Effects of Diet Containing Fermented Canola Meal on Performance, Blood Parameters and Gut Health of Broiler Chickens.

Elbaz AM.
ABSTRACT: The current research aimed to study the effects of the fermented canola meal (Lactobacillus) diet on productive performance, blood parameters, and gut health of broiler chickens under high ambient temperature conditions. A total number of 320 (Ross-308) one-day-old broiler chickens were allocated randomly into four experimental groups for 42 days. Four experimental groups with four types of diet, including the control group (CON) received basal diet, and three other experimental groups were supplemented with 20% of the canola meal (CM), 20% fermented canola meal (FCM), and 20% canola meal with probiotic (PCM). The chickens that fed FCM presented improvement in live body weight, feed conversion ratio, and higher nutrient digestibility, compared to CM and PCM groups. Serum glucose, total protein, albumin, and aspartate aminotransferase (AST) of levels of chickens fed by FCM were higher than chickens fed CM and PCM, while there was a decrease in cholesterol. Fermented canola meal resulted in some noticeable beneficial changes in the cecum microflora communities through increasing the population of Lactobacillus spp. and decreasing the Escherichia coli and improved its morphology by increasing villus height. The results indicated that the fermentation of canola meal has enhanced performance, nutrient digestibility, and gut health, which allow using greater amounts of fermented canola meal as a replacement of soybeans meal in the broiler diet.

Keywords: Broiler, Canola meal, Fermentation, Gut health, Performance, Serum parameter.
Avian neoplastic diseases, including Marek's disease (MD), avian leukosis (AL), and reticuloendotheliosis (RE), are of economic importance in the chicken industry. However, it is difficult to differentiate MD from AL and RE by clinical signs and postmortem examination. Therefore, the present study aimed to classify the avian neoplastic diseases affecting commercial layer chickens in Nigeria using clinical history, postmortem examination, and histopathological technique.

Carcasses of commercial layer chickens from 7 and 20 poultry farms in Kaduna and Plateau States, respectively, were studied. The average morbidity rates of neoplasm in the affected layer chickens were 8.6% and 8.5% in Kaduna and Plateau States, respectively. The average mortality rates were 3.9% and 9.3% in Kaduna and Plateau States, respectively, while the morbidity and mortality rates in the control groups were 3.6% and 0.3% in Kaduna and Plateau States, respectively.

Detailed postmortem examinations were carried out on the carcasses from the affected farms. Generally, the neoplastic lesions were characterized by white to gray, multifocal, firm nodules of varying sizes on the affected organs. In Kaduna State, the neoplasms were commonly observed on the liver (85.7%), spleen (71.4%), heart (42.9%), and kidneys (42.9%), while in Plateau State, the affected organs included liver (50%), spleen (25%), proventriculus (25%) and lungs (25%). The histopathological changes in the affected tissues were similar and characterized predominantly by the infiltration of lymphocytes, lymphoblasts, and macrophages. The patterns were perivascular in most cases. Findings from the current study indicated that cases of neoplasms in affected layers were 3.9% and 9.3% in Kaduna and Plateau States, respectively, while the morbidity and mortality rates in the control groups were 3.6% and 0.3% in Kaduna and Plateau States, respectively.

The clinical observation of affected chickens indicated that they were anorexic and emaciated. The histopathological examination of the affected organs revealed multifocal, firm nodules of different sizes. The patterns were perivascular in most cases. The age means of the affected layers were 20.6 weeks and 20.8 weeks in Kaduna and Plateau States, respectively. The average morbidity rates of neoplasm in the affected layer chickens were 8.6% and 8.5% in Kaduna and Plateau States, respectively. The average mortality rates were 3.9% and 9.3% in Kaduna and Plateau States, respectively, while the morbidity and mortality rates in the control groups were 3.6% and 0.3% in Kaduna and Plateau States, respectively.

Therefore, the present study aimed to classify the avian neoplastic diseases affecting commercial layer chickens in Nigeria using clinical history, postmortem examination, and histopathological technique. Carcasses of commercial layer chickens from 7 and 20 poultry farms in Kaduna and Plateau States, respectively, were studied. The average morbidity rates of neoplasm in the affected layer chickens were 8.6% and 8.5% in Kaduna and Plateau States, respectively. The average mortality rates were 3.9% and 9.3% in Kaduna and Plateau States, respectively, while the morbidity and mortality rates in the control groups were 3.6% and 0.3% in Kaduna and Plateau States, respectively.

Effect of Egg Storage Length on Hatchability and Survival of Koekoek Chickens.
Molapo SM, Mahlehla M, Kompi PP, and Taoana M.

ABSTRACT:
Chicken production plays a major role in the livelihood of rural people due to the provision of eggs and meat which are high sources of protein. This calls for sustainable production of chickens through strategies aimed at improving the hatchability of eggs and survival of chickens. Therefore, the present study was conducted to determine the effect of egg storage length on egg hatchability and survival of the Koekoek chickens. A total number of 270 eggs were divided into three treatment groups, and the eggs of each group were stored for 3, 7, and 11 days before incubation. Each treatment consisted of three replicates. The General Linear Model procedure was used to analyze the data. The eggs that were stored for three days before incubation had a higher hatching percentage, compared to those that were stored for 7 and 11 days before incubation. Storing eggs for few days before incubation resulted in reduced embryonic mortality rate and lower mortality of chickens during the first seven days after hatching. Based on these results, it is recommended that Koekoek chicken eggs should be stored for three days before incubation to maximize hatchability and survival of chickens before the age of seven days.

Keywords: Eggs, Storage, Embryo mortality, Hatchability, Koekoek chicken.

The Effect of Substitution of Fish Meal by Maggot Meal (Hermetia Illucens L) on the Relative Length of Digestive Tract, Histomorphology of Small Intestines, and the Percentage of Carcass Parts in Native Chickens.
Auza FA, Purwanti S, Syamsu JA, and Natsir A.

ABSTRACT:
The development of the digestive tract organs is closely related to the increased body weight growth in chickens. The present study aimed to determine the effect of using maggot meal as an antibacterial and protein source of fish meal substitution in diets on the relative length of the digestive tract organs, small intestine histomorphology, and the percentage of the native chicken carcass. A total of 140 one-day-old chickens were randomly assigned to one of the five treatments according to a completely randomized design with four replications for each treatment. The treatments included P0 (basal diet + 15% fish meal + 0% maggot meal), P1 (basal diet + 11.25% fish meal + 3.75% maggot meal), P2 (basal diet + 7.5% fish meal + 7.5% maggot meal), P3 (basal diet + 3.75% fish meal + 11.25% maggot meal), and P4 (basal diet + 0% fish meal + 15% maggot meal). The results showed that the use of maggot meal in P3 had a significant effect on the relative length of the digestive tract organs, small intestine histomorphology, and the percentage of carcass parts. Based on these results, it is recommended to use maggot meal as a substitution for fish meal in diets to improve the growth performance of broiler chickens.

Keywords: Carcass parts, Digestive tract, Histomorphology, Maggot meal, Native chicken.

The Effects of Mixed Vitamins, Minerals, Fatty Acids and Amino Acids Supplementation into Drinking Water on Broiler Chickens' Performance and Carcass Traits.

ABSTRACT:
The present study was conducted to evaluate the effects of different levels of the feed supplement containing minerals, fatty acids, vitamins, and amino acids added to drinking water on broiler chickens' performance and carcass traits. A total of 100 one-day-old Cobb 707 (mean weight 46.7 g) were randomly assigned into four treatments, including control group (C), C + 2.25 ml/L Viterna Plus (V1), C + 2.50 ml/L Viterna Plus (V2), and C + 2.75 ml/L Viterna Plus (V3). Each treatment group contained 5 replicates of 5 birds in each (25 birds per treatment). Birds were maintained for 28 days. The results suggested that feed supplement at 2.50 ml/L could successfully improve final body weight, performance index, and carcass weight. Based on these results, it is recommended to use 2.50 ml/L Viterna Plus as a feed supplement to improve the performance and carcass traits of broiler chickens.
Marek's disease (MD) is a lymphoproliferative and neuropathic disease of poultry, affecting chickens and turkeys. The outbreak of diseases is the main factor affecting poultry production in chickens. 

The study by Tatfo Keutchatang FOP, Isabelle Sandrine B N, Medoua Nama G, and Kansci G (2021) explored the implementation of biosecurity measures in poultry farms in Cameroon. The biosecurity score (BS) of surveyed farms ranged between 2 and 3. The findings indicated that 39 farms (12 in the Centre, 14 in the Littoral, and 17 in the West) were at high risk. Reasons for keeping chickens and the number of chickens varied among farms. The biosecurity score (BS) of surveyed farms was found to be lower in farms with more chickens. The biosecurity score was lower in farms where chickens were not separated from other livestock. The implementation of biosecurity measures in poultry farms is essential to reduce disease outbreaks and consequently, important economic losses.
The current study aimed to evaluate whether the probiotic Lactobacillus casei could be effective in controlling chicken intestinal colibacillosis. Avian pathogenic Escherichia coli isolates were obtained from diseased broiler chickens. Avian pathogenic Escherichia coli obtained for the urea, creatinine, and C-reactive protein levels. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups. Assessment of liver enzymes showed a significant difference in the sodium, chlorine, and bicarbonate levels amongst the groups. The microbial tests revealed a decrease in the total lymphocyte, and neutrophil counts of the chicken groups.
The present study aimed to estimate carcass characteristics of pure and crossbred indigenous guinea fowl from three climatic zones (Sudanian, Sudano-Guinean, and Guinean) of Benin. Each guinea fowl was subjected to a direct phenotypic description, biometric measurements, and expression pattern of some myogenic regulatory genes. 

Principal biometric measurements were significantly higher in males. The live weights of guinea fowl in the Sudanian zone (1.40 ± 0.18 kg), Sudano-Guinean zone (1.27 ± 0.24 kg), and Guinean zone (1.33 ± 0.28 kg) were higher than those of guinea fowl found in the Guinean zone. The average live weights of males ranged from 1.28 ± 0.18 kg to 1.42 ± 0.18 kg, whereas those of females ranged from 1.11 ± 0.18 kg to 1.23 ± 0.18 kg. The colors of the eggs were predominantly black (25.4%) with wattles relatively dominated by red-white (59.4%) and white-red (30.5%). The average live weight of eggs was 53.5 ± 4.2 g.

The eyes were predominantly black-white (67.1%) and grey-orange (30.9%). The average live weight of chicks was 107.5 ± 14.3 g. The thoracic circumference, body length, and drumstick length were significantly different among the climatic zones. The Sudanian zone had the highest average thoracic circumference (41.3 ± 3.2 cm) and body length (25.0 ± 2.3 cm), whereas the Guinean zone had the lowest (38.1 ± 3.2 cm and 22.0 ± 2.3 cm, respectively). The average length of drumsticks was 9.5 ± 1.2 cm.

The coloration of the shanks varied among the zones, with grey (32%), black-orange (21%), and white-orange (17%) being the most common. The coloration of the shanks was significantly different among the zones, with the Sudanian zone having the highest percentage of grey coloration (35.7%) and the Guinean zone the lowest (16.2%).

The expression pattern of some myogenic regulatory genes was investigated to understand the molecular mechanisms underlying the observed phenotypic diversity. The expression of myocin, myoD1, and FGF2 was significantly different among the climatic zones. The Sudanian zone had the highest expression of myocin, myoD1, and FGF2, whereas the Guinean zone had the lowest. The expression of these genes was significantly higher in males than in females.

In conclusion, the phenotypic biodiversity observed in the indigenous guinea fowl is substantial and could be useful for genetic improvement programs. The use of colored lighting stimuli (red and blue) significantly affected hatching capability. Incubation of turkey eggs under red or blue LED light caused hydropic inflammation and degeneration of liver cells, cholangitis, and eventually other organ damages as well as increasing the potential for the transmission of Toxocara vitulorum. Infection causes a decrease in livestock productivity and results in various types of diseases in humans. Chickens are one of the main reservoirs of Toxocara vitulorum.