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 antibiotic, broiler performance, extract, mushroom, polar and nonpolar extract, carcass, economic efficiency, Hubbard; productive, sodium butyrate, yeast. Further, the dietary addition of sodium butyrate or yeast showed a significant improvement of final body weight (BW), body weight change, feed conversion ratio and physical performance of broiler chickens, with special attention to their economic efficiency. Therefore, antibiotics are no longer used on the productive farm, and broiler chickens are becoming more vulnerable to infectious diseases. Consequently, the search for alternative growth-promoting agents in the broiler chickens is imperative. Yeast can be considered as the most important alternative followed by sodium butyrate.

Polar and nonpolar extract, 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 reducing sugars and had better antimicrobial efficacy. The results of experimental research revealed that mushrooms crude extracts had no significant effects on the growth performance of broiler chickens.

**ABSTRACT:**

The most available compounds of the Ethanol extract and N-hexan extract of Ferula assafoetida is one of the most common arthropods in layers that affects the quality and quantity of egg production. Although there are different synthetic compounds and essential oils were determined and that Ferula assafoetida has been able to reduce the red mite population. This study indicated Ethanol extract makes that the use of alternative methods, as well as increased use of herbal extracts and essential oils against this mite, could use as a substitute compound against red mite.

**Keywords:**

Dermanyssus gallinae, Ferula assafoetida, Red mite, Essential oils, Contact toxicity.

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**REFERENCES:**


Mung bean sprouts, Native chicken, Poultry diet, Production performances

Production Performances of Indonesian Native Rooster (Gallus gallus domesticus) acidifier supplementation in the diet. A total of 24 roosters aged 12 months with an average of 2.29 ± 0.23 kg were used for the research subject. The diet was composed of a basic diet supplemented with 48-hours germinated mung bean sprouts and acidifiers did not give any differences from DI, FCR, ADG, and BW of (g)/head, ADG at 305.33±34.93 g/day, and final BW found after 30 days at 2,434.67±155.28 g.

It has been concluded that the germinated mung bean sprout and acidifiers supplementation increases the production performance of Gallus gallus domesticus. However, the supplementation of germinated mung bean sprouts and acidifiers in the present study.

Production Performances of Indonesian Native Rooster (Gallus gallus domesticus) supplemented with germinated mung bean sprouts and acidifiers in the diet. The best production performance of the treatments was found at 1.8% germinated mung bean sprout and 1.2% acidifier additive based on the FCR (1.14±0.06) with DI at 91.94±1.11 gram/t.

During the critical period of rearing from hatch to day 10, the synbiotic supplementation resulted in a tendency of improvement in the feed conversion ratio during the age of 1-24 days, and during the first crucial period. The synbiotic can serve this purpose without combining it with AGPs, such as colistin or bacitracin.

The Efficacy of Synbiotic Application in Broiler Chicken Diets, Alone or in Combination with Antibiotic Growth Promoters (AGPs), compared to the untreated control group of broiler chickens production performance. In the first experiment, a total of 1260 chickens were randomly assigned to 4 diet treatments; with 15 replicates per diet treatment, and 30 birds per replicate over a 42-day period. The diet combinations were a control diet (T1), antibiotic BMD (100 ppm, T2), synbiotic (PoultryStar me, 0.5 kg/t) (T3), a combination of synbiotic (0.5 kg/t) and bacitracin (60 ppm, T4), a combination of synbiotic (0.5 kg/t) and colistin (5 ppm, T5), synbiotic (0.5 kg/t), bacitracin (60 ppm, T6), and colistin (5 ppm, T7).

Compared with the control group (T1, 2.78%), broiler mortality was also lower in the synbiotic supplementation. Synbiotic supplementation alone or in combination with different Antibiotic Growth Promoters (AGPs) had a significant effect on HDL, LDL, and isoflavones in egg yolk (p < 0.05). The tendency towards an improved feed conversion ratio was observed during the use of synbiotic supplementation alone or in combination with different AGPs throughout the experimental period. The evaluated synbiotic could serve as an effective alternative to antibiotics due to antibiotic resistance concerns. The objective of this dual study was to evaluate the efficacy of synbiotic supplementation alone or in combination with different AGPs, compared to the untreated control group of broiler chickens production performance. The present study aimed to examine the effects of dietary fermented soy isoflavones on quality of eggs.

Effects of Dietary Fermented Soy Isoflavones on Quality of Eggs. The feed was divided into 4 groups and 5 replicates, including T0 (control feed without the provision of fermented soy isoflavones), T1 (feed with 6% of fermented soy isoflavones), T2 (feed with 12% of fermented soy isoflavones), and T3 (feed with 12% of fermented soy isoflavones). The results showed that the supplementation of fermented soy isoflavones significantly increased the color of egg yolk (p < 0.05), but had a significant effect on HDL, LDL, and isoflavones in egg yolk (p < 0.05). No other dietary treatments had a significant effect on color of egg yolk, HDL, LDL, or isoflavones in egg yolk.

Morphology and Immunohistochemistry of Thymus in Haysex Brown Cross Chickens. Thymus plays an important role in the development and regulation of immune responses and other physiological processes. The present study aimed to examine the morphological and immunohistochemical changes of the thymus in Haysex Brown Cross Chickens. The morphological and immunohistochemical changes of the thymus through aging. Regarding aging-associated alternations, the differentiation index (CD4+:CD8+) ratio reached 1.26±0.09, 1.52±0.25, and 1.56±0.23 in 40, 90, and 110-day-old chickens, respectively. An increase in the density and number of T-lymphocytes with surface markers (CD4+) and CD8+ and their differentiation status) indexes. The morphofunctional studies of thymus were performed to determine and analyze age-related changes in anatomical (absolute and relative thymus mass), and CD8+ ratio) reached 1.26±0.09, 1.52±0.25, and 1.56±0.23 in 40, 90, and 110-day-old chickens, respectively. An increase in the density and number of T-lymphocytes with surface markers (CD4+) and CD8+ and their differentiation status) indexes. The morphofunctional studies of thymus were performed to determine and analyze age-related changes in anatomical (absolute and relative thymus mass), and morphological and immunohistochemical changes of the thymus in Haysex Brown Cross Chickens.
The processing effects of anthocyanins extracted from dragon fruit (Hylocereus polyrhizus) were investigated. The physical treatment significantly increased the anthocyanin content of dragon fruit peel. Furthermore, the image of anthocyanin from each treated dragon fruit peel with chemical, biological, and combination of physical-biological treatments did not change. In contrast, the processing like untreated dragon fruit peel or control, physical, chemical, biological, and combination of physical-biological treatments significantly reduced anthocyanin content. The image of anthocyanin from each treated dragon fruit peel with chemical, biological, and combination of physical-biological treatments did not change. The results indicated that physical treatment was the best method to increase anthocyanin content and did not change the image of anthocyanin from dragon fruit peel.

**ABSTRACT:**

The processing effects of anthocyanins extracted from dragon fruit (Hylocereus polyrhizus) were investigated. The physical treatment significantly increased the anthocyanin content of dragon fruit peel. Furthermore, the image of anthocyanin from each treated dragon fruit peel with chemical, biological, and combination of physical-biological treatments did not change. In contrast, the processing like untreated dragon fruit peel or control, physical, chemical, biological, and combination of physical-biological treatments significantly reduced anthocyanin content. The image of anthocyanin from each treated dragon fruit peel with chemical, biological, and combination of physical-biological treatments did not change. The results indicated that physical treatment was the best method to increase anthocyanin content and did not change the image of anthocyanin from dragon fruit peel.

**Keywords:**

Anthocyanins, Dragon fruit peel, Processing, Scanning electron microscope, Poultry diet.

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


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

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