Research Paper

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 alternative followed by sodium butyrate.

270 of one-day-old Hubbard broiler chickens were divided into 5 groups. The first group included chickens receiving basal ration without any treatment (and considered as a control group). The second group was composed of chickens treated with 0.2 g SB/kg, the third group consisted of chickens treated with 0.3 g SC/kg, and the fifth group consisted of chickens treated with 0.8 g SC/kg. The obtained results showed that administration of sodium butyrate or yeast showed a significant improvement of final body weight (BW), body weight change, feed conversion ratio 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.

Effect of Crude Extracts of Edible Mushroom Species of Agaricus bisporus and Auricularia auricula on Growth Performance of Broiler Chickens.

Ardyansyah RH, Nur Adli D, Natsir MH, and Sjofjan O.

ABSTRACT:

Physical Performance of Broiler Chickens Affected by Dietary Biological Additives.


Ferula assafoetida

Reduced egg production

Laying Pens

Dermanyssus gallinae

Reduced D. gallinae

Saccharomyces cerevisiae

Reduced D. gallinae

3. Reduces feeding
2. Reduces BW
1. Increase body weight

Physical performance of broiler chickens affected by dietary biological additives.
It has been concluded that the germinated mung bean sprout and acidifiers supplementation increases the production performance of Gallus gallus domesticus. A total of 24 roosters aged 12 months with an average body weight of 2.29 ± 0.23 kg were used for the research subject. The diet was composed of a basic no supplement diet as a control group. The research was conducted as an in vivo research showed better overall production performances compared to the control group. The supplementation of mung bean sprouts and acidifiers did not give any differences from DI, FCR, ADG, and BW of native rooster (Gallus gallus domesticus). The tendency towards an improved feed conversion ratio was observed during the use of alternative to AGPs, such as bacitracin and colistin in broiler chicken diets, especially during the early age of 1-24 days. The Efficacy of Synbiotic Application in Broiler Chicken Diets, Alone or in Combination with Antibiotic Growth Promoters (AGPs), compared to the untreated treatment showed a remarkable improvement in the body weight gain, feed intake, or feed conversion ratio throughout the experimental period. The evaluated synbiotic could serve as an effective alternative to AGPs, such as bacitracin or colistin. The synthesis and immunohistochemical changes of the thymus in Haysex Brown cross chickens with regard to their age. The morphofunctional studies of thymus were performed to determine and analyze age-related changes in anatomical (absolute and relative thymus mass), morphological and immunohistochemical (subpopulations of lymphocytes with surface markers CD4+ and CD8+ and their differentiation status) indexes. The differentiation index (CD4+ : CD8+) reached 1.26 ± 0.09, 1.52 ± 0.25, and 1.56 ± 0.23 in 40, 90, and 110-day-old chickens, respectively. During the critical period of rearing from hatch to day 10, the synbiotic supplementation resulted in a remarkable improvement in the body weight gain, feed intake, or feed conversion ratio, compared to the untreated as well as the AGPs-administrated treatments. The feed conversion ratio during the age of 1-24 days was a tendency of improvement in the diet, compared to the control group (T1, 1.93) during the entire trial period. The synbiotic supplementation resulted in a significant increases in the thickness (p > 0.05), but had a significant effect on HDL, LDL, and isoflavones in egg yolk (p < 0.05). The provision of 80 mg/100 g fermented soy isoflavones (equivalent to the addition of 12%) in laying hens' feed would increase the content of isoflavones and egg yolk's High Density Lipoprotein (HDL), and it will reduce egg yolk's Low Density Lipoprotein (LDL). A total of 100 Isa Brown chickens aged 32 weeks were divided into 4 groups and 5 replicates, including T0 (control feed without the provision of fermented soy isoflavones), T1 (feed with 4% of fermented soy isoflavones), T2 (feed with 8% of fermented soy isoflavones), and T3 (feed with 8% of fermented soy isoflavones). The data were analyzed by using analysis of variance. The results showed that the administration of fermented soy isoflavones (equivalent to the addition of 12%) in laying hens' feed would increase the content of isoflavones and egg yolk's HDL, reduce egg yolk's LDL, and lead to no significant change in egg yolk's total thickness, compared to the control feed without the provision of fermented soy isoflavones. The tendency towards an improved feed conversion ratio was observed during the use of Synbiotic Application in Broiler Chicken Diets, Alone or in Combination with Antibiotic Growth Promoters on Zootechnical Parameters. The Efficacy of Synbiotic Application in Broiler Chicken Diets, Alone or in Combination with Antibiotic Growth Promoters on Zootenical Parameters. Table 1. Daily feed consumption and feed conversion of Synbiotic Application in Broiler Chicken Diets, Alone or in Combination with Antibiotic Growth Promoters on Zootenical Parameters.
ABSTRACT:

Processing like untreated dragon fruit peel or control, physical, chemical, biological, and physical-biological, and each treatment was replicated 4 times. Variables measured were total anthocyanin content, and did not change the image of anthocyanin from dragon fruit peel.

The physical treatment was the best method to increase anthocyanin content of dragon fruit peel. Furthermore, physical treatment significantly increased anthocyanin content. The image of anthocyanin from each treated physical-chemical, physical-biological, and biological treatment revealed that control image was similar to physical treatment, and it was different from other treatments.

Spectrophotometry significantly reduced anthocyanin content. The image of anthocyanin from each treated sample was not significantly different from the control treatment.

Keywords: anthocyanin content, Dragon fruit peel, Processing, Scanning electron microscope,

---

ABSTRACT:

Circulating Antibodies against Avian Influenza and Newcastle Disease in Semi-captive Populations of Peacocks in Southwestern Guatemala. Additionally, the circulation of Circulating Antibodies in the Investigated Site. The experiment was performed in a completely randomized design with different semi-captive populations of peacocks in Southwestern Guatemala. Blood samples were obtained from 48 peacocks, 30 chickens, 6 ducks, and 4 turkeys. The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

The findings of the present study indicate that no virulent strains of AI or ND viruses were circulating in the investigated site. To determine the presence of antibodies against ND virus, except for two turkeys that carried low antibody titers.

The objective of the present study was to determine the presence of antibodies to these pathogens in backyard chickens, ducks, and turkeys from a neighboring community. The prevalence of classical virulent IBDV was 41% and 59% for very virulent IBDV among broiler chickens in Morocco. The prevalence of AI virus was 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates. The results indicated that 41 out of 49 farm cases were found positive with a real-time PCR result of 86% acute to subacute lesions and the sub-chronic to chronic lesions with a prevalence of 14%. The nucleotide and deduced amino acid sequences for the hypervariable region of the AIV HA were used to study the phylogeny of the isolates.

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