

ASOSIASI POLIMORFISME GEN *PITUITARY POSITIVE TRANSCRIPTION FACTOR-1* TERHADAP PERTUMBUHAN AYAM BC₁ HIBRIDA (*Gallus gallus gallus* Linnaeus, 1758) HASIL PERSILANGAN AYAM ♀ F₁ BROILER DENGAN ♂ PELUNG

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Intisari

Pituitary Positive Transcription Factor-1 (PIT-1) merupakan salah satu gen yang berkaitan erat dengan pertumbuhan dan produktivitas ayam. Gen ini merupakan faktor regulator positif pada transkripsi khusus untuk ekspresi gen penyandi hormon pertumbuhan (*GH*), prolaktin (*PRL*), dan *Thyroid Stimulating Hormon* β (*TSH- β*). Tujuan penelitian ini adalah untuk mengetahui karakter fenotip ayam BC₁ hibrida, pertumbuhan ayam BC₁ hibrida, dan mendeteksi polimorfisme gen *PIT-1* serta pengaruhnya terhadap pertumbuhan ayam BC₁ hibrida. Tahapan penelitian yang dilakukan yaitu pemeliharaan ayam, pengambilan data pertumbuhan berat badan ayam, isolasi DNA, amplifikasi gen *PIT-1* dengan PCR, elektroforesis hasil PCR dan sekuensing gen *PIT-1* dengan metode Sanger. Analisis data meliputi grafik pertumbuhan berat badan ayam, hubungan bobot ayam diuji menggunakan analisis signifikansi program *SPSS 16.0 one-way anova*, data hasil sekuensing DNA di-*assembling* menggunakan program *gene studio*, di-*alignment* dengan *software clustal omega*, kemudian dianalisis uji korelasi Pearson. Kesimpulan dari penelitian ini yaitu fenotip ayam BC₁ hibrida mendekati karakter fenotip dari ayam Pelung. Pertumbuhan bobot badan ayam BC₁ hibrida lebih tinggi daripada bobot badan ayam Pelung. Tidak ditemukan polimorfisme pada Gen *PIT-1* ekson 6 ayam BC₁ hibrida hasil persilangan ayam ♀ F₁ Broiler dengan ayam ♂ Pelung.

Kata-kata kunci: polimorfisme, gen *PIT-1*, ayam hibrida, pertumbuhan

ASSOCIATION POLYMORPHISM OF *PITUITARY POSITIVE TRANSCRIPTION FACTOR-1* GENE ON GROWTH TRAITS IN BC₁ HYBRID CHICKEN (*Gallus gallus gallus* Linnaeus, 1758) FROM CROSSBREEDING BETWEEN ♀ F₁ BROILER WITH ♂ PELUNG

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Abstract

Pituitary Positive Transcription Factor-1 (PIT-1) is a gene that is closely related to chicken growth and productivity. This gene is a positive regulatory factor on specific transcriptions for the expression of growth hormone (*GH*), prolactin (*PRL*), and Thyroid Stimulating Hormone β (*TSH- β*) genes. The purpose of this study was to determine the phenotypic characters of hybrid BC₁ chickens, growth of hybrid BC₁ chickens, and to detect *PIT-1* gene polymorphism and its effect on the growth of hybrid BC₁ chickens. The stages of this research were chicken breeding, data collection of chickens weight growth, DNA isolation, *PIT-1* gene amplification by PCR, PCR electrophoresis, and *PIT-1* gene sequencing using the Sanger method. Data analysis included the growth chart of chicken weights; the correlation between chicken weights that was tested using the significance analysis of SPSS 16.0 one-way anova program; DNA sequencing data that was assembled using gene studio program; alignment with clustal omega software; and Pearson correlation test between chicken weights with polymorphism points. The conclusion showed that hybrid BC₁ chickens resulting from a cross between ♀ F₁ Broiler chicken and ♂ Pelung chicken had varied phenotypic characters which were approaches the Pelung characters. The growth of hybrid BC₁ chicken body weight was lower - with the average weight at the 7th week was 419.08 grams - compared to F₁ Broiler chickens, but higher than the Pelung chickens. There was not exon 6 *PIT-1* gene polymorphism found in hybrid BC₁ chickens resulting from a cross between ♀ F₁ Broiler chickens and ♂ Pelung chickens.

Key words: polymorphism, *PIT-1* gene, hybrid chicken, growth