

Asosiasi Polimorfisme Gen *Ghrelin Receptor* (*GHSR*) terhadap Pertumbuhan Ayam Hibrida (*Gallus gallus domesticus* Linnaeus, 1758) Hasil Persilangan ♀ Pelung dengan ♂ F<sub>3</sub> Golden Kamper

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## INTISARI

Pertumbuhan dan perkembangan ayam dipengaruhi oleh faktor intrinsik, seperti genetik, fisiologi, hormon, nutrisi, dan faktor lingkungan yang mendukung faktor intrinsik tersebut. Salah satu hormon yang mendukung pertumbuhan pada ayam adalah hormon ghrelin. Hormon Ghrelin merupakan hormon yang dikenal mengatur *feed intake* dan regulasi homeostasis energi di mamalia dan burung, dan mengontrol nafsu makan. Ghrelin memiliki reseptor berupa gen *Growth Hormone Segretagogue Receptor* (*GHSR*). Penelitian ini bertujuan untuk mempelajari adanya polimorfisme gen *GHSR* yang berpengaruh terhadap pertumbuhan bobot ayam hibrida hasil persilangan ayam ♀ Pelung dengan ayam ♂ F<sub>3</sub> Golden Kamper. Objek penelitian yang digunakan meliputi ayam ♀ Pelung, ayam ♂ F<sub>3</sub> Golden Kamper, ayam hibrida hasil persilangan ayam ♀ Pelung dan ayam ♂ F<sub>3</sub> Golden Kamper. Tahapan penelitian ini meliputi, pemeliharaan indukan ayam, pemeliharaan *Day Old Chicken* (DOC), pengukuran bobot ayam DOC dan pengamatan karakter fenotipik, koleksi sampel darah, isolasi DNA, amplifikasi gen *GHSR*, elektroforesis, sekuensing, dan analisis data. Hasil penelitian menunjukkan anakan TC F<sub>3</sub> Golden Kamper memiliki karakter fenotipik yaitu bentuk jengger tunggal dan berwarna merah (100%), warna bulu coklat (40%), blirik (40%), coklat kehitaman (20%), warna *shank* putih (73,33%), dan kuning (26,67%). Pertumbuhan anakan TC F<sub>3</sub> Golden Kamper mencapai 336,9 gram pada usia tujuh minggu. Berdasarkan analisis ANOVA *One Way*, pertumbuhan bobot TC F<sub>3</sub> Golden Kamper berbeda signifikan dengan jenis ayam lainnya pada setiap minggu. Mayoritas karakter morfometri antara ayam jantan dan betina TC F<sub>3</sub> Golden Kamper tidak berbeda signifikan kecuali pada karakter lebar paruh, panjang leher, dan panjang kepala. Berdasarkan analisis, terdapat sembilan titik polimorfisme yang ditemukan pada penelitian ini. Berdasarkan analisis korelasi, polimorfisme gen *GHSR* yang ditemukan tidak berkorelasi secara signifikan terhadap pertumbuhan berat badan TC F<sub>3</sub> Golden Kamper.

Kata kunci : ayam Golden Kamper (GK), ayam Pelung, gen *Ghrelin Receptor* (*GHSR*)

Polymorphism Association of Ghrelin Receptor (*GHSR*) Gene on Growth of Hybrid Chickens (*Gallus gallus domesticus* Linnaeus, 1758) Crossing Results of ♀ Pelung and ♂ F<sub>3</sub> Golden Kamper

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## ABSTRACT

The growth and development of chickens is influenced by intrinsic factors, such as genetics, physiology, hormones, nutrition, and environmental factors that support these intrinsic factors. One of the hormones that support growth in chickens is the Ghrelin hormone. The Ghrelin hormone is a hormone known to regulate feed intake and regulation of energy homeostasis in mammals and birds, and control appetite. Ghrelin has a receptor in the form of the Growth Hormone Secretagogue Receptor (*GHSR*) gene. The aim of this study is to study the presence of *GHSR* gene polymorphisms that affect the weight growth of hybrid chickens resulting from crossing chicken ♀ Pelung with chicken ♂ F<sub>3</sub> Golden Kamper. The research objects used included Pelung chicken, F<sub>3</sub> Golden Kamper chicken, hybrid chicken Pelung chicken and F<sub>3</sub> Golden Kamper chicken. The steps of this research are: maintaining parental chicken, maintaining Day Old Chicken (DOC), measuring the weight of DOC chickens and observing phenotypic characters, blood sample collection, DNA isolation, *GHSR* gene amplification, electrophoresis, sequencing, and data analysis. The result showed that phenotypic characters of TC F<sub>3</sub> Golden Kamper are : the comb shape is single and the comb color is red (100%), They have three type of plumage's color, brown (40%), blirik (40%), and blackish brown (20%). Their shank's color are white (73,33%) and yellow (26,67%). The growth of TC F<sub>3</sub> Golden Kamper reached 336,8 grams at the age of seven weeks. Based on ANOVA One Way analysis, the weight growth of TC F<sub>3</sub> Golden Kamper was significantly different from another type of chickens in every weeks. Most of the morphometric characters between male and female TC F<sub>3</sub> Golden Kamper were not significantly different except for beak width, head length, and neck length. Based on molecular analysis, there are nine polymorphisms found in this study. Based on correlation analysis, the *GHSR* gene polymorphism did not correlate significantly with the weight growth of TC F<sub>3</sub> Golden Kamper.

Keyword : Ghrelin Receptor gene (*GHSR*), Golden Kamper chicken (GK), Pelung chicken,

