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 execute 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 carbon and nonpolar extract of *Ferula assafoetida* on laying hen performance in vivo and in vitro conditions. 


**ABSTRACT:**

270 of one-day-old Hubbard broiler chickens were divided into 5 groups. The first group included chickens treated with 0.3 g SB/kg, and the fifth group consisted of chickens treated with 0.3 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 carcass, Economic efficiency, Hubbard; Productive, Sodium Butyrate, Yeast.

**Keywords:** Antibiotic, Broiler performance, Extract, Mushroom

**Research Paper**

El-Kholy KH, Rakha SM and Tag El-Dein HT. (2020). The effect of crude extracts of edible mushroom species of *Agaricus bisporus* and *Auricularia auricula* on growth performance of broiler chickens. Yeast can be considered as the most important alternative followed by sodium butyrate.

**Keywords:** Broiler, Performance, Yeast, Extract, *Agaricus bisporus*, *Auricularia auricula*  

**Research Paper**

Ardyansyah RH, Nur Adli D, Natsir MH, and Sjofjan O. (2020). Effect of crude extracts of edible *Agaricus bisporus* and *Auricularia auricula* on growth performance of broiler chickens. The findings indicated that methanolic extract contained higher reducing sugars level, compared to control group. Furthermore, the dietary addition of yeast as a probiotic, compared to sodium butyrate as an organic acid on the productive improvement of final body weight (BW), body weight change, feed conversion ratio and carcass, Economic efficiency, Hubbard; Productive, Sodium Butyrate, Yeast.

**Keywords:** Antibiotic, Broiler performance, Extract, Mushroom

**Research Paper**


**ABSTRACT:**

This study indicated Ethanol extract of *Ferula assafoetida* was 16 µg/cm². In the present study, the N-Hexane and Ethanol extracts of *Ferula assafoetida* has been able to reduce the red mite population. Journal of World Poultry Research 2020 (2): 450-462

**Keywords:** Ethanol extract of *Ferula assafoetida*, Diethylpyridine and **Research Paper**

*Ferula assafoetida* ELAMCh, New York Botanical, NY and Will Light 1 (2019). Effect of crude extracts of edible mushroom species of *Agaricus bisporus* and *Auricularia auricula* on growth performance of broiler chickens. The lethal properties of the extracts were determined by *Dermanyssus gallinae* in vitro. This study indicated Ethanol extract of *Ferula assafoetida* makes that the use of alternative methods, as well as increased use of herbal extracts and essential oils as a substitute compound against Red mite.
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 Antibiotic Growth Promoters on Zootechnical Parameters. The objective of this dual study was to evaluate the efficacy of synbiotic supplementation alone or in combination with different Antibiotic Growth Promoters (AGPs), compared to the untreated basic no supplement diet as a control group. The treatments included a control diet based on corn-soybean without additives (T1), and the treatment diets with bacitracin (BMD 1000 ppm T4), colistin (10 ppm, T3), synbiotic (PoultryStar me, 0.5 kg/t, T3), and a combination of synbiotic (0.5 kg/t) plus bacitracin (BMD 100 ppm, T2), synbiotic (PoultryStar me, 0.5 kg/t, T3), and a combination of synbiotic (0.5 kg/t) plus bacitracin (BMD 100 ppm, T2). Birds fed antibiotic or synbiotic alone or in a combination treatment showed a remarkable improvement in the body weight gain, feed intake, or feed conversion ratio, compared to the only synbiotic application (T4) during the entire trial period. Compared with the control group (T1, 2.78%), broiler mortality was also lower in the synbiotic treatment with bacitracin (BMD 100 ppm, T2), colistin (10 ppm, T3), synbiotic (PoultryStar me, 0.5 kg/t, T3), and a combination of synbiotic (0.5 kg/t) plus bacitracin (BMD 100 ppm, T2), synbiotic (PoultryStar me, 0.5 kg/t, T3), and a combination of synbiotic (0.5 kg/t) plus bacitracin (BMD 100 ppm, T2). The results showed that the supplementation through the experimental period. The evaluated synbiotic could serve as an effective alternative to antibiotics due to antibiotic resistance concerns. The poultry feeding as an alternative to antibiotics based on corn-soybean without additives (T1), and the treatment diets with bacitracin (BMD 1000 ppm T4). Birds fed antibiotic or synbiotic alone or in a combination application (T4) during the entire trial period. The results showed that the supplementation through the experimental period. The evaluated synbiotic could serve as an effective alternative to antibiotics due to antibiotic resistance concerns. The poultry feeding as an alternative to antibiotics based on corn-soybean without additives (T1), and the treatment diets with bacitracin (BMD 1000 ppm T4). Birds fed antibiotic or synbiotic alone or in a combination application (T4) during the entire trial period.
ABSTRACT:
Physical treatment significantly increased anthocyanin content of dragon fruit peel. Furthermore, physical-biological and each treatment was replicated 4 times. Variables measured were total amount of anthocyanin and anthocyanin image of dragon fruit peel. The results indicated that physical treatment was the best method to increase anthocyanin from other treatments. The physical treatment did not change the image of anthocyanin from dragon fruit peel.
**Research Paper**

**Title:** Isolation of Newcastle Disease Virus from Wild Migratory Birds in Egypt.

**Authors:** Mohammed MH, Kandeil A, Alkhazindar M, AbdElSalam ET and Ali MA.

**Journal:** J. World Poult. Res.

**Volume:** 10(3), 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

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**Research Paper**

**Title:** Effects of *Bacillus subtilis* DSM 32315 on Immunity, Nutrient Transporters and Functional Diversity of Cecal Microbiome of Broiler Chickens in Necrotic Enteritis Challenge.

**Authors:** Bodinga BM, Hayat Kh, Liu X, Zhou J, Yang X, Ismaila A, Soomro RN, Ren Zh, Zhang W and Yang X.

**Journal:** J. World Poult. Res.

**Volume:** 10(3), 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

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