Από τις πιο σημαντικές παρουσίες το Τμήμα Γεωπονίας του Πανεπιστημίου Ιωαννίνων στο Παγκόσμιο Συνέδριο Πτηνοτροφίας με τέσσερις εργασίες

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EFFECT OF THE COMBINED USE OF A MIXTURE OF AROMATIC PLANTS, ESSENTIAL OILS AND TRIBUTYRIN ON BROILER CHICKENS' PERFORMANCE AND GUT MICROFLORA
A. Tzora*(1), K.Fotou(1), A.Karamoutsios(1), S.Skoufos(1), C.Voidarou(1), E.Bonos(1), A.Tsinas(1), E.Christaki(2), I.Giannenas(2), I.Skoufos(1)
(1) School of Agriculture, University of Ioannina, Arta, Greece
(2) School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece

** Corresponding author:* tzora@uoi.gr

Nowadays, a main effort of the animal nutrition science is to support high levels of animal health and performance with limited use of therapeutics. In this effort, the management of intestinal microflora plays a significant role.
In this 37 days trial, a total of 360 one-day-old male broiler chicks (Ross-308) were randomly allocated to 4 groups with 6 replicates (of 15 chicks), all housed in floor pens with rice hulls litter. Commercial breeding, management and vaccinations procedures were employed. Group A (Control) was fed basal diets (based on maize and soybean meal) in mash form, which did not contain anticoccidials or antibiotics. The diets of the other groups were further supplemented: Group B with a mixture of dried aromatic plants and essential oils (3 g/kg); Group C with a premix containing tributyrin (1 g/kg); Group D with the mixture of dried aromatic plants and essential oils (3 g/kg) and the tributyrin premix (1 g/kg). Intestinal samples from the jejunum and caecum (N=96) were collected at slaughter to evaluate microbial counts. Appropriate agars were used for the isolation, enumeration and identification of total aerobes and total anaerobes, Enterobacteriaceae, Escherichia coli, Lactobacilli and Clostridium perfringens. Identification of all bacterial isolates was performed by MALDI-TOF Biotyper (Bruker Daltonics). Data were analyzed with the ANOVA and Kruskal-Wallis methods, using SPSS v20 software. The combined use of the feed additives (group D) resulted in improved (PE. coli (5.22 vs 3.53 log CFU/g) and Enterobacteriaceae (5.42 vs 3.83 log CFU/g), compared to the control, whereas groups B, C and D had lower (PC. perfringens counts compared to the control (2.56; 2.47; 2.30 vs 2.88 log CFU/g). In the ceca, group D, compared to the groups A, B and C, had lower (PE. coli (6.18 vs 7.44; 7.17; 7.43 log CFU/g), Enterobacteriaceae (6.53 vs 7.56; 7.29; 7.66 log CFU/g) and C. perfringens (3.77 vs 4.87; 4.82; 5.37 log CFU/g), while group D, compared to group B, had lower counts ($P \leq 0.05$)
Based on these findings, the combined use of the two feed additives had the best results in improving broiler performance and lowering intestinal populations of potentially harmful bacteria.
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EFFECT OF A FEED SUPPLEMENT CONTAINING BACILLUS SPP. ON PERFORMANCE, INTESTINAL MORPHOLOGY AND INTESTINAL MICROBIOTA OF BROILER CHICKENS FED DIETS WITH NORMAL OR LOW ENERGY LEVELS
E. Bonos*(1), I.Giannenas(2), E.Sidiropoulou(2), I.Stylianaki(2), G.Filioussis(2), A.Tzora(3), I.Skoufos(3), F.Barbe(4), V.Demey(4), E.Christaki(2)
(1) School of Agriculture, University of Ioannina, Kostakioiartas,, Greece
(2) School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki,

Thessaloniki, Greece
(3) School of Agriculture, University of Ioannina, Arta, Greece (4)Lallemand SAS, Blagnac, France

** Corresponding author:* eleftherios.bonos@gmail.com

In recent years, numerous new feed additives are examined in broiler nutrition to support their health and welfare and to enhance their performance. The main aim of this study was to test the efficacy of a new probiotic Bacillus strain on broilers performance, intestinal morphology and intestinal microbiota. A second objective was to test the possible energy sparing effect of this probiotic.
640 day-old male chicks (Ross-308) were allocated into 4 equal treatments with 10 replicates each (16 chicks per cage). The L1 (control) treatment was fed the basal diets (starter 1-10 d, grower 11-24

d, and finisher 25-35 d). The L2 treatment was fed diets containing 4% lower Metabolisable Energy, compared to the control. The L3 and L4 treatments were fed the diets of the 1st and 2nd treatment, respectively, further supplemented with a novel probiotic strain of Bacillus spp (1x10e9 CFU/kg feed). All diets were provided ad libitum in mash form. Weight gain (WG), feed intake (FI) and FCR were evaluated on days 10, 24 and 35. Intestinal morphometric analysis (villus height (VH), crypt depth (CD) and goblet cells) and microbiological analysis (conventional and RNA methods) were performed in samples collected on day 35. Statistical analysis was performed using two-way ANOVA (probiotic x feed energy level) at 0.05 significance level.
For the overall experimental period, lower dietary energy decreased the final body weight and WG ($P=0.002$), but did not affect FI and FCR. The probiotic supplementation increased the final weight and WG ($P=0.003$), decreased FCR ($P=0.002$) but did not affect FI. Intestinal morphology was affected by both the probiotic supplementation ($P<0.001$ for VH/CD ratio), and energy level of the feed ($P<0.001$ for ileum VH and villus goblet cells). Probiotic supplementation resulted in higher ileum and cecum Lactobacillus ($P<0.001$) and Bacillus ($P<0.001$) counts and lower cecum E. Coli ($P<0.001$), while lower dietary energy increased cecum C. perfringens ($P=0.023$). Significant interaction between probiotic supplementation and energy level was noted for FI ($P=0.026$), FCR ($P=0.016$), intestinal morphology ($P\leq0.001$) and microbiological analyses ($P<0.05$), showing that this probiotic was able to reduce the negative effects induced by lower dietary energy.
The results of the trial showed that probiotic supplementation can support growth performance, provide an energy sparing effect, and improve intestinal health status of broilers.

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ATTAPOULGITE AND OREGANO OIL IN FEED INFLUENCES ENVIRONMENTAL MICROBIAL COUNT IN POULTRY HOUSES

I. Skoufos*(1), E.Bonos(1), I.Giannenas(2), E.Gouva(1), A.Katrachouras(1), A.Patsavouras(1), S.Skaftouros(1), D.Papanastasiou(3), T.Bartzanas(4), A.Tzora(1)
(1) School of Agriculture, University of Ioannina, Arta, Greece
(2) School of Veterinary Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki,

Thessaloniki, Greece
(3) Institute for Bio-economy and Agri-technology (IBO), Centre for Research and Technology Hellas (CERTH), Volos, Greece
(4) Department of Natural Resourses Management and Agricultural Engineering, Agricultural University of Athens, Athens, Greece

** Corresponding author:* jskoufos@uoi.gr

It has been reported that increased density of birds in the poultry houses results in the accumulation of various pollutants, including bacteria and their toxins, toxic gases and other volatile compounds. Contamination levels in the houses, increase steadily in proportion to the birds age and especially towards the end of the rearing process. The increased microbial loaded the air is associated with microbial contamination of the birds. Pathogenic bacteria have been found within three kilometers of poultry farms.

The aims of this study were to examine the microbial load of air in broiler chicken houses and to examine the possible beneficial effects of dietary attapoulgite and oregano essential oil on the air microbial load.
In this trial, three identical experimental houses were used (14m x 58m), the first as control, where broiler chickens were fed commercial diets. In the second house, attapulgite (4000 ppm) was supplemented in the diets throughout the rearing period. In the third house, both attapulgite (4000 ppm) and oregano essential oil (300ppm) were supplemented in the diets. The outside environment of the poultry houses was also evaluated. The experiment was conducted in the months of September and October. Sampling was performed two days before slaughter to determine the total mesophilic flora (TMF). Samples were taken with the air sampler "Air Ideal" (bioMerieux S.A, France) at one location in each chamber, near its center and at a distance of 1.5m from the ground. After incubation in Plate Count Agar at 35°C for 48 hours, colonies were counted with the «Scan 100 automatic colony counter» (InterScience). In the control house, mean TMF was 3.40 x 10^5 cfu/m^3 of air. In the second and third houses, mean TMF was 2.45 x10^5 cfu/m^3 and 2.23 x 10^5 cfu/m^3 of air, respectively. In the outside environment air samples TMF was 4.80 x 10^4 cfu/m^3. The predominant bacteria encountered indoors were Staphylococcus, Micrococcus and in lower counts Streptococcus, Bacillus and Enterobacteriaceae, whereas in the outdoor measurements Staphylococcus, Bacillus and Aerococcus were the most abundant.
The results of this trial could be used for the improvement of chicken housing conditions and microbial growth.
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EFFECT OF THE COMBINATION OF A MULTI-STRAIN YEASTS FRACTIONS PRODUCT AND A COCCIDIOSTAT ON THE IMPACT OF INFECTION OF BROILER CHICKENS WITH EIMERIA SPP
I. Giannenas(1), V.Tsiouris(2), E.Bonos*(3), E.Sidiropoulou(1), G.Filioussis(4), I.Georgopoulou(2), P.Florou-paneri(1), E.Christaki(1)(5)
(1) Laboratory of Nutrition, School of Veterinary Medicine, Aristotle University of Thessaloniki,

Thessaloniki, Greece
(2) Unit of Avian Medicine, Clinic of Farm Animals, School of Veterinary Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece
(3) School of Agriculture, University of Ioannina, Greece, Kostakioiartas,, Greece
(4) Laboratory of Microbiology and Infectious Diseases, School of Veterinary Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece
(5) Lallemand SAS, Blagnac, France

** Corresponding author:* eleftherios.bonos@gmail.com

The objective of this trial was to examine the combined effects of dietary supplementation of a multi- strains yeast fractions product (MSYF) and a coccidiostat on performance and health parameters of broiler chickens orally challenged with coccidian oocysts. A total of 192 male one-day-old Ross-308 chicks were randomly allocated to 4 groups with 6 replicates of 8 chicks each, housed in separate pens. All bird were offered ad libitum water and the same basal diets of meal feed. The

first group (negative control, NC) was unchallenged, whereas the second group (positive control, PC) was orally challenged with Eimeria oocysts. The other two challenged groups had their diets further supplemented: Group SAL with a coccidiostat (salinomycin 60 mg/kg feed); Group COMB with a combination of the same dose of the coccidiostat plus the examined MSYF (0.4 g/kg feed). At 14 days of age, the three challenged groups were orally inoculated with sporulated oocysts (3.5×10^4 Eimeria acervulina, 7.0×10^3 Eimeria maxima, and 5.0×10^3 Eimeria tenella). A week after the inoculation (21 days of age), coccidiosis symptoms were evaluated and two birds per pen were autopsied to score coccidiosis lesions in the intestine and to collect intestinal digesta (duodenum, ileum, ceca) for coccidian enumeration by quantitative real-time PCR (qPCR). Performance parameters were recorded, along with fecal oocyst numbers and mortality. All data were subjected to one-way analysis of variance (ANOVA) or Kruskal-Wallis test, depending on their format. Based on the trial results, group COMB when compared to PC had improved (PEimeria species and sampling site compared to the PC, but additionally in some cases lower (PE. maxima & E. tenella; ileum E. acervulina, E. maxima & E. tenella; ceca E. maxima & E. tenella). In conclusion, MSYF can be used in combination with salinomycin to reduce the negative effects of an Eimeria challenge and by consequence improve growth performance in the challenged birds.