Proceedings & Abstracts

POULTRY MEDICINE
POSTER SESSION ABSTRACTS
MORPHOMETRIC STUDY OF SEGMENTS OF CHICKEN EMBRYO

B. Bani, M. Mohamed

University of Batna, Batna, Algeria

Topic: 11. Poultry Medicine / New Challenges and Technologies in Diagnostics

In order to bring the possible maximum of information relating to the evaluation of the development, we were interested in the morphometric study of certain linear parameters of the embryo, to knowing the big length, the three segments of the wing, as well as the three segments of the pelvic Member

For that, 80 embryonics eggs, of four age brackets: 1- 7- 14 and 21st days of incubation, is used at a rate of 20 eggs for each age bracket

Results showing that: The growth in length of the embryo is accompanied by that of the three segments of the wing and the pelvic member. The lengthening of the latter is more important between 7th and the 14th day, with a behavior different from a segment has another and one period has another.
EFFECT OF DIETARY SUPPLEMENTATION WITH DIFFERENT LEVELS OF L-CARNITINE ON SEMEN QUALITY OF GUINEA FOWL MALES

H. J. Al-Daraji

Topic: 11. Poultry Medicine / Food Safety

Carnitine is considered as a regulatory amino acid and is important for the metabolism of long chain fatty acids by β-oxidation. However, carnitine is very important in the treatment of infertility and impotence.

This study was conducted to determine the effect of dietary supplementation with different levels of carnitine on semen quality of guinea fowl males. A total of 24 guinea fowl males, 30 weeks old were used in this study and randomly distributed into 4 treatment groups (C₀, C₁₀₀, C₂₀₀, C₃₀₀) which represented the supplementation of L-carnitine to the diet of guinea fowl males at the levels of 0, 100, 200, 300 mg / kg of diet. L-carnitine was added to the diets of birds at the beginning of experiment when birds were 34 weeks of age until the end of experiment which lasted 18 weeks.

Results revealed that adding L-carnitine to the diet of guinea fowl males resulted in significant (p< 0.01) increase as regards ejaculate volume, mass and individual motility of spermatozoa, spermatozoa concentration, spermatocrit, and semen quality factor during the whole period of experiment and with relation to the total means of these traits. However, supplementation the diets of guinea fowls males with different levels of carnitine resulted in significant (p< 0.01) decrease concerning percentage of dead and abnormal spermatozoa and acrosomal abnormalities during the whole period of experiment and respecting the total means of these traits compared with control group (C₀).
CHEMOPREVENTION STRATEGIES AGAINST SPONTANEOUS OVARIAN CANCER IN THE DOMESTIC HEN

E. Harris¹, O. Fletcher², K. Anderson³, J. Petitte³, L. Kopelovich⁴, P. Mozdziak¹

¹ Physiology Graduate Program, North Carolina State University, Raleigh, United States
² Department of Population Health and Pathobiology, North Carolina State University, Raleigh, United States
³ Poultry Science, North Carolina State University, Raleigh, United States
⁴ Division of Cancer Prevention, NCI, Bethesda, United States

Topic: 11. Poultry Medicine / Hygiene and Biosecurity

Ovarian cancer is an aggressive disease that is tightly coupled with loss of p53 tumor suppressor gene function. The domestic hen is the animal model most closely resembling spontaneous ovarian cancer in humans, enabling chemopreventive studies by small molecules. Beginning at 26 months of age, 576 laying hens (Gallus domesticus) were randomized to a diet containing different amounts of CP-31398 for 23 months comprising a control group (C) (n=144), which was fed a diet containing 0 ppm (mg/kg) of CP-31398; a low-dose treatment (LDT) group (n=144), which was fed a diet containing 100 ppm of CP-31398; a moderate-dose treatment (MDT) group (n=144), which was fed a diet containing 200 ppm of CP-31398; and a high-dose treatment (HDT) group (n=144) which was fed a diet containing 300 ppm of CP-31398. Feed intake, weight, and egg production were evaluated. The hens were killed at 192 weeks of age, and they were then evaluated to determine the incidence of ovarian and oviductal adenocarcinomas. Hens in MDT and HDT groups showed a significantly lower incidence of reproductive and metastasized malignancies compared to hens in C and LDT (P < 0.05) groups, with up to a 77% lower incidence of ovarian cancer. Importantly, the incidence of localized oviductal cancer, where little to no mutant p53 can be detected, was similar across all treatment groups. The current study supports the use of small molecules such as CP-31398 to inhibit the initiation and progression of ovarian cancer in the hen by directly targeting mutant p53.
EFFECT OF INCREASING THE PROPORTION OF SOYBEANS IN THE DIET ON ZOO TECHNICAL PARAMETERS IN BROILER

A. A. Ourest, W. Laghour, M. Tlidjane

Sciences Vétérinaires, Université Hadj Lakhder, Batna, Algeria

Topic: 11. Poultry Medicine / Food Safety

The soybean oil cake which can represent up to 35% of the feed ration of broiler chicken has an important role as the first source of proteins for this last one. Its incorporation rate in the feed ration is the most important element in the balance between the energy and the protein inputs. Soybean meal matches or exceeds all other common plant proteins in both total and digestible amino acid content. In this experimentation, effects of its incorporation rate variations in the start and growth feed have been tested on the zootechnical performances and biochemical parameters of broiler chickens. Results have shown that the start and growth feed supplementation by 5% of soybean cake allows a better slaughter weight and a much better economic output represented by a lower consumption index and production cost. But this supplementation cannot correct the imbalance between the energy and the protein inputs which can be realized by incorporation of other sources of energy (as hard wheat or barley) to the broiler chicken feed ration.
Aim of the study was to investigate effects of chitosan oligosaccharide (COS), β-glucan and inulin that are cell wall components and prebiotic oligosaccharides, and that were added to the organic zinc-supplemented rations on some enzymes, metabolites and electrolytes in broilers. 96 1-day-old male broiler chicks were divided into 8 equal groups. They were control (basal diet); Zn (zinc-propionate, 1%); COS (COS, 0.025%); Glu (β-glucan, 0.05%); Inu (inulin, 1%); Zn + COS (zinc-propionate, 1% + COS, 0.025%); Zn + Glu (zinc-propionate, 1% + β-glucan, 0.05%) and Zn + Inu (zinc-propionate, 1% + inulin, 1%). Serum phospholipid and potassium were insignificantly different among groups on day 42. Sodium levels were significantly higher in Inu group on day 21 and in control group on day 42 than other groups. Creatine kinase activities were higher in Glu and Zn + Inu groups than other groups on day 42 (p<0.05). Creatinine levels were significantly higher in Zn + Inu group than control, Zn and COS groups on day 42. γ-Glutamyl transferase activities were the lowest in COS group and were insignificantly different among groups except for COS group on day 42. In conclusion, the addition of Zn plus inulin to diets caused increase in creatine kinase and creatinine, significantly. Additional researchs are needed to elucidate the negative effects and action mechanisms of Zn plus inulin on muscle tissue in broilers. This study may also show the potential protective effect of COS on liver enzymes, and COS may play a role in modulation of liver enzymes.
IDENTIFICATION OF SEQUENCE CHANGES IN AN IBV D274 STRAIN AFTER SERIAL PASSAGES IN EMBRYOS

C. Sabelli, R. Lazzari

Research and Development, IZO s.r.l., Brescia, Italy

Topic: 11. Poultry Medicine / Respiratory Diseases

Avian infectious bronchitis virus (IBV), a member of the genus of Coronavirus, is the causal agent of respiratory disease in chicken. Numerous serotypes and genotypes of IBVs have been identified. Isolated in Netherlands for the first time at the end of ’70, IBV strain D274 show a respiratory tropism and it’s widely distributed in Europe.

To obtained an attenuated strain of IBV D274, serial passages are carried out in SPF embryonated chicken eggs. Passage 100 (IBV D274 100) was investigated to identify sequence changes in comparison with genome of virulent virus strain originally used to start attenuation process.

Partial sequencing of S1 spike glycoprotein subunit gene (nucleotides 1-681) show presence of 2 nucleotide substitutions (195T>C and 376C>T), resulting, respectively, in 2 amino acids changes: Thr65Thr and Arg126Trp. Partial sequencing of nucleocapsid gene (nucleotides 1099-1227) and complete sequencing of IBV 6b protein show no difference between IBV D274 100 and IBV D274 strain.

S1 spike glycoprotein subunit is involved in interaction between virion and cell surface receptors, from binding processes to fusion of viral and cellular membranes. Sequence analysis carried out during attenuation process of IBV D274 strain, after 100 passages, show a silent amino acidic substitution and an arginine to tryptophan substitution. No evidence up to now of others amino acids changes are found in analyzed sequences. Further genomic analysis will be carried out, while effects of Arg126Trp substitution will be investigated to understand its possible involvement in attenuation of viral pathogenicity.
EFFECT OF ORGANIC ACID AND/OR ZEOLITE ADDITION ON TIBIA MINERAL AND ASH LEVELS IN BROILERS FED WITH DIFFERENT PHOSPHORUS LEVELS

I. Abas¹, T. Bilal¹, E. Ercag², O. Keser¹

¹ Department of Animal Nutrition and Nutritional Diseases, Faculty of Veterinary Medicine, Istanbul University, Istanbul, Turkey
² Department of Chemistry, Faculty of Engineering, Istanbul University, Istanbul, Turkey

Topic: 11. Poultry Medicine / Food Safety

Aim of this study was to investigate the effects of organic acid and/or zeolite additions to diets with phytase containing the low (3.9 g/kg) and adequate (7.0 g/kg) phosphorus levels on tibia ash, and tibia and litter mineral levels. 480 one-day-old broiler chicks were separated to 8 equal groups with 6 replicates. Basal diet containing 600 phytase enzyme unite (FTU/kg) was separately formulated for starter and grower periods. The tibia ash rate (p<0.001) and phosphorus level (p<0.03) decreased in chicks fed with low phosphorus on days 21. Addition of zeolite decreased the tibia ash rate on days 21 (p<0.01). Addition of organic acid plus zeolite increased the ash phosphorus level on days 42 (p<0.05). Phosphorus level in tibia ash decreased only on days 21 (p<0.03). Tibia phosphorus levels were decreased and increased by the additions of zeolite and organic acid plus zeolite on days 42, respectively (p<0.05). Addition of organic acid plus zeolite increased the tibia zinc level on days 21. Tibia copper level decreased depending on the low dietary phosphorus content on days 21 (p<0.05). Tibia manganese level increased depending on the high dietary phosphorus content on days 42 (p<0.05). Litter phosphorus level increased depending on the supplements (p<0.02) and the phosphorus level of diet (p<0.01). As conclusion, the addition of organic acid plus zeolite to diets with phytase containing low or adequate phosphorus levels caused the positive effect on tibia ash rate. Also, the dietary low phosphorus level and zeolite supplementation had negative effects on tibia ash rate.
THE INFLUENCE OF OREGANO AND ROSEMARY AQUEOUS EXTRACTS ON BROILER PERFORMANCE AND INTESTINAL MICROBIAL POPULATION

C. Forte¹, M. P. Franciosini², P. Casagrande Proietti², G. Acuti¹, M. Trabalza-Marinucci¹

¹Dipartimento di Patologia, Diagnostica e Clinica Veterinaria, Università degli Studi di Perugia
²Dipartimento di Scienze Biopatologiche ed Igiene delle Produzioni Animali ed Alimentari, Università degli Studi di Perugia

Topic: 11. Poultry Medicine / New Challenges and Technologies in Diagnostics

The effects of a dietary supplementation with oregano and rosemary aqueous extracts (AE) on growth rate and intestinal microbial population were investigated. Three hundred one-day-old female Ross 308 broiler chicks, obtained from a commercial hatchery, were fed a standard commercial feed (mainly comprising corn and soybean meal) used as control (C), C supplemented with 2 g/kg rosemary AE (R), C supplemented with 2 g/kg oregano AE (O), C supplemented with 1 g/kg oregano + 1 g/kg rosemary AE (OR). Live weight was recorded at 1, 11, 22, 36 and 57 days when they were slaughtered. Samples of duodenum and caecal contents were collected at 22 days and at slaughtering to evaluate gut microbiota by conventional methods. A higher growth rate was observed in chicken fed diets R, O and OR up to 36 d of age, while no differences in body weight were detected at slaughtering. As for the intestinal microbial population, the lowest concentrations of Enterobacteria, Staphylococci and anaerobic bacteria, and the highest levels of Enterococcus spp., were observed in group O. The highest values of Lactobacilli were found in diets O and OR. A more marked effect was observed at the time of slaughtering, possibly demonstrating a relationship between diet and length of administration. Although more research is needed in poultry field to assess the efficiency of plant extracts, there is a trend suggesting that oregano and rosemary may have application as growth promoters and intestinal microflora modulators.
A field study aimed to evaluate the efficacy of a bio-hygienic litter treatment to control the Total aerobial Bacteria (TBA) in one commercial broiler facility over seven years, is reported. Two broiler houses, control (C) and treated (T), were selected for similarity in sizes, density, ventilation system, drinking and eating equipments. Litter consisted of 5-7 cm of wheat straw, and treated (T) covering the surface by calcium sulphate and essential oils of lavender and lemon, as follows: 2 g of additive plus 25 g of calcium carbonate/m², twice the 1st month; 1 g of additive plus 25 g of calcium carbonate/m², twice a-month, until the cycles end. Air samples were collected with a Surface Air-Sampling (SAS-PBI) and TBA reported as logarithm base 2 of CFU/m³. The geometrical mean of aerial TBA in houses C and T were 18.088±0.829 log₂ and 17.630±0.765 log₂ (P=0.009; -27%) in the 1st week, and 18.496±1.781 log₂ and 17.662±0.937 log₂ (P=0.032; -72%) in the 6th-7th weeks.

Litter TBA C in houses C and T were 9.226±1.289 log₁₀ and 8.476±2.475 log₁₀ (P=0.105; -62.4%) in the 1st week, and 9.606±1.212 log₁₀ and 9.119±0.766 log₁₀ (P=0.09; -95.8%) in the 6th-7th weeks. Since the broad range of livestock’s pathogens hygiene becomes the primary tool in the health care program this results can be of interest because show a possible and easy risk diseases reducing strategy.
BIO-HYGIENIC LITTER TREATMENT AS IMPROVEMENT OF WELFARE AND HEALTH OF REARED COMMERCIAL BROILERS

G. Tacconi¹, P. Borghi², M. P. Franciosini¹, F. Veronesi¹, D. Piergili Fioretti¹

¹ Veterinary Science, Veterinary Medicine Faculty - Perugia University, Perugia, Italy
² Man and Land, Faculty of Agriculture - Perugia University, Perugia, Italy

The study was conducted to evaluate the efficacy of a bio-hygienic litter additive in the aerial ammonia control during seven years. Ammonia is an atmospheric pollutant because of its detrimental effects when too prevalent in livestock houses. A field trial was performed in a commercial Umbrian broiler facility where two houses, C (Control) and T (Treated), were selected for similarity in sizes, ventilation systems, density, drinking and eating equipments, and presence of a 5-7 cm deep wheat straw litter treated in house T was covering the surface by calcium sulphate, essential oils of lavender and lemon grass as follows: 2 g of additive plus 25 g of calcium carbonate/m² twice the first month; 1 g of additive plus 25 g of calcium carbonate/m² twice a month until each cycle end.

Ammonia concentration was measured using a Draeger PAC-III in the 1st and 6th-7th weeks, for 20 production cycles. The ammonia mean values in house C and T in the 1st week were 4,12±2,14 ppm and 4,01±2,66 ppm (P=0,76; -17,0%), and the 6th-7th weeks were 21,01±17,31 and 11,13±7,01 ppm (P=0,00022; -62,9%) respectively. Also Coccidian oocysts regularly detected for years in both houses C and T, after the beginning of treatment were recorded, for the first four cycles, only in the litter C (mean = 325.0 Oocysts/g; ES= 239.35); conversely no oocysts were detected in litter T. The present results suggest this as a potential method of reducing ammonia emissions from livestock houses.
DETECTION OF THE PRESENCE OF GENES OF TOXINS OF CLOSTRIDIUM PERFRINGENS RESPONSIBLE BY NECROTIC ENTERITIS IN COMMERCIAL POULTRY FARMING

M. C. Beraldo-Massoli, M. F. Casagrande, L. Boarini, A. de Souza, S. C. P. Berchielli, R. P. Schocken-Iturrino

Department Pathology, UNESP- São Paulo State University “Júlio de Mesquita Filho”, Jaboticabal, Brazil

Topic: 11. Poultry Medicine / Intestinal Disorders

Clostridium perfringens is a Gram positive, anaerobic, rod shaped, capable of causing a broad spectrum of diseases in either humans and animals. In broiler is associated with Necrotic Enteritis (NE). This microorganism is classified into five types (A, B, C, D, and E) according to the production of major toxins. This study was done on 150 samples of intestines with and without lesions gathered in three different slaughter lines of three states of Brazil, in order to isolate the agent and not only the spores, since they could be passing through without causing injury. Samples were sown in agar sulfite-polimixina-sulfodiazina (SPS) and incubated in anaerobic conditions. For molecular confirmation of the agent, DNA of the sample were extracted by the technique of Marmur (1961) and submitted to PCR (Polymerase Chain Reaction) using the specific pairs of primers for the toxins according to Baums (2004). For positive samples for alpha toxin (α) was used a specific primer for gene of the toxin cpa. Were isolated Clostridium perfringens from 46 injured intestine and in 35 uninjured intestines. The objective was to isolate the bacteria adhere on the intestinal mucose by scraping, but there was no great difference between the number of isolated from injured and uninjured intestines. These results are in agreement with strains normally isolated from poultry and also with literature. An express the presence only of toxin alpha that is specifically of C. perfringens responsibly for necrotic enteritis. All the samples were positive by PCR for alpha toxin of C. perfringens type A.
ID: 296

THE MORPHOLOGY OF THE MUSCLES OF THE PECTORAL GIRDLE IN GUINEA – FOWL (NUMIDA MELEAGRIS)

G. Predoi¹, B. Georgescu¹, C. Belu¹, S. M. Raita¹, F. Barbuceanu²

¹ Preclinical Sciences Department, Faculty of Veterinary Medicine, Bucharest, Romania
² Morphopathology Department, Institute for Diagnosis and Animal Health (IDAH), Bucharest, Romania

Topic: 11. Poultry Medicine / New Challenges and Technologies in Diagnostics

The study was realized on six adult guinea fowls. Pectoral girdle muscles, adjacent to the shoulder joint were dissected. The directional terms used are based on the wing in a fully extended position (flight position). Every muscle has been described the general appearance, origin and insertion as well as relationships with other parties. It has observed two distinct groups. The first represented by mm. latissimusdorsi, rhomboideus and serratus involved in attachment between the wing and the trunk and the second, represented by mm. scapulohumeralis cranialis and caudalis, subscapularis, subcoracoideus, coracobrachialis cranialis and caudalis, which are designed to provide specific localized control of the movements of the humerus, such that the powered downstroke and upstroke are both facilitated, as well as controlled, in the synchronized wingbeat.
EVALUATION OF BACTERIOLOGICAL AND CHEMICAL QUALITY OF DRINKING WATER USED IN CHICKEN HOUSE IN LIBYA

K. Naffati, A. Agha, A. Belgasim, A. Khashkhosha, M. Nwegi, H. Milad, H. Ghezzewi, K. Neamy

Microbiology, Biotechnology Research Centre, Tripoli, Libyan Arab Jamahiriya

Topic: 11. Poultry Medicine / Food Safety

Water is a vital nutrient in poultry metabolism, which plays an important role in the digestion, absorption of food, transportation of nutrients in the body and elimination of waste products via urine. The objective of this study was to investigate the physical, chemical and bacteriological parameters of water samples collected from 35 broiler farms distributed in four districts (Qasar Bin Gheshir, Wadi Al-Rabia, Zawia, and Zahra). In each farm, the samples were collected from the water source, the tank inside of chicken house and end of pipes. The samples were subjected to physical, chemical and microbial examination. The main investigated parameters were PH, total dissolved solid, Total Hardness, Calcium, Chloride, Nitrate, and total viable count of microbial load. Chemical analysis indicated that all chemical and physical parameters were higher than Maximum acceptable level, except TDS and magnesium in Qasr ben Gheshir and Wadi Al-Rabia regions, as well as PH in all regions. The bacteriological examination revealed that the coliform counts were 91% over the maximum acceptable level in all regions. Also, the results showed that significant difference between reservoir, tank and pipe with p value (<0.05) where the coliforms contamination in the pipe was more than in the tank and the reservoir. The results also showed that 50% of the samples were contamination with *E. coli*. Generally the water collected from the different sources need more treatment to improve the drinking water quality especially for their microbial load.
H9N2 avian influenza viruses (AIVs) in poultry have occurred in many countries since the mid-1990s, reaching panzootic proportions. H9N2 viruses have circulated in domestic poultry in Libya since 2005. The present study was aimed to determine the prevalence of AI H9N2 antibodies and to detect of H9N2 AIV in broiler flocks in Libya by using serological and molecular techniques. A total of 1085 blood samples were collected from broiler flocks in Libya. Sera samples were tested using ELISA test. The overall seroprevalence of AI type A was 53.1%. A ELISA positive samples were further tested for detection of specific antibodies to H9N2 AIV using HI test. The overall results of H9N2 AIVs were 32%. Tracheal and cloacal swabs as well as tissue samples collected from broiler flocks with respiratory symptoms were examined by reverse transcription polymerase chain reaction (RT-PCR) using universal primers for influenza A viruses, then specific primers targeting AIV H9 gene were used for the flocks that were positive by universal primers. According to RT-PCR results, nucleic acid of avian influenza type A viruses were detected in the study area. H9 subtype was detected in the present study by using rRT-PCR assay. The study confirmed that the endemic of AIV H9 subtype in broiler flocks in Libya.
PHYLOGENETIC ANALYSIS OF HEMAGGLUTININ GENE OF H9N2 AVIAN INFLUENZA VIRUS ISOLATED FROM ITALY

C. Sabelli, R. Lazzari

Research and Development, IZO s.r.l., Brescia, Italy

Topic: 11. Poultry Medicine / Respiratory Diseases

Influenza A viruses are known to cause infection in birds. Antigenic relationship in the surface glycoproteins hemagglutinin and neuraminidase are used to divide viruses into subtypes. The H9N2 subtype was recently described in Middle East countries as a responsible for serious infection problems. Here we compare a fragment flanking the cleavage site of hemagglutinin gene of an H9N2 avian influenza virus to examine relationships with others H9N2 isolates.

Viral RNA target sequence was retrotranscribed and amplified by PCR and product was used for direct sequencing and subsequent blast analysis with all publicly available H9N2 sequences.

Nucleotide target sequence (423 bp) and deduced amino acid sequence (149 aa) showed, respectively, 99% and 100% with an H9N2 virus isolated in Italy from turkeys in 1984. Phylogenetic analysis showed a branch formed from analyzed virus and H9N2 Italian isolates and nearby a branch with Asian isolates. The cleavage site amino acid sequence of the precursor hemagglutinin is PATSNRGLF, without multiple basic amino acid typical of HPAI (Highly Pathogenic Avian Influenza) subtypes.


Further analysis will be carried out to better understand origin of this isolate and its relationship with other H9N2 isolates.
ID: 411

PROSPECTS OF CAROTENOID PRODUCING BACILLUS STRAINS AS PROBIOTICS FOR POULTRY WELFARE

O. Nechypurenko, L. Avdeeva, M. Kharhota

Antibiotics, Zabolotny Institute of Microbiology and Virology of the National Academy of Sciences of Ukraine, Kiev, Ukraine

Topic: 11. Poultry Medicine / Intestinal Disorders

Today based on carotene synthesized streptomycetes and yeast have already been created a wide spectrum of veterinary medications. However no one of these medications do not combine the properties of probiotics and carotenoid containing food additives. That is why we explored 6 strains of Bacillus which were able to form yellow and red pigments and could have probiotic ability. These strains were collected in the museum of the Zabolotny Institute of Microbiology and Virology. It was detected that a complete extraction of pigments from all test cultures occurred only in a mixture of chloroform and methanol (2:1) probably due to lipoprotein nature of colorants. Then we identified three absorption maxima of obtained extracts in the visible light region. It were near numerical value of β-carotene \( \lambda_{\text{max}} \) for extracts derived from Bacillus spp. 1.1 and B. amyloliquefacience strains which formed more cartenoids than others in a poor low acid fluid medium. Also these strains have the ability to produce pigments in fluid medium with 0.4 % of bile in darkness. They were determined as nonpathogenic, resistant only to colistin by disk diffusion method. Besides were detected high rates of antagonistic activity of Bacillus spp. 1.1 against pathogenic E. coli and Salmonella cultures isolated from fowls (18 and 14 mm zones of growth delay respectively). Both of explored Bacillus strains did not inhibit the growth of each other. There for it could be possible to create combined medication based on Bacillus spp. 1.1 and B. amyloliquefacience strains for poultry welfare.
CHARACTERISTIC PROPERTIES OF THE CELL IMMUNITY OF CHICKEN FOLLOWING THE INFECTION OF VIRULENT NEWCASTLE DISEASE VIRUS

M. Volkova, I. Chvala, I. Pchelkina, A. Irza, S. Starov, A. V. Andriyasov

Ministry of agriculture, FGI Federal Centre for Animal Health, Vladimir, Russian Federation

**Topic**: 11. Poultry Medicine / Respiratory Diseases

Newcastle disease (ND) that is caused by an avian paramyxovirus subtype 1 is a relevant problem for poultry industry. The object of this study was the flow cytometric immune profiling of chickens before and after ND virus (NDV) infection. 50 and 120 days old chickens (in two groups of ten) unvaccinated against ND were infected with the highly virulent NDV isolate Ck/Rus/Amursky/1057/06 (ICPI=2.0). Chickens were inoculated with 0.5 ml virus (6.0 lg EID$_{50}$/ml) by the intranasal route. The infection of birds by the virulent NDV caused death of all chickens on days 5 and 6 following the inoculation. NDV genome was detected by Real-Time PCR in cloacal swabs from all birds on day 4 after the infection. The identification of the subpopulations of peripheral blood immune cells was made before and on days 3-4 after infection in chickens by using anti-chicken monoclonal antibodies (Southern Biotech, USA). The percentages of subpopulations of T-cells in blood of two chicken groups before infection did not diverge significantly. Means (%) of T-cells subpopulations for 50 and 120 days old chickens were: CD4$^+$ (10.5 and 8.68), CD8$^+$ (4.33 and 3.59), CD3$^+$ (17.14 and 19.42), respectively. Following infection with the virulent virus the proportion of CD3$^+$, CD4$^+$ and CD8$^+$ T-cells decreased in 7.4, 4.7 and 7.2 times respectively in 50 days old chickens. The proportions of T-lymphocyte subpopulations decreased in 7.0, 5.1 and 7.0 times in 120 days old chickens. Thus it was shown that the virulent NDV isolate produced significant suppression of cell-mediated immune response in chicken.
MULTIDRUG RESISTANCE OF ESCHERICHIA COLI ISOLATED FROM BROILER CHICKEN FLOCKS IN NORTH KHORASAN PROVINCE, IRAN

M. Jahedinia¹, P. Bahari²

¹ food control and hygiene, science and research branch, Islamic Azad University, Tehran, Iran
² microbiology, science and research branch, Islamic Azad University, Tehran, Iran


Antimicrobial therapy is an important tool to reduce both the incidence and mortality associated with avian colibacillosis. It was stated by well established evidence that antibiotics can lead to the emergence and dissemination of resistant E. coli which can then be passed into people via food or direct contact with infected animals. In the current study we studied the antimicrobial resistance pattern of E. coli isolated from 25 farms, 15 of which were known to have a history of antimicrobial usage for both prophylaxis and therapeutic purposes in North Khorasan province, Iran. Three hundred carcasses from birds that died of suspected septicaemic clinical cases were collected and liver samples were cultured. Identification of isolates was done using staining and biochemical tests. The in vitro antimicrobial sensitivity tests for E. coli isolates were performed by the standard disc diffusion using 12 antibiotic discs. From the three hundred samples that were examined, a total of 125 E. coli isolates were obtained. The result of antimicrobial sensitivity tests showed 4 multidrug resistance patterns, that were similar in the farms with history of antimicrobial usage and farms without antibiotic usage but the frequency of them was different. All of the isolates were resistant to tylosin and erythromycin. Many isolates were resistant at least to 3 antibiotics. The present study confirmed high incidence of resistance in E. coli isolated from poultry. Excess use or abuse of antibiotics should be reduced or stopped by judicious application of antibiotics for the safety of public health.
To investigate the effects of light wave length on different aspect of broilers digestive tract, a total of 34700 one-day-old broilers were exposed to green, blue and yellow light by using a light-emitting diode system for 6 weeks.

A 3 poultry house broiler farm with the same conditions was chosen. The lightening system of each was set according to the requirement.

The results indicated that no significant differences in the length of duodenum, jejunum and the ileum on the day 24. In case of the day 46, the results indicated a significant difference in the cecum length of the green and blue light groups which was more in the green light group (p<0.05). In case of other parameters, there were no significant differences between the groups.

We suggested that the green light is effective on health of broilers digestive tract.