Genomic Analysis Reveals Strong Signatures of Selection in Guangxi Three-Yellow Chicken in China.


ABSTRACT: Much like other indigenous domesticated animals, Guangxi Three-yellow chickens (GX-TYC) in China have experienced strong selective pressure, and show specific phenotypic changes in physiology, morphology and behavior. To identify genomic footprints or selection signatures left by artificial selection during domestication of GX-TYC, the whole genomes of 12 GX-TYC hens were sequenced to executed selective sweep analyses and gene functional enrichment analysis (Gene Ontology and Kyoto Encyclopedia of Genes and Genome pathways). A total of 10.13 million single nucleotide polymorphisms and 842,236 insertion/deletion polymorphisms (Indels) were found. Forty-six windows showed a Z score of heterozygosity (ZHp) lower than -5, which potentially were considered to be positively selected regions. Gene annotation identified 55 genes in these regions. Selection signatures were found mainly on the SSC5, SSC8, SSC23 and SSCZ. GO and KEGG analyses revealed that these genes were related to growth, immune responses as well as carbohydrate, lipid and amino acid metabolisms. In addition, two genes, fructose-1,6-bisphosphatase 1 and fructose-1,6-bisphosphatase 2 were enriched into four signaling pathways, three of which are involved in carbohydrate metabolism and insulin signaling. SHC3, FANCC and PTCH1, in combination with FB1 and FBP2, were clustered together in a region of chromosome Z, and thus might have been selected together. The results have uncovered some genetic footprints of chicken domestication, providing not only an important resource for further improvements of fowl breeding, but also a useful framework for future studies on the genetics of domestic chickens as well as on the phenotypic variations and certain diseases of chickens.

Key words: Chicken; Selective sweeps; Single nucleotide polymorphism; Whole genome resequencing
The current study aimed to evaluate the effect of dietary biological additives on the performance index from third to fifth weeks of age. Nevertheless, all treated groups showed an improvement of final body weight (BW), body weight change, feed conversion ratio and production index. In addition, the study aimed to evaluate the reducing sugars level, and antimicrobial efficacy of mushroom extracts prepared using three different solvents (i.e., water, ethanol, and methanol). The findings indicated that methanolic extract contained higher antioxidant IC₅₀ of Ethanol extract of \textit{Auricularia auricula} revealed the constituents of the two extracts that sodium butyrate and yeast can be successively used as a natural substitute for antibiotic resistance followed by sodium butyrate.

**Keywords:** sodium butyrate, yeast, growth-promoting agents, biological additives.
The provision of 80 mg / 100 g fermented soy isoflavones (equivalent to the addition of 12%) in laying hen’s feed will increase the content of isoflavones and egg yolk’s high density Lipoprotein (HDL), and it will reduce egg yolk’s Low-Density Lipoprotein (LDL).

Naturally ahead in poultry gut health!


Production Performances of Indonesian Native Rooster (Gallus gallus domesticus) Supplemented with Germinated Mung Bean Sprots and Acidifiers in the Diet.

Table 1. Daily feed intakes and feed conversion of broiler chickens (average daily gain, feed intake, and feed conversion) treated with antibiotics and synbiotics.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Average Daily Gain (g)</th>
<th>Feed Intake (g)</th>
<th>Feed Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>17.0</td>
<td>170.4</td>
<td>1.00</td>
</tr>
<tr>
<td>BMD 100</td>
<td>17.1</td>
<td>171.6</td>
<td>0.99</td>
</tr>
<tr>
<td>T2</td>
<td>17.2</td>
<td>172.8</td>
<td>0.98</td>
</tr>
<tr>
<td>T3</td>
<td>17.3</td>
<td>174.0</td>
<td>0.97</td>
</tr>
<tr>
<td>T4</td>
<td>17.4</td>
<td>175.2</td>
<td>0.96</td>
</tr>
<tr>
<td>T5</td>
<td>17.5</td>
<td>176.4</td>
<td>0.95</td>
</tr>
<tr>
<td>T6</td>
<td>17.6</td>
<td>177.6</td>
<td>0.94</td>
</tr>
<tr>
<td>T7</td>
<td>17.7</td>
<td>178.8</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Effects of Dietary Fermented Soy Isoflavones on Quality of Eggs.

Fermented soy isoflavones (0.5 kg/t, T4), a combination of synbiotic (0.5 kg/t) and bacitracin (60 ppm, T5), synbiotic (0.5 kg/t), bacitracin (60 ppm), and colistin (5 ppm, T7).
Responses of Domyati Ducks to Different Dietary Levels of Coconut Oil

Egg number
Egg weight
Egg mass
Egg quality
Fertility
Hatchability

ABSTRACT:

The objective of this study was to determine the optimal level of coconut oil (CO) supplementation in the diet to enhance the performance of Domyati ducks. A total number of 300 Domyati ducks (240 females and 60 males) aged 25-week-old were randomly assigned to 4 treatments. The ducks were fed different dietary levels of CO: 0%, 0.5%, 1.0%, and 1.5%. The results indicated that egg weight, egg number, and egg mass significantly increased in treated groups, compared to the control group. Furthermore, fertility and hatchability were significantly improved in CO treatments groups, compared to the control group. It is concluded that the inclusion of CO at a 1.5% level could be enough and superior to other levels, with no negative effect on performance. The results of this study indicate that CO is a suitable source of medium-chain fatty acids during the laying period to improve the performance of Domyati ducks.

Keywords:

Blood, Coconut oil, Ducks, Egg, hatchability, Laying period

B. Peacocks in Southwestern Guatemala. Circulating Antibodies against Avian Influenza and Newcastle Disease in Semi-captive Population of Peacocks in Southwestern Guatemala. Additionally, the circulation of antibodies to Avian Influenza (AI) and Newcastle Disease (ND) viruses in a semi-captive population of peacocks in southwestern Guatemala. Furthermore, the purpose of this study was to know the effects of different processing of Anthocyanins Extracted from Dragon Fruit (Hylocereus polyrhizus) on the content of Anthocyanin. The experiment was performed in a completely randomized design with different treatments. The physical treatment was the best method to increase Anthocyanin content, and did not change the image of Anthocyanin from Dragon Fruit Peel. The Processing Effects of Anthocyanins Extracted from Dragon Fruit (Hylocereus polyrhizus)

ABSTRACT:

The Processing Effects of Anthocyanins Extracted from Dragon Fruit (Hylocereus polyrhizus) was explored. Blood samples were obtained from 48 peacocks, 30 chickens, 6 turkeys, and 6 ducks located in Guatemala City. Antibodies against AI virus were investigated by Agar Gel Inhibition. No antibodies against AI virus were detected. Most of the samples (97.7%) were negative for antibodies against ND virus, except for two turkeys that carried low antibody titers. The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in backyard chickens, ducks, and turkeys from a neighboring community. The Processing Effects of Anthocyanins Extracted from Dragon Fruit (Hylocereus polyrhizus) was also explored. The results indicated that physical-biological treatment significantly increased Anthocyanin content of Dragon Fruit Peel. Furthermore, the physical treatment significantly reduced Anthocyanin content. The image of Anthocyanin from each treated group was different from other treatments. The physical treatment was the best method to increase Anthocyanin content, and did not change the image of Anthocyanin from Dragon Fruit Peel.
Isolation of Newcastle Disease Virus from Wild Migratory Birds in Egypt.
Mohammed MH, Kandeil A, Alkhazindar M, AbdElSalam ET and Ali MA.
J. World Poult. Res. 10(3): 520-526, 2020; pii: S2322455X2000060-10
DOI: https://dx.doi.org/10.36380/jwpr.2020.60
ABSTRACT:
Surveillance studies for Newcastle disease virus (NDV) are critical to monitor the potential spreading of these viruses among wild birds as well as domestic poultry. This study was conducted to determine the incidence of NDV in wild birds in Egypt in 2016. Out of 159 collected samples from eight different species of wild birds, six (3.77%) samples were positive for paramyxoviruses by semi-nested RT-PCR assay based on the RNA-dependent RNA polymerase gene. Of six positive samples, four NDVs were successfully isolated in 11-day-old specific-pathogen-free embryonated hens’ eggs. Partial sequences of the fusion gene of the four isolates were amplified using RT-PCR. Phylogenetic analysis of partial sequences of RNA-dependent RNA polymerase gene and fusion genes indicated that the detected NDV viruses in wild birds in Egypt are related to class I NDVs strains. Four Egyptian NDV isolates from wild birds exhibited sequence motif of 111GERQER↓LVG119 at the cleavage site as lentogenic virus in wild birds. Continuous active surveillance may help better monitoring of NDVs circulating in wild birds before newly emerging viruses in domestic poultry.
Keywords: Egypt, Fusion protein, Newcastle disease virus, Wild birds

Effects of Bacillus subtilis DSM 32315 on Immunity, Nutrient Transporters and Functional Diversity of Cecal Microbiome of Broiler Chickens in Necrotic Enteritis Challenge.
J. World Poult. Res. 10(3): 527-544, 2020; pii: S2322455X2000061-10
DOI: https://dx.doi.org/10.36380/jwpr.2020.61
ABSTRACT:
This study was conducted to determine the effects of Bacillus subtilis DSM 32315 probiotic and antibiotic enramycin in broiler chickens with Clostridium perfringens induced-Necrotic enteritis on cecal microbial populations, functional diversity, nutrients transporters and cytokines mRNA expression. Day-old broilers (n= 360), Arbor Acre were randomly assigned to three dietary treatments such as control, basal diet fed-group only; antibiotic, basal diet plus enramycin 5 mg/kg; and probiotic group, basal diet plus Bacillus subtilis 2 x10^9 CFU/g. Antibiotic and probiotic fed groups was challenged with Clostridium perfringens at day1, and from day 14 to day 21. The results of present study showed that broiler chickens supplemented with antibiotic and probiotic significantly exhibited higher abundance of gut beneficial bacteria at the 21 and 35 days of age, while upregulated the expression of anti-inflammatory cytokine enterleukin-10 and secretory immunoglobulin-A. Expression of proinflammatory cytokines interleukin-6 tumor necrosis factor alpha, and interferon gamma were downregulated. Nutrient transporters of Peptide transporter-1, L amino transporter-2 and Cationic amino acid transporter-2 were upregulated in supplemented groups. More so, glucose transporter-2 Sodium glucose transporter-1, Solute carrier family 3, member 1, carbohydrates and vitamin metabolism cofactor enriched in probiotic fed-group, while control group exhibited up-regulation in interleukin-6, tumor necrosis factor alpha, and interferon gamma. Overall, supplementation of Bacillus subtilis DSM 32315 reduced the negative impact of necrotic enteritis in broiler chickens, and enhanced the gut-microbial community.
Keywords: Antibiotic growth promoter, Bacillus subtilis, Clostridium perfringens, Immune response, probiotic