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Association of Mx Gene Genotype with Antiviral and Production Traits in Tolaki Chicken

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Abstarc :

Tolaki chicken is a kind of Indonesian local chickens, that belong to the ability of anti viral responses. This ability is controlled by the present of antiviral Mx (myxovirus resistance) gene. The Mx gene codes for a protein with antiviral activity. The objective of the study was to prove the tolaki chicken Mx gene genotype is associated with antiviral and production traits. Mx/Hpy 81 gene was genotyped in 103 tolaki chickens with PCR-RFLP. A total of 30 chickens were challenged with ND gen VIIb virus (10^4 CLD_{50})/chicken. PCR was used to amplify genomic DNA for Mx gene (299 bp). The amplimer was cut by Hpy 81 produce three genotypes: AA, AG and GG and two alleles: A allele (299 bp) and G allele (200 bp and 99 bp). Frequency of A allele (0.74) was higher than G allele (0.26). The all parameters of production traits in challenge test group were not significantly different in AA, AG and GG genotypes. The daily weight gain, feed intake and FCR were significantly different in AA, AG and GG genotypes of chickens control group. The parameters of antiviral traits showed that vitality of AA (50%) and AG (50%) of chickens were better then GG (10%) in challenge group. The vitality of AA (100%) and AG (100%) were better GG (33.33%) in control group. The study postulated that Mx gene genotype could be associated with production and antiviral traits in tolaki chicken. AA and AG genotype are more resistant and show better production than GG genotype.

Key Word :
Tolaki chicken, newcastle disease, genotyping and Mx gene

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