

News & Comments

The Super Kampung Chickens' CC Genotype can Serve as a Useful Growth Indicator

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Super Kampung chickens are offspring of the male Bangkok chicken (a native Indonesian chicken) and the female Isa Brown strain layer chicken. The desire for raw ingredients for a traditional cuisine has led to the widespread breeding of these crossbred chickens. One of the often-utilized markers for choosing poultry is the Pituitary Specific Transcription Factor-1 (Pit-1) gene. Pigs with the Pit-1 of the AA genotype of rs80904061 on intron 4 consumed less feed than pigs with the AA genotype. The Pit-1 of the AA genotype of rs13905622, on the other hand, can grow quicker and utilize feed more effectively than the AT and TT genotypes at 70 days.

This study was done to determine the genotype of the Pit-1 gene, which can be practised as growth markers in Super Kampung chickens.

In all, 112 Super Kampung chickens that were one day old were used in this study. At the Teaching Farm, the chickens were housed in an open corral with a slatted floor. Using a 3 mL syringe, 400 L of blood were drawn from the brachial vein. The Genomic DNA Mini Kit from Geneaid was used to extract DNA. Each chicken's DNA sample served as a template for PCR-amplification of gene loci. The Nei and Kumar formula was used to calculate genotypes and allele frequencies. Using the Weir formula, the estimated frequency of heterozygosity observations (H_o) was determined.

The Pit-1 exon 6 gene fragment was subjected to a Restriction Fragment Length Polymorphism (RFLP) assay, which yielded three different types of fragments. Based on genotype identification, exon 6 of the Pit-1 gene fragment contained the C and T alleles at frequencies of 0.746 and 0.254, respectively. The average proportion of heterozygous loci per person or the average number of heterozygous people in the population was used to calculate heterozygosity values. Super Kampung chickens with the CC genotype were heavier overall than those with the CT and TT genotypes ($p > 0.05$). The current study examined the Pit-1 gene in Holstein cattle, pigs, and poultry and found that it was polymorphic and substantially correlated with body weight. Further research revealed that major genotype (GG) carriers at rs13687126 and rs13687128 had higher body weights than heterozygote (GT) and minor genotype (TT) carriers.

In the Super Kampung chicken population, the Pit-1 gene was polymorphic, with genotypes of CC, CT, and TT and C and T alleles.



While C had the highest genotype frequency, it also had the highest allele frequency. In Super Kampung chicken communities, the Pit-1 gene was not in balance. The Super Kampung hens' body weight was closely related to the Pit-1 gene.

JOURNAL REFERENCE

M.H. Tamzil, B. Indarsih, N.K.D. Haryani and M. Muhsinin, 2021. Pituitary-specific transcription factor gene polymorphism and its associations with body weight of super kampung chickens aged thirteen weeks. *Int. J. Poult. Sci.*, 20: 123-128.

KEYWORDS

Pit1 gene, PCR-RFLP, growth rate, super Kampung chicken, CC genotype

