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Polymorphism of the *GnRH1* gene and Its effect on some Physiological parameters of Local chickens

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Abstract

The *GnRH1* gene is among the genes that mainly affect reproduction and productive traits in local chickens. The GnRH hormone regulates reproductive activity in poultry by regulating the production of other reproductive hormones, such as LH and FSH, which significantly affect birds' productivity. This study was conducted to detect Genetic polymorphism of the *GnRH1* gene in local chickens using PCR-SSCP sequencing. Samples were collected at ages 2, 4, 6, and 8 months of birds (n=50). The results found homogeneity in all encoded regions except for one. Polymorphism was detected in the Exon-4 1SNP site 147 C>G. The results indicated significant differences ($P \leq 0.05$) for the interaction of sex with the genotype of the LH, as the statistical results show that birds with the genotype CC for both, gender outperformed the birds carrying the genotype CG at the age of 2 and 4 months. The results showed significant differences ($P \leq 0.05$) in the mean genotype within each month in the mean testosterone concentration in males and estrogen in females. Age progression revealed that the homologous genotype CC-carrying birds had an arithmetic advantage over the CG-carrying birds in terms of the average sex hormone concentration. This gene may serve as a marker that is helpful in the marker-assisted selection of local chicken. This study is one of the first to study polymorphisms *GnRH1* in local chickens.

Key words: SSCP, *GnRH1*, Local Chickens, LH, FSH

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