

Processing, Products, and Food Safety Posters

641 Effects of medicinal plants, probiotic and organic acids on *Campylobacter* excretion, immune response and serum lipids in broilers. K. Gharib Naseri¹, S. Rahimi*¹, and P. Khaki², ¹Tarbiat Modares University, Tehran, Tehran, Iran, ²Razi Vaccine and Serum Research Institute, Karaj, Alborz, Iran.

The effect of medicinal plant (Sangrovit), probiotic (PrimaLac), and organic acid (Selko-pH) as feed additives, on fecal excretion of *Campylobacter* (cfu/g) on broilers were evaluated. Other measurements such as performance, immune response and serum lipids were determined. A total of 300 broilers (Cobb 500) were fed unsupplemented diet (negative and positive controls), feed containing probiotic (1g/kg) or medicinal plant (5g/kg) and/or drinking water containing organic acid (1mL/L). All birds except negative control were orally challenged with (10^9 cfu/mL) *C. jejuni* at d 21. Fecal samples were collected at d 35 and 42 for *Campylobacter* count. BW, FI and FCR were determined weekly. The immune response to SRBCs was determined twice during the experiment. Serum lipids were estimated on d 49. Fecal samples in negative control and organic acid groups had the lowest count of *Campylobacter* ($P < 0.05$). Moreover, probiotic and Sangrovit groups showed a significant reduction of this bacteria compared with control positive group ($P < 0.05$). FI of organic acid group was significantly lower than control negative ($P < 0.05$). Other groups did not have significant differences with these 2 treatments. Highest and lowest weight gain was achieved in control negative and positive groups, respectively ($P < 0.05$). Lowest and highest FCR observed in control negative and control positive groups, respectively ($P < 0.05$). On d 49 probiotic, Sangrovit and negative control group had a significant higher immune response compared with control positive and organic acid groups ($P < 0.05$). The Chol, TG, HDL and LDL levels were not affected by treatments ($P > 0.05$). This study indicates that the use of probiotic and Sangrovit could be potential treatment for decreasing *Campylobacter* excretion and improve broilers performance.

Key Words: *C. jejuni*, probiotic, organic acids, Sangrovit

642 The effect of probiotic, prebiotic and organic acids on *Campylobacter jejuni* count in cecum and intestinal morphology of broilers. K. Gharib Naseri¹, S. Rahimi*¹, and A. Rahimi², ¹Tarbiat Modares University, Tehran, Tehran, Iran, ²Islamic Azad University, Tehran, Tehran, Iran.

The effect of probiotic (PrimaLac), prebiotic (Fermacto) organic acid (Selko-pH) as broiler feed additives, on cecal colonization of *C. jejuni* (cfu per gram) of broilers were studied. Other measurements such as performance and intestinal morphology were examined. A total of 300 broiler chicks (Cobb 500) were fed unsupplemented diet (negative and positive controls), probiotic (1g/kg), prebiotic (1g/kg) and/or drinking water containing organic acid (1cc/L). All chickens except negative control were orally challenged with (10^9 cfu/mL) *C. jejuni* at d 21. Cecal samples (d 28 and 49) were collected for *Campylobacter* count. Body weight (BW), feed intake (FI) and feed conversion ratio (FCR) were determined weekly through the experiment. Intestinal samples for morphology examination were taken at d 49. On d 49 in all supplemented treatments reduction of *C. jejuni* colonization in cecal was observed. Probiotic and organic acid groups had shown a significant reduction in this bacteria compared with control positive group ($P < 0.05$). No significant difference was observed between feed intake in probiotic and prebiotic groups. Feed intake of organic acid group was significantly lower than control negative group ($P < 0.05$). Weight

gain and FCR of control negative group was significantly higher than control positive group ($P < 0.05$). Intestinal morphology showed an improvement ($P < 0.05$) on duodenum and jejunum villi height and villi height/ crypt depth ratio in probiotic and control negative treatment. It is concluded that using probiotic and prebiotic as feed additives could be potential alternative and improve broilers performance. These feed additives along with acidified water could reduce *Campylobacter* infection in poultry.

Key Words: *Campylobacter jejuni*, probiotic, organic acids, prebiotic

643 Effects of electron-beam irradiation on diet characteristics, intestinal microbial population and morphology, ileal digestibility and performance of broilers. S. Yakhkeshi¹, S. Rahimi*¹, and P. Shawrang², ¹Tarbiat Modares University, Tehran, Tehran, Iran, ²Agricultural, Medical and Industrial Research School, Nuclear Science and Technology Research Institute, Atomic Energy Organization, Karaj, Alborz, Iran.

This study was conducted to investigate the effects of electron-beam irradiation on chemical composition and microbial load of diets, broilers intestinal morphology and microflora population, ileal digestibility and performance. A total of 300 d-old male broilers (Cobb 500) were randomly divided into 4 treatments, 5 replicates with 15 birds in each. Treatments were: control, 3, 5, and 7 kGy doses electron-beam irradiation. Doses of 5 and 7 kGy completely eliminated microbial load in diets ($P < 0.05$). The best BWG and FCR at (d 28–42 and 1–42) were observed in chicks fed diet irradiated at doses of 5 and 7 kGy ($P < 0.05$). The lowest and highest coliforms counts in ileum at d 21 were achieved in chicks fed diet irradiated at dose of 7 kGy and control groups, respectively ($P < 0.05$). Moreover, the highest lactic acid bacteria in ileum and cecum were observed in chicks fed diet irradiated at dose 7 kGy ($P < 0.05$). Additionally the lowest coliforms bacteria counts and total aerobic bacteria in ileum and cecum were attained by 7 kGy dose at d 42 ($P < 0.05$). The highest villous height (VH) in duodenum and jejunum were attained by 7 kGy dose at d 42 ($P < 0.05$). Also greatest villi height: crypt depth (CD) ratio in jejunum were obtained by 5 and 7 kGy doses at d 21 and 42 ($P < 0.05$). Treatment 7 kGy dose caused a significant increase in VH:CD ratio in jejunum at d 42 ($P < 0.05$). The greatest DM, OM, EE, GE, AME and AMEN digestibility were attained by 7 kGy dose ($P < 0.05$) and no significant differences were observed in CP digestibility ($P > 0.05$). The results of current study showed that electron-beam irradiation of diets reduced microbial load without any changes in chemical composition. Weight gain, FCR and digestibility of nutrients were improved by irradiation.

Key Words: broiler, digestibility, electron-beam irradiation, microflora

644 Microbial identification and analysis of antimicrobial resistance in samples of avian cellulitis from slaughterhouses located in the Federal District, Brazil. M. M. Santos*, A. C. M. Alcântara, A. P. Santana, and P. H. C. Silva, ¹University of Brasilia, Federal District, Brazil.

The avian cellulitis is an inflammatory process in subcutaneous tissue observed on abdomen and thighs. This problem is commonly detected in these animals in the moment of the slaughter and is considered one of the major causes of condemnation of carcasses in Brazil. The aim of