Metabolism & Nutrition IV

M122 Influence of feed form (FF) and diet phase effects on 0–46 d broiler performance Mark Lemons*GS, Christopher McDaniel1, Joseph Moritz2, Kelley Wamsley1 ’Mississippi State University; 1West Virginia University

Previous research has focused on providing improved FF in the finishing growth phase of broilers (<28 d of age) to increase performance. High feed consumption in the finishing phase provides great potential to observe FF performance benefits due to decreased prehension energy and feeding time. However, due to manufacturing costs of improved FF, it may be more economical for poultry producers to improve FF in the starting and growing phases (<28 d) that are of lower volume demand. Also, it has yet to be determined whether FF variations in starter and grower phases (<28 d) has an interactive effect on subsequent broiler performance (28-46 d). Therefore, the study utilized a 2 x 2 factorial arrangement of treatments in a randomized complete block design using two FF presented in each of three dietary phases. The starter phase (0–14 d) provided either a ground crumble or intact crumble; while the grower and finisher phases (14-28 and 28-46 d, respectively) provided either 50 or 80% pellets. All diets were of a common and commercially practical formulation. Diets were initially manufactured to create the high FF (crumbles and 80% pellets), and Low FF (ground crumbles and 50% pellets) diets were created from grinding a portion of the high FF diet and remixing. A total of 2112 Ross x Ross 708 male broilers were obtained from a commercial hatchery and randomly placed in one of 176 pens (0.3 m²/bird). Dietary phase interacted with FF for d 46 BW (P= 0.0362). Feeding ground crumbles in the starter phase and 80% pellets in the finisher phase increased BW, whereas ground crumbles in the starter phase and 50% pellets in the finisher phase decreased BW. Broilers receiving crumbles and 80% pellets increased feed intake and BW in the starter and grower phases (P<0.05). Broilers receiving crumbles decreased FCR by 0.02 in the starter phase (P=0.0016). These data suggest that the greatest BW gain was achieved when broilers were able to compensate for reduced intake and growth from ground crumbles in the starter phase by receiving 80% pellets in the finisher phase. Future research should determine if FF and dietary phase from 0–46 d interactively effect 46+ d broiler performance and processing characteristics.

Key Words: feed form, dietary phase, broiler performance, feed manufacture

M123 Supplementation of glycosaminoglycans and vitamin C on incubation and feed on the bone mineral density in broiler Elaine SantosCS, Diana Correa Castilblanco1, Liliana Borges1, Carla Domingues2, Thays Quadros1, Sarah Sgavioli1, Tiago Petrolli1, Natália Fonseca1, Diogo Goulart1, Monique Carvalhal1, Eduardo Almeida1, Lizzandra Amoroso1, Silvana Artoni1 ’Sao Paulo State University; 1Federal University Grande Dourados

With the vertiginous growth of body and deposition of meat, broilers started to present problems in bone structure, increasing the occurrence of tibial dyschondroplasia. The aim of this study was to determine the bone density in broiler chicks that received was feed with or without supplement in growth period. The supplement were composed of the chondroitin sulfate, glucosamine sulfate and vitamin C. The experimental design was completely randomized in factorial with four treatments (non-injected eggs; eggs injected with 4% of glycosaminoglycans and vitamin C and addition or not supplement in feed), in total of 176 pens, 10 replicates and 19 birds per pen. Statistical analyses were performed using the SAS® (Statistical Analysis System, 2002) program with the averages compared by Tukey test at 5% probability. There was significant difference (P<0.05) for the tibio-tarsus bone mineral content (BMC) and bone mineral density (BMD) at 42 days of age. Treatments received supplement in incubation and feed showed better to results to BMC and BMD, 3.93 g; 4.02 g; 0.25 g/cm²; 0.25 g/cm², respectively. There was significant interaction between the incubation supplementation and dietary treatments (P<0.001). In conclusion, the supplementation with glycosaminoglycans (chondroitin + glucosamine) and vitamin C can be provided in the incubation, feed or both, with the effect of improving bone density of broilers.

Key Words: dysplasia, glycosaminoglycans, vitamin C

M124 The sources of lipids partitioning to adipose tissue of chicks during first week posthatch Nirun Boonsinchai*, Gerret Mullenix, Andrew Magnuson, Justina Cadas, Judy England, Craig Coon University of Arkansas

The objective of this study was to determine the sources of lipid in the adipose tissue of chicks during first week posthatch. Six breeder hens at 25wk of age were individually housed in cages. Four hens were dosed with 50mg/hen/day of U-13C Glucose (LA; C18:2) ethyl ester dissolved in 1.0 ml of corn oil for 14 d, and the other two hens were dosed with 1.0ml/hen/day of corn oil for 14 d and used as a control. On d 13 and d 14, all hens were artificially inseminated and eggs were collected for a 6-day period and incubated. On d 1, d 3, and d 6 of the collection period, two yolk samples from treatment hens, and one from control hens were saved for analysis. At hatch, three chicks from each group were randomly selected for adipose tissue sampling, while the rest of chicks from each group (6 control and 8 treatment birds) were placed in floor pens for 7 d grow-out studies. Chicks hatched from the hens dosed with U-13C LA were orally dosed with 50 mg/bird/day of U-13C Glucose and 50 mg/bird/day of 13D-LA for a 7 d period. On d 3 and 7 of grow-out, three control and 4 treatment chicks were killed by CO2 gas. The subcutaneous fat and residual yolk of each chick were collected. The U-13C Linoleic ethyl ester represents the tissue lipid deposited in egg yolk, 13D Linoleic methyl ester represents the lipid in egg yolk coming from the feed and U-13C Glucose represents de novo lipogenesis (DNL). The concentration of U-13C LA in the yolk decreased significantly (P<0.0001) from fresh yolk (2.47 mg·g-1) to d 3 (0.05 mg·g-1), and was undetectable on d 7 posthatch. The concentration of U-13C LA in chick adipose tissue (represents the lipid derived from egg yolk) was significantly reduced (P<0.0001) from hatch (0.898 mg·g-1) to d 7 (0.238 mg·g-1). On the other hand, the partitioning of 13D-LA and 13C-PA (represented lipids from feed and DNL, respectively) were significantly increased (P<0.01) from d 3 to d 7 of growing chicks: 5.845 vs. 8.139 mg·g-1 and 4.959 vs. 7.778 mg·g-1, respectively. These results indicated that chicks utilize lipids from each source in different manners.

Key Words: U-13C Linoleic acid, DNL, 31D-LA, residual yolk, baby chicks

M125 Effect of Broiler Breeder Maternal Age on Gene Expression in Liver and Abdominal Fat of the Hens as well as Liver and Yolk Sac of the Embryo Nirun Boonsinchai*, Craig Coon University of Arkansas

Hen age affects yolk size, hatching weights as well as growth rate of progeny. Yolk sac (YS) and liver are main tissues functioning for nutrient utilization during embryonic development. To understand the differences of nutrient utilization between embryo from young and old breeder hens, the PCR array gene expression analyses were performed. In experiment 1, YS and liver were taken from three embryos on embryonic day 17 (E17) received from hens at 26wk (young or treatment) and 35wk (old or control) of age. In experiment 2, liver and abdominal fat were taken from three hens of each age. Forty eight selected genes relating to fatty acid, glucose, and amino acid metabolism were profiled from each samples. The fold regulation comparison were performed between treatment and control groups with fold regulation cut off at 2.0 and P-value cut off at 0.05. In experiment 1, there were many genes that over-expressed in YS from young hens (PC, GPT2, LPL, PPARA, CES1, BCKDH, and IVD with fold regulation of 75.45, 28.00, 23.93, 17.97, 15.08, 9.54, and 7.71, respectively). Interestingly, there were some genes that signific-
M126 Variability of corn distillers solubles oil quality and carotenoid content bioavailability as determined by skin pigmentation in broiler chickens. Marta Viguié1, Kimberly Livingston, Ramon Malheiros, Peter Ferkert North Carolina State University

Corn distillers solubles oil (CDSO) is a co-product of the corn ethanol distillers process that may be used as a source of carotenoids to enhance pigmentation of broiler skin in addition to its dietary energy value. The objectives of this study were to survey the variability in quality and content of carotenoids in CDSO produced by different ethanol plants, and determine the carotenoid bioavailability based on skin pigmentation in broilers. CDSO samples from 11 ethanol plants were assayed for fat quality and carotenoid contents by HPLC. The mean ± standard deviation for palmitic, stearic, oleic, linoleic, linolenic, and γ-linolenic acid contents were 15.7 ± 0.6, 1.6 ± 0.1, 60.5 ± 2.1, 25.2 ± 1.2, 2.3 ± 0.1, and 0.4 ± 0.01%, respectively. The mean ± standard deviation for β-carotene, lutein, and zeaxanthin contents were 1.5 ± 0.2, 38.8 ± 0.9, and 5.4 ± 0.1 mg/kg, respectively. The mean ± standard deviation for β-cryptoxanthin content was 3.8 ± 0.1 mg/kg. The mean ± standard deviation for p-anisidine, 96.7 ± 47.6 ppm total carotenoids (35.9 ± 1.86 beta-cryptoxanthin), 26.37 meq/kg of fat quality indicators and fat content bioavailability as determined by skin pigmentation in broiler chickens.

Key Words: corn distillers solubles oil, carotenoids, skin pigmentation, broilers

M127 Assessing safety of Moringa oleifera seed and leaf meal as potential alternative antibiotic in poultry production Isaac Adejumo1, Oluwemii Adebiyi2, Theophilus Babalola3, Christianah Olopade1, Blessing Odoemelam1 1Landmark University; 2University of Ibadan; 3Federal University Oye-Ekiti

Antibiotics administered in poultry as growth promoters and for prevention and control of bacterial contamination are confronted with several constraints, resulting in a threat to animal food safety. Hence, there is a global search for alternative effective antibiotics, particularly of plant origin to combat avian diseases. In this study, the safety assessment of Moringa oleifera seed and leaf meal as potential alternative antibiotic was evaluated in broiler chickens at finisher phase. 140 4-week old broiler chickens were used. The birds were randomly distributed into 4 treatment groups. Each treatment had 5 replicates with 7 birds per replicates. Treatment 1 (T1) was the negative control, birds in Treatment 2 (T2) were administered with oxytetracycline (positive control) while birds in Treatments 3 and 4 were fed diets containing 0.25% of raw dried moringa seed meal and 0.25% raw dried moringa leaf meal respectively. Growth performance and haematology were measured according to standard methods. Data obtained were analysed using analysis of variance α = 0.05. Results obtained for growth performance and haematology were similar across the treatments. No mortality was recorded across the treatments. It is thus concluded that Moringa oleifera meal is safe and can be used as a potential alternative antibiotic in poultry production.

Key Words: antibiotics, broilers, Moringa oleifera, safety assessment

M128 A mixture of medium chain fatty acids will reduce antibiotic resistance Manu De Laet1, Katrien Deschepper, Renato Costa, Rob Goedegebuure, Ellen Van Meenen Nuscience

Antibiotics are widely used for the prevention, control and treatment of diseases and infections. In the 20th century, livestock and poultry producers incorporated antibiotics into their comprehensive animal husbandry practices. But there are global concerns that antibiotics may be used too often. In 2006 for example, 96% of all the birds slaughtered in the world, were treated with an antibiotic. This overuse of antibiotics in the poultry industry can cause antibiotic resistance, and this can be a huge threat for the human population. The objective of the described study was to determine whether Aromabiotic, a carefully balanced mixture of medium chain fatty acids can help to reduce the use of antibiotics. The large field experiment was carried out with 7500 Ross 308 birds in 3 treatments (2500 birds per treatment). For this experiment, we chose to do a field trial to obtain the same infection pressure as in the real poultry farms. The first group (group AGP) of birds received a standard feed with Avilamycine (10 ppm) and Flavomycine (5 ppm). The second group (group OA) received the same standard feed with a mixture of organic acids (1 kg/MT) during the whole experimental period. The third and last group (group AB) received the standard feed with 0.5 kg/MT Aromabiotic MCFAR also during the whole experimental period. The birds are reared until 35 days. At the end, body weight, daily weight gain, FCR and mortality were recorded. At day 35, the body weight of group AB (1744 g/bird) was higher than the other two groups (1718 g/bird for group AGP and 1695 g/bird for group OA). The same trend has been seen in the daily weight gain (44.8 g/bird/day for group AB vs 44.1 g/bird/day for group AGP and 43.5 g/bird/day for group OA). The FCR was lower for group AB (1.92), compared to the other two groups (1.97 for group AGP and 1.94 for group OA). The mortality was slightly higher for group AB (3.64 %) vs group AGP (3.12 %), but was still better than group OA (4.04 %). In conclusion, it is clear that the medium chain fatty acids prove to be the excellent alternative for antibacterial growth promoters. Aromabiotic MCFAR outperformed also the organic acids as an antibiotic-alternative. In

Poult. Sci. 95(E-Suppl. 1)
The end, it is possible to achieve a healthy and sustainable poultry production with the help of Aromabiotic Poultry, lowering the chance for antibiotic resistance.

**Key Words:** Antibiotics, Medium chain fatty acids, Resistance, Performance

M129 The relationship between guanidino acetic acid and metabolize energy level of diets on performance of broiler chickens Alaedeen Abudabos' King Saud University

The aim of this work was to investigate the effects of 2 levels of guanidino acetic acid (GAA) in a commercial form (CreAMINO®) and 4 levels of metabolizable energy (ME): (75, 50 and 25 kcal/kg less than the control) on performance and carcass characteristics of broiler chickens. The eight dietary regiments were tested for 3 periods: starter, grower and finisher by utilizing a total of 200 male broiler chickens in (2x4) factorial arrangements. The results revealed a positive effect for CreAM supplementation on feed conversion ratio (FCR) for the starter, grower, finisher and cumulative periods (P<0.05, 0.05, 0.01 and 0.001, respectively). During the grower period, a significant difference in FCR was observed for ME level, birds converted feed more efficiently as the level of dietary energy increased in a linear trend (P<0.01). When examining the cumulative period (0 to 35 days of age), two-way interaction was significant for F1 and BWG. Birds which had received the control level of energy, 75 or 50 kcal/kg lower ME than the control, consumed less feed when these diets were supplemented with CreAM. While, birds which received (25 kcal/kg) lower ME or the control energy levels gained more weight when CreAM was supplemented. In summary, GAA improved FCR of broilers in each period as well as cumulatively, while ME level also affected FCR, but not in a linear fashion. CreAMINO® supplementation to reduced-energy diets showed FCR improvements, while the best performance could be detected for the diet with 50 kcal/kg less ME.

**Key Words:** Guanidino Acetic Acid, CreAMINO®, Broilers, Performance

M210 Performance of Broilers Fed Diets Supplemented with Medium Chain Fatty Acids, or Medium Chain Fatty Acids plus a Prebiotic and Challenged with Clostridium perfringens. T.P. Karnezos, R. Dvorak, C. Novak1, 2PMI Nutritional Additives: 1'Purina Animal Nutrition

A 42-day, 30 bird/pen, 5 treatment, 10 replications (50 pens) broiler study was conducted to compare the performance, feed conversion and lesion scores of straight-run Cobb 500 broiler chicks, vaccinated with CocciVac® and challenged with Clostridium perfringens on Day 17. Dietary treatments were: 1) negative control (no additives); 2) positive antibiotic control (BMD 50 g/US ton in starter and grower, and STAFAC 20 g/US ton in finisher); 3) MCFA Full (4 lb./US ton in starter, 3 lb./US ton in grower, 2 lb./US ton in finisher); 4) MCFA Half (2 lb./US ton in starter, 1.5 lb./US ton in grower, 1 lb./US in finisher), and 5) MCFA + Prebiotic combination (4 lb./US ton in starter, 3 lb./US ton in grower, 2 lb./US in finisher). Day 21 body weights, feed conversion and mortality-adjusted feed conversion ratios were better (p≤0.05) for the supplemented diets than the negative control. Day 21 necrotic enteritis lesion scores for the positive control and MCFA Full were similar and lower (p≤0.05) than the negative control whereas MCFA Half and MCFA + Prebiotic were similar to the negative control. Day 42 body weights for MCFA Full and MCFA Half were similar (p>0.05) to the positive control and greater (p≤0.05) than negative control. Day 0-42 feed conversion ratios for all dietary treatments were better (p≤0.05) than negative control and MCFA Full and MCFA + Prebiotic being similar (p>0.05) to the positive control, MCFA Full and the positive control had improved (p≤0.05) 0-42 day mortality-adjusted feed conversion ratios compared to negative control. Day 0-42 mortality % were lower (p≤0.05) for each of the additive treatments (range 3.79 to 1.11%) compared to the negative control (9.01%). The European Poultry Efficiency Factor (EPEF) Day 42 scores (range 238.1 to 245.7) for all additive treatments were similar (p>0.05) and higher (p≤0.05) than the negative control (197.9). For this study, MCFA Full was comparable to antibiotic growth promotant feeding program of BMD 50 g/US ton in the starter and grower feeds shifted to STAFAC 20 g/US ton in the finisher feeds in supporting live performance and reducing necrotic enteritis lesion scores of broilers that were vaccinated for coccidiosis, exposed to used litter, and challenged with Clostridium perfringens in a litter floor pens trial.

**Key Words:** Medium Chain Fatty Acids, Clostridium perfringens, Necrotic Enteritis, Broiler, Weight Gain

M131 Comparative Efficacy of Biostrong Forte plus Biostrong 510 to the AGP Virginiamycin Administered in the Feed for the Control of Necrotic Enteritis caused by Clostridium perfringens in Broiler Chickens C. Novak1, S. Pusey2, T.P. Karnezos3, 1' Delacon USA; 2' Purina Animal Nutrition; 3' PMI Nutritional Additives

A 49-day, 50 bird/pen, 5 treatment, 10 replications (50 pens) broiler study was conducted to compare the performance, feed conversion and necrotic enteritis lesion scores of Cobb X Cobb male broiler chicks, vaccinated with Coccivac®-B52 and challenged with Clostridium perfringens on Days 19, 20 and 21. Dietary treatments were: 1) negative control (no additives); 2) positive antibiotic control (Virginiamycin 20 g/US ton from 0 to 49 days); 3) BF500 (Biostrong Forte (500ppm) at 1 lb./US ton from 0 to 28 days + Biostrong 510 at 0.30 lb./US ton from 29 to 49 days); 4) BF750 (Biostrong Forte (750ppm) at 1.5 lb./US ton from 0 to 28 days + Biostrong 510 at 0.30 lb./US ton from 29 to 49 days); 5) BF1500 (Biostrong Forte (1500ppm) at 3 lb./US ton from 0 to 28 days + Biostrong 510 at 0.30 lb./US ton from 29 to 49 days). Day 0-28 body weights and feed intakes were similar (p=0.05) whereas feed conversion ratios were better (p≤0.05) for the supplemented diets (range 1.672 to 1.648) than the negative control (1.723). Day 0-49 intakes were similar (p=0.05) for all treatments while body weights for the supplemented diets were similar (p=0.05) to the positive control and greater (p≤0.05) than negative control. Day 0-49 feed conversion ratios for the positive control (1.867) and BS1500 (1.926) were better (p<0.05) than the negative control (2.004). Day 49 mortality-adjusted feed conversion ratios were better (p≤0.05) for BS1500 (1.956) and BS500 (1.961) treatments. Mortality (range from 5.7 to 2.6%) and lesion scores were not different (p>0.05) across all treatments. For this study, the combination of Biostrong forte and Biostrong 510 was comparable to an antibiotic growth promotant feeding program of STAFAC 20 g/US ton in supporting live performance of broilers that were vaccinated for coccidiosis, exposed to used litter, and challenged with Clostridium perfringens.

**Key Words:** Clostridium perfringens, Necrotic Enteritis, Biostrong Forte, Biostrong 510, Broiler

M132 L- and DL-methionine in male Ross 708 broilers from 0 to 35 days of age Ariane Helmbrecht2, John Thomson2, Robert Payne2 1Evonik Nutrition & Care GmbH; 2Evonik Corporation

The first limiting sulfur amino acids (AA) are balanced in poultry diets by addition of a methionine (Met) source to avoid depression in growth performance. Besides established Met sources like DL-Met (DLM), pure L-Met (LM) recently entered the market. While the D-isomer of Met needs to be converted to the L-isomer by the organism, LM is directly available for metabolism. Few trials have been published which compare LM and DLM in broiler diets; majority of these published trials found no differences in animal performance. The objective of the current trial was to investigate the difference between L- and DLM in broiler diets from day 0 to 35.

A total of 3465 male Ross 708 broilers were randomly allocated to 9 treatments each of 7 replicates (55 birds/replicate). A corn-soybean meal based basal diet deficient in sulfur AA and without supplemented Met was supplemented with 0.04, 0.08, 0.16, and 0.24% DLM or LM, respectively. All other nutrients and energy met or exceeded the requirements. Birds were phase fed 0-14, 14-28, and 28-35 days of age; nutrient and energy content were adjusted accordingly but Met supplementation levels were kept the same. Results for body weight (BW), body weight gain (BWG)
and feed conversion ratio (FCR) were analyzed by simultaneous exponential regression to compare the slopes of LM and DLM. Birds of basal diet showed significantly (p<0.05) lower BW (1.858kg) and BWG (51.72g/d) and higher FCR (1.765) than any other treatment. The nutritional value of LM in comparison to DLM was 88, 81, and 86% for BW, BWG and FCR, respectively. Although no health issues were observed, growth performance of 0.24% LM group appeared to be an outlier. Therefore, data was re-analyzed by regression without the 0.24%-levels. Higher nutritional values (92, 87, and 94% for BW, BWG and FCR), higher correlations (96 and 93 to 100 and 99%) and narrower confidence intervals (37-140 and 16-146 to 69-116 and 58-117%) for BW and BWG were found. No differences between Met sources could be detected as confidence intervals included 100%. We conclude from these results that no difference between L- and DLM in balancing for the available sulfur amino acid content in diets for male broilers from 0 to 35 days of age. Both sources can equally be used in broiler diets.

Key Words: broiler, methionine, bio-efficiency, L-methionine, DL-methionine

Metabolism & Nutrition V

T133 Effect of feeding fermented cowpea husk on the performance of growing Japanese Quails Rasheed Hamzat1, Mustapha Sabo1, Abdulhamid Adebowale2, Olabisi-Taio Hamzat1 1Federal University, Dutsein-Ma, Nigeria, 2Crescent University

A seven-week feeding trial was conducted to evaluate the effect of fermented cowpea husk inclusion at the expense of maize offal on the growth performance of growing Japanese quails. 480 two-week old Japanese quails were used in a completely randomized design with 5 treatments replicated four times with 24 quails per replicate. The treatments were 0% cowpea husk (0% CH), 5% raw cowpea husk (5% RCH), 10% RCH, 5% fermented cowpea husk (FCH) and 10% FCH. Feed intake and weight gain were measured weekly. Age at first lay, weight at first lay and weight of first egg were all recorded. Eight quails per treatment were used for carcass evaluation. Dressing percentage, weights of liver, gizzard, heart and intestine and intestinal length were all measured. The results obtained showed no significant difference (p>0.05) among the treatment means in final weight, weight gain, feed intake, age at first lay and weight of first egg. Feed conversion ratio (FCR) was highest (P<0.05) for quails fed the 10% RCH (6.14) compared to the 5% RCH (5.34), 0% RCH, 5% FCH and 10% FCH had similar (P>0.05) FCR to both the 5% RCH and 10% RCH. Carcass parameters assessed in this study were not significantly (p>0.05) affected by the inclusion of RCH or FCH in the diets of growing Japanese quails. The results of this study indicated that RCH and FCH can be included at 10% level in the diets of growing Japanese quails without adverse effects on their performance.

Key Words: cowpea husk, maize offal, Japanese quails, growth performance, carcass evaluation

T143 Immunological and anti-eimeria activities of hot water and methanol extracts of Pleurotus sajor-caju in broiler Muhammad Ullah*, Masood Akhtar, Mian Awais Bahauddin Zakariya University Multan Pakistan

Statement for purpose of experiment

Experiment designed to evaluate the immunological and anti-eimeria activities of a locally available mushroom Pleurotus sajor-caju in broiler as a supporting medicinal option to enhance immunity in general and to support anti protozoal medicinal profile specifically against eimeria infection in broiler. Description of Experimental Design

150 day old broiler birds grouped (n=50) into three at day 5th of experiment after acclimatization. hot water and methanol extracts given at day 7-9 to first two groups respectively and third group kept as control. At day 14, all three groups further divided into 2 subgroups (n=25), one for immunological and other for anti eimeria evaluation. Lymphoproliferative response to PHAP and haemagglutination tests performed for cellular and humoral immune response, respectively. Anti-eimeria activities evaluated through protection against eimeria infection, oocyst per gram of droppings, lesion scoring and weight gains.

Abstract including conclusion

Locally grown oyster mushroom Pleurotus sajor-caju procured, dried and processed for extraction in hot water and methanol followed by lyophilization. Proximate analysis of lyophilized hot water and methanol extracts performed to determine the amount of crude fiber, crude protein, ether, ash and nitrogen-free extract. Hot water and methanol extracts were subjected to immunomodulatory and anti-eimeria (mixed specie) evaluation in broiler. Experiment groups given hot water and methanol extracts showed significantly higher (P<0.05) cellular immune response in terms of lymphoproliferative response to phytohemagglutinin-P in comparison with control. Humoral immune response showed higher immunoglobulin (total Ig, IgG, and IgM) titers against sheep red blood cells in treated groups compared with control. However, values obtained in evaluation of lymphoid organs were statistically nonsignificant (P>0.05) among treated and control groups. Anti-eimeria studies revealed significantly higher (P<0.05) percentage of protection against mixed specie eimeria infection in groups given hot water and methanol extract of Pleurotus sajor-caju when compared with control. Moreover, oocysts per gram of feces and lesion scoring of intestine observed in the control group were significantly higher (P<0.05) compared with those groups administered with hot water and methanol extracts of Pleurotus sajor-caju. Results determined that Pleurotus sajor-caju extracts including hot water and methanol extracts had unusual capacity to boost immune system in broiler. Further, these extracts also had excellent anti-eimeria activities in broiler.

Key Words: Eimeria, Coccidiosis, Pleurotus sajor-caju, Immunological, Mushroom

T135 Efficacy evaluation of heat ameliorating activity of Ayucee premix in broilers Manju Gatne1, Mohan Ji Saxena2, Ravikanth Kotagiri2, Adarsh Chaudhary2, Shivi Maini1 1Bombay Veterinary College; 2Ayurved Limited

The study was designed to assess the efficacy of herbal vitamin C with bioflavonoids supplement during summer stress (30-38ºC, RH% 50-70). 60 day old broiler chicks (Vencobb 240) of nearly similar live body weight were used in the experiment. Chicks were randomly assigned on body weight basis in to 2 groups, having 3 replicates of 10 birds in each group (n=30). Group T0 served as unsupplemented control group and Group T1 birds supplemented with Ayucee Premix (100g/tonne for 0-5 weeks) (M/S Ayurved Limited, India). Growth, performance, haematoc biochemical and hormonal parameters were recorded during the trial period of 0-5 weeks. Statistical analysis revealed significantly (p<0.05) high mean final body weight in Ayucee premix (T1) (1573.13g) supplemented birds as compared to unsupplemented control group (T0) (1529.33g) at 5th week. FCR value was significantly (p<0.05) better for group T1 (1.56) as compared to control group T0 (1.60). Haematoc biochemical profile in Ayucee premix (T1) supplemented birds was in correlation with the normal values, however significant deviation from normal values was evident in unsupplemented control group (T0) birds. Serum Cortisol (nM/L) level was significantly (p<0.05) reduced after Ayucee premix supplementation to group T1, 2.83 (group T0, 5.83). Livability was 100 % in Ayucee premix supplemented group T1 in contrast 66.7 % mortality was recorded in control group T0. Herbal ingredients viz. Withania somnifera, Ocimum