

**PERTUMBUHAN DAN VARIASI SEKUENS GEN *INSULIN-LIKE GROWTH FACTOR 1* PADA AYAM HIBRIDA [*Gallus gallus gallus* (Linnaeus, 1758)] HASIL PERSILANGAN ♀ LAYER DENGAN ♂ BACKCROSS GENERASI I**

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**INTISARI**

Peningkatan kesadaran masyarakat Indonesia terhadap pemenuhan kebutuhan protein hewani menyebabkan produksi ayam, baik telur maupun dagingnya, terus mengalami peningkatan dari tahun ke tahun. Meskipun permintaan ayam buras dan ras meningkat, para peternak lebih memilih ayam ras untuk diternakkan karena produktivitas daging dan telur lebih besar daripada ayam buras. Meskipun produktivitas rendah, ayam buras memiliki keunggulan yaitu kualitas daging yang lebih baik (rendah lemak) dan ketahanannya terhadap penyakit. Penelitian Gama Ayam dilakukan untuk pengembangan pemuliaan ayam lokal (buras) melalui persilangan antara ayam ♀ *Layer* dan ♂ *BC<sub>1</sub>* sehingga diperoleh ayam hibrida dengan produktivitas daging dan telur yang lebih baik daripada indukannya. Ayam hibrida dipelihara secara intensif selama 7 minggu dan dilakukan penimbangan bobot ayam setiap 7 hari. Karakter fenotip kualitatif dan kuantitatif ayam hibrida diamati dan dicatat. Setelah umur 7 minggu, darah ayam hibrida dikoleksi dari *vena axillaris* untuk diisolasi DNA. Analisis molekular dilakukan pada gen *Insulin-like Growth Factor 1 (IGF1)* SNP c.47673G>A dengan metode *Amplification Refractory Mutation System - Polymerase Chain Reaction (ARMS-PCR)* dan *DNA Sequencing*. Hasil persilangan tersebut menghasilkan 17 ayam hibrida F<sub>1</sub> jantan dan 13 ayam hibrida F<sub>1</sub> betina. Karakter fenotip ayam hibrida adalah bentuk jengger tunggal, warna bulu putih, dan warna cakar putih. Rata – rata bobot ayam 7 minggu 642,63 gram. Hasil analisis molekular dari ayam hibrida menunjukkan bahwa tidak terdapat polimorfisme pada basa target, tetapi terdapat variasi pada sekuens gen *IGF1* pada basa nukleotida ke-119, 513, dan 641.

Kata kunci : *Layer*, *BC<sub>1</sub>*, pertumbuhan, gen *IGF1*

**GROWTH AND SEQUENCE VARIATION OF *INSULIN-LIKE GROWTH FACTOR 1* GENE IN HYBRID CHICKEN [*Gallus gallus gallus* (Linnaeus, 1758)] DERIVED FROM CROSSBREEDING BETWEEN ♀ LAYER WITH ♂ BACKCROSS I**

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**ABSTRACT**

Rising of Indonesian awareness towards the fulfillment of the animal protein needs causes the chicken production, both eggs and meat, continue to increase from year to year. Population of laying hens increased 3.24% from previous year. Although both local and race chicken demand increased, farmers prefer race chickens to be farmed because the meat and eggs productivity is greater than the race chicken. Despite low productivity, local chicken has advantages i.e. a better meat quality (low-fat) and better immunity to any disease than race chicken. This research breeds ♀ layer chicken and ♂ BC<sub>1</sub> chicken to obtain the hybrids with character of better meat and eggs productivity. Hybrid chickens were reared intensively for 7 weeks and their weights weighing every 7 days. The qualitative and quantitative phenotypes of 7 weeks old hybrid chicken were observed. After 7 weeks, the hybrid chicken blood was collected from venous axillary for DNA isolation. Molecular analysis was performed on SNP c.47673G>A within Insulin-like Growth Factor 1 (*IGF1*) using Amplification Refractory Mutation System – Polymerase Chain Reaction (ARMS-PCR) and DNA Sequencing. The crossbreeding results 17 ♂ F<sub>1</sub> chicken and 13 ♀ F<sub>1</sub> chicken. The phenotypic characters of hybrid chicken are a single comb, white fur color, and white shank color. Mean of seven weeks old chicken weight is 642,63 gram. Molecular analysis shows that there is no polymorphism at target base, but there are variations in *IGF1* gene sequence on nucleotide base number 119, 513, and 641.

Key words: Layer, BC<sub>1</sub>, growth, *IGF1* gene