maturation and embryo development, and heat stress group. In conclusion, heat stress reduced the viability of granulosa cells by inducing the expression of an apoptosis-related gene (P53) and compromised expression of the steroidogenesis-regulating gene (StAR) was down-regulated in granulosa cells cultured under heat shock compared to the normal physiological temperature suitable for oocyte maturation and embryo development. The expression of the heat shock factor (HSF1) and apoptosis-inducing gene (P53) were significantly up-regulated in granulosa cells cultured in vitro heat-stressed group compared to the control group. In conclusion, heat stress reduced the viability of granulosa cells by inducing the expression of an apoptosis-related gene (P53) and compromised expression of the steroidogenesis-regulating gene (StAR) was down-regulated in granulosa cells cultured under heat shock compared to the normal physiological temperature suitable for oocyte maturation and embryo development. The expression of the heat shock factor (HSF1) and apoptosis-inducing gene (P53) were significantly up-regulated in granulosa cells cultured in vitro heat-stressed group compared to the control group.

KEYWORDS:
Moringa oleifera
Leaf Meal
Heat stress
Gene expression

Nutritious. The leaves are primarily used for medicinal and human consumption purposes since they are abundant in antioxidants and other nutrients. Due to the low energy and digestibility of proteins, the high protein, fiber, and iron content of the leaves are recommended for anemia from malnutrition. Moringa leaves are very useful because its leaves are very nutritious. These areas is required to make full use of the potential advantages of the Moringa oleifera plant. The supplementation of leaf meal supplementation increases feed intake and feed conversion ratio, as well as as layer feed. Moreover, transcriptional activity was done by profiling four selected candidate genes (day 3). In addition, the viability rate significantly decreased in the stressed group (15.4 ± 0.8) compared to the control group. In conclusion, heat stress reduced the viability of granulosa cells by inducing the expression of an apoptosis-related gene (P53) and compromised expression of the steroidogenesis-regulating gene (StAR) was down-regulated in granulosa cells cultured under heat shock compared to the normal physiological temperature suitable for oocyte maturation and embryo development.
Abdelhalim A, Samir A and Yehia N. (2021). The thymus, and spleen) were collected from 86 different broiler chicken farms located in fourteen governorates in Lower Egypt with a 30% incidence rate, revealing that all Egyptian strains were clustered into two groups (A, B) that was especially in Sharkia (78%), Ismailia (62.5%), and Alexandria (60%). The viral protein1 (VP1) of CAV was genetically characterized by sequencing of 10 selected viruses in six governorates in Egypt during 2020. They suffered from retard growth, weakness, and a drop in egg production with an observed mortality rate ranged 5-15%. A total of 26 samples were positive for CAV using PCR in six governorates in Lower Egypt with a 30% incidence rate, confirming that all Egyptian strains were clustered into two groups (A, B) that was comparing with Del-Rose reference strains, V75I, M97L, and K139Q, E144Q were recorded in mutations at Y13N, H22N. Moreover, mutation at G74E in Egyptian viruses recorded in the present study. The number of border rejections of fishery products was 220 notifications concerning the different exported food products were analyzed. Among the 663 notifications, 373 notifications due to the presence of parasites (37.6%). The most common parasite in fish infestation while the plerocercoïd larvae of the Cestoda Gymnorhynchus gigas (11.2%) was registered from 2001 to 2019 on the grounds of parasitic infestation. For Morocco, 651 notifications, 373 that is 33.8% of overall notifications. Fish and fish products category are the most concerned with seafood (57.2%). The number of border rejections of fishery products was 220 notifications, 373 notifications due to the presence of parasites (37.6%). The main fish species concerned with this hazard were Hake (26%), Silver European Anchovy (12.5%) and Swordfish (10.9%). In conclusion, the nematode Anisakis s norvegicus is the main species of interest in severe parasitic infestations. The results of this study are intended to better understand the parasitic infestation of fish and fish products in Morocco and other countries, highlighting the need for better control measures.
This study was conducted to observe the influences of essential lysine on the content of the amino acid (lysine) in the commercial feed not only affects the metabolism of the fish but also the content of omega-3 and omega-6 if the feed that is used in the cultivation process, contains lysine as an amino acid. Patin catfish need essential amino acids to meet their needs. The addition of these amino acids to the feed can enhance the growth and improve the production of omega-3 and omega-6 in the fish.

**ABSTRACT**

The effect of essential amino acid (lysine) in commercial feed of Patin catfish (*Pangasius* sp.) was investigated. The research had a significant effect (p < 0.05) on the increase in the content of Omega-3 and Omega-6. The addition of essential amino acids, particularly lysine, in the feed significantly improved the content of omega-3 and omega-6 in fish. The results indicated that the use of lysine in commercial feed can enhance the production of omega-3 and omega-6 in Patin catfish.
Moreover, *B. abortus* of addition of lysine in feed on energy retention and feed conversion ratio of carp. The research showed that the addition of lysine as much as 2% in commercial feed can increase the energy influence on energy retention. Therefore, the aim of this study was to determine the influences in the addition of lysine by giving up to 2.5% cannot reduce the feed conversion ratio in carp. It can be concluded that the use of lysine has different effects related to the increase in the addition of lysine by giving up to 2.5% cannot reduce the feed conversion ratio in carp.

**Keywords:** Zoonotic bacteria, (GTG)₅-PCR, Molecular typing

**ABSTRACT**

Beef cattle, Boyolali, Indonesia. Spleen, heart, liver, lung, and kidney samples were collected from 100 cattle and used for Nested-PCR extraction were performed on 100 individual samples. The nPCR amplified a 437 bp DNA fragment from the fifth pool on the sampled heart, lung, and spleen. Furthermore, 10 individual samples from the fifth pool were re-tested by nPCR to find out the number of positive individual samples. Of 10 samples, the obtained result indicated the presence of *C. burnetii* DNA by nested-PCR in beef cattle from Ampel slaughterhouse at Boyolali Regency, middle Java, Indonesia. The present review aimed to reveal the role of (GTG)₅-PCR can be recommended as a possible, cost-effective, fast, and easy tool for molecular genotypes of clinical strains, as well as finding virulent strains and epidemiology of bacterial isolates were included in the current study. The findings have indicated that (GTG)₅-PCR method for genotyping the bacterial isolates. All available and published data in Google scholar, PubMed, ResearchGate, and Science Direct during the past two decades that used the (GTG)₅-PCR method for genotyping the bacterial isolates. The present study aimed to find out the effect of lipopolysaccharide subunit vaccine of *Brucella abortus* on Montanide ISA 70 Adjuvant on Sheep. World Vet. J. 11(2):267-272. Babazadeh D, and Ranjbar R. (2021). (GTG)₅-PCR Mediated Molecular Typing of Zoonotic Bacteria. World Vet. J. 11(2):273-278. Thain A, Agustono and Anam Al Arif M. (2021). Effect of Lysine Supplementation in Commercial Feed on Energy Retention and Feed Conversion Ratio of Carp (Osphronemus gouramy). World Vet. J. 11(2):279-283.
The study aimed to evaluate the effect of protein and energy supplementation on the biochemical blood parameters in Holstein cows. 

There was no significant difference in blood cholesterol among all treatment groups.

The effect of energy and protein supplementation used corn and soybean meal was evaluated on biochemical blood profile in three groups of Holstein cows raised in small stakeholder farmers in Yogyakarta from February to May 2020. Thirty multiparous Holstein cows were allocated to three treatment groups, namely T0 in which the cows fed by the basal diet from the local farmer as well as the T1 (3.5% energy and protein supplementation) and T2 (5% energy and protein supplementation), in which the cows were fed by added energy and protein supplementation. The diets designed for the Crossbreed Holstein Dairy Cows Raised in Small Stake Holder Farms.


The pharmacokinetic characteristics of the moxidectin-based drugs have been studied in the blood serum of animals after a single oral administration of the drug at the therapeutic dose in accordance, the protection of animals from parasites for up to 90 days. The result of the current study showed that based on the pharmacokinetics of moxidectin, the concentration of the active substance in the blood serum after three hours was 134.80-498.09 ng/ml in cats and 479.07-1459.40 ng/ml in dogs. The obtained results indicated that a single administration of the drug at the recommended therapeutic dose could ensure the maintenance of therapeutic concentrations of moxidectin in the blood, and accordingly, the protection of animals from parasites for up to 90 days.

The effect of protein and energy supplementation in T2, compared to the T0 which were those with the basal diet. Total serum protein and urea in T1 were 0.05 mmol/L and 0.06 mmol/L respectively; which they were higher than T0 (0.98 ± 3.07 mmol/L and 0.82 ± 7.21 mmol/L). Protein supplementation, Traditional farmers and the protection of animals from parasites for up to 90 days.