

PENGARUH JENIS PAKAN TERHADAP EKSPRESI GEN *INSULIN LIKE GROWTH FACTOR-I (IGF-I)* PADA AYAM (*Gallus gallus domesticus* Linnaeus, 1758) HIBRIDA

Ayudha Bahana Ilham Perdamaian
(14/372691//PBI/1313)

Intisari

Hormon *Insulin Like Growth Factor-I (IGF-I)* berperan penting dalam regulasi pertumbuhan dan perkembangan. Hormon *IGF-I* berperan penting dalam pembentukan fenotip ayam *broiler* dengan asupan pakan optimal. Sinergi potensi genetik dan asupan nutrisi menentukan performa fenotip ayam tipe pedaging. Pengaruh asupan nutrisi dari beberapa jenis pakan terhadap fenotip dan ekspresi gen *IGF-I* pada ayam Hibrida filial pertama (F_1) hasil persilangan jantan pelung dengan betina *layer* (petelur) belum pernah diteliti. Tujuan penelitian ini adalah untuk mengetahui hubungan antara jenis pakan terhadap ekspresi gen *IGF-I* pada ayam Hibrida (F_1). Seluruh ayam dibagi menjadi 4 kelompok terdiri atas 5 ekor DOC. Kelompok pertama diberi perlakuan pakan *broiler* standar (BR1), kelompok kedua diberi pakan formulasi pertama (F-3), kelompok ketiga diberi pakan formulasi kedua (F-4), dan kelompok keempat dipuasakan tiga hari sejak pasca menetas sebelum diberi pakan BR1 sampai umur 7 hari. Total RNA diisolasi dari jaringan hati untuk analisis ekspresi gen dengan metode *two step Realtime-PCR* (qPCR). Kuantifikasi ekspresi gen dinyatakan dengan pendekatan *relative quantification* menggunakan metode *compare Cq method/ $\Delta\Delta Cq$* dengan gen β -*actin* sebagai gen referensi. Hasil penelitian menunjukkan *Fold Change* ekspresi gen *IGF-I* Ayam Hibrida pada kelompok pertama tertinggi yaitu 4,82 kali kemudian kelompok kedua 3,5 kali, dan kelompok ketiga 1,9 kali terhadap kelompok keempat. Berat badan ayam dengan tingkat ekspresi gen *IGF-I* umur 7 hari berdasarkan uji korelasi memiliki hubungan erat ($R^2=0,8$) sehingga gen *IGF-I* dapat digunakan sebagai marka molekular pakan unggul. Pakan formula kedua (F-4) belum mampu meningkatkan performa Ayam Hibrida (F_1) dibandingkan formulasi pertama (F-3) dan kontrol BR1.

Kata kunci: Ayam Hibrida, jenis pakan ayam, *Insuline-like Growth Factor-I*, level mRNA

EFFECT OF FEED TYPE IN *INSULIN LIKE GROWTH FACTOR-I (IGF-I)* GENE EXPRESION ON HYBRID CHICKEN (*Gallus gallus domesticus* Linnaeus, 1758)

Ayudha Bahana Ilham Perdamaian
(14/372691//PBI/1313)

Abstract

Insulin Like Growth Factor (IGF-I) hormone is vital regulator agent for growth and development. IGF-I hormone has important role in forming meat-typed chicken phenotype in broiler with optimal feed. Synergy between genetic potential and nutrition intake determined meat-type chicken performance. The effect of feed quality to phenotype and IGF-I gene expression on F₁ Hybrid Chicken of crossbred male pelung with females layer haven't been investigated. The aims of this research was to investigated F₁ Hybrid Chicken growth performance in conjunction of local feed and correlation between feed quality to IGF-I gene expression in F₁ hybrid chicken. All birds were divided into four groups each group consist of five individual. First group was fed standard broiler (BR1), second group was fed by formula one feed (F-3), third group was fed by formula two feed (F-4), and forth group was starved for three days from hatch before fed with BR1 through 7 day olds chick. RNA was isolated from liver to show gene expression by two-step Realtime PCR. Quantification of gene expression was analyzed through relative quantification by compare Cq method ($\Delta\Delta Cq$) with β -actin gene as reference genes. Result show that IGF-I expression level noticeable high at BR1 group by 4.82 fold, followed by F-3 group with 3.5 fold then F-4 group with 1.9 fold compared starved group. Chicken total weight highly correlated with IGF-I expression level ($R^2=0.8$) hence IGF-I gene can be used as molecular marker for excellent feed. Formula two feed (F-4) weren't able to improve hybrid chicken performance compared first formula one feed (F-3).

Keyword: *Pelung* chicken, hybrid chicken, chicken feed, Insulin-like Growth Factor-I (IGF-I), mRNA level