The Effect of Organic Acid and Desiccated Ox Bile Supplementation on Performance, Fat Digestibility, Blood Metabolites and Ileal Digesta Viscosity of Broiler Chickens Fed Tallow

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Abstract

In order to study the effect of different levels of desiccated ox bile (DOB; 0.00, 0.25, and 0.50%) and organic acid (OA; 0.00, 0.15, and 0.30% of the diet) on performance, fat digestibility, blood metabolites and ileal digesta viscosity in broiler chickens fed diets containing 5% tallow, in a completely randomized design with a 3×3 factorial arrangement and 4 replicates in each treatment, 360 day-old Ross male broiler chickens were used. The isocaloric and isonitrogenous starter and grower diets were fed ad libitum to chickens from 0-21 and 21-42 days of age, respectively. Feed intake (FI), body weight gains (BWG), and feed conversion ratio (FCR) was measured for starter (7-21d) and grower periods (21-42 days of age). Chromic oxide at the rate of 3 g/kg was added to experimental diets to determine fat digestibility at 19-21 and 40-42 days of age. Serum cholesterol (Chol), triglyceride (TG), high density lipoprotein (HDL), low density lipoprotein (LDL) and ileal digesta viscosity were measured at 21 and 42 days of age. Addition of DOB significantly increased BWG during 7 to 42d of age and FCR during 7 to 21 was improved. Although fat digestibility significantly increased by supplemental 0.50% DOB and 0.15% OA in the starter period, no interaction was observed between dietary DOB and OA for these parameters. Dietary OA had no effect on blood parameters, but supplemental 0.50% DOB significantly increased blood chemistry. Interaction between DOB and OA showed an increasing effect in Chol and TG at 42 days of age. Digesta viscosity was remained unchanged by dietary treatments. The results of this study indicated that supplementation of DOB in the diet significantly increased BWG and measured blood metabolites. Dietary supplementation of DOB increased fat digestibility of the birds fed diet containing 5% tallow.

Keywords: Organic Acid, Dessiccate Ox Bile, Tallow, Fat Digestibility, Broiler Chickens

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Effects of Mint Powder on Microbial Population, Carcass Characteristics and Performance of Broiler Chickens Fed Diets Containing Wheat

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Abstract

This experiment was conducted to investigate the effect of mint powder added to diet with different levels of wheat on performance, microbial population and carcass characteristics of broiler chickens. A total of 384 Ross male broiler chickens were used in a completely randomized design in a 4×2 factorial arrangement with 4 replicates (floor pens) and 12 birds each. Birds were fed diets containing two levels of ground mint (0 and 2%) and four levels of wheat (0, 10, 15 and 20%) during 7-42 days of age. The results indicated that supplementation of mint powder and dietary wheat levels had no significant effect on body weight, gain, feed intake, feed conversion ratio and carcass characteristics of broiler chickens during experimental period. Feeding diets supplemented with mint powder did not significantly affect the length of small and large intestines. Broilers fed diets supplemented with mint powder had significantly lower total aerobic bacterial count as well as coliform count in the ileal contents. However, the number of lactobacilli was not significantly affected by the mint supplement. Significantly interaction between mint powder and wheat was observed in ileum microflora, total aerobic bacteria, coliforms, and lactobacillus.

Keywords: Broiler, Mint powder, Wheat, performance, Microbial population, Carcass characteristics

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Comparison between Effects of Addition of *Salvia mirzayanii* Essence with Virginiamycin on Performance, Carcass Characteristics, Blood Factors and some Immune Parameters of Broiler Chickens

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Abstract

In order to investigate effects of addition of *Salvia mirzayanii* essence and comparison with antibiotic an experiment was conducted as dietary a completely of the randomized design with 5 treatments, and 5 replicates with 12 chickens per replicate for 42 days with treatments control, virginiamycin antibiotic 10% (100 ppm) and three levels of *S. mirzayanii* essence (200, 400 and 600 ppm). Weight gain and feed intake recorded weekly and carcass characteristics analysis and blood parameters were determined at 28 and 42 days of age. Highest weight gain was observed at the level of 200 ppm essence at the 22-42 days of age (grower phase) and at 1-42 days of age (total of experiment), 200 and 600 ppm essence showed the highest results. Feed intake was highest in 200 and 600 ppm essence level in the grower phase as well as overall. Best feed conversion ratio at the grower phase and total of experiment observed in the 200 ppm essence treatment. Gizzard and gastrointestinal tract weights significantly decreased with addition of antibiotic. This essence significantly decreased cholesterol, HDL and LDL. Bursa of fabricius weight was significantly highest at level of 400 ppm essence and lowest at the level of 600 ppm. Dietary addition of essence significantly decreased blood eosinophil. The results of this experiment showed that *S. mirzayanii* essence could be used as growth promoter and using low levels of the essence could improve performance and immune system.

Keywords: *Salvia mirzayanii* Essence, Antibiotic, Performance, Blood parameters, Immune system

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Replacement of Dietary Barley Grain by Different Levels of Restaurant Waste and Its Effect on Hybrid Lambs Performance

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Abstract

This study was conducted to determine the nutritive value of restaurant waste (RW), substituted with dietary barley grain and its effects on the performance of finishing lambs. Dry matter, organic matter, crude protein, ether extract and ash content of RW were 33.4, 95.9, 15.1, 14.1 and 4 percent respectively. 36 male and female lambs, (initial weight of 33.4± 0.5 and 29.7± 0.5 kg respectively) were used in the experiment. The experimental lambs were from three hybrid groups: Ghezel*Merino (n=12), Merino*Moghani (n=18) and Ghezel*Baluchi (n=6). Dietary barley grains at the levels of 50 and 100 percent were replaced with RW and along with control group (no RW) compromised experimental treatments. Experimental diets were offered three times daily at 6.00, 14.00 and 20.00 hours. Dry matter intake was not significantly different between the treatments. The average daily gain and feed conversion ratio were differ between sexes. Weight gain of male and female lambs during the fattening period was 250.3 and 171.6 g/day respectively. Replacement of barley grain with RW in the 3rd treatment significantly affected ruminal pH, N-NH3 and total volatile fatty acids content and fecal pH, as well as blood glucose and BUN comparing the control group. Replacement of RW with barley grain at levels of 50 and 100 percent reduced cost of the live weight gain up to 24 and 37.7 percent respectively versus control diet.

Keywords: Restaurant waste, Barley grain, Hybrid lambs, Performance

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Evaluation of Fermentability Process of a Ration Consist of Different Levels of Saponin and Tannic Acid According to in vitro Condition

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Abstract

Two experiments were conducted for evaluation the effect of different levels of saponin (0, 30 and 60 g per kg DM) and tannic acid (0, 25, 50, 100 and 150 g per kg DM) on rumen fermentability parameters. In the first stage, gas production at 2, 4, 6, 8, 16, 24, 48, 72 and 96 hours after incubation was measured. Constant rate of gas production decreased with increasing of saponin and tannic acid to the batch culture. Compared to the control treatment, although this value increased in the saponin treatment alone. Cumulative gas production with tannic acid with or without saponin at 24, 48 and 96 hours after incubation increased in comparison with the control treatment. Addition of low levels of saponin (30 g per kg DM) with tannic acid had the most cumulative gas production at these times. In the second stage, according to batch culture pH, Nitrogen-ammonia and degradability potential of dry matter was determined. The pH was the less for all of the treatments than control treatment but there wasn’t a significant difference between treatments. Nitrogen-ammonia concentration with increasing of saponin and tannic acid levels was decreased compared to the control group and saponin with tannic acid treatments had the most concentration. Degradability potential of DM in all of the treatments was higher than control group, but this higher value was specific for saponin with tannic acid treatments. Short chain fatty acids, metabolism energy and organic matter digestibility concentrations for all of the treatments was higher than control group, but this values at the different levels of saponin with tannic acid together was higher than tannic acid or saponin alone. The obtained results indicated that combination of saponin and tannic acid at low level could affect rumen fermentation pattern and nutrient digestibility positively.

Keywords: Batch culture, Gas production, Nitrogen-ammonia, Saponin, Short chain fatty acids, Tannic acid

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Effects of Different Levels of Selenium on Performance, Blood Parameters and Nutrient Digestibility in Mehraban Male Lambs

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Abstract

Two experiments were conducted to evaluate the different levels of selenium supplements on performance, blood metabolites and nutrient digestibility in Mehraban male lambs. The first experiment consisted of 18 lambs, 4-5 months of age and 35.9±2.7 kg average in weight randomly allotted to 3 treatments. Treatments were: 1) Control diet (a diet without selenium, containing 0.06 ppm of selenium), 2) Control diet + 0.2 ppm Se as sodium selenite and 3) control diet + 0.4 ppm Se as sodium selenite. This trial lasted for 70 days. Blood samples were taken on days 0, 35 and 70. In the second experiment, 4 lambs were randomly selected from each treatment group and moved to digestibility boxes to evaluate the effects of different selenium levels on apparent nutrient digestibility. The experiment continued for 18 days with the first 12 days as the adaptation period plus 6 days of sampling. The trial were carried out as a completely randomized design. Supplementations of selenium to diet did not have significant effect on lambs performance. There were no significant differences in concentrations of plasma minerals, serum lipid profile and apparent nutrient digestibility. The serum level of tetra-iodothyronine (T4) were decreased significantly. Furthermore, supplementation of selenium increased serum tri-iodothyronine (T3) level and whole blood GPX activity. Overall, the results of this study showed that requirement of growing Mehraban lambs, met with 0.2 ppm selenium.

Keywords: Lamb, Selenium, Performance, Digestibility

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Genetic Diversity in Four Microsatellite Loci BMS1915, BMS1350, LGB and ILSTS45 in Baluchi Sheep

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Abstract

The polymorphism of 4 microsatellite loci (BMS1350, LGB, ILSTS45, BMS1915) associated with functional traits were evaluated for detecting the diversity level in Baluchi breed of sheep. One hundred eighty five blood samples were collected from sheep herd in Abbas-Abad breeding station. DNA extraction was performed using guanidinethiocyanate silica gel method. Gene fragments of microsatellites were amplified by polymerase chain reaction based on the recommended standard method. The PCR products were visible using polyacrylamide gel electrophoresis and stain methods with silver. Alleles were typed using the Photocapt software version 3. All loci were in the Hardy-Weinberg equilibrium (p<0.005). E, D, B and A alleles had the highest frequency level in BMS1915 (0.53), BMS1350 (0.71), LGB (0.78) and ILSTS45 (0.91) respectively. Heterozygosity range varied between 0.91 in BMS1350 locus and 0.83 in LGB locus. The estimated highest value for BMS1350 locus of Shannon index was 2.05. The lowest estimated value for LGB locus was 1.65. The results demonstrated that there was a high genetic diversity in of Baluchi sheep population despite running the official breeding programs.

Keywords: Polymorphism, Baluchi sheep, Microsatellite marker, Genetic diversity

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Genetic Evaluation of Age at First Calving, Open Days and Milk Production of Holstein Cattle in Iran

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Abstract

The objective of this study was to estimate genetic parameters coupled with genetic and phenotypic trends for age at first calving (AFC), open days (OD) and milk yield (MY) of first lactation in Iranian Holstein cows. Records of reproduction and production for genetic evaluation from 1984 to 2005 for AFC, OD and MY were 71736, 20126 and 20126, respectively. Single and two-variable animal models were used to estimate genetic parameters by restricted maximum likelihood procedures and WOMBAT software. Heritability of AFC, OD and MY was estimated 0.20±0.02, 0.04±0.01, 0.47±0.9 respectively. Genetic and phenotypic trends of AFC were negative so that phenotype and breeding value average had decreased from 1984 to 2005. Genetic and phenotypic trends of OD and MY were positive. The genetic and phenotypic correlations between OD and MY were +0.23 and +0.07 respectively.

Keywords: Age at first calving, Open days, Milk production, Dairy cow, Holstein

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Phenotypic Changes of Maximum Daily Growth Trait in Baluchi Lambs

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Abstract

A total number of 116,984 weight records belonging to 12,397 Baluchi lambs reared in Abbas Abad breeding station during years 1978-2008 were used for phenotypic evaluation of maximum daily growth (MDG) and analysis of environmental factors affecting this trait. The initial data were performed by FOXPRO program and then Gompertz non-linear model was fitted on the weight records of individual lambs using non-linear procedure of SAS software. MDG was estimated for each lamb. The analysis of environmental factors on the trait was carried out by a linear mixed model consisting of effects of year and month of birth, lamb sex, birth type, covariates of dam age and birth weight, interaction between year and sex, year-birth type, birth type-sex, and random effect of lamb’s sire. All factors had significant effect on MDG. A non significant phenotypic trend (0.092±0.043 g/y) was revealed for MDG.

Keywords: Baluchi sheep, Maximum daily growth rate, Gompertz non-linear model

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Effect of Egg Yolk and Cooling on Storage of Ram Coated Spermatozoa

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Abstract

This study was conducted to evaluate the effect of egg yolk and cooling on ram coated spermatozoa. Semen was collected from three rams by artificial vagina contacted with a tube containing Tris-fructose-egg yolk 15%. Samples were pooled, centrifuged by 700 g for 10 min and removed supernatant. Then, samples were diluted by Tris-glucose and centrifuged again to remove seminal plasma and egg yolk. Aliquots split into two fractions and each one was split into 5 parts and added egg yolk 0, 5, 10, 15 and 20%. The half of the treatments were gradually cold and other ones were encountered with cold shock then samples were incubated at 5°C for 72 h. Progressive sperm motility, plasma membrane integrity, viability (by Hoechst 33258 fluorescent staining) and acrosome reaction (by PNA-Alexa flur-488) were investigated at 0, 24, 48 and 72 h. The results showed that there was no difference between 15% and 20% egg yolk in the progressive sperm motility but they were higher than 0% and 5% egg yolk. There was highest difference between 0% and 20% egg yolk in the progressive sperm motility. There was no difference among the treatments containing egg yolk in plasma membrane integrity and acrosome reaction. In both cooling rate, there was no difference among the treatments containing egg yolk in the sperm viability. It was suggested that 20% egg yolk was superior to keep the function of ram coated spermatozoa for storage at 5°C.

Keywords: Coating, Cold shock, Egg yolk, Taleshi ram

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