

Polimorfisme Gen Prolaktin (PRL) terhadap Produktivitas Telur Ayam Laya (Gallus Gallus Domesticus Linnaeus, 1758) Hasil Persilangan Ayam Laya dan Arab

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INTISARI

Minat masyarakat terhadap ayam bukan ras di Indonesia terus mengalami peningkatan, tetapi belum didukung oleh kemampuan produktivitas ayam. Penelitian ini bertujuan untuk mengetahui jumlah produktivitas ayam Laya, mengetahui kualitas telur ayam Laya, serta mengetahui polimorfisme 24bp promotor gen *PRL* sebagai penanda sifat produktivitas pada ayam Laya hasil persilangan Ayam Laya dan Arab. Produktivitas telur dilakukan dengan menghitung jumlah akumulasi telur selama 8 minggu, mengukur kualitas internal dan eksternal telur, sedangkan analisis molekuler dilakukan dengan deteksi polimorfisme 24bp promotor gen *PRL*. Data diolah menggunakan software *Excel*, *SPSS Statistic 26.0 one-way ANOVA*, *Mann-Whitney U-test* dan korelasi *Pearson*. Data visualisasi polimorfisme pita DNA pada insersi/delesi promotor *PRL* dihitung frekuensi genotipnya mengikuti hukum Hardy-Weinberg. Hasil penelitian menunjukkan Rerata produktivitas telur ayam F₁ Laya selama 8 minggu sebesar 35 butir telur lebih tinggi dibandingkan dengan ayam Pelung dan Laya, namun lebih rendah dibanding dengan ayam Arab. Telur ayam F₁ Laya memiliki rata-rata berat 48,36±0,45 gram, berwarna *light yellowish pink* dan *pale orange yellow*, berbentuk normal, termasuk mutu 1 berdasarkan indeks putih telur dan merupakan golongan A berdasarkan nilai haugh unit yang merupakan karakter gabungan antara ayam Laya dan Arab. Terdapat tiga variasi mutasi yang ditemukan pada hasil visualisasi polimorfisme insersi/delesi promotor *PRL* yaitu homozigot insersi (II), homozigot delesi (DD), dan heterozigot insersi/delesi (ID). Mutasi insersi/delesi merupakan mutasi yang banyak ditemukan pada ayam F₁ Laya dan memiliki produktivitas telur yang lebih tinggi. Namun, korelasi polimorfisme 24bp promotor gen *PRL* dengan jumlah produktivitas telur pada ayam F₁ Laya tidak menunjukkan adanya korelasi.

Kata Kunci: Ayam Arab, Ayam Laya, Polimorfisme, *PRL*, Produktivitas telur

**Polymorphism of Prolaktin Gene (*PRL*) on Egg Productivity on Layar
Chicken (*Gallus gallus domesticus* Linnaeus, 1758) Hibrid of Layar and Arab
Chicken**

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ABSTRACT

Public interest in non-breed chickens in Indonesia continues to increase, but has not been supported by the productivity capabilities of chickens. This study aims to determine the amount of productivity of Layar chickens, determine the egg quality of Layar chickens, and determine the polymorphism of the 24bp *PRL* gene promotor as a marker of productivity traits in Layar chickens crossed with Layar chickens and Arabian chickens. Egg productivity was carried out by counting the number of accumulated eggs for 8 weeks, measuring the internal and external quality of eggs, while molecular analysis was carried out by detecting the polymorphism of 24bp *PRL* gene promotor. Data were processed using Excel software, SPSS Statistic 26.0 one-way ANOVA, Mann-Whitney U-test and Pearson correlation. DNA band polymorphism visualization data at *PRL* promotor deletion insertion was calculated genotype frequency following Hardy-Weinberg law. The results showed that the average egg productivity of F₁ Layar chickens for 8 weeks of 35 eggs was higher than that of Pelung and Layar chickens, but lower than that of Arabian chickens. Eggs of F₁ Layar chickens have an average weight of 48.36 ± 0.45 grams, light yellowish pink and pale orange yellow in colour, normal in shape, including quality 1 based on egg white index and is class A based on haugh unit value which is a combined character between Layar and Arabian chickens. There are three variations of mutations found in the results of visualization of *PRL* promotor deletion insertion polymorphism, namely homozygous insertion (II), homozygous deletion (DD), and heterozygous deletion insertion (ID). The deletion insertion mutation is the most common mutation found in F₁ Layar chickens and has higher egg productivity. However, the correlation of the 24bp promotor polymorphism of the *PRL* gene with the amount of egg productivity in F₁ Layar chickens showed no correlation.

Keywords: Arab Chicken, Egg Productivity, Layar Chicken, Polymorphism, *PRL*